

WILGER
SPRAYER &
LIQUID FERTILIZER
PARTS CATALOG

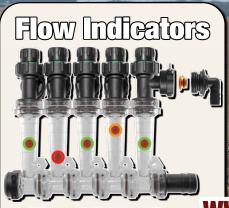
REVISED JULY 2024

# **WORLD CLASS SPRAYING COMPONENTS**









Visual Detection of Plugged Lines

FOR MORE INFORMATION VISIT

| Total | Starter | Starte

Row-by-Row Flowmeter





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#### For Terms and Conditions, visit www.wilger.net

Wilger products are sold to original equipment manufacturers and authorized distributors, and are available to end users through retail dealerships.

Warranties - Wilger warrants that its products are free of defects in material and workmanship and perform to each product's specifications. The foregoing warranties are in lieu of all other warranties, written or expressed, including, but not limited to, those concerning suitability for a particular purpose. Claims under these warranties must be made promptly within one (1) year after receipt of goods by the buyer. Any warranty action by the buyer must be expressly pre-authorized by Wilger.

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## **NEW & FEATURED PARTS** [Page 1]

### **WILGER** Dual Spray 4+1 [DS41] Nozzle Bodies

The ultra-compact 'DS41' nozzle body integrates a single by-pass nozzle body (optional for spot spray or Dual PWM) as well as a robust 4-nozzle turret.

This new generation of nozzle bodies is designed to fit compact boom frames, providing the benefit of stacked nozzle bodies in a much smaller and robust package with new product designs to

'Right' Version improve fit and function. 'Left' Version 41901-00 41900-00



Spring-Lock Turret Positive Turret Positioning



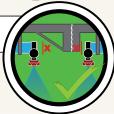


Ability to spray with one or both nozzles independent of eachother.



Super Compact Space Saving

Chemical & Acid Resistant





New Robust Design

> Compact for 10" spot spraying spacing



### **COMBO-RATE** Boom End Flush Valves, QF100 Ultra Compact & Offset Elbows

A series of super compact fittings including the last spray nozzle body, full flush valve, and recirculation ports.



Super Compact **Boom Ends** 



Recirculating boom port

> 2x Stackable COMBO-RATE nozzle body port

Full ID ORS Flush Valve



**Engineered for** 

Ultra Compact nozzle body elbow



### ©@MI3O-J∃T₀ DX SPOT SPRAY NOZZLES & 30° Nozzle Adapter

Narrow-angle drift reduction nozzles for spot spraying

DX60-04 PWM APPROVED

**Nozzle Angles** 

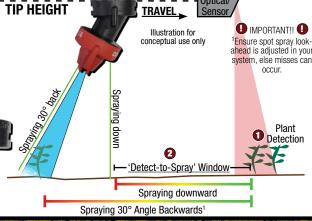
Available in 20° 40° 60°

Available in DX sizes -015 to -125

**311 #40219-00** For Optical, Spot and Broadcast spraying on

30° Adapter For back or front, single nozzle spraying at 30°

Looking to spray faster with your spot spray system? Consider using the new 30° adapter to tolerate faster speeds



10" nozzle spacing

### **NEW & FEATURED PARTS** [Page 2]

#### COMBO-JET® 30/50 Adapter



40442-00

COMBO-JET outlet to 30° & 50° front/back COMBO-JET outlets

-Quarter Turn-

Perfect for cereal-head fungicide & other applications benefiting from angled spray



Use it with the new DS41 nozzle body for angled spraying in tight sprayer boom frames

#### INSTA-JET insert for COMBO-JET®



40262-00

The Insta-Jet insert snaps into any COMBO-JET1 nozzle to increase responsivity to PWM



spraying? The Insta-Jet insert speeds up and extends the duration of optimal spray pattern by reducing the effective 'start' and 'stop' time required to produce a desired spray. This is especially important for spot

spraying that has intermittent nozzle flow interruptions. 1Not compatible w/ UR series or with use of select nozzles/adapters

#### 30° Angled Nozzle Adapters

Nozzle adapters give the ability to angle a nozzle forward or backward, depending on needs for crop-adapted spraying. Commonly outfitted on spot spraying systems to increase potential spray speed.



**Improved** performance at



#### **COMBO-RATE** Manifolds

Replacing a yard sprayer manifold? Building your own yard or ATV sprayer?



For setups needing: Pres. Gauge Left/Right Wing(s) Spray Gun Pressure regulator valve Easily Expandable

DX40-04

**NEW 3-Hole Fertilizer Streamer (FS3) Nozzles** 

Precision molded & color-coded liquid fertilizer streamer caps for consistent liquid fertilizer with less plant burn.

> Includes metering orifice and deflector plate in a single part number for easy ordering.

20"



### Use Tip Wizard for Fertilizer Streaming Nozzle Selection



Simply input your intended application rate(s), speed, nozzle spacing and you are well on your way to finding the best fertilizer streamer nozzle for your spray applications.



### **NEW & FEATURED PARTS** [Page 3]

#### COMBO-RATE® Top Turrets & Double-Down

A top take-off turret changes the orientation of the module for larger PWM solenoids. The top-turret is available with new double-down spray outlets.

COMBO-RATE top-turrets are compatibility with all stacking COMBO-RATE parts.



#### High Flow Nozzle Bodies (21/32")

Nozzle bodies for 21/32" high flow inlet holes available in COMBO-JET, COMBO-RATE and new



#### **COMBO-RATE®** Angled End Body for Fence-row spraying

41137-00

A new COMBO-RATE end body that provides a swivel joint that is available to be locked in 15° increments<sup>1</sup> for crop adapted spraying or fence-row nozzle spraying.

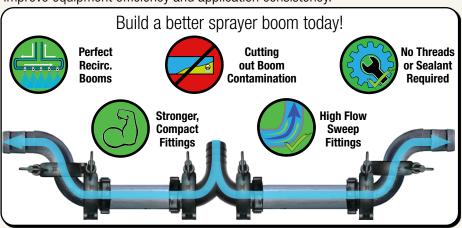
Perfectly paired with the new COMBO-RATE Boom End Flush Valve for a compact and protected fence-row

nozzle

¹Note on adjust-ability - Some sprayer manufacturers choose to have swivel end bodies permanently glued to position/angle. These swivel end bodies would NOT be adjustable, and removal of glue and re-adjustment would void warranty.

#### **Quick Flange Sprayer Boom Fittings**

The sprayer boom fittings for the next generation of sprayers, equipped to improve equipment efficiency and application consistency.















#### **New O-Ring Seal Fittings, Assemblies & Kits**

3/8" to 1'

hose sizes available



20576-00 50 mesh strainer

attaches to any ORS

fitting

20576-02

50 Mesh strainer

cartridge



<sup>1</sup>Easier removal & insertion shipping in 2024 20509-00





20549-00 ORS to Square Lug Outlet for iaŭid Fertilizer\_

NOTE: Ensure proper strain relief or mounting is added to ensure minimized stress on fitting ioints in complex manifold configurations



## **NEW & FEATURED PARTS** [Page 4]

#### Wilger Electronic Flow Monitoring System ECU200 Release

A new compact ECU that includes the first 16CH node for more compact systems Connects the

ECU200 Series Kit (#20606-00) includes:



#20606-01 ECU ONLY



CAN to Power #20606-03

battery harness to the ECU

4x #20585-00 12v batterv harness #20603-02 Antenna #20603-03

What about other EFM parts? All parts beyond this kit are shared between ECU100 and

ECU200 parts.

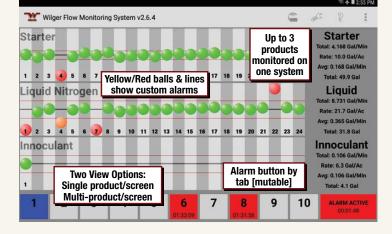
### ( 9 digit serials now used)

The serviceable flowmeter designed & built specifically for agricultural chemical & liquid applications

A/B/C/D









**Fittings Swivel** 360°



Wilger Electronic Row-By-Row Flow Monitoring System

Modular Design for **Any Size Equipment** 



Serviceable Flowmeter for Ag.



High Accuracy **Flowmeter** 



#### **Wilger Product Literature & Tools**



Wilger provides free printed product literature, prices lists and tools. Request a copy today. All brochures are also available at www.wilger.net



#### Tip Wizard Updates

Tip Wizard has new features coming! Double-down spraying, spot spraying and more!

Tip Wizard aims to lead the industry as the best spray tip calculator for broadcast applications.

WHERE TO BUY WILGER PRODUCT To find a list of local dealers/retailers and distributors in your area, visit the WILGER.net 'WHERE TO BUY page, to easily enter your address to find local Wilger product.



### The COMBO-JET. Spray Nozzle Advantage

MR110-06

Less plugging, as the path of flow always gets larger

40% longer strainer that snaps & seals into place

SR / MR / DR / UR 90% 75% 90%+ **Drift Reduction Series** 

Cap color matched to flow rate

**Super long-lasting** stainless steel spray tip The most versatile spray tips for Pulse Width Modulation Systems (e.g. Capstan Pinpoint®/EVO®, Case AIM Command®, John Deere ExactApply®, IntelliSpray®, Raven Hawkeye®, & more)

Spray tip & cap are held together as one piece

Easy-to-read label

Best educational spray tip charts & tools provided to select the best spray tips

Combo-Jet tips use a modern pre-orifice & closed chamber design that produces significantly less drift, creates solid mass droplets, for maximum spray velocity and more meaningful spray.

Without needing consistent air induction for drift reduction,

Combo-Jet spray tips set the standard for Pulse Width Modulation (PWM) spraying system nozzles.

#### WILGER.NET has the most useful spray tip selection help in the world.





FREE SMARTPHONE APP



TIP WIZARD ONLINE



**EXCEL-BASED CHARTS** 





WILGER CATALOG

### **COMBO-JET® ER/SR/MR/DR/UR Spray Tips - What is the difference?**

The sliding scale of droplet size means at any flow rate, you can match your desired spray quality.











	STATE WAS DELIVED WHEN THE					
	Comparison Criteria	ER Series Extended Range	SR Series Small Reduction	MR Series Mid-Range Reduction	DR Series Drift Reduction	UR Series Drift Reduction
	Spray Tip Design	Conventional Flat Fan	Pre-orifice Drift Reduction	Pre-orifice Drift Reduction	Pre-orifice Drift Reduction	<b>Dual Chamber</b>
語が	Spray Quality @40PSI	Medium	Coarse	<b>Extremely Coarse</b>	<b>Extremely Coarse</b>	Ultra-Coa
	Droplet Size <sup>1</sup> @40PSI	Smallest (246µ VMD¹)	Medium (371μ VMD¹)	Large (474µ VMD¹)	Very Large (529µ VMD¹)	Ultra Coarse (63
	% <141μ² % <600μ³	20% of volume < 141µ 94% of volume <600µ	8% of volume < 141µ 89% of volume <600µ	4% of volume < 141μ 74% of volume <600μ	2% of volume < 141μ 64% of volume <600μ	UR spray tips are speci designed for certain chen that require exceptional
400	Drift Potential	Most likely to drift	Lower drift potential	Major reduction in drift	Very low drift potential	They are not be to be rep spray tip series that are no
	Coverage Best		Excellent	Very good	Good	on the chemical label. up-to-date label in

<sup>1</sup>Based on an XX110-06 nozzle @ 40 psi (2.75 BAR)

<sup>2</sup>Droplets smaller than 141µ are more likely to drift. 141µ is used as a standard for estimating driftable fines.

<sup>3</sup>Droplets smaller than 600μ provide better coverage. Droplets > 600μ consume more spray volume, reducing overall coverage

r Drift Red.

oarse

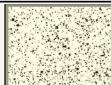
633µ VMD1)

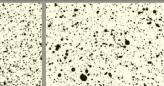
ecialty spray tips, emical applications nal drift reduction.

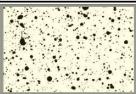
replaced with other not approved to be the chemical label. Always follow up-to-date label information.

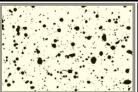
Refer to chemical application label for

More information available at www.w.









Don't Forget the ER & DX series for spot spraying More on Page 30

## **Selecting the Correct Spray Quality & Droplet Size**

### Diliva Eilercy

Generally speaking, smaller droplets deposit on the target more effectively than larger droplets, but larger droplets will drift less. So, when balancing drift control and efficacy, ensure to follow chemical labels and guidelines to designate the required spray quality and droplet size.

### Where to find target spray quality or droplets size?

Depending on the chemical, as well as the different methods and modes of applications, some chemical labels may have less/more information. In general, chemical labels will have a description of how it should be applied, in the form of an ASABE spray classification recommendation, or a minimum spray classification (e.g. Spray at least ASABE Coarse). Some chemical label will also stipulate which nozzles can be used.

Application Information:

• Water Volume: Minimum 22 L per acre.

Reference max pressure for conventional nozzles like ER series. Try avoid conventional (non-drift reduction) spray tips.

Nozzles and Pressure: 30 to 40 psi (210 to 275 kPa) when using conventional flat fan nozzles.

Low drift nozzles may require higher pressures for proper performance. Use a combination of nozzles and pressure designed to deliver thorough,

even coverage of ASABE coarse spray. Droplet spectrum recommendation for balance of drift & coverage.

### Example Spray Quality Chart by Type of Application

ASABE S-572.1 Classification Category	Color Code	Estimated VMD Range for Spray Quality*	Contact Insecticide & Fungicide	Systemic Insecticide & Fungicide	Contact Foliar Herbicide	Systemic Foliar Herbicide	Soil-Applied Herbicide	Incorporated Soil-Applied Herbicide	Fertilizer
Extremely Fine (XF)	Purple	Under 60							
Very Fine (VF)	Red	60-105							
Fine (F)	Orange	106-235							
Medium (M)	Yellow	236-340							
Coarse (C)	Blue	341-403							
Very Coarse (VC)	Green	404-502							
Extremely Coarse (XC)	White	503-665							
Ultra Coarse (UC)	Black	Over 665							

The above table provides general guidelines regarding droplet size and spray quality used in most spray applications.

It is always required that you carefully read and follow updated chemical manufacturers application label and instructions.

### What about Multi-Tip Spraying? When to consider Double-Down & Angled Spraying

Potential problems with HIGH FLOW applications (15GPA+) with a single spray nozzle: Spraying high volume out of a single tip can produce droplets that are 'too large" to be effective for coverage, which make for less effective spray application.

Using multiple spray tips at the same time can provide substantial gains in effective coverage into crops or applications that otherwise would be very difficult to cover; **however**, multi-tip spraying should not be used without reason.

A typical time to use **Multi-Angle** spraying:

For improved coverage on a vertical growing target (e.g. wheat) when you are needing to paint both sides of the plant with fungicide.

(e.g. Fusarium Head Blight)



A typical time to use **Double-Down** spraying:

For high rate applications that rely on consistent coverage in a dense canopy. Use nozzles to produce a meaningful mix of coarser and finer spray to hit different levels of the canopy.



Pairing already-owned nozzles to make a dual nozzle pair:

Much of the time, an operator already has 1-2 nozzles on the sprayer that could be stacked as a pair, so it is an effective way to use existing nozzles to improve spray application with very little cost.

<sup>\*</sup>NOTE: VMD range does not classify spray quality. Always ensure spray quality is followed first. VMD is a supplementary figure, and it is normal that nozzles with similar VMD can be classified into different spray qualities.

conventional nozzles like ER series.

B

### A First-timer's look at Tip Wizard



#### Beginner's Guide to using Tip Wizard

- Choose application units, spray system type, and search function (e.g. Search for tips)
- **Enter** application rate, spraying speed<sup>1</sup>, nozzle spacing, and spray tip angle<sup>2</sup>. Since PWM systems can modulate flow by changing the spray duration, enter the MAX typical spraying speed <sup>2</sup>Spray tip angle required is based on nozzle spacing and boom height. Always maintain 100% overlap.
- **Enter** target spray quality or target droplet size (microns).

<This is where Tip Wizard gets more useful>

Each chemical used in agricultural spraying has different spray quality requirements for best efficacy and also to maintain tolerable levels of driftable fines in ideal conditions. Using the droplet size (VMD) can allow a more advanced way to filter through series of tips. In the event a target spray quality is NOT possible, widening the spray quality to SEE ALL may be required. (e.g. targeting MEDIUM spray quality with nozzle sizes too large to produce M)

#### Where to find target spray quality or droplet size?

Depending on the chemical, as well as the different methods and modes of applications, some chemical labels may have less/more information. In general, chemical labels will have a description of how it should be applied, in the form of an ASABE spray classification recommendation, or a minimum spray classification (e.g. Spray at least ASABE Coarse)

Minimum water requirement on chemical label by law

Water Volume: Minimum 22 L per acre.
 Nazzles and Pressure: [30 to 40 psi (210 to 275 kPa) when using conventional flat fan nozzles. In yavoid non-drift reduction lips.
 Low drift nozzles may require higher pressures for proper performance. Use a combination of nozzles and pressure designed to deliver thorough. [even coverage of ASABE coarse spray.] Displet spectrum recommendation for balance of drift & coverage.

For the example chemical label application information, we'd have a classification of COARSE droplet size to follow. Considering the mode of application as well as the action (e.g. systemic herbicide vs. contact herbicide), you can choose the spray quality that would suit your conditions as best as possible. REMEMBER: the larger the droplet size/VMD, the coarser the spray, resulting in less coverage

For advanced users, using a VMD droplet size can further filter into a spray quality to make it easier to compare one series to another. For an example, we might find we typically have windier conditions, so try filter our results to stay around 375µ-400µ for our targeted droplet size.

Select the Best Spray Tip for your needs.

Based on the operating speed, pressure, spray quality, and while also gauging the last few columns (VMD, % drift, %

### Picking Spray Tips for Auto-Rate Controlled Sprayers

1 STEP 1: Size Your Tip Since the application rate must be consistent, selecting a tip sized to the required rate over the actual sprayer speed range is critical. It is recommended to use Tip Wizard, as it will adjust the chart specifically for any application rate, not just common pairs of rate & speed.

Application Information:

#### FOCUS ON: SPEED & PRESSURE for a required APPLICATION RATE

Speed and pressure dictate a spray tip's ability to match a rate, and we must ensure our typical travel speed follows a reasonable pressure range. Meet your minimum speed (e.g. turning) within the operational pressure range. Having pressure too low in slow spots can lead to spotty coverage. Once you have referenced your chart to find your applied rate to your speed, you will find a certain nozzle size will be most effective.

\*FOR PWM SPRAYERS (DUTY CYCLE): Since you have more control of your pressure, your sprayer will typically allow for a wider selection of tip size. Try to pick a size that allows a duty cycle of 60-80% at your typical sprayer speed, allowing sufficient speed up/down.

STEP 2: Filter to Your Spray Quality Each chemical will require a nozzle spray quality (for labels that do not, consult chemical representative or agronomist, or general guide based on mode of action), since you have selected your tip size (e.g. 110-04) you can now find the best option within the series available in that nozzle size. The ER/SR/MR/DR/UR series differ based on spray quality & drift reduction.

#### FOCUS ON: 'ASABE \$572' SPRAY CLASSIFICATION

Since the pressure is dictating the spray quality, you'll want to filter out any tip series that cannot apply the recommended spray quality.

\*FOR PWM SPRAYERS (Pressure Selection): Your spray quality can be changed with changing of sprayer pressure. This means instead of maintaining the required quality through a fixed operating pressure range, you can maintain a more flexible pressure range (provided duty cycle is OK).

STEP 3: Double Check It is worthwhile to review extra information provided for the spray tip, and re-evaluate if necessary. While the extra information in extrapolated from lab conditions without active ingredients, and cannot be considered actual, but it does lend to paint a picture of differences between series.

#### [ADVANCED] FOCUS ON: Spray % <141μ, Spray % <600μ, VMD (μ)

The extra columns reinforce the different spray qualities between different series, but also give the ability to make a rough spray plan for managing real life spraving conditions.

Spray % <141µ: % of total spray that can be considered driftable fines. In ideal conditions, it would be reasonable to assume this spray is NOT going where you want it to go. Due to evaporation before absorption, off-target spray or inversion, very small droplets will not likely hit target. Ideally have a spray tip that minimizes driftable fines, BUT ensure you maintain an acceptable level of coverage.

As speed, wind conditions & boom height increase, observed spray drift will increase substantially.

Spray % <600µ: % of total spray that can be considered small droplets. As % of these useful droplets lowers, coverage is reduced.

Consider it the 'other half' of the spray application, focusing on small droplets for coverage. Whereas you should maintain a low %<141µ, try to keep a %<600μ as high as possible, to maintain better coverage. As a very rough guideline with some usually chemical applications, aim for ~80+% <600μ for systemic applications; or ~90+% <600µ for contact applications; provided drift reduction levels are met and are satisfactory.

VMD (µ): The volumetric median diameter is the middle-point of spray distribution, and can be used to estimate between different series of the same size spray tips (tested on the same laboratory equipment). It is not for comparing between brands of tips. If you are familiar with using a VMD in tip searches, you can use it as an intensive filter to further focus in on tips that might work for your application. For example, if you are happy with spray application with the MR110-04 at 50PSI (346µ VMD), the spray quality might be comparable to an SR110-06 at 50 PSI (337µ VMD). Bear in mind, VMD is used for educational purposes only, and should not dictate application.

#### For more Guides, Videos & Reading on proper nozzle selection, visit www.wilger.net

We aim to have all sorts of ways to help make the best educated decision in picking and using spray tips, so if there is something you find would be helpful, don't hesitate to reach out and ask. Often, we cannot provide EVERYTHING there is to know in our guides, as it can be overwhelming, so if you are wanting to get more information from an expert, contact WILGER.



### Picking Spray Tips for Pulse Width Modulation (PWM) Sprayers

NOTE: PWM Spray systems differ in some respects (max flow capacity, pulse frequency (Hz), and other general variations in operation. This guide is a general guide that applies to most PWM spray systems, but for clarification would be based on a 10Hz solenoid, with a relative max flow capacity of 1.5 us gpm (this determines the relative pressure drop). Wilger does not own, produce, or have any ownership of PWM spray systems. All rights reserved by their owners.

O STEP 1: Size Your Tip Since the application rate must be consistent, selecting a tip sized to the required rate over the actual sprayer speed range is critical. It is recommended to use Tip Wizard, as it will adjust the chart specifically for any application rate.

Since PWM sprayers have control of sprayer pressure, a PWM sprayer will typically allow for a wider selection of tip sizes.

#### FOCUS ON: SPEED, PRESSURE & DUTY CYCLE (DC%) for a required APPLICATION RATE

Speed, pressure and respective duty cycle dictate a spray tip's ability to match a rate, and we must ensure our typical travel speed follows a reasonable pressure range. Having duty cycles <50% can degrade spray quality and consistency of spray swath, so it is always recommended to be above that. Try to pick a size that allows a duty cycle of 60-80% at your typical sprayer speed, allowing sufficient speed up/down. If a nozzle is approaching 90-100% at your maximum sprayer speed at your highest pressures, this can be a good indication that a nozzle is sufficiently sized.

Before you look at any coverage/spray quality characteristics of a nozzle, you should have solidified which nozzle SIZE will work best first.

🕗 STEP 2: Filter to Your Spray Quality Each chemical will require a nozzle spray quality (for labels that do not, consult chemical representative or agronomist, or general guide based on mode of action), since you have selected your tip size (e.g. 110-04) you can now find the best option within the series available in that nozzle size. The ER/SR/MR/DR/UR series differ based on spray quality & drift reduction.

#### FOCUS ON: 'ASABE S572' SPRAY CLASSIFICATION

Since the pressure is dictating the spray quality, you'll want to filter out any tip series that cannot apply the recommended spray quality. Since PWM gives full control of sprayer pressure, this will usually filter the results to 1-2 nozzles within a size or series.

STEP 3: Pick your most flexible spray nozzle It is worthwhile to review extra information provided for the spray tip, and re-evaluate if necessary. While the extra information in extrapolated from lab conditions without active ingredients, and cannot be considered actual, but it does lend to paint a picture of differences between series.

The goal is to select a nozzle that can be applied at relatively moderate pressures (e.g. 50-60PSI) when spray conditions are ideal, giving a means to reduce pressure to 30-40PSI to have a 'drift reduction mode' that can be called upon when less ideal conditions arrive.

#### [ADVANCED] FOCUS ON: Spray % <141μ, Spray % <600μ, VMD (μ)

The extra columns reinforce the different spray qualities between different series, but also give the ability to make a rough spray plan for managing real life spraying conditions.

Spray % <141µ: % of total spray that can be considered driftable fines. In ideal conditions, it would be reasonable to assume this spray is NOT going where you want it to go. Due to evaporation before absorption, off-target spray or inversion, very small droplets will not likely hit target. Ideally have a spray tip that minimizes driftable fines, BUT ensure you maintain an acceptable level of coverage.

As speed, wind conditions & boom height increase, observed spray drift will increase substantially. With wind speeds of 12mph+, it can be expect to have driftable fine spray double. Windy conditions, higher drift sensitivity, and other environmental reasons are serious considerations for what might be an acceptable level of driftable fines.

By general chemical mode of action, you might have a reference point for % driftable fines, which might be generalized as:

Systemic Herbicides: Try maintain driftable fines <10%. (For very sensitive applications and herbicides, the requirement might go down to even 1.5-5%) Contact Herbicides & Fungicides: Try maintain driftable fines <15%. This allows for a consistent and high level of coverage without losing a great deal to driftable fines. It is often part of a good balance between driftable fines and coverage.

Spray % <600µ: % of total spray that can be considered small droplets. As % of these useful droplets lowers, coverage is reduced. Consider it the 'other half' of the spray application, focusing on small droplets for coverage. Whereas you should maintain a low %<141µ, try to keep a %<600μ as high as possible, to maintain better coverage. As a very rough guideline with some usually chemical applications, aim for ~80+% <600μ for systemic applications; or ~90+% <600µ for contact applications; provided drift reduction levels are met and are satisfactory.

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Quick-Start Example: 10 US GPA @ 14 MPH, on 20" spacing, with a PWM Spray System, applying SYSTEMIC HERBICIDE (glyphosate)

#### STEP 1: SIZE THE TIP: Focus on Pressure/Speed Range/Duty Cycle (Try maintain 60-80% duty cycle through full speed/pressure range)

For the best option for a tip size, it'd likely be the **110-06 size**. (110-05 falls short of nozzle size, and 110-08 starts getting too large)

It would apply 10 US GPA, 14MPH anywhere between 30-60 PSI, allowing more than enough room into turn situations if turn compensation is available.

#### **STEP 2: QUALIFY THE SPRAY**

Since the chemical label for glyphosate requires a 'even coverage of ASABE COARSE droplets', we will notice the ER110-06 is too fine, the SR fits just right, and the MR/DR are a fair bit coarser than required. We could also use a VMD of 400µ to filter out more.

Note: The MR & DR series are coarser than required, but might be suitable for applicators who have to apply into more drift-sensitive areas.

For this example, we will single out the SR110-06 as our best tip series.

#### STEP 3: DOUBLE CHECK SR110-06 for max flexibility between 'IDEAL SPRAYING MODE' & 'DRIFT REDUCTION MODE'

@50PSI: DUTY CYCLE: 75% V Excellent @35PSI: DUTY CYCLE: 90% V OK @50PSI: COARSE Spray Class **@50PSI % < 141μ: ~9%** ✓ Good

Ideal Condition Spraying @ 14MPH: Drift Sensitive Spraying @ 14MPH: @35PSI: VERY COARSE Spray Class @35PSI % < 141µ: ~6% ✓ Excellent 

Further considerations: Given the high level of coverage at higher pressures (50PSI+), this same nozzle could be used for contact herbicides and fungicides to cover more applications.

	40287-06 Color lo: Not Required	: Grey				☆
Pressure (psi) 🖓	Speed Range (mph) 🖓	DC (%) @ 14 mph	Class	VMD (µ)	<141 (%) 😯	<600 (%
25	3.3-13.2	>100	ХC	466μ	3	76
30	3.6-14.4	97	VC	438µ	5	81
35	3.9-15.6	90	VC	414μ	6	84
40	4.2-16.6	84	С	393µ	7	87
45	4.4-17.6	80	С	375µ	8	88
50	4.7-18.6	75	С	358µ	9	90
55	4.9-19.5	72	С	344μ	10	91
60	5.1-20.4	69	С	33 <b>0</b> µ	11	92

### **Picking Nozzles for Double Nozzle Spraying**

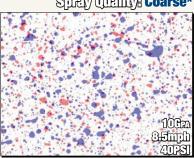
Picking two spray tips isn't much different than a single tip. Since the sprayer has some means of adjust the flow to match a flow rate, simply pick a nozzle size that would supply the full rate, and then split it into parts that would provide the same flow rate. E.g. If a 110-10 nozzle size is required for an application, suitable pairs would be like a '110-06 + 110-05' or '110-05', as the cumulative size would apply the same rate as a single 110-10. Limit the size difference to two nozzle sizes to ensure consistent back pressure between both nozzles. (e.g. 110-08 +110-02 would not be ideal as the -08 might steal flow from the -02). ALWAYS enter the cumulative size of nozzles into the controller. Not just one of the nozzles. (e.g. if a 110-04 + 110-06 were used, a -10 size nozzle would be entered)

1 STEP 1: Size Your Tip Since the application rate must be consistent, selecting a tip sized to the required rate over the actual sprayer speed range is critical. It is recommended to use Tip Wizard, as it will adjust the chart specifically for any application rate, not just common pairs of rate & speed.

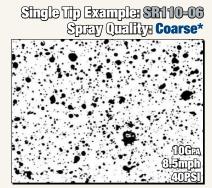
FOCUS ON: SPEED & PRESSURE for a required APPLICATION RATE

- \*FOR PWM SPRAYERS (DUTY CYCLE): Since you have more control of your pressure, your sprayer will typically allow for a wider selection of tip size.

  Try to pick a size that allows a duty cycle of 60-80% at your typical sprayer speed, allowing sufficient speed up/down.
- STEP 2: Filter to Your Spray Quality Each chemical will require a nozzle spray quality (for labels that do not, consult chemical representative or agronomist, or general guide based on mode of action), since you have selected your tip size (e.g. 110-04) you can now find the best option within the series available in that nozzle size. The ER/SR/MR/DR/UR series differ based on spray quality & drift reduction.



Example 2x SR110-03 Spry Quality Coarse\*



\*IMPORTANT: FOR PWM SPRAYERS (Pressure-drop through solenoid): Depending on the solenoid used, for larger nozzle sizes (or paired nozzle sizes) there will be greater pressure drop. So, when considering spray quality for the smaller nozzles in a pair, verify the pressure drop for the cumulative size as it will differ from the nozzles individually. With the pressure drop factor, cross-reference the spray quality of the smaller nozzles in the pair for their more realistic spray quality (after pressure drop). ALWAYS enter the joint nozzle size in the controller.

STEP 3: Double Check Just like the 'Quick-start guide to picking spray tips', refer to the extra information to qualify nozzles to ensure they will suit your application. Since the pair of nozzles are spraying a fraction of the total weight, there is some synergy between having one as a finer nozzle and the other coarser to produce a more meaningful mix of spray droplet sizes to get where they need to go.

#### [ADVANCED] FOCUS ON: Spray % <141μ, Spray % <600μ, VMD (μ)

The extra columns reinforce the different spray qualities between different series, but also give the ability to make a rough spray plan for managing real life spraying conditions.

Spray % <141µ: % of total spray that can be considered driftable fines. If one nozzle is producing more driftable fines than the other, but when averaging based on the flow, you'd want to ensure you are still at a tolerable driftable fines % given the application.

As speed, wind conditions & boom height increase, observed spray drift will increase substantially. This is especially the case with forward/backward facing

Spray % <600µ: % of total spray that can be considered small droplets. As % of these useful droplets lowers, coverage is reduced.

Since you are splitting a single 'large' nozzle into two smaller nozzles, you should take advantage of getting a much higher %<600 $\mu$  than possible with a single nozzle.

VMD (µ): As VMD is the middle point in the distribution of spray, and a pair of nozzles will have a blended VMD when both are considered, simply qualify a tip based on acceptable spray quality first, and take note of the two nozzles and

#### EXAMPLE: 20 US GPA Glufosinate (Contact Herbicide), on 20" spacing, traveling 12 mph, using a PWM spray system

STEP 1: Using Tip Wizard (or nozzle charts), a 110-125 nozzle size would suffice for travel speed and pressure range. The ER110-125 is shown as an example. With this 110-125 nozzle size, we know a nozzle pair adding to a  $\sim$ 110-125 would be suitable for the application rate. (e.g 110-06 + 110-06) With this, split the nozzle size into portions and search for a '10 GPA' nozzle and '10GPA' nozzle for example, based on a fraction of total flow.

NOTE: There is extra pressure drop through a solenoid, so keep that in mind when selecting nozzles as the spray quality will differ from nozzles operating by themselves

STEP 2: By chemical label, Glufosinate is to be applied as a ASABE medium spray quality or coarser. Qualify spray nozzles suitable for chemical label requirement. Remember, if you cannot find a spray quality in the chart or in tip wizard, you will have to widen your spray quality search or split to a double down configuration that can provide closer to the ideal spray quality.





Example Result:
Double-Down SR110-06 would provide
upwards of 10%+ more volume made
of small droplets, without increasing
driftable fines.

The spray quality is within the 'coarse' spray quality, just outside MEDIUM spray quality. An ER series could be substituted to provide a mix of even finer spray into the dual nozzle setup.

Total flow would be the same as a 110-12, which would be nominally smaller than a 110-125.

STEP 3: Qualify nozzle pair based on spray quality, and pick based on most suitable % driftable fines (ideally <15%) and % coverage (ideally >90%)

### COMBO-JET ER80° & ER110° Series Spray Tips

The ER series spray tip is a conventional flat fan nozzle, emphasizing consistent spray pattern with relatively fine spray. All ER nozzles are manufactured with a stainless steel tip.



Longer Lasting Stainless Tips



Less Plugged Nozzles



Perfect for PWM Sprayers

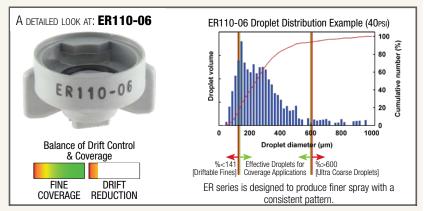


Consistent Pattern at Lower PSI





Acid Resistant Nozzles



COMBO-JET® ER80° ASABE S572.1 Spray Quality Chart

OUNDO OLI	LIIUU	, AU	DPF C	UIL	77 Z. i Opidy Quality Ollait									
Pressure (PSI)	20	25	30	35	40	45	50	60	65	70	80			
ER80-01	F	F	F	F	F	F	F	F	F	F	F			
ER80-015	F	F	F	F	F	F	F	F	F	F	F			
ER80-02	F	F	F	F	F	F	F	F	F	F	F			
ER80-025	M	M	F	F	F	F	F	F	F	F	F			
ER80-03	M	M	F	F	F	F	F	F	F	F	F			
ER80-04	M	M	M	M	M	F	F	F	F	F	F			
ER80-05	C	C	M	M	M	M	M	M	M	F	F			
ER80-06	C	C	C	C	C	C	M	M	M	M	M			
ER80-08	VC	C	C	M	M	M	M	F	F	F	F			
ER80-10	XC	XC	XC	VC	C	C	C	M	M	M	F			
ER80-125		XC	XC	VC	VC	C	C	C	C	C	M			
ER80-15		XC	XC	XC	VC	C	C	C	M	M	M			
ER80-20		UC	XC	XC	XC	XC	VC	C	C	C	C			
ER80-25		UC	XC	XC	XC	VC	VC	C	C	C	C			
ER80-30		UC	UC	XC	XC	XC	XC	XC	XC	VC	VC			
ER80-40				XC	XC	XC	XC	XC	XC	XC	VC			
ER80-50				XC	XC	XC	XC	XC	XC	XC	VC			
ER80-60				XC	XC	XC	XC	XC	XC	XC	VC			

COMBO-JET® ER110° ASABE S572.1 Spray Quality Chart

Compo of the north contract oping quanty chart											
Pressure (PSI)	20	25	30	35	40	45	50	60	65	70	80
ER110-01	F	F	F	F	F	F	F	F	Щ	F	F
ER110-015	F	F	F	F	F	F	F	F	LL.	F	F
ER110-02	F	F	F	F	F	F	F	F	LL.	F	F
ER110-025	F	F	F	F	F	F	F	F	F	F	F
ER110-03	F	F	F	F	F	F	F	F	F	F	F
ER110-04	M	M	M	M	F	F	F	F	LL.	F	F
ER110-05	M	M	M	M	F	F	F	F	LL.	F	F
ER110-06	C	M	M	M	M	M	M	M	M	F	F
ER110-08	C	C	С	M	M	M	M	F	LL.	F	F
ER110-10	VC	C	С	C	С	C	M	M	M	M	F
ER110-125		XC	XC	XC	VC	VC	C	С	С	C	C
ER110-15		XC	XC	XC	VC	VC	C	С	С	C	C
ER110-20		XC	VC	VC	C						
ER110-25		XC	VC	VC	C						
ER110-30		UC	XC	XC	VC						

### COMBO-JET® ER Series Specifications

Approved for PWM Spray Systems
Compatible with all PWM Spray systems/Hz

Operating Pressure 20-100PSI

Flat Fan Nozzle Type Conventional Flat Fan

Nozzle Materials Spay Tip: Stainless Steel O-ring: FKM, 13mm x 3mm #40260-00 (viton avail.) Cap: Glass-reinforced Polypropylene

#### **ASABE Spray Classification**

(ASABE S572.1 Standard)

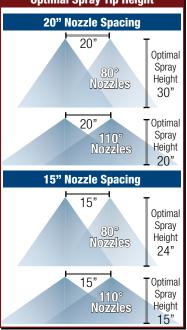
Spray quality is categorized based on Dv0.1 and VMD droplet sizes. Objective testing data (by 3rd party), from spray spectrum recording equipment (without wind tunnel use), has been used to classify spray quality for this chart. Chart shown includes spray quality at tested data points as well as extrapolated data points.

Fine (F)
Medium (M)
Coarse (C)

Very Coarse (VC)
Extremely Coarse (XC)
Ultra Coarse (UC)

Tips sized up to 110-06 verified on Phase Doppler Particle Analyzer (PDPA); tips sized over 110-06 verified on Malvern

#### **Optimal Spray Tip Height**



### COMBO-JET SR80° & SR110° Series Spray Tips

The SR series spray tip is a closed-chamber, pre-orifice drift reduction nozzle, emphasizing a first stage of drift reduction. The SR series balances excellent coverage spray with significant drift reduction upwards of 50%+.



Longer Lasting Stainless Tips

Perfect

for PWM

**Sprayers** 



Less

**Plugged Nozzles** 

Consistent

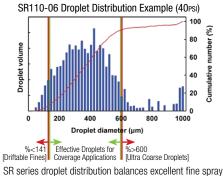
Pattern at

Lower PSI



Balance of Drift Control & Coverage

FINE DRIFT COVERAGE REDUCTION



coverage while reducing driftable fines.

#### Spray **Droplets**

Solid Mass



Acid Resistant **Nozzles** 

COMBO-JET® SR80° ASABE S572.1 Spray Quality Chart

Pressure (PSI)	25	30	35	40	45	50	60	65	70	80
SR80-01	M	M	F	F	F	F	F	F	F	F
SR80-015	С	M	M	M	M	F	Æ	F	E	F
SR80-02	C	M	M	M	M	M	F	F	F	F
SR80-025	C	C	C	M	M	M	M	M	M	F
SR80-03	С	C	C	C	C	C	M	M	M	M
SR80-04	C	C	C	C	C	C	С	M	M	M
SR80-05	VC	VC	C	C	C	C	С	C	С	C
SR80-06	XC	VC	VC	VC	C	C	С	C	С	C
SR80-08	UC	UC	UC	UC	XC	XC	XC	XC	XC	XC
SR80-10	UC	UC	UC	UC	UC	UC	XC	XC	XC	XC
SR80-125	UC	XC	XC	XC						
SR80-15	UC									
SR80-20		UC								
SR80-25		UC								
SR80-30		UC								

**COMBO-JET® SR Series Specifications** 

Approved for PWM Spray Systems Compatible with all PWM Spray systems/Hz.

Operating Pressure 25-100PSI

Flat Fan Nozzle Type Closed-Chamber, Pre-Orifice Drift Reduction

Nozzle Materials Spray Tip: Stainless Stee O-ring: FKM, 13mm x 3mm #40260-00 (viton avail.) Cap: Glass-reinforced Polypropylene

#### ASABE Spray Classification

(ASABE S572.1 Standard)

Spray quality is categorized based on Dv0.1 and VMD droplet sizes. Objective 3rd party testing data, from spray spectrum recording equipment (without wind tunnel use), has been used to classify spray quality for this chart. Chart shown includes spray quality at tested data points as well as extrapolated data points.

Fine (F) Medium (M) Coarse (C)

Very Coarse (VC) Extremely Coarse (XC)
Ultra Coarse (UC)

Tips sized up to 110-06 verified on Phase Doppler Particle Analyzer (PDPA); tips sized over 110-06 verified on Malvern.

#### COMBO-JET® SR110° ASABE S572.1 Spray Quality Chart

Pressure (PSI)	25	30	35	40	45	50	60	65	70	80
SR110-015	M	F	F	F	F	F	F	F	F	F
SR110-02	M	M	F	F	F	F	F	F	F	F
SR110-025	M	M	M	M	M	F	F	F	F	F
SR110-03	С	C	C	C	M	M	M	M	M	F
SR110-04	С	C	C	C	C	M	M	M	M	M
SR110-05	С	C	C	С	C	C	С	M	M	M
SR110-06	VC	VC	C	C	C	C	С	C	C	M
SR110-08	UC	XC	XC	XC	XC	VC	C	C	C	C
SR110-10	UC	XC	XC	XC	XC	XC	VC	C	C	C
SR110-125	UC	UC	XC	XC	XC	XC	XC	VC	C	C
SR110-15	UC	UC	UC	UC	XC	XC	XC	XC	XC	XC
SR110-20		UC	UC	XC						
SR110-25		UC	UC	XC						

**Optimal Spray Tip Height** 30' 20" Tip

LERAP Ratings for SR Series As of January 2021

☆☆☆75% ☆☆50% 1.0-1.5BAR

For the updated list of nozzles, visit www.wilger.net/LERAP More information on LERAP certification, process, and the most up to date listing of approved nozzles and their ratings, is available from the Health and Safety Executive (HSE), also available online @

https://secure.pesticides.gov.uk/SprayEquipment

**COMBO-JET® SR Pre-orifices - by nozzle size [Replacement Only for SR series]** 

5	SR Size	-01	-015	-02	-025	-03	-04	-05	-06	-08	-10	-125	-15	-20	-25	-30
	SR80°	40285-015	40285-02	40285-025	40285-03	40285-03	40285-06	40285-06	40285-08	40285-10	40285-125	40285-20	40285-20	40285-25	40285-40	40285-40
	SR110°	-	40285-02	40285-025	40285-04	40285-04	40285-06	40285-06	40285-08S	40285-08S	40285-10S	40285-13S	40285-20	40285-25	40285-40	-

### COMBO-JET MR80° & MR110° Series Spray Tips

The MR series spray tip is a closed-chamber, pre-orifice drift reduction nozzle, emphasizing a second stage of drift reduction. The MR series balances great coverage spray with significant drift reduction upwards of 75%+.



Longer Lasting Stainless Tips

Perfect

for PWM

**Sprayers** 





Consistent

Pattern at

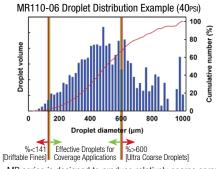
Lower PSI

A DETAILED LOOK AT: MR110-06



Balance of Drift Control & Coverage

FINE DRIFT COVERAGE REDUCTION



MR series is designed to produce relatively coarse spray with minimal drift.

Solid Mass Spray **Droplets** 



Acid Resistant **Nozzles** 

COMBO-JET® MR80° ASABE S572.1 Spray Quality Chart

Pressure (PSI)	30	35	40	45	50	60	65	70	80
MR80-005	M	M	F	F	F	F	F	F	F
MR80-0067	I.	F	ш	ш	I.	F	F	ш	ш
MR80-01	M	F	Œ.	Œ	Æ	F	F	Œ.	щ
MR80-015	C	C	C	M	M	M	M	M	Щ
MR80-02	C	C	С	С	С	M	M	M	M
MR80-025	VC	VC	С	С	С	С	С	C	С
MR80-03	VC	VC	С	С	С	С	С	C	С
MR80-04	VC	VC	С	С	С	С	С	C	С
MR80-05	XC	XC	VC	VC	VC	VC	C	C	С
MR80-06	XC	XC	XC	XC	VC	VC	VC	VC	С
MR80-08	UC	UC	UC	UC	XC	XC	XC	XC	VC
MR80-10	UC	UC	UC	UC	UC	XC	XC	XC	XC
MR80-125	UC	UC	UC	UC	UC	UC	UC	XC	XC
MR80-15	UC	UC	UC	XC	XC	XC	XC	XC	VC
MR80-20		UC	UC	UC	UC	XC	XC	XC	XC
MR80-25		UC	UC	UC	UC	UC	UC	UC	UC
MR80-30		UC	UC	UC	UC	UC	UC	UC	UC
MR80-40		UC	UC	UC	UC	XC	XC	XC	XC
COMPO IETA	1	400 5	OADE	. 0==4				- OI	-

COMBO-JET® MR110° ASABE S572.1 Spray Quality Chart

Pressure (PSI)	30	35	40	45	50	60	65	70	80
MR110-015	C	С	С	M	M	M	F	F	F
MR110-02	C	С	С	M	M	M	M	M	F
MR110-025	C	C	C	C	C	C	М	M	M
MR110-03	VC	C	C	C	C	C	C	C	C
MR110-04	VC	VC	C	C	C	C	C	C	C
MR110-05	XC	XC	VC	VC	VC	C	С	С	С
MR110-06	XC	XC	XC	VC	VC	VC	VC	VC	C
MR110-08	UC	UC	UC	XC	XC	XC	XC	XC	VC
MR110-10	UC	UC	XC	XC	XC	XC	XC	XC	VC
MR110-125	UC								
MR110-15	UC								
MR110-20		UC	XC						

COMBO-JET® MR Pre-orifices - by size [Replacement Only]

COMBO-JET® MR Series Specifications
Approved for PWM Spray Systems

Compatible with all PWM Spray systems/Hz.

Operating Pressure 30-100PSI

Flat Fan Nozzle Type Closed-Chamber, Pre-Orifice Drift Reduction

Nozzle Materials Spray Tip: Stainless Steel Repl. O-ring: FKM, 13mm x 3mm #40260-00 (viton avail) Cap: Glass-reinforced Polypropylene

#### **ASABE Spray Classification**

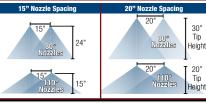
(ASABE S572.1 Standard)
Spray quality is categorized based on Dv0.1 and VMD droplet sizes.
Objective 3rd party testing data, from spray spectrum recording equipment (without wind tunnel use), has been used to classify spray quality for this chart. Chart shown includes spray quality at tested data points as well as extrapolated data points.

Fine (F) Medium (M) Coarse (C)

Very Coarse (VC)
Extremely Coarse (XC) ■ Ultra Coarse (UC)

Tips sized up to 110-06 verified on Phase Doppler Particle Analyzer (PDPA); tips sized over 110-06 verified on Malvern.

### **Optimal Spray Tip Height**



LERAP Ratings for MR Series As of January 2021								
MR110-04	<b>☆☆☆</b> 75% <b>☆☆</b> 50% 1.0-2.5bar 2.6-3.5bar							
MR110-05	☆☆☆ 90% ☆☆☆ 75% 1.0-1.5bar 1.6-5.0bar							
MR110-06	☆☆☆ 90% ☆☆☆ 75% 1.0-1.5bar 1.6-5.0bar							

For the updated list of nozzles, visit www.wilger.net/LERAP

More information on LERAP certification, process, and the most up to date listing of approved nozzles and their ratings, is available from the Health and Safety Executive (HSE), also available online @

https://secure.pesticides.gov.uk/SprayEquipment

JKI Nozzle Ratings for MRs

OUIIIE	ombo of militie of mood by size [neplacement omy]																
-005	-0067	-01	-015	-02	-025	-03	-04	-05	-06	-08	-10	-125	-15	-20	-25	-30	-40
40285-005	40285-007	40285-01	40285-015	40285-02	40285-025	40285-03	40285-04	40285-05	40285-06	40285-08	40285-10	40285-125	40285-15	40285-20	40285-25	40285-30	40285-40

### COMBO-JET DR80° & DR110° Series Spray Tips

The DR series spray tip is a closed-chamber, pre-orifice drift reduction nozzle, emphasizing a third stage of drift reduction. The DR series balances good coverage spray with extremely low driftable fines, upwards of a 90% reduction in driftable fines.



Longer Lasting Stainless Tips



Superior Drift Reduction





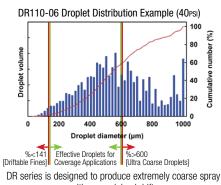
Consistent Pattern at Lower PSI





Acid Resistant **Nozzles** 





with very minimal drift.

#### COMBO-JET® DR80° ASABE S572.1 Spray Quality Chart

OUNDO OLI	DIIO	<u> </u>	MDE C	,	. Opi	uy qu	unty .	Jiiuit	
Pressure (PSI)	30	35	40	45	50	60	65	70	80
DR80-005	С	M	M	F	F	F	F	F	F
DR80-0067	C	C	M	M	M	M	F	F	F
DR80-01	C	C	C	M	M	M	M	F	F
DR80-015	VC	VC	C	C	C	C	C	C	C
DR80-02	XC	VC	VC	VC	VC	C	C	C	C
DR80-025	XC	VC	VC	VC	VC	C	C	C	C
DR80-03	XC	XC	VC	VC	VC	C	C	C	C
DR80-04	XC	XC	XC	XC	XC	XC	VC	VC	C
DR80-05	XC	XC	XC	XC	XC	XC	XC	VC	VC
DR80-06	XC	XC	XC	XC	XC	XC	XC	XC	XC
DR80-08	UC	UC	UC	UC	UC	UC	UC	UC	UC
DR80-10	UC	UC	UC	UC	UC	UC	UC	UC	UC
DR80-125	UC	UC	UC	UC	UC	UC	UC	UC	UC
DR80-15	UC	UC	UC	UC	UC	UC	UC	UC	UC
DR80-20		UC	UC	UC	UC	UC	UC	UC	UC
DR80-25		UC	UC	UC	UC	UC	UC	UC	UC
DR80-30		UC	UC	UC	UC	UC	UC	UC	XC

### COMBO-JET® DR110° ASABE S572.1 Spray Quality Chart

Pressure (PSI)	30	35	40	45	50	60	65	70	80
DR110-015	C	C	C	C	C	C	C	M	M
DR110-02	VC	VC	VC	C	C	C	C	C	C
DR110-025	VC	VC	VC	C	C	C	С	C	C
DR110-03	XC	XC	VC	VC	VC	C	С	C	C
DR110-04	XC	XC	VC	VC	VC	VC	C	C	C
DR110-05	XC	VC	VC						
DR110-06	XC	VC							
DR110-08	UC	XC							
DR110-10	UC								
DR110-125	UC								
DR110-15	UC								

#### **COMBO-JET®** DR Pre-orifices - by tip size [Replacement Only]

-005	-0067	-01	-015	-02	-025	-03	-04	-05	-06	-08	-10	-125	-15	-20	-25	-30
40285-005	40285-007	40285-01	40285-015	40285-02	40285-025	40285-03	40285-04	40285-05	40285-06	40285-08	40285-10	40285-125	40285-15	40285-20	40285-25	40285-30

#### **COMBO-JET® DR Series Specifications**

Approved for PWM Spray Systems Compatible with all PWM Spray systems/Hz.

> Operating Pressure 30-100PSI

Flat Fan Nozzle Type Closed-Chamber, Pre-Orifice Drift Reduction

Spray Tip: Stainless Steel Repl. O-ring: FKM, 13mm x 3mm #40260-00 (viton avail) Cap: Glass-reinforced Polypropylene

#### **ASABE Spray Classification**

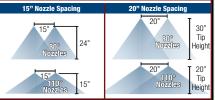
(ASABE S572.1 Standard)
Spray quality is categorized based on Dv0.1 and VMD droplet sizes.
Objective 3rd party testing data, from spray spectrum recording
equipment (without wind tunnel use), has been used to classify spray
quality for this chart. Chart shown includes spray quality at tested data points as well as extrapolated data points.

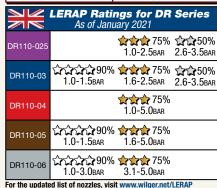
Fine (F) Medium (M) Coarse (C)

Very Coarse (VC) Extremely Coarse (XC) Ultra Coarse (UC)

Tips sized up to 110-06 verified on Phase Doppler Particle Analyzer (PDPA); tips sized over 110-06 verified on Malvern.

#### **Optimal Spray Tip Height**





More information on LERAP certification, and the most up to date listing of tested nozzles, visit https://secure.pesticides.gov.uk/SprayEquipment

JKI Nozzle Ratings for DR Series
Visit www.wilger.net for updated charts

;	-10	-125	-15	-20	-25	-30
-08		40285-125	40285-15	40285-20	40285-25	40285-30

### COMBO-JET UR110° Series\* Spray Tips

\*U.S. Patent No. 10,603,681

The UR series spray tip is a dual-chamber, pre-orifice drift reduction nozzle, emphasizing the coarsest stage of drift reduction. The UR series is heavily suited to ultra-low driftable fines, emphasizing drift reduction over coverage.



Approved for Dicamba Mixes

Perfect

for PWM

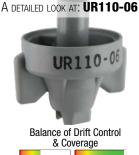
**Sprayers** 



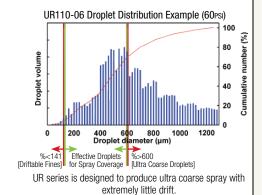
**Ultra Low Spray** 

Drift





DRIFT



Solid Mass Spray **Droplets** 



Acid Resistant **Nozzles** 

COVERAGE REDUCTION

FINE

### COMBO-JET® UR110° ASABE S572.1 Spray Quality Chart

Pressure (PSI)	35	40	45	50	60	65	70	80
UR110-025	UC	UC	UC	UC	XC	XC	XC	XC
UR110-03	UC	UC	UC	UC	XC	XC	XC	XC
UR110-04	UC							
UR110-05	UC							
UR110-06	UC							
UR110-08	UC							
UR110-10	UC							

#### **COMBO-JET® UR Series\* Pre-orifice Sets [Replacement only]**

UR two-piece pre-orifices must be replaced with a new pair only. Correct orifices must be used for proper performance.								
-025	-03	-04	-05	-06	-08	-10		
40292-22	40292-23	40292-24	40292-25	40292-26	40292-28	40292-30		

	JKI Ratings for UR Series As of January 2021								
UR110-04		75% 2.0-3.0bar Ref. G-2184	50% 4.0-6.0bar Ref. G-2184						
UR110-05	90% 2.0bar Ref. G-2185	75% 3.0-6.0bar Ref. G-2185							
UR110-06	90% 2.0-3.0bar Ref. G-2189	75% 4.0-6.0bar Ref. G-2189							

Optimal Spray Tip Height								
15" Nozzle Spacing	20" Nozzle Spacing							
15" 24" Nozziles	20" 30° Nozziles							
15" 110° Nozzies	20" 110° Nozzles 20"							

#### **COMBO-JET® UR Series Specifications**

Approved for PWM Spray Systems
Compatible with all PWM Spray systems/Hz.

Operating Pressure 35-100PSI

Flat Fan Nozzle Type Dual Closed-Chamber, Pre-Orifice Drift Reduction

Nozzle Materials

Spray Tip: Stainless Steel Repl. O-ring: FKM, 13mm x 3mm #40260-00 (viton avail) Cap: Glass-reinforced Polypropylene

#### **ASABE Spray Classification**

(ASABE S572.1 Standard)
Spray quality is categorized based on Dv0.1 and VMD droplet sizes.
Objective 3rd party testing data, from spray spectrum recording
equipment (without wind tunnel use), has been used to classify spray
quality for this chart. Chart shown includes spray quality at tested data points as well as extrapolated data points

Fine (F) Medium (M) Coarse (C)

Very Coarse (VC) Extremely Coarse (XC) Ultra Coarse (UC)

UR Nozzles verified on Malvern.

### COMBO-JET® Snap-in Strainers - What size(s) and when?

Wilger manufactures snap-in strainers that can be used to protect a spray nozzle and keep it spraying instead of getting plugged by residues or debris. They snap in to any COMBO-JET cap<sup>UR</sup> or metering orifice so the cap handles as one piece.

			-
Nozzle Size	100 Mesh	50 Mesh	16/25 Mesh
-01 or smaller	X		
-015	X		
-02	X	X	
-025		Χ	
-03		Χ	
-04		Χ	
-05		Χ	Х
-06		Χ	Х
-08 or larger	Nozzle st generally n		Х

<sup>UR</sup>Strainers not compatible with UR series due to stacked pre-orifice

### **Stainless Steel Strainers**



40251-00

### **Slotted Strainers**

Snap-in Plastic Slotted Strainer for 25 Mesh **Fertilizer** metering or streaming

40249-00

40248-00

Mesh Size	Slotted Strainer	Stainless Mesh	Color
100 mesh	-	#40251-00	Green
50 mesh	40249-00	#40250-00	Blue
25 mesh	40248-00	-	Yellow
16 mesh	40247-00	-	Gray

### **COMBO-JET 80° Spray Tips - Standard Sprayer Systems**

Comprehensive rate & speed charts for any nozzle spacing/speed/rate is available on Tip Wizard. Try it today!

Disclaimer: These charts are published for comparative purposes to demonstrate the differences in the series of Combo-Jet® spray tips. Data used to populate this chart is extrapolated from third party testing data from a controlled conditions test with water as the testing solution. Actual spray applications with active chemical ingredients may change the spray dynamics and spray tip performance specifications. Wilger is not liable for any misuse or misrepresentation of this information, leading to (but not limited to) incorrect spray application, crop damage, or any other harm. (Not limited to human, livestock or environmental). Always verify these charts with the most recent charts found on the www.wilger.net, and ALWAYS follow chemical label nozzle requirements.

Nozzle Size &	Flow Rate	PSI				ate in U Nozzle			9			Classi Serie		n; VMI		olet Size ° Series		%<1		rift %) ° Serie		)0μ (S		roplets ° Serie	
Angle	USGPM			@ Sp	rayer S	Speed -	Miles	/ Hour		Class	VMD	<141	<600		VMD	<141	<600		VMD	<141	<600		VMD	<141	<600
	Flow us gpm	Boom psi	2gpa	Spraye 3 <sub>GPA</sub>	r Spee 4gpa	d (on 2) 5gpa	u" spad 6gpa	cing) @ 7gpa		Class						#4028 <141									
	0.035	20	5.3	3.5	2.6	2.1	1.8	1.5	1.3	F	167	33%	100%												
80	0.040	25 30	5.9 6.4	3.9 4.3	3.2	2.3	2.0	1.7	1.5 1.6	F	157 149		100%					M	261 236	11% 17%	99% 98%	C	311 276		100%
-005	0.043	35	6.9	4.6	3.5	2.8	2.3	2.0	1.7	F	142		100%					M	217	22%	97%	M	250		
Nozzles	0.050	40	7.4	5.0	3.7	3.0	2.5	2.1	1.9	F	137	55%	100%					F	201	26%	96%	M	230	19%	100%
	0.053	45 50	7.9 8.3	5.3 5.5	3.9 4.2	3.2	2.6	2.3	2.0	F	132 128		100%					F	189 178	30%	95% 94%	F	213	23% 25%	
	0.056	60	9.1	6.1	4.2	3.6	3.0	2.6	2.3	F	121		100%					F	161	39%	93%	F	178	30%	
	0.064	65	9.5	6.3	4.7	3.8	3.2	2.7	2.4	F	118	71%	100%					F	154	41%	92%	F	169	33%	100%
	0.066	70	9.8	6.5	4.9	3.9	3.3	2.8	2.5	VF	116 111		100%					F	148 138	44%	91%	F	161	35%	
	0.071 Flow	80 Boom	11.0	7.0 Sprave	5.3 r Speed	4.2 d (on 20	3.5 0" spac	3.0 cing) @	2.6		-0067		100% 0-0067	SR80	-0067	#40288	3-0067	_	0-0067	48% #4029	90% 0-0067		148 -0067	38% #4028	
	us gpm	psi	2 <sub>GPA</sub>	3 <sub>GPA</sub>	4 <sub>GPA</sub>	5 <sub>GPA</sub>	6 <sub>GPA</sub>	7 <sub>GPA</sub>	8 <sub>GPA</sub>	Class	VMD	<141	<600		VMD			Class	VMD	<141			VMD	<141	
	0.047	20 25	7.0	4.7 5.2	3.5	3.1	2.3	2.0	1.8 2.0	F	199 183	21% 29%	100%					N/I	231	18%	99%	С	337	6%	100%
80	0.058	30	8.6	5.7	4.3	3.4	2.6	2.5	2.2	F	171							M F	211	24%	98%	C	308	9%	100%
-0067	0.063	35	9.3	6.2	4.7	3.7	3.1	2.7	2.3	F	161	40%	100%					F	195	29%	97%	Č	285	11%	100%
Nozzles	0.067	40	9.9	6.6	5.0	4.0	3.3	2.8	2.5	F	153	45%	100%					F	182	33%	96%	M	267	13%	100%
	0.071	45 50	11.0 11.0	7.0	5.3 5.6	4.4	3.5	3.0	2.6	F	147 141		100% 100%					F	171 162	37% 40%	95% 94%	M	252 239		100%
	0.082	60	12.0	8.1	6.1	4.9	4.1	3.5	3.0	F	131	58%	100%					F	148	46%	93%	М	218	20%	100%
	0.085	65	13.0	8.5	6.3	5.1	4.2	3.6	3.2	F	128		100%					F	142	49%	92%	F	210		100%
	0.089	70 80	13.0 14.0	9.4	7.0	5.3 5.6	4.4	3.8 4.0	3.3	F	124 118		100% 100%					F	136 127	51% 55%	91%	F	202 189		100% 100%
	Flow	Boom		Spraye	r Spee	d (on 20	0" spac	cing) @		-	0-01	#402	70-01	SR8	0-01	#4028		_	30-01	#402	90-01	-	0-01	#4028	80-01
	us gpm	psi	4 <sub>GPA</sub>	5 <sub>GPA</sub>	6GPA	7.5	8 <sub>GPA</sub>	9 <sub>GPA</sub>	10gpa	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
	0.07	20 25	5.3 5.9	4.2	3.5	2.8 3.1	2.6	2.3	2.1	F	175 164	29% 35%	100% 100%		258	15%	97%								
80	0.09	30	6.4	5.1	4.3	3.4	3.2	2.9	2.6	F	156	41%			233	21%	97%	М	218	23%	97%	С	312	10%	94%
-01	0.09	35	6.9	5.6	4.6	3.7	3.5	3.1	2.8	F	149		100%		214	25%	97%	F	204	27%	97%	С	291	12%	95%
Nozzles	0.10	40 45	7.4	5.9 6.3	5.0	4.0	3.7	3.3	3.0	F	143 139		100% 100%		199 186	29% 33%	97% 97%	F	191 181	30% 33%	97% 97%	C M	274 260	14% 15%	96% 97%
	0.11	50	8.3	6.6	5.5	4.4	4.2	3.7	3.3	F	134		100%		176	36%	98%	F	173	36%	97%	M	248	17%	98%
	0.12	60	9.1	7.3	6.1	4.8	4.5	4.0	3.6	F	128	62%	100%		159	41%	98%	F	159	40%	97%	M	229	19%	99%
	0.13	65 70	9.5 9.8	7.6	6.3	5.0 5.2	4.7	4.2	3.8	F	125 122		100% 100%		152 146	44% 46%	98% 98%	F	153 148	42% 44%	97% 97%	M F	221 214	20% 21%	100%
	0.13	80	11.0	8.4	7.0	5.6	5.3	4.7	4.2	F	117		100%		135	50%	98%	F	139	48%	97%	F	202		102%
	Flow	Boom				d (on 20					0-015		0-015			#4028					0-015			#4028	
	us gpm 0.11	psi <b>20</b>	4 <sub>GPA</sub> 7.9	5 <sub>GPA</sub> 6.3	6gpa 5.3	7.5 4.2	8 <sub>GPA</sub>	10 <sub>GPA</sub>	12gpa 2.6	Class	VMD 199		<600 100%		VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
	0.11	25	8.8	7.0	5.9	4.7	4.4	3.5	2.9	F	188	25%	100%		286	13%	94%								
80	0.13	30	9.6	7.7	6.4	5.1	4.8	3.9	3.2	F	180	29%	100%		262	16%	95%	C	323	10%	94%	VC	418	4%	87%
-015 Nozzles	0.14	<u>35</u> 40	10.0 11.0	8.3	6.9 7.4	5.6 5.9	5.2 5.6	4.2	3.5	F	173 167	32% 34%	100%		244	19% 22%	96% 96%	C	301 283	12% 14%	95% 96%	VC C	397 380	5% 6%	89% 90%
INUZZICS	0.16	45	12.0	9.5	7.9	6.3	5.9	4.7	3.9	F	162		100%		218	24%	97%	М	269	16%	97%	Č	365	6%	91%
	0.17	50	12.0	10.0	8.3	6.6	6.2	5.0	4.2	F	158		100%		207	26%	97%	М	256	17%	97%	С	353	7%	92%
	0.18	60 65	14.0 14.0	11.0 11.0	9.1	7.3	6.8 7.1	5.5 5.7	4.5 4.7	F	151 148		100%		191 184	30% 32%	97% 97%	M	236 227	20% 21%	98% 98%	C	332 324	8% 8%	94%
	0.13	70	15.0	12.0	9.8	7.9	7.4	5.9	4.9	F	145		100%		177	33%	98%	M	220	22%	99%	C	316	9%	95%
	0.21	80	16.0	13.0		8.4	7.9	6.3	5.3	F	140		100%		167	36%	98%	F	207	23%	99%	С	302	10%	95%
	Flow us gpm	Boom psi	5 <sub>GPA</sub>	Spraye 6 <sub>GPA</sub>	r Speed 7.5	d (on 20 8 <sub>GPA</sub>		cing) @ 12gpa	15gpa	Class	0-02 VMD	#402 <141	70-02 <600	SR8 Class	0-02 VMD	#4028	38-02 <600	Class	30-02 VMD	#402 <141	90-02  <600	Class	0-02 VMD	#4028 <141	
	0.14	20	8.4	7.0	5.6	5.3	4.2	3.5	2.8	F	184	28%	100%					<u> </u>	VIVID	7,41	<b></b>	Jidoo	VIVID	7,41	\JU(
00	0.16	25	9.4		6.3	5.9	4.7		3.1	F			100%			13%	94%	0	000	001	0.407	Va	45.4	001	0001
80 -02	0.17	30 35	10 11	9.3	6.9 7.4	6.4	5.1 5.6	4.3	3.4	F	170 166		100% 100%		257 244		95% 96%	C	326 310	8% 10%	94%		454 435	3% 4%	80% 83%
Nozzles	0.19	40	12	9.9	7.9	7.4	5.9	5.0	4.0	F	161		100%		233		96%	C	298	11%	94%		419	4%	84%
	0.21	45	13	11.0	8.4	7.9	6.3	5.3	4.2	F	158	40%	100%	M	224	22%	97%	С	287	13%	94%	VC	406	5%	86%
	0.22	50 60	13 15	11.0 12.0		8.3 9.1	7.3	5.5 6.1	4.4	F			100%		216 203	24% 27%	97% 98%	C M	277 262	14% 16%	95% 95%		394 375	5% 6%	87% 88%
	0.24	65	15		10.0	9.1	7.6	6.3	5.0	F	147		100%		198		98%	M	255	17%			366	6%	89%
	0.26	70	16	13.0	10.0	9.8	7.9	6.5	5.2	F	145	47%	100%	F	193	30%	98%	М	249	17%	95%	С	359	7%	90%
	0.28 Flow	80 Boom	17		11.0 r Snee	11.0 d (on 20	8.4 ∩" snar	7.0	5.6	FR8	142 0-025		100% 70-025		184 0-025		98% 8-025	MR8	239		95%		346	7% #4028	91%
	Flow us gpm	Boom psi	5gpa	Spraye 6gpa	7.5			12gpa		_	VMD		<600			<141									
	0.18	20	11	8.8	7.0	6.6	5.3	4.4	3.5	M	232	17%	100%												
80	0.20	25	12	9.8	7.8	7.3	5.9	4.9	3.9	M			100%		315	9%	91%	VC	105	50/	81%	٧c	160	20/	770/
80 -025	0.22	30 35	13	11.0 12.0	9.3	8.0	6.4	5.4 5.8	4.3	F	209		100%		296 281		93% 94%	VC VC	425 401	5% 6%	83%		460 443	3% 4%	77% 79%
Nozzles	0.25	40	15	12.0	9.9	9.3	7.4	6.2	5.0	F	194	28%	100%	M	268	15%	94%	С	382	6%	85%	VC	430	4%	81%
	0.27	45	16	13	11.0	9.8	7.9	6.6	5.3	F	188		100%		257		95%	C	367	7%	86%		418		82%
	0.28	50 60	17 18	15	11.0 12.0	10.0	8.3 9.1	7.6	5.5 6.1	F	182 174		100%		248 233		95% 96%	C	353 330	8% 9%	87% 89%		408 391	5% 6%	83% 85%
	0.32	65	19	16		12.0	9.5	7.9	6.3	F			100%		226	21%	96%	С	321	10%	89%	С	383	6%	85%
			00	16		12.0	9.8	8.2	6.5	F			100%		221		97%	С	312		90%		377	7%	86%
	0.33 0.35	70 80	20	18		13.0		0.0	7.0	F	404	39%	0001	F	211	24%	0701	С	297	4401	91%	С	365		87

NOTE: 'SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. "Shown application information is based on water @ 80°F in a controlled environment and should not be considered actual. Information is provided for comparison to other Combo-Jet® spray tips, for educational purposes only. Repeat testing results can vary.



### **COMBO-JET 80° Spray Tips - Standard Sprayer Systems**

Comprehensive rate & speed charts for any nozzle spacing/speed/rate is available on Tip Wizard. Try it today!

ASABE Spray Classification (ASABE S572.1 Standard)
Spray quality is categorized based on Dv.0.1 and VMD droplet sizes.

Objective testing data (by 3rd party), from prays spectrum recording equipment (without wind tunnel use), has been used to classify spray quality for this chart. Extra data (e.g. VMD, etc.) can vary and method, and is provided as an educational resource only.

Extremely Coarse (VC)

Extremely Coarse (VC)
Ultra Coarse (UC)

VMD (Volume Median Diameter) The median droplet (in  $\mu$ ) for a sprayed volume. Half of the volume is made of droplets smaller, with

% <141μ (% Driftable Fines) Percentage of volume which is likely to drift. As wind & boom height increase, observed spray drift will increase substantially.

% <600μ (% of Small Droplets) % of volume which is made up of 'small' droplets, useful for coverage As % of useful droplets lowers, overall coverage is reduced.

			O Telidiy Lot (	PDPA); tips :	sized over 1	10-06 verifie	d on Maiven	i. <b>—</b> Oit	iiu Oou	36 (0	(U)		all Illaue				_							Ť	
				•		1 / 0	0.11			ED	20.00		70.00	000		" 100	20.00	MP	20.00		20.00	200		" 4004	
	Flow	Boom			er Spee	d (on 2					30-03		70-03		80-03		38-03			#4029			30-03	#4028	
	us gpm	psi	5gpa	6gpa	7.5	8gpa	10gpa	12gpa	15gpa	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
	0.21	20	13	11.0	8.4	7.9	6.3	5.3	4.2	М	233	17%	99%												
				_						M	222			C	260	70/	88%								
	0.24	25	14	12.0	9.4	8.8	7.0	5.9	4.7			20%	99%	С	368	7%							<b></b>		
80	0.26	30	15	13	10.0		7.7	6.4	5.1	F	214	23%	99%	С	344	9%	89%	VC	432	5%	81%	XC	481	3%	72%
-03	0.28	35	17	14	11.0	10.0	8.3	6.9	5.6	F	207	25%	99%	С	325	11%	90%	VC	409	6%	83%	XC	462	4%	75%
Nozzles	0.30	40	18	15	12.0		8.9	7.4	5.9	Ē	201	26%	99%	C	309	12%	91%	C	390	7%	85%	VC	447	4%	77%
14022163										÷															
	0.32	45	19	16	13.0	12.0	9.5	7.9	6.3	F	196	28%	99%	С	296	14%	91%	С	374	7%	86%	VC	433	5%	79%
	0.34	50	20	17	13	12.0	10.0	8.3	6.6	F	192	29%	99%	С	285	15%	92%	С	360	8%	88%	VC	422	5%	80%
	0.37	60	22	18	15	14.0	11.0	9.1	7.3	F	184	32%	99%	M	266	17%	93%	С	337	9%	89%	С	403	6%	83%
										÷															
	0.38	65	23	19	15	14.0	11.0	9.5	7.6		181	33%	99%	M	258	18%	93%	C	327	10%	90%	C	395	6%	84%
	0.40	70	24	20	16	15.0	12.0	9.8	7.9	F	179	34%	99%	M	251	18%	93%	С	319	10%	91%	C	387	7%	84%
	0.42	80	25	21	17	16	13.0	11.0	8.4	F	174	35%	99%	М	239	20%	94%	С	304	11%	92%	С	374	7%	86%
	Flow	Boom			r Spee					EDS	30-04	#402			0-04	#4028			30-04	#4029			30-04	#4028	
	us gpm	psi	8 <sub>GPA</sub>	10gpa		15gpa	20gpa	25gpa	30gpa	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
	0.28	20	11	8.4	6.7	5.6	4.2	3.4	2.8	M	251	16%	99%												
	0.32	25	13	9.4	7.5	6.3	4.7	3.8	3.1	М	239	19%	99%	С	369	5%	85%								
80	0.35	30	14	10	8.2	6.9			3.4	M	230	21%	99%	Č	349	7%	87%	VC	420	5%	80%	XC	543	2%	62%
							5.1	4.1		_															
-04	0.37	35	15	11	8.9	7.4	5.6	4.4	3.7	M	222	22%	99%	С	331	9%	88%	VC	401	6%	82%	XC	523	3%	65%
Nozzles	0.40	40	16	12	10	7.9	5.9	4.8	4.0	M	216	24%	99%	С	316	10%	89%	С	385	7%	84%	XC	507	3%	68%
	0.42	45	17	13	10	8.4	6.3	5.0	4.2	F	211	25%	99%	С	303	11%	90%	С	372	8%	85%	XC	493	3%	70%
			_							F															
	0.45	50	18	13	11	8.9	6.6	5.3	4.4	-	206	26%	99%	С	291	12%	91%	C	360	9%	86%	XC	480	4%	72%
	0.49	60	19	15	12	10	7.3	5.8	4.8	F	198	28%	99%	M	270	14%	92%	С	341	10%	88%	XC	460	4%	75%
	0.51	65	20	15	12	10	7.6	6.1	5.0	F	195	29%	99%	M	261	14%	92%	С	333	11%	88%	VC	451	5%	76%
	0.53	70	21	16	13	10	7.9	6.3	5.2	F	192	29%	99%	M	252	15%	92%	Č	326	11%	89%	VC	443	5%	77%
				_		_				F															
	0.57	80	22	17	13	11	8.4	6.7	5.6	F	186	31%	99%	M	237	16%	93%	С	313	12%	90%	С	429	5%	79%
	Flow	Boom		Spraye	er Spee	d (on 2	0" spac	ing) @	)	ER8	30-05	#402	/0-05	SR8	0-05	#4028	38-05	MR8	30-05	#4029	90-05	DR8	30-05	#4028	80-05
	us gpm	psi	10 <sub>GPA</sub>	12.5	15 <sub>GPA</sub>	18 <sub>GPA</sub>	20 <sub>GPA</sub>	25 <sub>GPA</sub>	30gpa	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
	0.35	20	11	8.4	7.0	5.8	5.3	4.2	3.5	С	296	11%	95%												
			_											VO	444	E0/	010/		_			<del></del>	$\vdash \vdash$	$\overline{}$	
	0.40	25	12	9.4	7.8	6.5	5.9	4.7	3.9	С	280	14%	95%	VC	411	5%	81%					100			
80	0.43	30	13	10	8.6	7.1	6.4	5.1	4.3	M	267	16%	95%	С	387	7%	83%	XC	504	3%	68%	XC	574	2%	56%
-05	0.47	35	14	11	9.3	7.7	6.9	5.6	4.6	М	257	18%	95%	С	367	9%	84%	XC	483	4%	71%	XC	555	2%	59%
Nozzles	0.50	40	15	12	10	8.3	7.4	5.9	5.0	M	248	20%	95%	Č	349	10%	86%		466	4%	73%	XC	538	2%	62%
NUZZIES		_			_					_															
	0.53	45	16	13	11	8.8	7.9	6.3	5.3	M	241	21%	95%	С	334	11%	87%	VC	451	5%	75%	XC	524	3%	65%
	0.56	50	17	13	11	9.2	8.3	6.6	5.5	M	235	22%	95%	С	320	12%	87%	VC	438	5%	77%	XC	512	3%	67%
	0.61	60	18	15	12	10	9.1	7.3	6.1	М	224	25%	95%	С	296	14%	89%	VC	417	6%	79%	XC	492	3%	70%
	0.64					11	10			M	220			Č	286			C	408			XC	483	4%	71%
		65	19	15	13	_	_	7.6	6.3	_		26%	95%			14%	89%			6%	81%				
	0.66	70	20	16	13	11	10	7.9	6.5	F	215	26%	95%	С	276	15%	90%	С	400	6%	81%	VC	475	4%	72%
	0.71	80				110	44		7.0	E .	200	200/	OFO/	M	OE0	16%	91%	С	385	7%	83%	VC	461	4%	74%
	0.71	00	21	17	14	12	11	8.4	1.0		208	28%	95%	IVI	258	10/0		U	303			V U			7 7 /0
										FRE															
	Flow	Boom		Spraye	r Spee	d (on 2	0" spac	ing) @	)		30-06	#402	70-06	SR8	0-06	#4028	38-06	MR8	30-06	#4029	90-06	DR8	30-06	#4028	80-06
	Flow us gpm	Boom psi	10gpa	Spraye 12.5	r Speed 15gpa	d (on 2 18gpa	0" spac 20gpa	ing) @ 30gpa	35gpa	Class	0-06 VMD	#402 <sup>-</sup> <141	70-06 <600		0-06			MR8				DR8		#4028	
	Flow us gpm 0.42	Boom psi <b>20</b>	10gpa 13	Spraye 12.5 10	15gpa 8.4	d (on 2 18gpa 7.0	0" spac 20gpa 6.3	oing) @ 30gpa 4.2	35gpa 3.6	Class C	0-06 VMD 322	#402 <141 12%	70-06 <600 92%	SR8 Class	0-06 VMD	#4028 <141	38-06 <600	MR8	30-06	#4029	90-06	DR8	30-06	#4028	80-06
	Flow us gpm	Boom psi	10gpa	Spraye 12.5	r Speed 15gpa	d (on 2 18gpa	0" spac 20gpa	ing) @ 30gpa	35gpa	Class C C	0-06 VMD	#402 <sup>-</sup> <141	70-06 <600	SR8	0-06	#4028	38-06	MR8	30-06	#4029	90-06	DR8	30-06	#4028	80-06
80	Flow us gpm 0.42 0.47	Boom psi 20 25	10gpa 13 14	Spraye 12.5 10 11	15gpa 8.4 9.4	d (on 2 18gpa 7.0 7.8	0" spac 20gpa 6.3 7.0	30 <sub>GPA</sub> 4.2 4.7	35 <sub>GPA</sub> 3.6 4.0	Class C C	30-06 VMD 322 308	#402° <141 12% 15%	70-06 <600 92% 91%	SR8 Class VC	0-06 VMD 440	#4028 <141 4%	38-06 <600 78%	MR8 Class	80-06 VMD	#4029 <141	90-06 <600	DR8 Class	0-06 VMD	#4028 <141	80-06 <600
80	Flow us gpm 0.42 0.47 0.52	Boom psi 20 25 30	10gpa 13 14 15	Spraye 12.5 10 11 12	15gpa 8.4 9.4 10	d (on 2 18gpa 7.0 7.8 8.6	0" spac 20gpa 6.3 7.0 7.7	30gpa 4.2 4.7 5.1	35gpa 3.6 4.0 4.4	Class C C C	30-06 VMD 322 308 296	#402 <141 12% 15% 17%	70-06 <600 92% 91% 91%	SR8 Class VC VC	0-06 VMD 440 420	#4028 <141 4% 5%	78% 81%	MR8 Class	526	#4029 <141 2%	90-06 <600 64%	DR8 Class	0-06 VMD 596	#4028 <141 1%	30-06 <600 51%
-06	Flow us gpm 0.42 0.47 0.52 0.56	Boom psi 20 25 30 35	10gpa 13 14 15 17	Spraye 12.5 10 11 12 13	15gpa 8.4 9.4 10	d (on 2) 18gpa 7.0 7.8 8.6 9.3	0" spac 20gpa 6.3 7.0 7.7 8.3	30gpa 4.2 4.7 5.1 5.6	35gpa 3.6 4.0 4.4 4.8	Class C C C C	30-06 VMD 322 308 296 287	#402° <141 12% 15% 17% 18%	70-06 <600 92% 91% 91% 91%	SR8 Class VC VC VC VC	0-06 VMD 440 420 403	#4028 <141 4% 5% 6%	78% 81% 83%	MR8 Class XC XC	526 508	#4029 <141 2% 3%	90-06 <600 64% 67%	DR8 Class XC XC	596 579	#4028 <141 1% 2%	51% 54%
	Flow us gpm 0.42 0.47 0.52 0.56 0.60	Boom psi 20 25 30 35 40	10 <sub>GPA</sub> 13 14 15 17 18	Spraye 12.5 10 11 12 13 14	15gpa 8.4 9.4 10 11 12	d (on 2) 18gpa 7.0 7.8 8.6 9.3 10	0" spac 20gpa 6.3 7.0 7.7 8.3 8.9	30gpa 4.2 4.7 5.1 5.6 5.9	35gpa 3.6 4.0 4.4 4.8 5.1	Class C C C C C	30-06 VMD 322 308 296 287 279	#402° <141 12% 15% 17% 18% 20%	70-06 <600 92% 91% 91% 91%	SR8 Class VC VC VC C	0-06 VMD 440 420 403 390	#4028 <141 4% 5% 6% 7%	78% 81% 83% 84%	XC XC XC	526 508 492	#4029 <141 2% 3% 3%	64% 67% 70%	DR8 Class XC XC XC	596 579 564	#4028 <141 1% 2% 2%	51% 54% 57%
-06	Flow us gpm 0.42 0.47 0.52 0.56	Boom psi 20 25 30 35	10gpa 13 14 15 17	Spraye 12.5 10 11 12 13	15gpa 8.4 9.4 10 11 12	d (on 2) 18gpa 7.0 7.8 8.6 9.3	0" spac 20gpa 6.3 7.0 7.7 8.3	30gpa 4.2 4.7 5.1 5.6 5.9	35gpa 3.6 4.0 4.4 4.8	Class C C C C	30-06 VMD 322 308 296 287 279	#402° <141 12% 15% 17% 18% 20%	70-06 <600 92% 91% 91% 91%	SR8 Class VC VC VC C	0-06 VMD 440 420 403	#4028 <141 4% 5% 6%	78% 81% 83% 84%	XC XC XC	526 508	#4029 <141 2% 3% 3%	90-06 <600 64% 67%	DR8 Class XC XC	596 579	#4028 <141 1% 2% 2%	51% 54%
-06	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64	Boom psi 20 25 30 35 40	10 <sub>GPA</sub> 13 14 15 17 18 19	Spraye 12.5 10 11 12 13 14 15	15gpa 8.4 9.4 10 11 12 13	d (on 2) 18gpa 7.0 7.8 8.6 9.3 10	0" spac 20gpa 6.3 7.0 7.7 8.3 8.9	30gpa 4.2 4.7 5.1 5.6 5.9 6.3	35gpa 3.6 4.0 4.4 4.8 5.1 5.4	Class C C C C C	30-06 VMD 322 308 296 287 279 273	#402 <141 12% 15% 17% 18% 20% 21%	70-06 <600 92% 91% 91% 91% 91%	SR8 Class VC VC VC C C	0-06 VMD 440 420 403 390 378	#4028 <141 4% 5% 6% 7% 7%	78% 81% 83% 84% 85%	XC XC XC XC	526 508 492 479	#4029 <141 2% 3% 3% 4%	64% 67% 70%	XC XC XC XC	596 579 564 551	#4028 <141 1% 2% 2% 2%	51% 54% 57% 59%
-06	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64	Boom psi 20 25 30 35 40 45 50	10gpa 13 14 15 17 18 19 20	Spraye 12.5 10 11 12 13 14 15 16	15GPA 8.4 9.4 10 11 12 13	d (on 2) 18gpa 7.0 7.8 8.6 9.3 10 11	0" spac 20gpa 6.3 7.0 7.7 8.3 8.9 10	30gpa 4.2 4.7 5.1 5.6 5.9 6.3	35gpa 3.6 4.0 4.4 4.8 5.1 5.4 5.7	Class C C C C C C	30-06 VMD 322 308 296 287 279 273 267	#402 <141 12% 15% 17% 18% 20% 21% 22%	70-06 <600 92% 91% 91% 91% 91% 91%	VC VC VC C C C	0-06 VMD 440 420 403 390 378 368	#4028 <141 4% 5% 6% 7% 7% 8%	38-06 <600 78% 81% 83% 84% 85% 86%	XC XC XC XC XC XC	526 508 492 479 468	#4029 <141 2% 3% 3% 4% 4%	64% 67% 70% 72% 73%	Class XC XC XC XC XC XC	596 579 564 551 540	#4028 <141 1% 2% 2% 2% 2%	51% 54% 57% 59% 61%
-06	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67	Boom psi 20 25 30 35 40 45 50 60	10gpa 13 14 15 17 18 19 20 22	Spraye 12.5 10 11 12 13 14 15 16 17	15gpa 8.4 9.4 10 11 12 13 13	d (on 2   18gpa   7.0   7.8   8.6   9.3   10   11   11   12	0" space 20gpa 6.3 7.0 7.7 8.3 8.9 10 11	30gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3	35GPA 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2	Class C C C C C C M	30-06 VMD 322 308 296 287 279 273 267 257	#402' <141 12% 15% 17% 18% 20% 21% 22% 24%	70-06 <600 92% 91% 91% 91% 91% 91% 90%	SR8 Class VC VC VC C C C	0-06 VMD 440 420 403 390 378 368 351	#4028 <141 4% 5% 6% 7% 7% 8% 9%	38-06 <600 78% 81% 83% 84% 85% 86% 88%	XC XC XC XC XC VC	526 508 492 479 468 448	#4029 <141 2% 3% 3% 4% 4% 5%	90-06 <600 64% 67% 70% 72% 73% 76%	XC XC XC XC XC XC	596 579 564 551 540 521	#4028 <141 1% 2% 2% 2% 2% 2% 3%	51% 54% 57% 59% 61% 64%
-06	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73	Boom psi 20 25 30 35 40 45 50 60 65	10 <sub>GPA</sub> 13 14 15 17 18 19 20 22 23	Spraye 12.5 10 11 12 13 14 15 16 17	15GPA 8.4 9.4 10 11 12 13 13 15	d (on 2 18GPA 7.0 7.8 8.6 9.3 10 11 11 12	0" spac 20gPA 6.3 7.0 7.7 8.3 8.9 10 10 11	30 <sub>GPA</sub> 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6	35gpa 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2 6.5	Class C C C C C C M M	30-06 VMD 322 308 296 287 279 273 267 257 253	#402 <141 12% 15% 17% 18% 20% 21% 22% 24% 25%	70-06 <600 92% 91% 91% 91% 91% 91% 90% 90%	SR8 Class VC VC C C C C	440 420 403 390 378 368 351 344	#4028 <141 4% 5% 6% 7% 7% 8% 9% 9%	38-06 <600 78% 81% 83% 84% 85% 86% 88%	XC XC XC XC VC VC VC	526 508 492 479 468 448 440	#4029 <141 2% 3% 3% 4% 4% 5% 5%	64% 67% 70% 72% 73% 76% 77%	XC XC XC XC XC XC XC	596 579 564 551 540 521 513	1% 2% 2% 2% 2% 2% 3% 3%	51% 54% 57% 59% 61% 64% 65%
-06	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67	Boom psi 20 25 30 35 40 45 50 60	10gpa 13 14 15 17 18 19 20 22	Spraye 12.5 10 11 12 13 14 15 16 17	15gpa 8.4 9.4 10 11 12 13 13	d (on 2   18gpa   7.0   7.8   8.6   9.3   10   11   11   12	0" space 20gpa 6.3 7.0 7.7 8.3 8.9 10 11	30gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3	35GPA 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2	Class C C C C C C M	30-06 VMD 322 308 296 287 279 273 267 257	#402' <141 12% 15% 17% 18% 20% 21% 22% 24%	70-06 <600 92% 91% 91% 91% 91% 91% 90%	SR8 Class VC VC VC C C C	0-06 VMD 440 420 403 390 378 368 351	#4028 <141 4% 5% 6% 7% 7% 8% 9%	38-06 <600 78% 81% 83% 84% 85% 86% 88%	XC XC XC XC XC VC	526 508 492 479 468 448	#4029 <141 2% 3% 3% 4% 4% 5%	90-06 <600 64% 67% 70% 72% 73% 76%	XC XC XC XC XC XC	596 579 564 551 540 521	#4028 <141 1% 2% 2% 2% 2% 2% 3%	51% 54% 57% 59% 61% 64%
-06	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.76	Boom psi 20 25 30 35 40 45 50 60 65	10gpa 13 14 15 17 18 19 20 22 23 24	Spraye 12.5 10 11 12 13 14 15 16 17 18	15GPA 8.4 9.4 10 11 12 13 13 15 15	d (on 2 18gpa 7.0 7.8 8.6 9.3 10 11 11 12 13	0" spac 20gpa 6.3 7.0 7.7 8.3 8.9 10 10 11 11	30gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6	35gpa 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2 6.5 6.7	Class C C C C C M M M	30-06 VMD 322 308 296 287 279 273 267 257 253 249	#402 <141 12% 15% 17% 18% 20% 21% 22% 24% 25% 26%	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90%	SR8 Class VC VC VC C C C C C	440 420 403 390 378 368 351 344 337	#4028 <141 4% 5% 6% 7% 7% 8% 9% 9% 10%	38-06 <600 78% 81% 83% 84% 85% 86% 88% 89%	XC XC XC XC VC VC VC	526 508 492 479 468 448 440 433	#4029 <141 2% 3% 3% 4% 4% 5% 5% 5%	64% 67% 70% 72% 73% 76% 77% 78%	XC XC XC XC XC XC XC XC XC	596 579 564 551 540 521 513 505	1% 2% 2% 2% 2% 2% 3% 3% 3%	51% 54% 57% 59% 61% 64% 65% 66%
-06	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79	Boom psi 20 25 30 35 40 45 50 60 65 70	10 <sub>GPA</sub> 13 14 15 17 18 19 20 22 23	Spraye 12.5 10 11 12 13 14 15 16 17 18 19	15GPA 8.4 9.4 10 11 12 13 13 15 15 16	d (on 2 18gpa 7.0 7.8 8.6 9.3 10 11 11 12 13 13	0" space 20gpa 6.3 7.0 7.7 8.3 8.9 10 11 11 12 13	30gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4	35gpa 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2 6.5 6.7 7.2	C C C C M M M M M M	30-06 VMD 322 308 296 287 279 273 267 257 253 249	#402 <141 12% 15% 17% 18% 20% 21% 22% 24% 25% 26% 27%	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90%	SR8 Class VC VC C C C C C C	440 420 403 390 378 368 351 344 337 326	#4028 <141 4% 5% 6% 7% 7% 8% 9% 10% 10%	38-06 <600 78% 81% 83% 84% 85% 86% 88% 89% 90%	XC XC XC XC VC VC VC VC C	526 508 492 479 468 448 440 433 419	#4029 <141 2% 3% 3% 4% 4% 5% 5% 5% 6%	64% 67% 70% 72% 73% 76% 77% 78% 80%	XC	596 579 564 551 540 521 513 505 492	1% 2% 2% 2% 2% 3% 3% 3% 3%	51% 54% 57% 61% 64% 65% 66% 68%
-06	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79 0.85 Flow	Boom psi 20 25 30 35 40 45 50 66 65 70 80 Boom	10gpa 13 14 15 17 18 19 20 22 23 24 25	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye	15gpa 8.4 9.4 10 11 12 13 13 15 15 16 17	d (on 2 18gpa 7.0 7.8 8.6 9.3 10 11 11 12 13 13 14 d (on 2	0" spac 20gpa 6.3 7.0 7.7 8.3 8.9 10 10 11 11 12 13 0" spac	30gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 sing) @	35GPA 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2 6.5 6.7 7.2	Class C C C C C C M M M M M	30-06 VMD 322 308 296 287 279 273 267 257 253 249 242 30-08	#402' <141 12% 15% 17% 18% 20% 21% 22% 24% 25% 26% 27% #402'	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 90%	SR8 Class VC VC C C C C C C C SR8	440 420 403 390 378 368 351 344 337 326	#4028 <141 4% 5% 6% 7% 7% 8% 9% 90 10% 10% #4028	38-06 <600 78% 81% 83% 84% 85% 86% 88% 89% 90% 38-08	XC XC XC XC VC VC VC VC VC	526 508 492 479 468 448 440 433 419 30-08	#4029 <141 2% 3% 3% 4% 4% 5% 5% 5% 6% #4029	64% 67% 70% 72% 73% 76% 77% 78% 80%	XC XC XC XC XC XC XC XC XC XC	596 579 564 551 540 521 513 505 492 80-08	#4028 <141 1% 2% 2% 2% 2% 3% 3% 3% 3% 44028	51% 54% 57% 61% 64% 65% 66% 68% 30-08
-06	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79 0.85 Flow us gpm	Boom psi 20 25 30 35 40 45 50 66 65 70 80 Boom psi	10gpa 13 14 15 17 18 19 20 22 23 24 25	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 18gpa	15gpa 8.4 9.4 10 11 12 13 13 15 15 16 17 er Speed	d (on 2 18gpa 7.0 7.8 8.6 9.3 10 11 11 12 13 14 d (on 2 25gpa	0" spac 20gpa 6.3 7.0 7.7 8.3 8.9 10 11 11 11 12 13 0" spac 30gpa	30gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 sing) @	35GPA 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2 6.5 6.7 7.2	Class C C C C C M M M M Class	30-06 VMD 322 308 296 287 279 273 267 257 253 249 242 30-08 VMD	#402' <141 12% 15% 17% 18% 20% 21% 22% 24% 25% 26% 27% #402' <141	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 90% 000 000 00	SR8 Class VC VC C C C C C C	440 420 403 390 378 368 351 344 337 326	#4028 <141 4% 5% 6% 7% 7% 8% 9% 10% 10%	38-06 <600 78% 81% 83% 84% 85% 86% 88% 89% 90% 38-08	XC XC XC XC VC VC VC VC C	526 508 492 479 468 448 440 433 419	#4029 <141 2% 3% 3% 4% 4% 5% 5% 5% 6%	64% 67% 70% 72% 73% 76% 77% 78% 80%	XC	596 579 564 551 540 521 513 505 492 80-08	1% 2% 2% 2% 2% 3% 3% 3% 3%	51% 54% 57% 61% 64% 65% 66% 68% 30-08
-06	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79 0.85 Flow	Boom psi 20 25 30 35 40 45 50 66 65 70 80 Boom	10gpa 13 14 15 17 18 19 20 22 23 24 25	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye	15gpa 8.4 9.4 10 11 12 13 13 15 15 16 17	d (on 2 18gpa 7.0 7.8 8.6 9.3 10 11 11 12 13 13 14 d (on 2	0" spac 20gpa 6.3 7.0 7.7 8.3 8.9 10 10 11 11 12 13 0" spac	30gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 sing) @	35GPA 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2 6.5 6.7 7.2	Class C C C C C C M M M M M	30-06 VMD 322 308 296 287 279 273 267 257 253 249 242 30-08	#402' <141 12% 15% 17% 18% 20% 21% 22% 24% 25% 26% 27% #402'	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 90%	SR8 Class VC VC C C C C C C C SR8	440 420 403 390 378 368 351 344 337 326	#4028 <141 4% 5% 6% 7% 7% 8% 9% 90 10% 10% #4028	38-06 <600 78% 81% 83% 84% 85% 86% 88% 89% 90% 38-08	XC XC XC XC VC VC VC VC VC	526 508 492 479 468 448 440 433 419 30-08	#4029 <141 2% 3% 3% 4% 4% 5% 5% 5% 6% #4029	64% 67% 70% 72% 73% 76% 77% 78% 80%	XC XC XC XC XC XC XC XC XC XC	596 579 564 551 540 521 513 505 492 80-08	#4028 <141 1% 2% 2% 2% 2% 3% 3% 3% 3% 44028	51% 54% 57% 61% 64% 65% 66% 68% 30-08
-06	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79 0.85 Flow us gpm 0.57	Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi 20	10gpa 13 14 15 17 18 19 20 22 23 24 25	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 18GPA 9.3	15gpa 8.4 9.4 10 11 12 13 13 15 15 16 17 er Speed 20gpa 8.4	d (on 2) 18gpa 7.0 7.8 8.6 9.3 10 11 11 12 13 14 d (on 2) 25gpa 6.7	0" spac 20gpa 6.3 7.0 7.7 8.3 8.9 10 11 11 12 13 0" spac 30gpa 5.6	30gpa 4.2 4.7 5.1 5.6 5.9 6.3 7.6 7.9 8.4 cing) @ 35gpa 4.8	35GPA 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2 6.5 6.7 7.2 3	C C C C C C M M M M M M C ERS	30-06 VMD 322 308 296 287 279 273 267 257 253 249 242 30-08 VMD 367	#402' <141 12% 15% 17% 18% 20% 21% 22% 24% 25% 26% 27% #402' <141 12%	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 70-08 <600 86%	SR8 Class VC VC C C C C C C C C C C C C C C C C	0-06 VMD 440 420 403 390 378 368 351 344 337 326 0-08 VMD	#4028 <141 4% 5% 6% 7% 7% 8% 9% 10% 10% #4028 <141	38-06 <600 78% 81% 83% 84% 85% 86% 88% 89% 90% 38-08 <600	XC XC XC XC VC VC VC VC VC	526 508 492 479 468 448 440 433 419 30-08	#4029 <141 2% 3% 3% 4% 4% 5% 5% 5% 6% #4029	64% 67% 70% 72% 73% 76% 77% 78% 80%	XC XC XC XC XC XC XC XC XC XC	596 579 564 551 540 521 513 505 492 80-08	#4028 <141 1% 2% 2% 2% 2% 3% 3% 3% 3% 44028	51% 54% 57% 61% 64% 65% 66% 68% 30-08
-06 Nozzles	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79 0.85 Flow us gpm 0.57 0.63	Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25	10gpa 13 14 15 17 18 19 20 22 23 24 25 15gpa 11	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 18GPA 9.3 10	15GPA 8.4 9.4 10 11 12 13 13 15 15 16 17 er Speed 20GPA 8.4 9.4	d (on 2) 18gpa 7.0 7.8 8.6 9.3 10 11 11 12 13 13 14 d (on 2) 25gpa 6.7	0" space 20GPA 6.3 7.0 7.7 8.3 8.9 10 10 11 11 12 13 0" space 30GPA 5.6 6.3	30gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 sing) @ 35gpa 4.8	35GPA 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2 6.5 6.7 7.2 3 40GPA 4.2	Class C C C C C C C M M M M M Class VC C C	30-06 VMD 322 308 296 287 279 273 267 257 253 249 242 30-08 VMD 367 338	#402 <141 12% 15% 17% 18% 20% 21% 22% 24% 25% 26% 27% #402 <141 12% 15%	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% <600 86% 89%	SR8 Class VC VC VC C C C C C C C C C C C C C C	0-06 VMD 440 420 403 390 378 368 351 344 337 326 0-08 VMD	#4028 <141  4% 5% 6% 7% 7% 8% 9% 10% 10% #4028 <141	38-06 <600 78% 81% 83% 84% 85% 86% 88% 89% 90% 38-08 <600	MR8 Class  XC XC XC XC VC VC VC C MR8 Class	526 508 492 479 468 448 440 433 419 30-08 VMD	#4029 <141 2% 3% 3% 4% 5% 5% 5% 6% #4029 <141	64% 67% 70% 72% 73% 76% 77% 80% 80% <600	XC X	596 579 564 551 540 521 513 505 492 80-08 VMD	1% 2% 2% 2% 3% 3% 3% 3% 44028 <141	51% 54% 57% 61% 64% 65% 66% 68% 68% 60-08
-06 Nozzles	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.79 0.85 Flow us gpm 0.57 0.63	Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30	10gpa 13 14 15 17 18 19 20 22 23 24 25 15gpa 11 13	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 18gpa 9.3 10 11	15gpa 8.4 9.4 10 11 12 13 13 15 15 16 17 er Speed 20gpa 8.4 9.4	d (on 2) 18gpa 7.0 7.8 8.6 9.3 10 11 11 12 13 14 d (on 2) 25gpa 6.7 7.5 8.2	0" space 20GPA 6.3 7.0 7.7 8.3 8.9 10 10 11 11 11 12 13 0" space 30GPA 5.6 6.3 6.9	30gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 sing) @ 35gpa 4.8 5.4	35GPA 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2 6.5 6.7 7.2 40GPA 4.2 4.7	Class C C C C C C C C C C C C C C C C C C	30-06 VMD 322 308 296 287 279 273 267 257 253 249 242 30-08 VMD 367 338 317	#402' <141 12% 15% 17% 18% 20% 21% 22% 24% 25% 27% #402' <141 12% 15% 17%	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% <600 86% 89% 90%	SR8 Class VC VC VC C C C C C C C C C C C C C C	0-06 VMD 440 420 403 390 378 368 351 344 337 326 0-08 VMD 516 490	#4028 <141 4% 5% 6% 7% 78 8% 9% 9% 10% 10% #4028 <141 7% 8%	88-06 <600 78% 81% 83% 84% 85% 86% 88% 89% 90% 38-08 <600 54%	MR8 Class  XC XC XC XC VC VC VC VC VC UC VC UC UC UC UC	526 508 492 479 468 448 440 433 419 30-08 VMD	#4029 <141 2% 3% 3% 4% 5% 5% 5% 6% #4029 <141	64% 67% 70% 72% 73% 76% 77% 80% 80% 80-08 <600	XC X	596 579 564 551 540 521 513 505 492 30-08 VMD	1% 2% 2% 2% 3% 3% 3% 44028 <141 3%	51% 54% 57% 59% 61% 65% 66% 68% 680-08 <600
-06 Nozzles	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.79 0.85 Flow us gpm 0.57 0.63 0.69	Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30 35	10gpa 13 14 15 17 18 19 20 22 23 24 25 15gpa 11 13 14	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 18 9.3 10 11 12	15GPA 8.4 9.4 10 11 12 13 13 15 15 16 17 er Speed 20GPA 8.4 9.4	d (on 2) 18gpa 7.0 7.8 8.6 9.3 10 11 11 12 13 13 14 d (on 2) 25gpa 6.7 7.5 8.2 8.9	0" spac 20gpa 6.3 7.0 7.7 8.3 8.9 10 10 11 11 12 13 0" spac 30gpa 5.6 6.3 6.9 7.4	30gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 sing) @ 35gpa 4.8 5.4 5.9 6.4	35GPA 3.6 4.0 4.4 4.8 5.1 5.7 6.2 6.5 6.7 7.2 9 40GPA 4.2 4.7 5.1 5.6	Class C C C C C C C C C C C C C C C C C C	30-06 VMD 322 308 296 287 279 273 267 257 257 259 242 30-08 VMD 367 338 317	#402 <141 12% 15% 17% 18% 20% 21% 22% 24% 25% 26% 27% #402 <141 12% 15% 17% 19%	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 600 86% 89% 90% 92%	SRE Class VC VC VC C C C C C C C C C C C C C C	0-06 VMD 440 420 403 390 378 368 351 344 337 326 0-08 VMD 516 490 468	#4028 <141 4% 5% 6% 7% 7% 8% 9% 10% 10% 4028 <141 7% 8%	88-06 <600 78% 81% 83% 84% 85% 86% 88% 89% 90% 38-08 <600 54% 59% 63%	MR8 Class XC XC XC VC VC VC C MR8 Class	526 508 492 479 468 448 440 433 419 30-08 VMD	#4029 <141 2% 3% 3% 4% 5% 5% 6% #4029 <141	64% 67% 70% 72% 73% 76% 77% 80% 80% 90-08 <600	XC X	596 579 564 551 540 521 513 505 492 80-08 VMD	#4028 <141 1% 2% 2% 2% 2% 3% 3% 3% 44028 440	51% 54% 57% 59% 61% 65% 66% 68% 30-08 <600
-06 Nozzles	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.79 0.85 Flow us gpm 0.57 0.63	Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30	10gpa 13 14 15 17 18 19 20 22 23 24 25 15gpa 11 13	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 18gpa 9.3 10 11	15gpa 8.4 9.4 10 11 12 13 13 15 15 16 17 er Speed 20gpa 8.4 9.4	d (on 2) 18gpa 7.0 7.8 8.6 9.3 10 11 11 12 13 14 d (on 2) 25gpa 6.7 7.5 8.2	0" space 20GPA 6.3 7.0 7.7 8.3 8.9 10 10 11 11 11 12 13 0" space 30GPA 5.6 6.3 6.9	30gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 sing) @ 35gpa 4.8 5.4	35GPA 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2 6.5 6.7 7.2 40GPA 4.2 4.7	Class C C C C C C C C C C C C C C C C C C	30-06 VMD 322 308 296 287 279 273 267 257 257 259 242 30-08 VMD 367 338 317	#402' <141 12% 15% 17% 18% 20% 21% 22% 24% 25% 27% #402' <141 12% 15% 17%	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 600 86% 89% 90% 92%	SRE Class VC VC VC C C C C C C C C C C C C C C	0-06 VMD 440 420 403 390 378 368 351 344 337 326 0-08 VMD 516 490 468	#4028 <141 4% 5% 6% 7% 78 8% 9% 9% 10% 10% #4028 <141 7% 8%	88-06 <600 78% 81% 83% 84% 85% 86% 88% 89% 90% 38-08 <600 54% 59% 63%	MR8 Class XC XC XC VC VC VC C MR8 Class	526 508 492 479 468 448 440 433 419 30-08 VMD	#4029 <141 2% 3% 3% 4% 5% 5% 6% #4029 <141	64% 67% 70% 72% 73% 76% 77% 80% 80% 80-08 <600	XC X	596 579 564 551 540 521 513 505 492 30-08 VMD	1% 2% 2% 2% 3% 3% 3% 44028 <141 3%	51% 54% 57% 59% 61% 65% 66% 68% 680-08 <600
-06 Nozzles 80 -08	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79 0.85 Flow us gpm 0.57 0.63 0.63	Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30 35 40	10gpa 13 14 15 17 18 19 20 22 23 24 25 11 13 14 15 16	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 18GPA 9.3 10 11 12 13	15gpa 8.4 9.4 10 11 12 13 13 15 15 16 17 er Speed 20gpa 8.4 10 11	d (on 2) 18gpa 7.0 7.8 8.6 9.3 10 11 11 12 13 14 d (on 2) 25gpa 6.7 7.5 8.2 8.9	0" space 20gpa 6.3 7.0 7.7 8.3 8.9 10 10 11 11 12 13 0" space 30gpa 5.6 6.3 6.9 7.4 7.9	30GPA 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 4.8 5.4 5.9 6.4 6.8	35GPA 3.6 4.0 4.4 4.8 5.1 5.7 6.2 6.5 6.7 7.2 40GPA 4.7 5.1 5.6 5.9	Class C C C C C C C C M M M M M M M M M M M M	00-06 VMD 322 308 296 287 279 273 267 257 253 249 367 388 317 300 286	#402 <141 12% 15% 17% 18% 20% 21% 22% 24% 25% 26% 27% #402 <141 12% 15% 17% 19% 21%	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 500% 86% 90% 90% 90% 90% 86% 90% 90%	SR8 Class VC VC C C C C C C SR8 Class UC UC XC XC	440 420 420 378 368 351 344 337 326 0-08 VMD 516 490 468 449	#4028 <141  4% 5% 6% 7% 7% 8% 9% 10% 10% #4028 <141  7% 8% 8% 9%	88-06 <600 78% 81% 83% 84% 85% 86% 88% 89% 90% 38-08 <600 54% 59% 66%	MR8 Class XC XC XC VC VC VC C MR8 Class	526 508 492 479 468 448 440 433 419 30-08 VMD 540 518 500	#4029 <141 2% 3% 3% 4% 5% 5% 6% #4029 <141	64% 67% 70% 72% 73% 76% 77% 78% 80% 90-08 <600	DRE Class  XC XC XC XC XC XC XC UC UC UC UC	596 579 564 551 540 521 513 505 492 30-08 VMD	#4028 <141  1% 2% 2% 2% 2% 3% 3% 3% 344028 <141  3% 4%	51% 54% 57% 59% 61% 64% 65% 66% 68% 30-08 <600
-06 Nozzles 80 -08	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.79 0.85 Flow us gpm 0.57 0.63 0.69 0.75 0.80 0.85	Boom psi 20 25 30 35 40 45 50 80 Boom psi 20 65 70 80 Boom psi 20 25 33 40 45 45	10gpa 13 14 15 17 18 19 20 22 23 24 25 15gpa 11 13 14 15 16	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 18 GPA 9.3 10 11 12 13 14	15GPA 8.4 9.4 10 11 12 13 13 15 15 16 17 8 Speed 20GPA 8.4 9.4 10 11 12	d (on 2 18gpa 7.0 7.8 8.6 9.3 10 11 11 12 13 14 d (on 2 25gpa 6.7 7.5 8.9 10	0" space 20gpa 6.3 7.0 7.7 8.3 8.9 10 11 11 12 13 0" space 30gpa 5.6 6.3 6.9 7.4 7.9 8.4	30GPA 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 4.8 5.4 5.4 6.8 7.2	35GPA 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2 6.5 6.7 7.2 4.0 4.2 4.7 5.1 5.6 5.9 6.3	Class C C C C C C C C C C C C C C C C C C C	00-06 VMD 322 308 296 287 279 267 257 253 249 242 30-08 VMD 367 338 317 300 286 274	#402' <141 12% 15% 17% 20% 21% 22% 24% 25% 26% 26% 27% #402' <141 12% 15% 17% 19% 21% 22%	70-06 <600 92% 91% 91% 91% 91% 91% 90% 90% 90% 500 86% 89% 90% 92% 93%	SR8 Class VC VC C C C C C C C C C C C C C C C C	0-06 VMD 440 420 403 390 378 368 351 344 337 326 0-08 VMD 516 490 468 449	#4028 <141  4% 5% 6% 7% 7% 8% 9% 10% #4028 <141  7% 8% 9% 10%	88-06 <600 78% 81% 83% 84% 85% 88% 89% 89% 38-08 <600 54% 59% 66% 66%	MR8 Class XC XC XC XC VC VC VC VC UC UC UC UC UC UC	526 500-06 VMD 526 508 492 479 468 448 440 433 419 30-08 VMD 518 500 484	#4029 <141  2% 3% 3% 4% 4% 5% 5% 6% #4029 <141  6% 7% 8% 9%	64% 67% 70% 72% 76% 77% 78% 80% 30-08 <600 63% 69% 71%	DRECCLASS  XC	30-06 VMD 596 579 564 551 540 521 513 505 492 30-08 VMD 619 600 585 571	#4028 <141  1% 2% 2% 2% 2% 2% 3% 3% 3% 34 44028 <141  344 444 444	51% 54% 57% 61% 66% 66% 68% 66% 68% 600 52% 55% 55% 60%
-06 Nozzles 80 -08	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79 0.85 Flow us gpm 0.57 0.63 0.69 0.75 0.80 0.85 0.89	Boom psi 20 25 30 440 445 50 Boom psi 20 25 30 445 45 40 45 45 40 45 40 45 40 45 50 40 45 50	10 GPA 13 14 15 17 18 19 20 22 23 24 25 11 13 14 15 15 16 17 18	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 18gpa 9.3 10 11 12 13 14 15 16 17 18 19 19 10 11 11 12 13 14 15 16 17 18 19 19 10 11 11 12 13 14 15	15GPA 8.4 9.4 10 11 12 13 15 15 16 17 27 Speed 20GPA 8.4 9.4 10 11 11 12 13 13 14 15 15 16 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	d (on 2) 18gpa 7.0 7.8 8.6 9.3 10 11 11 12 13 13 14 d (on 2) 25gpa 6.7 7.5 8.2 9.0 10 11	0" space 20GPA 6.3 7.0 7.7 8.3 8.9 10 10 11 11 12 13 00" space 30GPA 5.6 6.3 6.9 7.4 8.9 8.4 8.9	ing) @ 30gPA 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 4.8 5.4 5.9 6.4 6.4 6.4 7.2 7.6	35GPA 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2 6.5 6.7 7.2 4.2 4.7 5.1 5.6 5.9 6.3 6.3	Class C C C C C C C M M M M M M M M M M M M	00-06 VMD 322 308 296 287 279 273 267 257 253 249 242 30-08 VMD 367 338 317 208 208 208 209 249 249 242 249 242 249 249 249 249 24	#402' <141 12% 15% 17% 16% 20% 21% 22% 24% 24% 25% #402 <141 12% 15% 17% 19% 22% 23%	0-06 <600 92% 91% 91% 91% 91% 90% 90% 90% <600 86% 89% 90% 92% 93% 93% 94%	SR8 Class VC VC C C C C C C C C C C C C C C C C	00-06 VMD 440 420 390 378 368 351 344 337 VMD 516 490 468 449 449 442 417	#4028 <141 4% 5% 6% 7% 7% 8% 9% 10% #4028 <141 7% 8% 8% 9%	88-06 <600 78% 81% 83% 85% 86% 88% 89% 90% 33-08 <600 59% 63% 69% 71%	MR8 Class XC XC XC XC VC VC VC VC C MR8 Class	526 508 492 479 468 448 440 433 00-08 VMD 540 5518 500 484 470	#4029 <141 2% 3% 3% 4% 4% 5% 5% 5% 6% #4029 <141	64% 67% 70% 72% 73% 76% 80% 80% 63% 663% 67% 67% 71% 73%	DRECCLASS  XC	596 579 564 551 540 551 513 505 492 80-08 VMD	#4028 <141  1% 2% 2% 2% 2% 2% 3% 3% 3% 3% 44028 <141  3% 4% 4% 4% 5%	51% 54% 57% 61% 66% 66% 66% 68% 30-08 <600 55% 55% 60% 62%
-06 Nozzles 80 -08	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.79 0.85 Flow us gpm 0.57 0.63 0.69 0.75 0.80 0.89 0.98	Boom psi 20 25 30 35 40 45 50 80 Boom psi 20 25 30 35 40 45 50 66 65 70 80 Boom psi 20 25 30 35 60 60 60 60 60 60 60 60 60 60 60 60 60	10 GPA 13 14 15 17 18 19 20 22 23 24 25 15 GPA 11 13 14 15 16 17 18	Spraye 12.5 10 11 12 13 14 15 16 19 20 Spraye 18GPA 9.3 11 12 13 14 15 16 16	15GPA 8.4 9.4 10 11 12 13 15 15 16 17 Per Speech 8.4 9.4 10 11 11 12 13 13 15 15 16 17 17 Per Speech 9.4 10 11 12 13 13 13 15 15 15 15 16 17 17 Per Speech 9.4 10 11 11 12 13 13 15 15 15 15 15 15 15 15 15 15 15 15 15	d (on 2 186PA 7.0 7.8 8.6 9.3 10 11 11 12 13 13 14 4 (on 2 256PA 6.7 7.5 8.2 8.9 10	0" space 20GPA 6.3 7.0 6.3 7.0 10 11 11 11 12 13 13 10 15.6 6.3 6.9 7.4 7.9 8.4 8.9 10	ing) @ 30gPA 4.2 4.7 5.1 5.6 5.6 5.9 6.3 6.6 7.3 7.6 4.8 5.4 5.9 6.4 6.8 7.2 7.6 8.3	35GPA 3.6 4.0 4.4 4.8 5.1 5.4 5.7 7.2 6.5 6.7 7.2 4.7 5.1 5.6 5.9 6.3 6.3 6.6 7.3	Class C C C C C C C M M M M M ER8 Class VC C C M M M F	00-06 VMD 322 308 296 287 273 267 257 253 249 300 367 338 317 300 286 274 242 242 242 242 242 242 242 242 242	#402' <141 12% 15% 15% 18% 20% 21% 22% 22% 411 12% 15% 15% 17% 19% 22% 24% 25% 26% 27% 26% 22% 24% 22% 26% 27% 26% 26% 27% 26% 26% 27% 26% 26% 26%	0-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 90% 89% 600 889% 99% 93% 93% 93% 93% 95%	SR8 Class VC VC VC C C C C C C C SR8 Class UC XC XC XC XC	0-06 VMD 440 440 403 390 378 368 351 344 337 326 0-08 VMD 516 490 468 449 449 449 432 417 390	#4028 < 141 4% 5% 6% 7% 7% 8% 9% 10% 10% #4028 < 141 7% 8% 8% 9% 10% 1	88-06 <600 81% 83% 84% 85% 86% 89% 89% 90% 88-600 54% 66% 69% 71%	MR8 Class  XC XC XC XC VC VC VC C MR8 Class  UC UC UC XC	526 508 492 479 468 448 440 433 419 30-08 VMD 518 500 484 470 448	#4025 <141 2% 3% 3% 4% 5% 5% 6% #4025 <141 6% 7% 8% 9% 9%	64% 67% 70% 72% 76% 77% 78% 30% 80% 80% 67% 67% 67% 73% 75%	Class  XC	596 579 564 551 542 551 505 492 80-08 VMD 619 600 585 571 559 539	#4028 <141 1% 2% 2% 2% 2% 3% 3% 3% 3% 44028 <141 3% 4% 4% 5%	51% 54% 57% 59% 61% 65% 66% 66% 30-08 <600 52% 66% 66% 66% 66%
-06 Nozzles 80 -08	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79 0.85 Flow us gpm 0.57 0.63 0.69 0.75 0.80 0.85 0.89	Boom psi 20 25 30 440 445 50 Boom psi 20 25 30 445 45 40 45 45 40 45 40 45 40 45 50 40 45 50	10 GPA 13 14 15 17 18 19 20 22 23 24 25 11 13 14 15 15 16 17 18	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 18gpa 9.3 10 11 12 13 14 15 16 17 18 19 19 10 11 11 12 13 14 15 16 17 18 19 19 10 11 11 12 13 14 15	15GPA 8.4 9.4 10 11 12 13 15 15 16 17 27 Speed 20GPA 8.4 9.4 10 11 11 12 13 13 14 15 15 16 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	d (on 2) 18gpa 7.0 7.8 8.6 9.3 10 11 11 12 13 13 14 d (on 2) 25gpa 6.7 7.5 8.2 9.0 10 11	0" space 20GPA 6.3 7.0 7.7 8.3 8.9 10 10 11 11 12 13 00" space 30GPA 5.6 6.3 6.9 7.4 8.9 8.4 8.9	ing) @ 30gPA 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 4.8 5.4 5.9 6.4 6.4 6.4 7.2 7.6	35GPA 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2 6.5 6.7 7.2 4.2 4.7 5.1 5.6 5.9 6.3 6.3	Class C C C C C C C M M M M M M M M M M M M	00-06 VMD 322 308 296 287 273 267 257 253 249 300 367 338 317 300 286 274 242 242 242 242 242 242 242 242 242	#402' <141 12% 15% 17% 16% 20% 21% 22% 24% 24% 25% #402 <141 12% 15% 17% 19% 22% 23%	0-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 90% 89% 600 889% 99% 93% 93% 93% 93% 95%	SR8 Class VC VC C C C C C C C C C C C C C C C C	0-06 VMD 440 440 403 390 378 368 351 344 337 326 0-08 VMD 516 490 468 449 449 449 432 417 390	#4028 <141 4% 5% 6% 7% 7% 8% 9% 10% #4028 <141 7% 8% 8% 9%	88-06 <600 81% 83% 84% 85% 86% 89% 89% 90% 88-600 54% 66% 69% 71%	MR8 Class  XC XC XC XC VC VC VC C MR8 Class  UC UC UC XC	526 508 492 479 468 448 440 433 00-08 VMD 540 5518 500 484 470	#4025 <141 2% 3% 3% 4% 5% 5% 6% #4025 <141 6% 7% 8% 9% 9%	64% 67% 70% 72% 73% 76% 80% 80% 63% 663% 67% 67% 71% 73%	DRECCLASS  XC	596 579 564 551 540 551 513 505 492 80-08 VMD	#4028 <141 1% 2% 2% 2% 2% 3% 3% 3% 3% 44028 <141 3% 4% 4% 5%	51% 54% 57% 61% 66% 66% 66% 68% 30-08 <600 55% 55% 60% 62%
-06 Nozzles 80 -08	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.73 0.76 0.79 0.85 Flow us gpm 0.57 0.63 0.69 0.75 0.80 0.85 0.89 0.98 1.02	Boom psi 20 25 30 35 40 45 50 Boom psi 20 65 40 45 50 66 65 65 60 65 60 65 60 65 60 65	10 GPA 13 14 15 17 18 19 20 22 23 24 25 15 GPA 11 13 14 15 16 17 18 19 19 20 22 21 23 24 25 25 26 27 27 28 28 28 28 28 28 28 28 28 28 28 28 28	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 18@PA 9.3 11 12 13 14 15 16 17 17 18 19 19 10 11 11 12 11 11 11 11 11 11 11 11 11 11	156PA 8.4 10 11 12 13 15 15 16 17 17 17 18 19 19 10 11 11 12 20GPA 8.4 9.4 11 11 12 13 13 13 15 15 16 16 17 17 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	d (on 2) 186PA 7.0 7.0 7.0 8.6 8.6 9.3 10 11 12 13 13 14 d (on 2) 256PA 6.7 7.5 8.9 10 11 11 12 13 13 13 13 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15	0" space 10 10 10 10 10 10 10 10 10 10 10 10 10	30gPA 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 4.8 5.9 6.4 6.8 7.2 7.6 8.3 8.7	35GPA 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2 6.5 6.7 7.2 9 40GPA 4.2 4.7 5.1 5.6 5.9 6.6 5.9 6.6 7.3 7.6	Class C C C C C C C M M M M M ER8 Class VC C C M M M F	00-06 VMD 322 308 296 287 279 273 267 257 253 249 242 00-08 367 300 286 274 264 264 264 264 247 240	#402' -141 12% 17% 18% 20% 21% 22% 24% 25% 24% 25% 26% 411 12% 119% 19% 21% 22% 23% 23% 27%	0-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 90% 90% 90% 90% 90% 90	SR8 Class VC VC VC C C C C C C C SR8 Class UC XC XC XC XC VC	0-06 VMD 440 420 403 390 378 368 351 326 0-08 VMD 516 490 468 449 432 432 379	#4028 <141 4% 5% 6% 7% 7% 8% 9% 10% #4028 <141 7% 8% 8% 9%	88-06 <600 81% 83% 84% 85% 86% 89% 90% 88-08 <600 55% 63% 66% 69% 71% 74% 75%	MR8 Class  XC XC XC XC VC VC VC VC C MR8 Class  UC UC UC XC	526 508 492 479 468 448 449 0-08 VMD 518 500 484 470 448 438	#4025 <141 2% 3% 3% 4% 5% 5% 5% 5% <141 7% 8% 9% 10% 11%	64% 67% 70% 73% 77% 78% 80% 30-08 <600 63% 67% 69% 71% 76% 77%	Class  XC	596 579 564 551 513 505 500 600 585 571 553 960 571 553 960 571 553 565	#4028 <141  1% 2% 2% 2% 2% 3% 3% 3% 44028 <141  3% 4% 4% 4% 5% 5% 5%	51% 54% 554% 57% 59% 61% 66% 68% 88% 80-08 <600 55% 60% 62% 65% 66%
-06 Nozzles 80 -08	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.79 0.85 Flow us gpm 0.57 0.63 0.69 0.75 0.89 0.85 0.89 1.02 1.06	Boom psi 20 25 30 35 40 45 50 665 70 45 50 66 65 70 66 65 70 66 65 70 66 65 70 67 67 67 67 67 67 67 67 67 67 67 67 67	10 GPA 13 14 15 17 18 19 20 22 23 24 25 15 GPA 11 13 14 15 16 17 18 19 20 22 21 21 21 22 23 24 25 25 26 27 27 28 28 28 28 28 28 28 28 28 28 28 28 28	Spraye 12.5 10 11 11 12 13 14 15 16 17 18 19 2Sprayee 18GeA 9.3 10 11 12 13 14 15 16 17 17 17	# Speet   156PA   8.4   9.4   10   11   12   13   15   16   10   11   12   13   15   16   17   17   17   17   17   17   17	d (on 2) 186PA 7.0 7.8 8.6 9.3 10 11 12 13 13 13 14 d (on 2) 256PA 6.7 7.5 8.2 10 11 11 12 13 13 13 14 14 15 16 17 18 19 10 11 11 12 13 13 13 13 13 13 14 14 15 16 17 18 18 19 10 10 11 11 12 13 13 13 13 13 13 13 13 13 14 14 15 16 17 18 18 18 19 10 10 11 11 12 13	0" space 6.3 7.0 10 11 11 12 13 30 space 6.3 6.9 8.4 8.9 10 10 11 11 11 12 13 13 10 space 6.3 6.9 10 10 10 10 10 10 10 10 10 10 10 10 10	ing) @ 30gPA	356PA 3.6 4.0 4.4 4.8 5.1 5.7 6.2 6.5 6.7 7.2 4.7 5.1 5.4 6.5 6.7 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7	Class C C C C C C C C M M M M M ER8 Class VC C C C M M M M M F F F F F	00-06 VMD 322 308 296 287 279 273 267 257 249 242 300 286 274 264 264 274 247 240 233	#402' <141 12% 15% 17% 18% 20% 21% 22% 24% 25% 26% 27% 410 112% 15% 21% 22% 2141 12% 2141 22% 23% 26% 28% 28%	0-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 86% 89% 90% 93% 93% 93% 93% 93% 94% 95% 95%	SR8 Class VC VC C C C C C C C C C C C C C C C C	0-06 VMD 440 420 403 390 378 351 344 337 326 VMD 516 490 449 449 449 432 417 390 368	#4028 <141  4% 5% 6% 7% 8% 9% 90% 10% 8% 84028 <141  7% 8% 9% 10% 11% 12%	88-06 <600 78% 81% 83% 84% 85% 88% 89% 89% <600 54% 66% 66% 66% 674% 71% 75% 76%	MR8 Classs  XC XC XC VC VC VC VC C MR8 Classs  UC UC UC XC	526 508 492 479 479 488 448 440 433 419 500 850 484 470 488 448 470 438 438 438	#4025 <141 2% 3% 3% 4% 5% 5% 6% 44025 <141 7% 8% 9% 9% 10% 11%	64% 67% 70% 72% 73% 76% 78% 80% 6600 667% 69% 71% 73% 76% 73%	DRE Class  XC X	596 579 564 551 513 505 492 7MD 619 600 585 571 559 539 531 523	#4028 <141 1% 2% 2% 2% 2% 2% 3% 3% 3% #4028 <141 3% 4% 4% 5% 5% 6%	51% 54% 557% 59% 61% 65% 66% 68% 30-08 <600 52% 65% 66% 66% 62% 65% 66%
-06 Nozzles 80 -08	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79 0.85 Flow us gpm 0.57 0.69 0.75 0.80 0.85 0.89 0.98 1.02 1.06 1.13	Boom psi 20 25 30 35 40 45 50 60 65 70 80 45 50 60 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	10 GPA 13 14 15 17 18 19 20 22 23 24 25 15 GPA 11 13 14 15 16 17 18 19 19 20 22 21 23 24 25 25 26 27 27 28 28 28 28 28 28 28 28 28 28 28 28 28	Spraye 12.5 10 11 12 13 14 15 16 17 18 20 Spraye 18eA 10 11 12 13 14 15 16 17 17 18 19 10 11 11 12 13 14 15 16 17 17 19	r Speer   156PA   8.4   10   11   12   13   15   15   16   17   17   17   17   17   17   17	d (on 2) 186PA 7.0 186PA 7.0 18.6 9.3 10 11 11 12 13 14 4 (on 2) 256PA 6.7 7.5 8.2 8.9 10 11 12 12 13 13 13 13 13 13 13 13 13 13 13 13 13	0" space 300 pm 10 pm 11	30gPA 4.2 4.7 5.6 5.9 6.3 7.6 7.9 8.4 5.4 5.9 6.4 6.8 7.2 7.6 8.3 7.6 9.0 10	35GPA 3.6 4.0 4.4 4.8 5.1 5.4 5.7 6.2 6.5 6.7 7.2 9 40GPA 4.2 4.7 5.1 5.6 5.9 6.6 5.9 6.6 7.3 7.6	Class C C C C C C C C M M M M M ER8 Class VC C C C M M M M M M M M M M M M M M M M	322 308 296 287 279 273 267 253 249 242 30-08 307 338 317 300 286 274 264 247 240 242 243 249 249 249 249 249 249 249 249 249 249	#402' <141 12% 15% 17% 18% 20% 22% 24% 22% 24% 25% 4402' <141 12% 15% 17% 17% 21% 22% 2440 27% 27% 27% 28% 29% 29%	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 6600 86% 90% 93% 93% 93% 93% 93% 93% 93% 93	SR8 Class VC VC C C C C C C C C SR8 Class UC VC XC XC XC XC VC C C C C C C C C C C	0-06 VMD 440 420 403 390 378 368 368 400 409 409 409 417 390 378 449 449 449 449 449 449 449 449 449 44	#4028 < 141  4% 5% 6% 7% 7% 8% 9% 10% #4028 < 141  7% 8% 9% 10% 10% 11% 12% 12% 13%	88-06 <600 81% 81% 83% 84% 85% 89% 89% 89% 54% 66% 63% 66% 69% 71% 74% 69% 74% 69% 74%	MR8 Class  XC XC XC VC VC VC VC UC UC UC UC XC XC XC XC XC VC	526 508 492 479 468 448 440 433 419 30-08 518 500 484 477 448 438 438 439 415	#4028 <141 2% 3% 4% 5% 5% 6% #4028 <141 6% 7% 8% 9% 10% 11% 11% 12%	64% 67% 70% 72% 73% 76% 77% 80% 63% 63% 69% 71% 73% 76% 77% 80%	DR8 Classs XC	596 579 554 551 551 540 521 513 600 600 585 571 559 539 531 523 509	#4028 <141 1% 2% 2% 2% 2% 2% 3% 3% 3% #4028 <141 4% 4% 5% 5% 5% 6%	51% 54% 55% 65% 66% 66% 68% 80-08 52% 55% 66% 66% 66% 66% 66% 66% 66% 66% 66
-06 Nozzles 80 -08	Flow us gpm 0.42 0.52 0.56 0.60 0.64 0.67 0.79 0.85 Flow us gpm 0.57 0.63 0.69 0.75 0.80 0.89 0.98 1.02 1.06 1.13 Flow	Boom psi 20 25 30 35 40 60 65 50 60 65 50 60 65 50 60 65 50 60 65 50 60 65 50 60 65 60 65 60 60 65 60 60 65 60 60 60 60 60 60 60 60 60 60 60 60 60	10 GPA 13 14 15 17 18 19 20 22 23 24 25 11 13 14 15 16 17 18 19 20 22 23 24 25 24 25 26 27 27 28 28 28 28 28 28 28 28 28 28 28 28 28	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 18 19 10 11 12 13 14 15 16 17 17 18 19 19 10 11 11 12 13 14 15 16 17 17 18 19 19 10 10 11 11 12 13 14 15 16 17 17 17 17 19 Spraye	15gra 8.4 10 11 11 12 13 13 15 16 17 17 19.4 10 11 12 13 14 15 16 17 17 18 19.4 10 11 11 11 11 11 11 11 11 11 11 11 11	d (on 2) 186PA 7.0 7.0 7.0 186PA 18.6 9.3 10 11 11 12 13 13 14 d (on 2) 256PA 6.7 7.5 8.2 8.9 10 11 12 12 13 13 14 d (on 2) 12 13 13 14 d (on 2) 15 PA 18.2 PA 18.2 PA 19.3 PA	0" space 6.3 6.3 6.3 6.3 6.9 7.4 7.9 10 10 10 10 10 10 10 10 10 10 10 10 10	ing) @ 30gPA 4.2 4.7 5.1 5.6 5.9 6.6 7.3 7.6 6.8 8.4 5.9 6.4 6.8 8.3 8.7 9.0 10 ing) @ 30gPA 1	356PA 3.6 4.0 4.4 4.8 5.1 5.7 6.2 6.5 6.7 7.2 9 406PA 4.2 4.7 5.1 5.6 6.3 6.6 7.3 7.6 7.8 8.4	Class C C C C C C C C M M M M M ER8 Class VC C C C M M M M M M M M M M M M M M M M	300-06 322 308 296 287 279 267 253 267 253 249 242 30-08 317 300 286 274 247 240 233 223 200-10	#402' -141 -12% -17% -18% -17% -18% -20% -21% -22% -24% -25% -26% -26% -402' -141 -12% -17% -19% -21% -22% -23% -26% -22% -23% -26% -22% -28% -28% -28% -28% -28% -28% -28	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 600 86% 90% 92% 93% 94% 95% 95% 95%	SR8 Class VC VC C C C C C C C C SR8 Class UC VC XC XC XC XC VC C C C C C C C C C C	0-06 VMD  440 420 403 390 351 344 337 516 490 468 449 432 437 390 368 351 378 388 381 390 390 00-10	#4028 < 141  4% 5% 6% 7% 8% 9% 9% 10% 10% \$\$84028 < 141  7% 8% 8% 9% 10% 11% 12% 113% \$\$#4028	88-06 <600  78% 81% 83% 84% 85% 86% 88% 89% 90% 63-600  559% 63% 66% 74% 75% 76% 76%	MR8 Class  XC XC XC VC VC VC VC UC UC UC UC XC XC XC XC XC VC	526 500-06 VMD 526 508 492 479 468 448 440 433 30-08 VMD 518 500 484 474 448 438 438 430 430 431 448 449 449 449 449 449 449 449 449 449	#4028 <141 2% 3% 4% 5% 5% 5% 5% 6% #4028 <141 	64% 67% 70% 73% 76% 78% 80% 69% 69% 69% 73% 73% 69% 69% 71% 73% 76% 77%	DR8 Classs XC	596 579 596 551 540 551 505 492 30-08 571 619 600 585 571 523 505 549 549 559 559 539 539 539 539 539 539 539 53	#4028 <141 1% 2% 2% 2% 2% 2% 3% 3% 3% 3% 44028 <141 4% 4% 4% 4% 6% 6% 6%	51% 54% 55% 65% 66% 68% 80-08 55% 66% 66% 66% 66% 66% 66% 66% 66% 66%
-06 Nozzles 80 -08	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79 0.85 Flow us gpm 0.57 0.69 0.75 0.80 0.85 0.89 0.98 1.02 1.06 1.13	Boom psi 20 25 30 35 40 45 50 60 65 70 80 45 50 60 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	10 GPA 13 14 15 17 18 19 20 22 23 24 25 15 GPA 11 13 14 15 16 17 18 19 20 22 21 21 21 22 23 24 25 25 26 27 27 28 28 28 28 28 28 28 28 28 28 28 28 28	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 18 19 10 11 12 13 14 15 16 17 17 18 19 19 10 11 11 12 13 14 15 16 17 17 18 19 19 10 10 11 11 12 13 14 15 16 17 17 17 17 19 Spraye	r Speer   156PA   8.4   10   11   12   13   15   15   16   17   17   17   17   17   17   17	d (on 2) 186PA 7.0 186PA 7.0 18.6 9.3 10 11 11 12 13 14 4 (on 2) 256PA 6.7 7.5 8.2 8.9 10 11 12 12 13 13 13 13 13 13 13 13 13 13 13 13 13	0" space 300 pm 10 pm 11	30gPA 4.2 4.7 5.6 5.9 6.3 7.6 7.9 8.4 5.4 5.9 6.4 6.8 7.2 7.6 8.3 7.6 9.0 10	356PA 3.6 4.0 4.4 4.8 5.1 5.7 6.2 6.5 6.7 7.2 4.7 5.1 5.4 6.5 6.7 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7	Class C C C C C C C C M M M M M ER8 Class VC C C C M M M M M M M M M M M M M M M M	322 308 296 287 279 273 267 253 249 242 30-08 307 338 317 300 286 274 264 247 240 242 243 249 249 249 249 249 249 249 249 249 249	#402' <141 12% 15% 17% 18% 20% 22% 24% 22% 24% 25% 4402' <141 12% 15% 17% 17% 21% 22% 2440 27% 27% 27% 28% 29% 29%	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 6600 86% 90% 93% 93% 93% 93% 93% 93% 93% 93	SR8 Class VC VC C C C C C C C C SR8 Class UC VC XC XC XC XC VC C C C C C C C C C C	0-06 VMD 440 420 403 390 378 368 368 400 409 409 409 417 390 378 449 449 449 449 449 449 449 449 449 44	#4028 < 141  4% 5% 6% 7% 7% 8% 9% 10% #4028 < 141  7% 8% 9% 10% 10% 11% 12% 12% 13%	88-06 <600 81% 81% 83% 84% 85% 89% 89% 89% 54% 66% 63% 66% 69% 71% 74% 69% 74% 69% 74%	MR8 Class  XC XC XC VC VC VC VC UC UC UC UC XC XC XC XC XC VC	526 508 492 479 468 448 440 433 419 30-08 518 500 484 477 448 438 438 439 415	#4028 <141 2% 3% 4% 5% 5% 6% #4028 <141 6% 7% 8% 9% 10% 11% 11% 12%	64% 67% 70% 72% 73% 76% 77% 80% 63% 63% 69% 71% 73% 76% 77% 80%	DR8 Classs XC	596 579 554 551 551 540 521 513 600 600 585 571 559 539 531 523 509	#4028 <141 1% 2% 2% 2% 2% 2% 3% 3% 3% #4028 <141 4% 4% 5% 5% 5% 6%	51% 54% 55% 65% 66% 66% 68% 80-08 52% 55% 66% 66% 66% 66% 66% 66% 66% 66% 66
-06 Nozzles 80 -08	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.73 0.76 0.79 0.85 Flow us gpm 0.57 0.63 0.69 0.75 0.80 0.85 0.89 1.02 1.06 1.13 Flow us gpm	Boom psi 20 25 30 35 50 60 60 65 70 80 60 65 70 80 60 65 70 80 60 65 70 80 60 65 70 80 60 65 70 80 80 60 65 70 80 80 65 70 80 80 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	10 GPA 13 14 15 17 18 19 20 22 23 24 25 15 GPA 11 13 14 15 16 17 18 19 20 21 22 23 24 25 25 25 26 27 27 28 28 29 29 20 20 20 20 20 20 20 20 20 20 20 20 20	Spraye  12.5 10 11 12 13 14 15 16 17 18 19 20 Sprayea 10 11 12 13 14 15 16 17 17 18 19 20 Sprayea 10 11 11 12 13 14 15 16 17 17 18 18 19 19 20 Sprayea 10 11 11 12 13 14 15 16 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	15694 8.4 10 11 12 13 13 15 15 16 17 20694 8.4 9.4 10 11 12 13 13 15 15 16 17 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19	d (on 2) 186PA 7.00 186PA 7.00 18.66 9.3 10 11 11 12 13 13 14 4 (on 2) 256PA 6.7 7.5 8.2 10 10 11 12 12 13 13 13 10 10 11 12 12 13 13 10 10 11 12 12 13 13 15 10 10 11 12 12 13 13 15 10 10 11 12 12 13 15 15 15 15 15 15 15 15 15 15 15 15 15	0" space 10 10 10 11 11 11 12 13 30 GPA 8.9 8.9 10 10 11 11 11 12 13 13 10 10 10 10 10 10 10 10 10 10 10 10 10	30gPA 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 6.4 8.8 4.8 5.4 6.8 7.2 6.4 6.8 6.4 6.4 6.8 6.4 6.8 6.4 6.4 6.8 6.4 6.4 6.8 6.4 6.4 6.8 6.4 6.4 6.4 6.4 6.4 6.4 6.4 6.4 6.4 6.4	35gpa 3.6 4.0 4.4 4.8 5.1 5.7 6.2 6.5 6.7 7.2 4.7 5.1 5.6 6.7 7.2 4.7 5.9 6.3 6.6 7.9 8.4 7.9	Class C C C C C C C C M M M M M M M M M M M M	00-06 VMD 322 287 279 273 267 2557 253 249 VMD 367 338 300 286 274 240 233 00-10 VMD	#402' <141' 12%   15%   17%   15%   17%   18%   20%   21%   22%   24%   26%   27%   #402'   25%   22%   22%   22%   22%   22%   22%   22%   22%   22%   22%   22%   22%   22%   22%   23%   22%   23%   22%   23%   22%   23%   24#   24#   24#   24#   24#   24#   25%   25%   25%   26%   27%   28%   27%   28%   27%   28%   27%   28%   27%   28%   27%   28%   27%   28%   27%   28%   27%   28%   27%   28%   27%   28%   27%   28%   21#   21#   21#   22%   23%   24#   24#   25%	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 90% 90% 90% 90% 86% 89% 93% 93% 93% 95% 95% 95% 96%	SR8 Class VC VC C C C C C C C C SR8 Class UC VC XC XC XC XC VC C C C C C C C C C C	0-06 VMD  440 420 403 390 351 344 337 516 490 468 449 432 437 390 379 368	#4028 < 141  4% 5% 6% 7% 8% 9% 9% 10% 10% \$\$84028 < 141  7% 8% 8% 9% 10% 11% 12% 113% \$\$#4028	88-06 <600  78% 81% 83% 84% 85% 86% 88% 89% 90% 63-600  559% 63% 66% 74% 75% 76% 76%	MR8 Class  XC XC XC VC VC VC VC UC UC UC UC XC XC XC XC XC VC	526 500-06 VMD 526 508 492 479 468 448 440 433 30-08 VMD 518 500 484 474 448 438 438 430 430 431 448 449 449 449 449 449 449 449 449 449	#4028 <141 2% 3% 4% 5% 5% 5% 5% 6% #4028 <141 	64% 67% 70% 73% 76% 78% 80% 69% 69% 69% 73% 73% 69% 69% 71% 73% 76% 77%	DR8 Classs XC	596 579 596 551 540 551 505 492 30-08 571 619 600 585 571 523 505 549 549 559 559 539 539 539 539 539 539 539 53	#4028 <141 1% 2% 2% 2% 2% 2% 3% 3% 3% 3% 44028 <141 4% 4% 4% 4% 6% 6% 6%	51% 54% 55% 66% 66% 66% 68% 600 52% 600 52% 60% 66% 66% 66% 66% 66% 60% 60
-06 Nozzles 80 -08	Flow us gpm 0.42 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79 0.85 Flow us gpm 0.57 0.69 0.75 0.80 0.88 0.98 1.02 1.06 1.13 Flow us gpm 0.71	Boom psi 20 25 30 35 50 60 65 70 80 Boom psi 45 50 60 65 70 80 Boom psi 50 60 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	10 GPA 13 14 15 17 18 19 20 22 23 15 GPA 11 13 14 15 16 17 18 19 20 22 25 15 GPA 14 15 16 17 18 19 20 21 22 15 GPA 14 14 15 GPA 14 15 16 17 18 19 20 21 22 15 GPA 14	Spraye  Spraye	15cpee 115cpee 8.4 9.4 10 11 15 15 16 17 17 Speet 20gpa 11 15 15 15 15 15 15 15 15 15 15 15 15	d (on 2) 18epa 7.0 18epa 7.7.0 7.8 8.6 9.3 10 11 11 12 13 13 14 14 12 25epa 10 11 11 12 13 13 14 13 13 14 13 13 14 15 15 16 17 17 18 8.2 8.9 10 11 12 12 12 12 18 8.9 10 11 12 12 13 13 13 14 15 15 16 16 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	0" space 6.3 7.0 7.7 8.3 8.9 10 11 11 12 13 30 69 7.4 8.9 10 10 10 10 10 10 10 10 10 10 10 10 10	30gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 8.4 sing) @ 35gpa 6.4 5.9 6.4 8.3 7.6 8.3 7.6 6.8 7.9 6.4 6.8 7.2 7.6 8.3 7.6 6.8 8.7 9.0 10 40gpa 40gpa 5.3	35gPA 3.6 4.0 4.4 4.8 5.1 5.1 5.4 5.7 7.2 4.2 4.7 7.2 4.7 5.6 6.3 6.6 7.3 6.6 7.9 8.4	Class C C C C C C C C C C C C C C C C C C C	00-06 VMD 322 308 296 287 279 273 267 253 249 242 30-08 317 300 286 274 264 247 240 233 223 00-10 458	#402' <141' 12% 15% 15% 17% 18% 20% 21% 22% 24% 25% 26% 25% 27% 15% 19% 23% 26% 23% 28% 29% #402' 28% 4404 411 9%	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 80% <600 86% 93% 93% 94% 95% 95% 96% 78%	SR8 Classs VC VC VC C C C C C C C C C C C C C C	0-06 VMD  440 420 403 390 378 368 351 344 50-08 VMD  516 490 468 449 432 417 390 368 349 0-10 VMD	#4028 <141  4% 5% 6% 7% 7% 8% 9% 10% 6.6% 10% 88% 10% 11% 12% 112% 12% 13% #4022 <141	88-06 <600  78% 81% 83% 84% 85% 86% 88% 89% 90% 88-08 <600  54% 63% 63% 74% 76% 76% 78% 88-08 <600	MR8 Class  XC XC XC VC VC VC VC UC UC UC UC XC XC XC XC XC VC	526 500-06 VMD 526 508 492 479 468 448 440 433 30-08 VMD 518 500 484 474 448 438 438 430 430 431 448 449 449 449 449 449 449 449 449 449	#4028 <141 2% 3% 4% 5% 5% 5% 5% 6% #4028 <141 	64% 67% 70% 73% 76% 78% 80% 69% 69% 69% 73% 73% 69% 69% 71% 73% 76% 77%	DR8 Classs XC	596 579 596 551 540 551 505 492 30-08 571 619 600 585 571 523 505 549 549 559 559 539 539 539 539 539 539 539 53	#4028 <141 1% 2% 2% 2% 2% 2% 3% 3% 3% 3% 44028 <141 4% 4% 4% 6% 6% 6%	51% 54% 55% 66% 66% 66% 68% 600 52% 600 52% 60% 66% 66% 66% 66% 66% 60% 60
-06 Nozzles 80 -08 Nozzles	Flow us gpm 0.42 0.52 0.56 0.60 0.64 0.67 0.79 0.85 Flow us gpm 0.57 0.63 0.69 0.75 0.80 0.85 1.02 1.06 1.13 Flow us gpm 0.79 0.79 0.79 0.79 0.79 0.79	Boom psi 20 25 30 35 40 45 50 60 65 50 60 65 70 80 Boom psi 20 25 80 80 80 80 80 80 80 80 80 80 80 80 80	10gpa 13 14 15 17 18 19 20 22 23 24 25 15gpa 11 13 14 15 16 17 18 19 20 22 21 22 25 15gpa 16 17 18 18 19 20 21 21 21 21 21 21 21 21 21 21 21 21 21	Spraye  Spraye	17 Speed 17 Speed 18.44 10 11 12 12 13 13 15 15 16 17 17 15 15 15 15 15 15 15 15 15 15 15 15 15	d (on 2) 18epa 7.0 18epa 7.0 7.8 8.6 9.3 10 11 11 12 13 13 14 6.07 7.5 8.2 8.9 10 10 11 11 12 12 13 13 14 14 14 15 16 17 17 18 18 19 10 10 10 10 10 10 10 10 10 10 10 10 10	0" space 6.3 7.0 7.7 8.3 10 10 11 12 13 5.6 6.3 7.0 7.7 8.9 10 10 11 11 12 13 8.9 10 10 11 11 12 13 8.9 10 10 11 11 12 13 8.9 10 10 11 10 11 10 10 10 10 10 10 10 10	30gPA 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 8.4 4.8 5.9 6.4 6.8 8.3 8.7 7.6 8.3 8.7 7.6 6.9 6.4 6.8 8.3 8.7 5.9 5.9 6.4 6.8 8.3 8.7 7.5 6.4 6.8 8.3 8.7 7.5 6.5 8.5 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7	35gPA 3.6 4.0 4.4 4.8 5.1 5.1 5.4 5.7 6.2 6.5 6.7 7.2 9 40gPA 4.2 4.7 5.6 6.9 6.6 7.3 7.6 8.4 4.8 8.4 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6	Class C C C C C C C C C C C C C C C C C C	0-06 VMD 322 308 296 287 279 267 253 267 253 368 317 300 286 249 242 242 242 242 242 242 242 242 242	#402' <141' 12% 15% 15% 15% 12% 20% 21% 22% 24% 26% 26% 27% 26% 214% 12% 22% 26% 29% 28% 26% 28% 28% 26% 28% 26% 28% 28% 28% 26% 27% 38% 26% 28% 28% 28% 28% 29% #402' <141' 10% 15% 21% 22% 22% 22% 22% 24% 10% 10% 10%	70-06 <600 91% 91% 91% 91% 91% 90% 90% 90% 90% 90% 90% 90% 90% 500 86% 89% 92% 93% 95% 95% 95% 95% 80% 80%	SR8 Class VC VC C C C C C C C C C C C C C C C C	440 440 420 420 378 368 351 326 60-08 VMD 516 449 432 432 437 379 379 379 379 400 401 402 403 403 403 403 403 403 403 403 403 403	#4028 <141  4% 5% 6% 7% 7% 8% 9% 10% 10% 10% 110% 12% 11% 12% 11% 12% 13% #4028 <141	88-06 <600  78% 81% 83% 85% 86% 89% 90% 54% 66% 63% 66% 69% 71% 75% 75% 88-10 <600	MR8 Class  XC XC XC VC VC VC C MR8 Class UC UC UC UC UC UC UC UC XC	526 500-06 VMD 526 508 492 479 468 4440 433 419 30-08 500 484 470 448 438 430 448 438 430 448 438 430 448 438 430 448 438 448 448 448 448 449 448 449 448 448 44	#402s <141 2% 3% 3% 4% 4% 5% 5% 6% 7% 8% 9% 10% 11% 12% #402s <141	64% 67% 70% 72% 73% 78% 80% 600 63% 67% 69% 71% 73% 69% 77% 69% 73% 69% 73% 69% 73% 69% 69% 73% 69% 69% 69% 73% 69% 69% 69% 69% 69% 69% 69% 69% 69% 69	Class  XC	596 579 564 551 540 551 505 492 80-08 600 585 571 619 600 585 571 500 600 585 571 500 600 585 571 600 600 600 600 600 600 600 600 600 60	#4028 <141   1%   2%   2%   2%   2%   2%   2%   3%   3	51% 54% 57% 59% 61% 66% 66% 66% 68% 80-08 55% 55% 55% 60% 62% 66% 66% 67% 66% 67%
-06 Nozzles 80 -08	Flow us gpm 0.42 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79 0.85 Flow us gpm 0.57 0.69 0.75 0.80 0.88 0.98 1.02 1.06 1.13 Flow us gpm 0.71	Boom psi 20 25 30 35 50 60 65 70 80 Boom psi 45 50 60 65 70 80 Boom psi 50 60 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	10 GPA 13 14 15 17 18 19 20 22 23 15 GPA 11 13 14 15 16 17 18 19 20 22 25 15 GPA 14 15 16 17 18 19 20 21 22 15 GPA 14 14 15 GPA 14 15 16 17 18 19 20 21 22 15 GPA 14	Spraye  Spraye	15cpee 115cpee 8.4 9.4 10 11 15 15 16 17 17 Speet 20gpa 11 15 15 15 15 15 15 15 15 15 15 15 15	d (on 2) 18epa 7.0 18epa 7.7.0 7.8 8.6 9.3 10 11 11 12 13 13 14 14 12 25epa 10 11 11 12 13 13 14 13 13 14 13 13 14 15 15 16 17 17 18 8.2 8.9 10 11 12 12 12 12 18 8.9 10 11 12 12 13 13 13 14 15 15 16 16 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	0" space 6.3 7.0 7.7 8.3 8.9 10 11 11 12 13 30 69 7.4 8.9 10 10 10 10 10 10 10 10 10 10 10 10 10	30gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 8.4 sing) @ 35gpa 6.4 5.9 6.4 8.3 7.9 6.4 8.3 7.6 6.8 7.9 6.4 6.8 7.2 7.6 8.3 7.6 6.8 8.7 9.0 10 40gpa 40gpa 5.3	35gPA 3.6 4.0 4.4 4.8 5.1 5.1 5.4 5.7 7.2 4.2 4.7 7.2 4.7 5.6 6.3 6.6 7.3 6.6 7.9 8.4	Class C C C C C C C M M M M M M M M M M M M M	30-06 VMD 322 308 296 287 279 273 267 257 267 242 20-08 308 307 300 286 274 240 233 0-10 VMD 458 428 4405	#402' <141' 12% 15% 17% 18% 20% 21% 22% 24% 26% 26% 27% 4402 24% 402 25% 26% 4402 27% 21% 19% 17% 21% 21% 21% 21% 21% 21% 21% 21% 21% 21	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 86% 89% 92% 93% 93% 95% 95% 95% 95% 95% 86% 0-10 <600 78% 82%	SR8 Class VC C C C C C C C C C C C C C C C C C	0-06 VMD  440 420 403 390 378 368 351 344 50-08 VMD  516 490 468 449 432 417 390 368 349 0-10 VMD	#4028 <141  4% 5% 6% 6% 8% 9% 10% 10% 84028 <141 7% 8% 9% 10% 11% 12% 12% 12% 12% 13% #4028 <141 6% 7%	88-06 <600  78% 81% 83% 85% 86% 89% 89% 89% 66% 66% 66% 66% 69% 71% 76% 88-10 <600  55%	MR8 Class  XC XC XC XC VC	526 500-06 VMD 526 508 492 479 468 4440 433 419 30-08 500 484 470 448 438 430 448 438 430 448 438 430 448 438 430 448 438 448 448 448 448 449 448 449 448 448 44	#4028 <141 2% 3% 4% 5% 5% 5% 5% 6% #4028 <141 	64% 67% 70% 73% 76% 78% 80% 69% 69% 69% 73% 73% 69% 69% 71% 71% 73% 76%	Class  XC	596 579 564 551 540 551 505 492 80-08 600 585 571 619 600 585 571 500 600 585 571 500 600 585 571 600 600 600 600 600 600 600 600 600 60	#4028 <141 1% 2% 2% 2% 2% 2% 3% 3% 3% 3% 44028 <141 4% 4% 4% 6% 6% 6%	51% 54% 55% 66% 66% 66% 68% 600 52% 600 52% 60% 66% 66% 66% 66% 66% 60% 60
-06 Nozzles 80 -08 Nozzles	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.79 0.85 Flow us gpm 0.57 0.63 0.69 0.75 0.80 0.85 0.89 1.02 1.06 1.13 Flow us gpm 0.71 0.79 0.87	Boom psi 20 25 30 35 40 45 50 60 65 50 60 65 70 80 Boom psi 20 25 80 80 80 80 80 80 80 80 80 80 80 80 80	10gpa 13 14 15 17 18 19 20 22 23 24 25 11 13 14 15 16 17 18 19 20 21 22 23 24 25 11 12 20 21 21 21 21 21 21 21 21 21 21 21 21 21	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 9.3 10 11 12 13 14 15 16 17 17 17 17 19 Spraye 18 Spraye 18 19 19 10 11 11 11 11 11 11 11 11 11 11 11 11	17 Speed 17 Speed 18.44 10 11 12 12 13 13 15 15 16 17 17 15 15 15 15 15 15 15 15 15 15 15 15 15	d (on 2) 18epa 7.0 18epa 7.0 7.8 8.6 9.3 10 11 11 12 13 13 14 6.07 7.5 8.2 8.9 10 10 11 11 12 12 13 13 14 14 14 15 16 17 18 18 19 10 10 10 10 10 10 10 10 10 10 10 10 10	0" space 6.3 7.0 10 10 11 12 13 5.6 6.3 6.9 8.4 10 10 10 10 11 10 10 10 10 10 10 10 10	30epa 4.2 4.7 5.1 5.6 6.3 6.6 7.3 8.4 5.9 8.4 6.8 7.2 6.8 7.6 6.4 6.8 7.2 6.4 6.8 7.2 6.4 6.8 7.2 6.4 6.8 7.6 6.8 7.6 6.4 6.8 7.6 6.8 6.8 6.8 6.8 6.8 6.8 6.8 6.8 6.8 6	35gpa 3.6 4.0 4.4 4.8 5.1 5.1 5.7 6.2 6.5 6.7 7.2 4.7 5.1 5.6 6.3 6.3 6.3 6.6 7.9 8.4 7.6 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8 9.8	Class C C C C C C C M M M M M M M M M M M M M	30-06 VMD 322 308 296 287 279 273 267 257 267 242 20-08 308 307 300 286 274 240 233 0-10 VMD 458 428 4405	#402' <141' 12% 15% 17% 18% 20% 21% 22% 24% 26% 26% 27% 4402 24% 402 25% 26% 4402 27% 21% 19% 17% 21% 21% 21% 21% 21% 21% 21% 21% 21% 21	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 86% 89% 92% 93% 93% 95% 95% 95% 95% 95% 86% 0-10 <600 78% 82%	SR8 Class VC VC C C C C C C C C C C C C C C C C	440 440 420 420 378 368 351 326 60-08 VMD 516 449 432 432 437 379 379 379 379 400 401 402 403 403 403 403 403 403 403 403 403 403	#4028 <141  4% 5% 6% 6% 8% 9% 10% 10% 84028 <141 7% 8% 9% 10% 11% 12% 12% 12% 12% 13% #4028 <141 6% 7%	88-06 <600  78% 81% 83% 85% 86% 89% 89% 89% 66% 66% 66% 66% 69% 71% 76% 88-10 <600  55%	MR8 Class  XC XC XC XC VC	526 500-06 VMD 526 508 492 479 468 4440 433 419 30-08 500 484 470 470 470 481 470 470 470 470 470 470 470 470 470 470	#402s <141 2% 3% 3% 4% 4% 5% 5% 6% 7% 8% 9% 10% 11% 112% #402s <141 124 14402s <141	64% 67% 70% 72% 73% 76% 80% 800-08 63% 69% 71% 78% 69% 71% 78% 69% 71% 69% 71% 69% 71% 69% 71% 69% 600	Class  XC	596 579 564 551 540 551 505 492 80-08 600 585 571 619 600 585 571 500 600 585 571 500 600 585 571 600 600 600 600 600 600 600 600 600 60	#4028 <141   1%   2%   2%   2%   2%   2%   2%   3%   3	51% 54% 57% 59% 61% 66% 66% 66% 68% 80-08 55% 55% 55% 60% 62% 66% 66% 67% 66% 67%
-06 Nozzles 80 -08 Nozzles	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.85 Flow us gpm 0.57 0.63 0.69 0.75 0.80 0.85 0.89 1.02 1.06 1.13 Flow us gpm 0.71 0.71 0.79 0.87 0.94	Boom psi 20 25 30 35 50 60 65 70 80 Boom psi 20 25 30 35 20 25 30 25 30 35 20 25 30 35 30 35 30 35 35 35 35 35 35 35 35 35 35 35 35 35	10gpa 13 14 15 17 18 19 20 22 23 24 25 15gpa 11 13 14 15 16 17 18 19 20 21 22 23 24 25 11 11 12 20 21 21 21 21 21 21 21 21 21 21 21 21 21	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 1869A 10 11 12 13 14 15 16 17 17 19 18 18 19 11 12 13 14 15 16 17 17 19 18 18 18 18 19 19 10 11 11 11 12 13 14 15 16 17 17 19 19 18 18 18 18 18 18 18 18 18 18 18 18 18	15 Speec 1	d (on 2) 18gra 7.0 18gra 7.0 7.8 8.6 9.3 10 11 11 12 13 14 d (on 2) 125gra 6.7 7.5 8.2 10 10 11 12 12 13 13 14 19 10 11 12 12 13 13 13 13 14 10 10 11 11 11 12 13 13 13 13 13 13 13 13 13 13 13 13 13	0" space 10 10 11 11 11 12 13 0" space 10 10 10 11 11 11 12 13 0" space 10 10 10 10 10 11 10 11 10 10 10 10 10	30gpa 4.2 30gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 8.4 5.9 8.4 5.9 8.4 5.9 10 10 10 10 10 10 10 10 10 10 10 10 10	35gra 3.6 4.0 4.4 4.8 5.1 5.7 6.2 6.5 6.7 7.2 4.7 5.1 6.3 6.6 6.3 6.6 7.9 8.4 9.5 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6 9.6	Class C C C C C C C C C C C C C C C C C C C	30-06 VMD 322 308 296 287 279 273 267 257 253 249 242 30-08 338 317 249 242 240 233 223 30-10 VMD 458 428 428 428 438	#402' <141' 12% 15% 15% 17% 15% 17% 15% 17% 15% 17% 15% 17% 12% 15% 17% 17% 17% 17% 17% 17% 17% 17% 17% 17	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 90% 90% 86% 89% 90% 86% 89% 95% 95% 95% 95% 4600 78% 80% 80% 83%	SR8 Class VC VC C C C C C C C C SR8 Class UC UC XC	0-06 VMD  440 420 403 390 378 368 351 326 0-08 VMD  516 490 379 368 349 432 417 VMD  537 5537 5512 490	#4028 < 141  4% 5% 6% 7% 8% 9% 10% 10% #4028 < 141  7% 8% 8% 9% 10% 12% 12% 13% 6% 7% 7% 7%	88-06 <600  78% 81% 83% 84% 85% 86% 88% 89% 90% 54% 66% 69% 71% 66% 69% 75% 50% 50% 59%	MR8 Class  XC XC XC VC	526 500-06 VMD 526 508 492 479 468 448 449 433 419 30-08 VMD 540 484 477 479 488 430 415 500-10 VMD	#4025 <141 2% 3% 4% 4% 5% 6% #4025 <141 6% 11% 11% 11% 12% 54 40 66%	64% 67% 70% 72% 73% 80% 80% 669% 67% 77% 689% 69% 71% 73% 78% 80% 69% 69% 69% 69% 69% 69% 69% 69% 69% 69	XC X	596 579 564 551 551 551 505 492 80-08 VMD 619 600 585 571 559 531 523 509 VMD	#4028 <141 1% 2% 2% 2% 2% 3% 3% 3% 3% 44% 45% 45% 45% 45%	51% 54% 57% 59% 61% 64% 65% 66% 68% 80-08 <600 55% 66% 62% 65% 66% 65% 66% 65% 66% 65% 60% 65% 65% 65% 65% 65% 55% 55% 55
-06 Nozzles 80 -08 Nozzles	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79 0.85 Flow us gpm 0.57 0.69 0.75 0.80 0.89 0.98 1.02 1.06 1.13 Flow us gpm 0.71 0.79 0.87	Boom psi 20 25 30 45 50 60 65 70 80 Boom psi 20 25 30 35 40 45 50 60 65 30 35 40 65 70 80 Boom psi 20 30 35 40 45 45 50 60 65 70 80 Boom psi 20 20 25 30 35 40 40 40	10gpa 13 14 15 17 18 19 20 22 23 24 25 15gpa 11 13 14 15 16 17 18 19 20 21 22 21 24 25 15 17 18 19 20 21 21 21 21 21 21 21 21 21 21 21 21 21	Spraye  Spraye	T Speet 115cm 8.4 9.4 10 11 12 13 15 15 16 17 T Speet 20grA 8.4 9.4 10 11 12 13 13 15 15 15 16 17 17 Speet 21 11 12 13 13 15 15 15 15 15 15 15 15 15 15 15 15 15	d (on 2) 18epa 7.0 18epa 7.7.0 7.8 8.6 9.3 10 11 11 12 12 12 13 13 14 10 11 11 12 12 12 12 12 12 12 13 13 14 10 11 11 11 12 11 11 11 11 11 11 11 11 11	0" space 6.3 7.0 7.7 8.3 10 10 11 11 12 13 5.6 6.3 7.7 10 10 11 11 12 13 5.6 6.3 10 10 10 11 17 18 18 19 10 10 10 10 10 11 17 18 18 18 19 10 10 10 10 10 11 11 11 12 13 10 10 10 10 11 11 11 12 13 10 10 10 10 11 11 11 11 12 13 10 10 10 10 11 11 11 11 11 12 13 10 10 10 10 10 11 11 11 11 11 11 11 11	30epa 4.2 4.7 5.1 5.6 6.3 6.6 7.3 7.6 7.9 8.4 4.8 5.4 6.8 5.4 6.8 8.7 7.6 6.4 6.8 8.7 7.6 6.9 7.6 7.9 7.6 8.7 7.6 8.7 7.6 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7	35gPA 3.6 4.0 4.4 4.8 5.1 5.7 6.2 6.5 6.7 7.2 9 40gPA 4.2 4.7 5.6 6.3 6.6 7.3 7.6 9 8.4 9 8 8.4 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Class C C C C C C C C C C C C C C C C C C C	20-06 VMD 322 308 296 287 279 273 267 257 253 249 242 242 30-08 VMD 367 300 286 274 247 240 VMD 286 274 249 242 247 240 240 247 240 240 247 240 240 247 240 338 323 323 371	#402' <141' 12% 15% 15% 17% 18% 20% 21% 22% 24% 225% 24% 26% 27% 26% 27% 26% 29% 402' 2141 12% 15% 29% 402' 22% 23% 29% 402' 24% 402' 402' 402' 402' 402' 402' 402' 402'	70-06 <600 91% 91% 91% 91% 91% 90% 90% 90% 80% 90% 90% 90% 89% <600 86% 93% 95% 95% 95% 96% 600 600 600 600 600 600 600 600 600 6	SR8 Class VC VC C C C C C C C C C C C C C C C C	440 420 403 378 368 351 344 337 26 50 0-08 VMD 468 449 490 0-10 VMD 537 512 490 472	#4028 < 141  4% 5% 6% 7% 7% 8% 9% 10% 10% 11% 8% 10% 12% 12% 12% 13% #4024 141 6% 7% 8%	88-06 <600  78% 81% 83% 83% 85% 86% 89% 90% 54% 63% 66% 71% 75% 66% 71% <600  50% 55% 63% 63%	MRECLASS  XC XC XC XC VC	526 500-06 VMD 526 508 492 479 468 448 440 433 419 500-08 518 500 484 470 448 438 415 500-10 VMD	#402s < 141 2% 3% 4% 4% 4% 5% 5% 6% 5% 6% < 141 11% 7% 8% 10% 11% 112% 4402s < 141 55% 6% 6% 6%	64% 67% 70% 72% 73% 80% 6600 63% 67% 69% 67% 69% 73% 80% 69% 69% 69% 69% 69% 69% 69% 69% 69% 69	Class  XC	596 596 597 564 551 540 551 505 492 707 600 585 571 559 539 531 509 80-10 800 800 800 800 800 800 800 800 800 8	#4028 <141   1%   2%   2%   2%   2%   2%   3%   3%   3	51% 54% 59% 61% 65% 66% 66% 68% 66% 68% 600 52% 65% 66% 60% 600 52% 66% 66% 65% 66% 65% 66% 65% 60% 600 55% 60% 600 55% 60% 60% 60% 60% 60% 60% 60% 60
-06 Nozzles 80 -08 Nozzles	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.79 0.85 Flow us gpm 0.57 0.63 0.69 0.75 0.80 0.89 0.98 1.02 1.06 1.13 Flow us gpm 0.77 0.89 0.98 1.02 1.06 1.10 1.06	Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30 35 40 45 50 60 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	10gpa 13 14 15 17 18 19 20 22 25 15gpa 11 13 14 15 16 17 18 19 20 21 25 15gpa 11 17 18 19 20 21 21 21 21 21 21 21 21 21 21 21 21 21	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 11 12 13 10 11 11 12 13 14 15 16 17 17 17 17 19 18 18 19 10 11 11 11 11 11 11 11 11 11 11 11 11	17 Speet 15694 8.4 10 11 12 13 13 15 16 17 15 16 16 17 15 16 16 17 15 16 16 16 16 16 16 16 16 16 16 16 16 16	d (on 2) 18678   7.0   7.8   8.6   9.3   10   11   11   12   13   14   6.7   7.5   8.9   10   11   11   12   13   14   15   16   17   18   19   10   10   10   11   11   12   13   14   16   17   18   19   10   10   10   11   12   13   14   16   17   18   19   19   10   10   11   11   12   13   13   14   16   17   18   19   19   10   11   11   11   11   11	0" space 30 gea 4 10 10 11 10 11 10 10 space 30 gea 4 10 10 10 11 10 11 10 10 10 10 10 10 10	30epa 4.2 4.7 5.1 5.6 6.3 6.6 7.3 6.6 7.9 8.4 4.8 5.4 6.8 7.2 6.4 6.8 7.2 6.4 6.8 7.2 6.4 6.8 7.2 6.4 6.8 7.2 7.6 7.6 7.6 7.7 9.0 10 10 10 10 10 17 17 17 17 17 17 17 17 17 17 17 17 17	35gPA 4.0 4.4 4.8 5.1 5.1 5.4 5.7 6.2 6.5 6.7 7.2 3 40gPA 4.2 4.7 5.6 5.9 6.6 6.7 7.9 8.4 4.2 4.7 5.1 5.6 5.9 6.6 6.6 7.9 6.6 5.9 6.6 7.9 7.9 7.9 7.9 7.9 7.9 7.9 7.9 7.9 7.9	Class C C C C C C C C C C C C C C C C C C C	00-06 VMD 322 308 296 287 279 273 267 257 253 249 242 280 08 317 300 286 274 247 240 233 00-10 VMD 367 338 428 428 405 336 371 358	#402' <141' 12%   15%   17%   18%   20%   21%   22%   24%   24%   26%   26%   26%   27%   214' 12%   15%   22%   24%   24%   24%   24%   24%   24%   24%   26%   27%   26%   27%   28%   28%   28%   28%   28%   28%   39%   1402'  141' 9%   15	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 90% 90% 90% 50-03 86% 89% 93% 93% 95% 95% 95% 95% 80% 82% 83% 83% 83% 83%	SRECULARS VC VC C C C C C C C C C C C C C C C C	440 440 420 443 388 351 326 60-08 70-08 449 449 432 432 490 401 401 401 401 401 401 401 401 401 40	#4028 < 141  4% 5% 6% 7% 7% 8% 9% 10% 10% 10% 11% 12% 11% 12% 11% 6% 7% 7% 88% 88% 88%	88-06 <600  78% 81% 83% 85% 86% 89% 90% 54% 66% 69% 67% 74% 75% 88-10 <600  50% 55% 65% 65%	MRECLASS  XC XC XC XC VC	526 500-06 VMD 526 508 492 479 468 4440 433 419 30-08 50-08 484 430 448 430 448 438 430 448 438 430 448 438 430 500 500 500 500 500 500 500 500 500 5	#402s <141 2% 3% 3% 4% 4% 5% 5% 6% 7% 8% 9% 10% 11% 112% 1141 5% 6% 7%	64% 67% 72% 73% 76% 78% 78% 80% 667% 69% 77% 69% 62% 65% 65% 69%	Class  XC	596 579 596 579 551 540 551 564 492 30-08 700 619 600 585 571 500 700 700 700 700 700 700 700 700 700	#4028 <141 1% 2% 2% 2% 2% 2% 3% 3% 3% 3% 440 4% 4% 4% 4% 4% 5% 6% 6% 44028 <141 4404 5% 5% 6% 6%	51% 54% 57% 59% 61% 65% 66% 66% 68% 80-08 55% 66% 62% 65% 66% 66% 66% 67% 69% 80-10 <600
-06 Nozzles 80 -08 Nozzles	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79 0.85 Flow us gpm 0.57 0.69 0.75 0.80 0.89 0.98 1.02 1.06 1.13 Flow us gpm 0.71 0.79 0.87	Boom psi 20 25 30 45 50 60 65 70 80 Boom psi 20 25 30 35 40 45 50 60 65 30 35 40 65 70 80 Boom psi 20 30 35 40 45 45 50 60 65 70 80 Boom psi 20 20 25 30 35 40 40 40	10gpa 13 14 15 17 18 19 20 22 23 24 25 15gpa 11 13 14 15 16 17 18 19 20 21 22 21 24 25 15 17 18 19 20 21 21 21 21 21 21 21 21 21 21 21 21 21	Spraye  Spraye	T Speet 115cm 8.4 9.4 10 11 12 13 15 15 16 17 T Speet 20grA 8.4 9.4 10 11 12 13 13 15 15 15 16 17 17 Speet 21 11 12 13 13 15 15 15 15 15 15 15 15 15 15 15 15 15	d (on 2) 18epa 7.0 18epa 7.7.0 7.8 8.6 9.3 10 11 11 12 12 12 13 13 14 10 11 11 12 12 12 12 12 12 12 13 13 14 10 11 11 11 12 11 11 11 11 11 11 11 11 11	0" space 6.3 7.0 7.7 8.3 10 10 11 11 12 13 5.6 6.3 7.7 10 10 11 11 12 13 5.6 6.3 10 10 10 11 17 18 18 19 10 10 10 10 10 11 17 18 18 18 19 10 10 10 10 10 11 11 11 12 13 10 10 10 10 11 11 11 12 13 10 10 10 10 11 11 11 11 12 13 10 10 10 10 11 11 11 11 11 12 13 10 10 10 10 10 11 11 11 11 11 11 11 11	30epa 4.2 4.7 5.1 5.6 6.3 6.6 7.3 7.6 7.9 8.4 4.8 5.4 6.8 5.4 6.8 8.7 7.6 6.4 6.8 8.7 7.6 6.9 7.6 7.9 7.6 8.7 7.6 8.7 7.6 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7 8.7	35gPA 3.6 4.0 4.4 4.8 5.1 5.7 6.2 6.5 6.7 7.2 9 40gPA 4.2 4.7 5.6 6.3 6.6 7.3 7.6 9 8.4 9 8 8.4 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Class C C C C C C C C C C C C C C C C C C C	20-06 VMD 322 308 296 287 279 273 267 257 253 249 242 242 30-08 VMD 367 300 286 274 247 240 VMD 286 274 249 242 247 240 240 247 240 240 247 240 240 247 240 338 323 323 371	#402' <141' 12%   15%   17%   18%   20%   21%   22%   24%   24%   26%   26%   26%   27%   214' 12%   15%   22%   24%   24%   24%   24%   24%   24%   24%   26%   27%   26%   27%   28%   28%   28%   28%   28%   28%   39%   1402'  141' 9%   15	70-06 <600 91% 91% 91% 91% 91% 90% 90% 90% 80% 90% 90% 90% 89% <600 86% 93% 95% 95% 95% 96% 600 600 600 600 600 600 600 600 600 6	SRECULARS VC VC C C C C C C C C C C C C C C C C	440 420 403 378 368 351 344 337 26 50 0-08 VMD 468 449 490 0-10 VMD 537 512 490 472	#4028 < 141  4% 5% 6% 7% 7% 8% 9% 10% 10% 11% 8% 10% 12% 12% 12% 13% #4024 141 6% 7% 8%	88-06 <600  78% 81% 83% 83% 85% 86% 89% 90% 54% 63% 66% 71% 75% 66% 71% <600  50% 55% 63% 63%	MRECLASS  XC XC XC XC VC	526 500-06 VMD 526 508 492 479 468 448 440 433 419 500-08 518 500 484 470 448 438 415 500-10 VMD	#402s < 141 2% 3% 4% 4% 4% 5% 5% 6% 5% 6% < 141 11% 7% 8% 10% 11% 112% 4402s < 141 55% 6% 6% 6%	64% 67% 72% 73% 78% 80% 69% 69% 65% 65% 65% 69%	Class  XC	596 596 597 564 551 540 551 505 492 707 600 585 571 559 539 531 509 80-10 800 800 800 800 800 800 800 800 800 8	#4028 <141   1%   2%   2%   2%   2%   2%   3%   3%   3	51% 54% 59% 61% 65% 66% 66% 68% 66% 68% 600 52% 65% 66% 60% 600 52% 66% 66% 65% 66% 65% 66% 65% 60% 600 55% 60% 600 55% 60% 60% 60% 60% 60% 60% 60% 60
-06 Nozzles 80 -08 Nozzles	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.79 0.85 Flow us gpm 0.57 0.63 0.69 0.75 0.80 0.89 0.98 1.02 1.06 1.13 Flow us gpm 0.77 0.89 0.98 1.02 1.06 1.10 1.06	Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30 35 40 45 50 60 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	10gpa 13 14 15 17 18 19 20 22 25 15gpa 11 13 14 15 16 17 18 19 20 21 25 15gpa 11 17 18 19 20 21 21 21 21 21 21 21 21 21 21 21 21 21	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 Spraye 9.3 10 11 12 13 14 15 16 17 17 17 17 19 Spraye 18 18 18 19 19 10 11 11 11 11 11 11 11 11 11 11 11 11	T Speet 1 15 GPA 8.4 10 11 12 13 15 16 17 T Speet 2 2 GPA 11 12 13 13 15 15 16 17 15 16 17 15 16 17 15 16 17 15 16 17 15 16 17 15 16 17 17 Speet 2 13 14 15 16 17 17 17 Speet 1 17 17 Speet 1 17 17 17 17 Speet 1 17 17 17 Speet 1 17 17 17 17 Speet 1 17 17 17 Speet 1 17 17 17 17 Speet 1 17 17 17 17 Speet 1 17 17 17 17 Speet 1 17 17 17 Speet 1 17 17 17 Speet 1 17 17 17 17 Speet 1 17 17 17 17 Speet 1 17 17 17 17 17 17 17 17 Speet 1 17 17 17 17 17 17 17 17 Speet 1 17 17 17 17 17 17 17 17 17 17 17 17 1	d (on 2) 18678   7.0   7.8   8.6   9.3   10   11   11   12   13   14   6.7   7.5   8.9   10   11   11   12   13   14   15   16   17   18   19   10   10   10   11   11   12   13   14   16   17   18   19   10   10   10   11   12   13   14   16   17   18   19   19   10   10   11   11   12   13   13   14   16   17   18   19   19   10   11   11   11   11   11	0" space 30 gea 4 10 10 11 10 11 10 10 space 30 gea 4 10 10 10 11 10 11 10 10 10 10 10 10 10	30gpa 4.2 4.7 5.1 5.6 6.3 6.6 7.3 6.6 7.9 8.4 5.9 8.4 6.8 7.2 7.6 8.3 8.7 9.0 10 10 10 10 10 10 10 10 10 10 10 10 10	35gPA 4.0 4.4 4.8 5.1 5.1 5.4 5.7 6.2 6.5 6.7 7.2 3 40gPA 4.2 4.7 5.6 5.9 6.6 6.7 7.9 8.4 4.2 4.7 5.1 5.6 5.9 6.6 6.6 7.9 6.6 5.9 6.6 7.9 7.9 7.9 7.9 7.9 7.9 7.9 7.9 7.9 7.9	Class C C C C C C C C C C C C C C C C C C C	30-06 VMD 322 308 296 287 279 273 267 257 267 257 30-08 308 307 300 367 338 317 240 242 242 242 242 244 244 244 244 244	#402' <141' 12% 15% 17% 18% 20% 21% 22% 24% 26% 26% 27% #402' 255% 25% 26% 27% 26% 27% 401' 12% 15% 21% 22% 23% 23% 23% 23% 21% 21% 21% 21% 21% 21% 21% 21% 21% 21	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 86% 89% 90% 90% 90% 89% 90% 90% 86% 88% 88% 88%	SREE Class VC VC C C C C C C C C C SREE VC VC XC XC XC XC VC VC C SREE VC VC C SREE VC VC C SREE VC VC C SREE VC SREE VC C SREE VC SREE VC C SREE VC S	440 440 420 443 388 351 326 60-08 70-08 449 449 432 432 490 401 401 401 401 401 401 401 401 401 40	#4028 < 141  4% 5% 6% 7% 7% 8% 9% 10% 10% 10% 11% 12% 11% 12% 11% 6% 7% 7% 88% 88% 88%	88-06 <600  78% 81% 83% 85% 86% 89% 90% 54% 66% 69% 67% 74% 75% 88-10 <600  50% 55% 65% 65%	MRECLASS  XC XC XC XC VC VC VC C C MRECLASS  UC	526 500-06 VMD 526 508 492 479 468 4440 433 419 30-08 50-08 484 430 448 430 448 438 430 448 438 430 448 438 430 500 500 500 500 500 500 500 500 500 5	#402s <141 2% 3% 3% 4% 4% 5% 5% 6% 7% 8% 99% 11% 11% 11% 5% 6% 6% 7% 6% 7% 7%	64% 67% 70% 72% 73% 76% 80% 800-08 667% 69% 71% 80% 80-00 65% 65% 65% 65% 65% 67%	Class  XC	596 579 596 579 551 540 551 564 492 30-08 700 619 600 585 571 500 700 700 700 700 700 700 700 700 700	#4028 <141 1% 2% 2% 2% 2% 2% 3% 3% 3% 3% 4% 4% 4% 4% 4% 4% 4% 5% 6% 6% 6%	51% 54% 557% 59% 61% 65% 66% 68% 80-08 <600 52% 55% 66% 66% 66% 66% 67% 69% 60% 
-06 Nozzles 80 -08 Nozzles	Flow us gpm 0.42 0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79 0.85 Flow us gpm 0.57 0.69 0.75 0.80 1.06 1.13 Flow us gpm 0.71 0.79 0.85 1.00 1.06 1.11 0.79 0.87	Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30 35 40 45 50 60 65 65 65 65 65 65 65 65 65 65 65 65 65	10gpa 13 14 15 17 18 19 20 22 23 24 25 15gpa 11 13 14 15 16 20 21 22 21 22 3 4 25 15gpa 16 17 18 19 20 10 10 10 10 10 10 10 10 10 10 10 10 10	Spraye  Spraye	15cpeer   15cpee	d (on 2) 18epa 7.0 18epa 7.7.0 7.8 8.6 9.3 10 11 11 12 13 13 14 14 15 15 16 17 7.5 8.2 8.9 10 11 12 12 13 13 14 10 10 12 12 12 13 13 13 14 10 11 12 13 13 13 15 15	0" space 6.3 7.0 7.7 8.3 8.9 10 11 11 12 12 13 30 6 PA 7.4 8.9 10 10 10 10 10 10 10 10 10 10 10 10 11 11	30epa 4.2 4.7 5.1 5.6 6.9 6.3 7.6 7.9 8.4 8.5 5.4 6.8 8.7 9.0 10 10 10 10 10 10 10 10 10 10 10 10 10	35gPA 3.6 4.0 4.4 4.8 5.1 5.1 5.4 5.7 6.5 6.7 7.2 4.2 4.7 5.6 6.3 6.6 7.3 8.4	Class C C C C C C C M M M M M M M M M M M M M	0-06 VMD 322 308 296 287 279 273 267 253 249 242 242 30-08 VMD 367 300 286 424 247 240 244 247 240 388 405 358 388 386 371 358 388 388	#402' <141' 12% 15% 15% 17% 18% 20% 21% 22% 26% 25% 26% 27% 15% 19% 23% 23% 29% 4402 21% 22% 4141 12% 19% 19% 10% 13% 14% 14% 15% 14% 18% 18%	70-06 <600 91% 91% 91% 91% 91% 90% 90% 90% 90% 80% <600 86% 92% 93% 94% 95% 95% 95% 95% 95% 84% 84% 82% 82% 84% 85% 87%	SR8 Class VC VC C C C C C C C C SR8 Class UC VC VC VC SR8 Class UC VC VC VC VC XC	0-06 VMD  440 420 403 378 368 381 344 337 326 0-08 VMD  516 490 473 390 378 368 349 0-10 VMD 537 512 455 490 472 455	#4028 < 141  4% 5% 6% 7% 7% 8% 9% 10% 6.6% 10% 10% 11% 8% 8% 9% 12% 6.141 12% 12% 6.7% 7% 8.8% 8% 8% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10	88-06 <600  78% 81% 83% 85% 86% 89% 89% 600  54% 66% 67% 63% 65% 65% 65% 65% 67% 71%	MR8 Class  XC XC XC VC VC VC C MR8 Class  UC	526 500-06 VMD 526 508 492 479 468 440 433 419 500-08 VMD 518 500 415 500 415 500-08 448 430 415 500-08 448 430 448 430 448 448 430 448 430 448 448 449 448 449 448 449 448 449 448 449 449	#402s <141 2% 3% 3% 4% 4% 6% 5% 6% #402s <141 11% 11% 11% 66% 74% 66% 67% 68% 67% 8%	64% 67% 70% 72% 73% 80% 67% 67% 669% 69% 80% 69% 69% 69% 69% 69% 69% 67% 77% 78% 80% 80% 77% 78% 77% 78% 80% 77% 78% 80% 77% 78% 80% 77% 80% 80% 80% 80% 80% 80% 80% 80% 80% 80	Class  XC	596 596 597 564 551 540 521 513 505 492 771 559 639 531 509 771 559 539 531 509 771 559 539 531 509 600 600 600 600 600 600 600 6	#4028 <141   1%   2%   2%   2%   2%   2%   3%   3%   3	51% 54% 55% 65% 66% 66% 68% 3<600 52% 55% 66% 66% 66% 66% 66% 65% 66% 65% 66% 65% 66% 65% 66% 65% 66% 65% 60% 65% 66% 66% 66% 65% 66% 66% 66% 66% 66
-06 Nozzles 80 -08 Nozzles	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.79 0.85 Flow us gpm 0.57 0.69 0.75 0.80 0.85 1.02 1.06 1.13 Flow us gpm 0.77 0.89 0.98 1.02 1.06 1.13 Flow us gpm 1.02 1.06 1.12 1.22 1.27	Boom psi 20 25 30 35 40 45 50 60 65 30 35 40 45 50 60 65 60 65 60 65 60 65 60 65 60 65 60 65 60 65 60 65 60 65 60 65 60 65 60 65	10gpa 13 13 14 15 17 20 22 23 24 25 15gpa 11 13 14 15 16 17 18 19 20 21 22 21 22 21 22 22 23 24 25 26 27 28 29 29 20 20 20 20 20 20 20 20 20 20 20 20 20	Spraye 112.5 10 11 112 13 14 15 16 17 18 19 20 21 13 14 15 16 17 17 19 18 18 18 19 20 21	17 Speed 1. 15	d (on 2) 18era 7.0 18era 7.0 7.8 8.6 9.3 10 11 11 12 13 13 14 6.7 7.5 8.2 8.9 10 10 11 11 12 12 13 13 14 11 12 12 13 13 14 15 15	0" space 6.3 7.0 7.7 8.3 10 10 11 12 13 5.6 6.3 7.0 7.7 8.9 10 10 11 11 12 13 5.6 6.3 10 10 10 11 11 12 13 13 10 10 10 10 11 11 11 12 13 13 10 10 10 10 11 11 11 11 11 11 11 11 11	30epa 4.2 4.7 5.1 5.6 6.3 6.6 7.3 6.6 7.9 8.4 4.8 5.4 6.8 7.2 7.6 8.3 8.7 10 10 10 10 10 11 10	35gPA 3.6 4.0 4.4 4.8 5.1 5.7 6.2 6.5 6.7 7.2 9 6.3 6.6 7.3 7.6 9 8.4 9 4.7 9 8.4 9 9 8.4 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Class C C C C C C C M M M M M M M M M M M M M	0-06 VMD 322 308 296 287 279 273 267 257 253 249 242 242 30-08 VMD 367 338 274 247 240 0 VMD 286 274 247 240 367 338 428 428 405 386 371 358 346 328 320	#402' <141' 12% 15% 15% 12% 20% 24% 22% 24% 15% 15% 15% 15% 22% 26% 22% 2141 12% 15% 20% 26% 22% 2141 12% 15% 21% 21% 15% 15% 15% 15% 15% 15% 15% 15% 15% 1	70-06 <600 91% 91% 91% 91% 91% 90% 90% 90% 90% 90% 90% 90% 89% <600 86% 89% 92% 93% 95% 95% 96% 80% 80% 88% 88% 88% 88%	SR8 Class VC VC C C C C C C C C C C C C C C C C	440 440 420 420 378 368 351 344 337 326 0-08 VMD 516 449 449 4417 390 379 57 512 490 490 449 4417 449 449 449 449 449 449 449 44	#4028 < 141  4% 5% 6% 7% 7% 8% 9% 10% 10% 10% 8% 4028 4141  12% 6% 7% 5% 8% 8% 8% 9% 10% 10% 10% 10%	88-06 <600  78% 81% 83% 85% 86% 89% 89% 89% 896 63% 66% 71% <600  50% 55% 66% 67% 67% 72%	Class  XC XC XC VC VC VC C MRR Class  UC UC UC UC XC	526 500-06 VMD 526 508 492 479 468 448 440 433 419 500-08 540 484 470 448 438 470 448 438 470 484 470 485 500 484 486 487 487 488 488 488 488 488 488 488 488	#402s < 141 2% 3% 4% 4% 4% 5% 5% 5% 6% 6% 9% 10% 112% 112% 112% 5% 6% 6% 7% 7% 8% 8% 8% 8%	64% 67% 70% 80% 80% 80% 6600 62% 6600 66% 67% 69% 77% 6600 66% 67% 66% 67% 65% 67% 67% 67% 67% 67% 67% 67% 67% 67% 67	Class  XC	50-06 VMD 596 579 564 551 540 521 513 505 492 80-08 VMD 619 600 585 571 559 539 531 509 VMD 611 611 611 596 582 571 561 544 537	#4028 <141 1% 2% 2% 2% 2% 3% 3% 3% 3% 3% 440 4% 4% 5% 5% 6% 6% 6% 5% 5% 6% 6% 6% 7%	51% 54% 57% 59% 61% 65% 66% 68% 80-08 52% 55% 55% 66% 66% 66% 66% 66% 66
-06 Nozzles 80 -08 Nozzles	Flow us gpm 0.42 0.52 0.56 0.60 0.64 0.67 0.79 0.85 Flow us gpm 0.57 0.63 0.69 0.75 0.80 0.89 0.98 1.02 1.06 1.13 Flow us gpm 0.77 0.87 0.87 0.87 0.94 1.06 1.12 1.22 1.22 1.32	Boom psi 20 25 30 35 60 60 65 70 45 50 60 65 70 80 Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 60 65 70 80 Boom psi 20 60 65 70 80 Boom psi 20 70 Boom psi 20 70 Boom psi 20 80 Boom psi	10gpa 13 14 15 17 18 19 20 22 25 15gpa 11 13 14 15 16 17 18 19 20 21 22 25 15gpa 11 11 12 20 21 22 25 25 26 27 27 20 27 27 27 27 27 27 27 27 27 27 27 27 27	Spraye 12.5 10 11 12 13 14 15 16 17 18 19 20 11 11 12 13 14 15 16 17 17 17 17 17 17 18 18 18 19 20 10 20 20 20 20 20 20 20 20 20 20 20 20 20	15 Speed 15	d (on 2) 18678   7.0   7.8   8.6   9.3   10   11   11   12   13   14   6.7   7.5   8.2   25674   10   11   12   13   14   10   11   12   13   14   15   16   16   17   18   18   19   10   10   11   11   12   13   14   15   16   16   17   18   18   19   19   19   19   19   19	O" space 6.3 7.0 7.7 8.3 10 10 11 11 12 13 5.6 6.3 6.9 10 10 11 11 12 13 13 10 10 10 11 11 12 13 13 13	30epa 4.2 4.7 5.1 5.6 6.3 6.6 7.3 6.6 7.9 8.4 4.8 5.4 6.8 7.2 6.4 6.8 7.2 6.4 6.8 7.2 7.6 6.4 6.9 10 10 10	35gPA 3.6 4.0 4.4 4.8 5.1 5.1 5.4 5.7 7.2 4.2 4.7 7.2 4.7 5.6 5.9 6.3 7.6 7.9 8.4 4.2 4.7 5.1 5.6 6.6 7.3 7.6 7.9	Class C C C C C C C C C C C C C C C C C C C	30-06 WMD 322 308 296 287 279 273 267 257 267 257 30-08 308 308 296 274 240 242 243 300 286 274 240 243 300 458 405 386 386 388 405 386 381 388 388 388 388 388 388 388 388 388	#402' <141' 12%   15%   17%   18%   20%   21%   22%   24%   24%   26%   26%   26%   27%   26%   214' 12%   15%   21%   22%   24%   24%   24%   24%   24%   24%   26%   27%   28%   28%   28%   27%   28%   28%   39%   11%   15%   16%   15%   15%   15%   15%   18%   19%   1	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 80% 90% 90% 80% 70-08 86% 89% 93% 95% 95% 95% 95% 80% 82% 88% 88%	SR8 Class VC VC C C C C C C C C C C C C C C C C	440 440 420 443 388 381 381 382 60-08 70-0	#4028 <141  4% 5% 6% 7% 7% 8% 9% 10% 10% <141  7% 8% 8% 9% 10% 11% 12% 12% 141  6% 7% 7% 8% 8% 8% 99% 10% 10% 10% 10%	88-06 <600  78% 81% 83% 85% 86% 89% 90% <600  54% 66% 63% 66% 69% 74% 55% 55% 55% 66% 67% 71% 67% 71% 71% 71%	MR8 Classs  XC XC VC VC VC VC C MR8 Classs  UC UC UC UC XC	526 500-06 VMD 526 508 492 479 468 4440 433 419 30-08 50-08 470 448 430 430 470 448 430 415 500 484 430 448 430 448 430 448 449 440 440 440 440 440 440 440 440 440	#402s <141 2% 3% 4% 4% 4% 5% 5% 6% 7% 8% 10% 11% 112% 114% 115% 6% 6% 7% 8% 8% 8% 8%	64% 67% 72% 73% 76% 78% 80% 69% 71% 69% 77% 78% 69% 77% 69% 77% 66% 66% 66% 65% 69% 70% 72% 73% 74%	Class  XC	596 579 596 579 551 540 551 505 492 30-08 500 585 571 503 509 531 509 509 509 509 509 509 509 509 509 509	#4028 <141 1% 2% 2% 2% 2% 2% 3% 3% 3% 3% 44028 <141  3% 4% 4% 4% 4% 6% 6% 6% 6% 6% 6% 6% 6% 7%	51% 54% 55% 66% 66% 66% 66% 66% 66% 66
-06 Nozzles 80 -08 Nozzles	Flow us gpm 0.42 0.47 0.52 0.56 0.60 0.64 0.67 0.79 0.85 Flow us gpm 0.57 0.69 0.75 0.80 0.85 1.02 1.06 1.13 Flow us gpm 0.77 0.89 0.98 1.02 1.06 1.13 Flow us gpm 1.02 1.06 1.12 1.22 1.27	Boom psi 20 25 30 35 40 45 50 60 65 30 35 40 45 50 60 65 60 65 60 65 60 65 60 65 60 65 60 65 60 65 60 65 60 65 60 65 60 65 60 65	10gpa 13 13 14 15 17 20 22 23 24 25 15gpa 11 13 14 15 16 17 18 19 20 21 22 21 22 21 22 22 23 24 25 26 27 28 29 29 20 20 20 20 20 20 20 20 20 20 20 20 20	Spraye 112.5 10 11 112 13 14 15 16 17 18 19 20 21 13 14 15 16 17 17 19 18 18 18 19 20 21	T Speed 11567 8.4 9.4 10 11 12 13 13 15 15 16 17 T Speed 20674 11 12 13 13 15 15 15 16 17 15 15 15 15 15 15 15 15 15 15 15 15 15	d (on 2) 18era 7.0 18era 7.0 7.8 8.6 9.3 10 11 11 12 13 13 14 6.7 7.5 8.2 8.9 10 10 11 11 12 12 13 13 14 11 12 12 13 13 14 15 15	0" space 6.3 7.0 7.7 8.3 10 10 11 12 13 5.6 6.3 7.0 7.7 8.9 10 10 11 11 12 13 5.6 6.3 10 10 10 11 11 12 13 13 10 10 10 10 11 11 11 12 13 13 10 10 10 10 11 11 11 11 11 11 11 11 11	30epa 4.2 4.7 5.1 5.6 6.3 6.6 7.3 6.6 7.9 8.4 4.8 5.4 6.8 7.2 7.6 8.3 8.7 10 10 10 10 10 11 10	35gPA 3.6 4.0 4.4 4.8 5.1 5.7 6.2 6.5 6.7 7.2 9 6.3 6.6 7.3 7.6 9 8.4 9 4.7 9 8.4 9 9 8.4 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Class C C C C C C C M M M M M M M M M M M M M	30-06 WMD 322 308 296 287 279 273 267 257 267 257 30-08 308 308 296 274 240 242 243 300 286 274 240 243 300 458 405 386 386 388 405 386 381 388 388 388 388 388 388 388 388 388	#402' <141' 12% 15% 15% 12% 20% 24% 22% 24% 15% 15% 15% 15% 22% 26% 22% 2141 12% 15% 20% 26% 22% 2141 12% 15% 21% 21% 15% 15% 15% 15% 15% 15% 15% 15% 15% 1	70-06 <600 92% 91% 91% 91% 91% 90% 90% 90% 90% 80% 90% 90% 80% 70-08 86% 89% 93% 95% 95% 95% 95% 80% 82% 88% 88%	SR8 Class VC VC C C C C C C C C C C C C C C C C	440 440 420 443 388 381 381 382 60-08 70-0	#4028 <141  4% 5% 6% 7% 7% 8% 9% 10% 10% <141  7% 8% 8% 9% 10% 11% 12% 12% 141  6% 7% 7% 8% 8% 8% 99% 10% 10% 10% 10%	88-06 <600  78% 81% 83% 85% 86% 89% 90% <600  54% 66% 63% 66% 69% 74% 55% 55% 55% 66% 67% 71% 67% 71% 71% 71%	MR8 Classs  XC XC VC VC VC VC C MR8 Classs  UC UC UC UC XC	526 500-06 VMD 526 508 492 479 468 448 440 433 419 500-08 540 484 470 448 438 470 448 438 470 484 470 485 500 484 486 487 487 488 488 488 488 488 488 488 488	#402s < 141 2% 3% 4% 4% 4% 5% 5% 5% 6% 6% 9% 10% 112% 112% 112% 5% 6% 6% 7% 7% 8% 8% 8% 8%	64% 67% 72% 73% 76% 78% 80% 69% 71% 69% 77% 78% 69% 77% 69% 77% 66% 66% 66% 65% 69% 70% 72% 73% 74%	Class  XC	50-06 VMD 596 579 564 551 540 521 513 505 492 80-08 VMD 619 600 585 571 559 539 531 509 VMD 611 611 611 596 582 571 561 544 537	#4028 <141 1% 2% 2% 2% 2% 2% 3% 3% 3% 3% 44028 <141  3% 4% 4% 4% 4% 6% 6% 6% 6% 6% 6% 6% 6% 7%	51% 54% 57% 59% 61% 65% 66% 68% 80-08 52% 55% 55% 66% 66% 66% 66% 66% 66

NOTE: 'SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. 'Shown application information is based on water @ 80°F in a controlled environment and should not be considered actual. Information is provided for comparison to other Combo-Jet® spray tips, for educational purposes only. Repeat testing results can vary.



### **COMBO-JET 80° Spray Tips - Standard Sprayer Systems**

	Flow us gpm	Boom psi	20 <sub>GPA</sub>	25 <sub>GPA</sub>	30 <sub>GPA</sub>	35 <sub>GPA</sub>		45 <sub>GPA</sub>	50 <sub>GPA</sub>	Class		<141	<600	Class	VMD	<141	38-125 <600	MR8 Class		#4029 <141		DR8 Class	0-125 VMD	#4028 <141	0-125 <600
80	0.99 1.08 1.17	25 30 35	15 16 17	12 13 14	10 11 12	9.2 10	7.3 8.0 8.7	6.5 7.1 7.7	5.9 6.4 6.9	XC XC VC	433 413 397	10% 11% 12%	79% 81% 82%	UC	531 509 490	6% 7% 8%	51% 55% 58%	UC	585 569	5% 6%	56% 58%	UC	624 609	4% 4%	50% 52%
-125 Nozzles	1.25 1.33 1.40	40 45 50	19 20 21	15 16 17	12 13 14	11 11 12	9.3 10 10	8.3 8.8 9.2	7.4 7.9 8.3	C C	383 372 362	13% 14% 14%	83% 84% 85%	XC XC	474 460 447	9% 9%	61% 63% 65%	UC UC UC	556 545 535	6% 7% 7%	60% 62% 63%	UC UC UC	595 584 574	5% 5% 5%	54% 56% 57%
	1.53 1.59 1.65	60 65 70	23 24 25	18 19 20	15 16 16	13 14 14	11 12 12	10 11 11	9.1 10 10	C C	345 338 331	15% 16% 16%	87% 87% 88%	XC XC	425 416 407	10% 10% 11%	68% 69% 70%	UC UC XC	519 511 505	8% 8% 8%	66% 67% 67%	UC UC UC	557 549 543	6% 6% 6%	59% 60% 61%
	1.77 Flow us gpm	80 Boom psi	26 25gpa	21	18 r Spee 35gpa	15 d (on 2	13	12 cing) @ 50gpa	11 55gpa	M	320 0-15 VMD	17% #402	88% 70-15 <600	VC	391 30-15 VMD	11%	72% 88-15 <600	XC	493 80-15 VMD	9% #4029 <141	69% 90-15 <600	UC	531 0-15 VMD	6% #4028 <141	63%
00	1.19 1.30	25 30	14 15	12 13	10 11	8.8 10	7.8 8.6	7.0 7.7	6.4 7.0	XC XC	434 412	9% 10%	78% 79%	UC	576 554	5% 6%	43% 47%		513	7%	66%	UC	637	3%	48%
80 -15 Nozzles	1.40 1.50 1.59	35 40 45	17 18 19	14 15 16	12 13 14	10 11 12	9.3 10 11	8.3 8.9 10	7.6 8.1 8.6	VC C	394 379 366	11% 12% 13%	80% 81% 82%	UC UC UC	535 519 505	6% 6% 7%	56%	UC UC XC	495 480 467	8% 8% 9%	70% 72%	UC UC UC	620 605 592	3% 3% 4%	51% 53% 55%
	1.68 1.84 1.91	50 60 65	20 22 23	17 18 19	14 16 16	12 14 14	11 12 13	10 11 11	9.1 10 10	C C M	355 337 329	14% 15% 16%	82% 83% 84%	XC XC	492 471 461	7% 7% 7%	58% 61% 62%	XC XC	456 438 430	9% 10% 11%	73% 75% 76%	UC	581 562 554	4% 4% 4%	57% 59% 61%
	1.98 2.12 Flow	70 80 Boom	24 25	20 21 Spraye	17 18	15 16	13 14 0" spac	12 13	11	M M FR8	322 310 0-20	17% 18% #402	84% 85% 70-20	XC XC	452 436 30-20	8% 8% #4028	63% 65% 88-20	VC MR	422 410 80-20	11% 12% #4029	77% 78%	UC UC DB8	547 534 0-20	4% 5% #4028	62% 63%
	us gpm 1.58 1.73	psi 25 30		35 <sub>GPA</sub> 13	40 <sub>GPA</sub> 12 13	45 <sub>GPA</sub> 10	50gpa 9.4 10	55 <sub>GPA</sub> 8.5 9.4	60gpa 7.8 8.6	Class UC XC	VMD	<141 8% 9%	<600 71% 73%	Class	VMD	<141 5% 5%		Class			<600 58%	Class	VMD 628	<141	<600 50%
80 -20	1.87 2.00	35 40	19 20	16 17	14 15	12 13	11 12	10 11	9.3 10	XC XC	442 427	10% 11%	75% 76%	UC	532 515	6% 6%	51% 54%	UC	542 523	5% 6%	62% 64%	UC	606 587	3% 4%	54% 56%
Nozzles	2.12 2.24 2.45	45 50 60	21 22 24	18 19 21	16 17 18	14 15 16	13 13 15	11 12 13	11 11 12	VC C	415 403 385	11% 12% 13%	78% 79% 81%	UC XC	500 487 464	6% 7% 7%	56% 58% 62%	UC UC XC	508 494 472	7% 7% 8%	66% 68% 71%	UC UC UC	571 556 533	4% 4% 5%	59% 61% 64%
	2.55 2.65 2.83	65 70 80	25 26 28	22 22 24	19 20 21	17 17 19	15 16 17	14 14 15	13 13 14	C C	377 370 357	13% 14% 15%	81% 82% 83%	XC XC	454 444 427	7% 7% 8%	63% 64% 66%	XC XC	462 453 438	8% 8% 9%	72% 73% 74%	UC UC UC	523 514 498	5% 5% 5%	65% 66% 68%
	Flow us gpm 1.98	Boom psi <b>25</b>	35gpa 17	Spraye 40 <sub>GPA</sub> 15		d (on 2 50gpa 12	0" spac 55 <sub>GPA</sub> 11		70gpa 8.4	Class	0-25 VMD 485		70-25 <600 70%	Class	30-25 VMD 532		88-25 <600 51%		80-25 VMD	#4029 <141	90-25 <600		0-25 VMD	#4028 <141	_
80 -25	2.17 2.34 2.50	30 35 40	18 20 21	16 17 19	14 15 17	13 14 15	12 13 14	11 12 12	9.2 10 11	XC XC	462 443 427	10% 10% 11%	72% 74% 75%	UC	511 494 479	5% 6% 6%	54% 57% 59%	UC	604 583 566	4% 4% 4%	55% 58% 60%	UC UC UC	657 635 617	3% 3% 3%	46% 49% 52%
Nozzles	2.65 2.80 3.06	45 50 60	23 24 26	20 21 23	18 18 20	16 17 18	14 15 17	13 14 15	11 12 13	VC VC C	414 402 383	12% 12% 13%	76% 77% 79%	XC XC	466 454 434	7% 7% 7%	61% 62% 65%	UC UC UC	552 539 518	5% 5% 5%	62% 63% 66%	UC UC UC	601 587 563	3% 3% 4%	55% 57% 60%
	3.19 3.31 3.54	65 70 80	27 28 30	24 25 26	21 22 23	19 20 21	17 18 19	16 16 18	14 14 15	C C	375 367 354	14% 14% 15%	79% 80% 81%	XC XC	425 417 402	8% 8% 8%	66% 67% 68%	UC	508 500 485	6% 6% 6%	67% 68% 69%	UC UC UC	553 544 528	4% 4% 4%	61% 62% 64%
	Flow us gpm 2.37	Boom psi 25		Spraye	r Spee		0" spac			ER8 Class	0-30 VMD 506		70-30 <600 67%	SR	30-30 VMD	#4028	88-30 <600	MR	80-30		90-30	DR8	0-30	#4028 <141	30-30
80	2.60 2.81	30 35	19 21	15 17	13 14	11 12	10 10	8.6 9.3	7.7 8.3	XC	481 461	6% 7%	69% 71%	UC	490	5% 5%	54% 57%	UC	591 572	4% 4%	55% 58%	UC	654 623	2%	47% 51%
-30 Nozzles	3.00 3.18 3.35	40 45 50	22 24 25	18 19 20	15 16 17	13 14 14	11 12 12	10 11 11	8.9 10 10	XC XC	444 430 417	7% 8% 9%	74% 75%	XC XC	474 461 449	6% 6%	59% 61% 62%	UC	556 542 530	4% 5% 5%	60% 62% 64%	UC UC	597 575 556	3% 3% 3%	54% 57% 59%
	3.67 3.82 3.97	60 65 70	27 28 29	22 23 24	18 19 20	16 16 17	14 14 15	12 13 13	11 11 12	XC XC VC	397 388 380	9% 10% 10%	77% 77% 78%	XC XC	429 421 414	6% 7% 7%	65% 66% 67%	UC	510 501 493	5% 5% 6%	67% 68% 69%	UC UC UC	525 512 500	3% 3% 4%	63% 65% 66%
	4.24 Flow us gpm	80 Boom psi	50gpa			80gpa	16 0" spac 90gpa		120	ER8 Class	0-40 VMD	#402 <141	70-40 <600	SR8 Class	30-40 VMD	#4028 <141	69% 88-40 <600	MR: Class	80-40 VMD	#4029 <141	90-40	XC	479	4%	68%
80	3.74 4.00 4.24	35 40 45	22 24 25	19 20 21	16 17 18	14 15 16	12 13 14	11 12 13	9.3 10 11	XC XC		7% 8% 9%	71% 73% 74%	XC	481 467 455	5% 5% 5%	58% 60% 62%	UC		4% 5% 5%	61% 63% 65%				
-40 Nozzles	4.47 4.90 5.10	50 60 65	27 29 30	22 24 25	19 21 22	17 18 19	15 16 17	13 15 15	11 12 13	XC XC	418 398 390	9% 10% 10%	75% 77% 77%	XC	445 428 420	6% 6% 6%	63% 66% 67%	XC	498 477 468	5% 5% 6%	66% 68% 69%				
	5.29 7.07	70 80 Boom	31 42	26 35	22 30	20 26	17 23 0" spac	16 21	13 18		382 369 0-50	11%	78% 79%	XC	414	6% 7%	67% 69%	XC	460 446	6% 6%	70% 72%				
	us gpm 4.68 5.00	98i 35 40	70gpa 20 21		90gpa 15 17	100 14 15	110 13 14	120 12 12		Class	VMD 466	<141 7% 7%	<600												
80 -50 Nozzles	5.30 5.59 6.12	45 50 60	23 24 26	20 21 23	18 18 20	16 17 18	14 15 17	13 14 15	12 13 14	XC XC XC	437	8% 8% 9%	73% 74% 76%												
11022165	6.37 6.61	65 70	27 28	24 25	21 22	19 20	17 18	16 16	15 15	XC XC	396 389	9% 9%	76% 77%												
	us gpm	Boom psi	90gpa	120	140	160	19 0" spac 180	200	220	ER8 Class		<141	70-60 <600												
80	5.61 6.00 6.36	35 40 45	19 20 21	14 15 16	12 13 14	10 11 12	9.3 10 11	8.3 8.9 10	7.6 8.1 8.6	XC	433	8% 8% 9%	70% 71%												
-60 Nozzles	6.71 7.35 7.65	50 60 65	22 24 25	17 18 19	14 16 16	12 14 14	11 12 13	10 11 11	9.1 10 10	XC XC	422 405 397	9% 10% 10%	72% 74% 75%												
	7.94 8.49	70 80	26 28	20	17 18	15 16	13 14	12 13	11	VC	391 379	11%	76% 78%	-											



### **COMBO-JET 110° Spray Tips - Standard Sprayer Systems**

Comprehensive rate & speed charts for any nozzle spacing/speed/rate is available on Tip Wizard. Try it today!

Disclaimer: These charts are published for comparative purposes to demonstrate the differences in the series of Combo-Jet® spray tips. Data used to populate this chart is extrapolated from third party testing data from a controlled conditions test with water as the testing solution. Actual spray applications with active chemical ingredients may change the spray dynamics and spray tip performance specifications. Wilger is not liable for any misuse or misrepresentation of this information, leading to (but not limited to) incorrect spray application, crop damage, or any other harm. (Not limited to human, livestock or environmental). Always verify these charts with the most recent charts found on the www.wilger.net, and ALWAYS follow chemical label nozzle requirements.

ASABE Spray Classification (ASABE 8572.1 Standard)
Spray quality is categorized based on Dv0.1 and VMD droplet sizes.

Objective testing data (by 3rd party), from spray spectrum recording equipment (without wind tunner use), has been used to classify spray quality for this chart. Extra data (e.g. VMD, etc.) can vary between testing equipment and method, and is provided as an educational resource only.

Fine (F)
Medium (M)
Coarse (C)
Very Coarse (VC)
Extremely Coarse (XC)
Ultra Coarse (UC)

VMD (Volume Median Diameter)
The median droplet (in µ) for a sprayed volume. Half of the volume is made of droplets smaller, with half made up of droplets larger.

\*\*X < 141 | Percentage likely to drift hight incredift will income.

% <141µ (% Driftable Fines)
Percentage of volume which is
likely to drift. As wind & boom
height increase, observed spray
drift will increase substantially.

% <600μ (% of Small Droplets) % of volume which is made up of 'small' droplets, useful for coverage. As % of useful droplets lowers, overall coverage is reduced.

ps sized up to 11	esting equipm 0-06 verified o								m. ■ Ult				ha	alf mad	de up of	droplets	larger.	┸	drift will	increas	e substa	antially.	⅃∟	overal	l coveraç	je is re	duced
Nozzle	Flow			\nnlica	tion Ra	ate in U	S Gallo	ne/Acr	P			Snrav	Classi	fication	nn· VMI	D (Dror	olet Size	e in II	)· %<1	41ıı (D	rift %)	· % <f< td=""><td>500u (9</td><td>Small D</td><td>ronlets</td><td><u> </u></td><td></td></f<>	500u (9	Small D	ronlets	<u> </u>	
Size &	Rate	PSI	,			Nozzle					ER110	)° Serie		iioutii		° Serie				)° Serie				)° Serie			Serie
Angle	USGPM	D				Speed -				Class				Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VM
	Flow us gpm	Boom psi	4 <sub>GPA</sub>	Spraye 5 <sub>GPA</sub>	r Spee 6 <sub>GPA</sub>	d (on 2 7.5	U" spac	CING) @ 9GPA	10 <sub>GPA</sub>	Class	10-01 VMD	#402  <141															
	0.07	20	5.3	4.2	3.5	_	2.6	2.3	2.1	F	148		100%														
	0.08	25	5.9	4.7	3.9	3.1	2.9	2.6	2.3	F	144		100%														
110	0.09	30	6.4	5.1	4.3	3.4	3.2	2.9	2.6	F	140		100%														
-01 Nozzles	0.09	35 40	6.9 7.4	5.6 5.9	4.6 5.0	3.7 4.0	3.5	3.1	3.0	F	136 133		100% 100%														
	0.11	45	7.9	6.3	5.3	4.2	3.9	3.5	3.2	F	131		100%														
	0.11	50	8.3	6.6	5.5	4.4	4.2	3.7	3.3	F	128		100%														
	0.12	60 65	9.1 9.5	7.3 7.6	6.1	4.8 5.0	4.5	4.0	3.6	F	124 122		100% 100%														
	0.13 0.13	70	9.8	7.0	6.3	5.2	4.7	4.4	3.9	F	121		100%														
	0.14	80	11.0		7.0	5.6	5.3		4.2	F	118		100%														
		Boom				d (on 2											37-015										
	us gpm 0.11	psi <b>20</b>	4 <sub>GPA</sub> 7.9	5 <sub>GPA</sub> 6.3	6gpa 5.3	7.5 4.2	3.9	10gpa 3.2	12 <sub>GPA</sub> 2.6	Class	153		<600 100%	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600		
	0.12	25	8.8	7.0	5.9	4.7	4.4	3.5	2.9	F	148		100%	М	225	21%	98%										
110	0.13	30	9.6	7.7	6.4	5.1	4.8	3.9	3.2	F	145	47%	100%	F	215	24%	98%	C	322	11%	94%	C	366	7%	92%		
-015 Nozzles	0.14 0.15	35 40	10.0 11.0	8.3 8.9	6.9 7.4	5.6 5.9	5.2 5.6	4.2	3.5	F	142	49% 52%	100% 100%	F	207 199	26% 28%	98% 98%	C	297 277	14% 16%	96% 97%		345 328	10%	93%		
NUZZIES	0.15	45	12.0	9.5	7.4	6.3	5.9	4.7	3.9	F	139 137	53%	100%	F	193	30%	98%	M	261	18%	98%		313	11%	95%		
	0.17	50	12.0	10.0	8.3	6.6	6.2	5.0	4.2	F	134	55%	100%	F	187	32%	98%	M	247	20%	99%	С	301	12%	95%		
	0.18	60	14.0	11.0	9.1	7.3	6.8	5.5	4.5	F	131	58%	100%	F	177	34%	98%	M	225	23%	99%		281	14%	96%		
	0.19 0.20	65 70	14.0 15.0	11.0 12.0	9.5 9.8	7.6	7.1	5.7	4.7	F	129 128		100% 100%	F	173 169	36% 37%	98% 98%	F	216 208	24% 25%	99%	C M	272 265	15% 15%	96% 97%		
	0.21	80		13.0	11.0		7.9		5.3	F	125		100%	F	161	39%	98%	F	194		100%		251	17%	97%		
	Flow	Boom		Spraye		d (on 2		cing) @		ER1	10-02		31-02	SR1	10-02				10-02		91-02		10-02		86-02		
	us gpm 0.14	psi 20	5 <sub>GPA</sub> 8.4	6 <sub>GPA</sub> 7.0	7.5 5.6	8 <sub>GPA</sub> 5.3	10gpa 4.2	12 <sub>GPA</sub>	15 <sub>GPA</sub> 2.8	Class	173		<600 100%	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600		
	0.16	25	9.4	7.8	6.3	5.9	4.7	3.9	3.1	F	166		100%	М	227	21%	99%										
110	0.17	30	10	8.6	6.9	6.4	5.1	4.3	3.4	F	160		100%	M	219	23%	99%		315	12%	95%		431	5%	82%		
-02 Nozzles	0.19 0.20	35 40	11 12	9.3	7.4	6.9 7.4	5.6 5.9	4.6 5.0	3.7 4.0	F	1 <u>55</u> 151		100% 100%	F	212 206	24% 26%	99%	C	295 279	14% 15%	96% 97%		410 392	6% 7%	85% 87%		
INUZZICS	0.21	45	13	11.0	8.4	7.9	6.3	5.3	4.2	F	147		100%	F	201	27%	99%	M	265	17%		C	376	7%	89%		
	0.22	50	13	11.0	8.9	8.3	6.6	5.5	4.4	F	144		100%	F	196	29%	99%	M	254	19%	97%		361	8%	90%		
	0.24 0.25	60 65	15 15	12.0 13.0	9.7 10.0	9.1	7.3	6.1	4.8 5.0	F	138 135	52% 54%	100% 100%	F	188 184	31% 32%	99%	M	235 227	21%	98% 98%	C	336 325	9% 10%	92% 92%		
	0.25	70	16	13.0	10.0		7.9	6.5	5.2	F	133		100%	F	181	33%	99%	M	220	23%	98%	C	315	10%	93%		
	0.28	80	17	14.0	11.0		8.4	7.0	5.6	F	128	58%	100%	F	175	34%	99%	F	208	25%	99%	С	297	11%	94%		
	Flow	Boom				d (on 2					10-025				10-025				10-025		91-025	_	10-025		36-025		10-02
	us gpm 0.18	psi <b>20</b>	5gpa 11	6gpa 8.8	7.5	8gpa 6.6	5.3	12gpa 4.4	15gpa 3.5	Class	194	<141 28%	<600 100%	Class	VMD	<141	<600	Class	VIVID	<141	<600	Class	VIVID	<141	<600	Class #402	
	0.20	25	12	9.8	7.8	7.3	5.9	4.9	3.9	F	190	29%	100%	М	244	18%	98%										
110	0.22	30	13	11.0	8.6	8.0	6.4	5.4	4.3	F	186	29%	100%		236	20%	98%	C	350	9%	91%		434	5%	80%	110	F.C.
-025 Nozzles	0.23	35 40	14 15	12.0 12.0	9.3	9.3	6.9 7.4	5.8 6.2	4.6 5.0	F	183 181	30%	100% 100%		228 222	21% 23%	98%	C	334 320	10% 11%	92% 93%	VC VC	414 398	6% 7%	83% 86%	UC	56 54
	0.27	45	16	13	11.0		7.9	6.6	5.3	F	178	30%	100%		216	24%	98%	С	307	12%	94%	С	383	7%	88%	UC	52
	0.28	50	17	14	11.0		8.3	6.9	5.5	F	176	30%	100%	F	211	25%	98%	C	296	13%	95%	C	370	8%	89%	UC	50
	0.31	60 65	18 19	15 16	12.0 13.0		9.1	7.6	6.1	F	173 171	31%	100% 100%	F	203 199	27% 28%	98% 98%	C M	277 268	15% 16%	96% 96%	C	347 337	9%	92% 92%	XC	47
	0.32	70	20	16		12.0	9.8	8.2	6.5	F	170	31%	100%	F	195	29%	98%	M	261	17%	96%		328	10%	93%	XC	44
	0.35	80	21	18	14		11.0		7.0	F	167		100%	F	189	30%	98%	М	247	18%	97%	С	311	11%	94%	XC	42
	Flow us gpm	Boom psi				d (on 2 8gpa			15gpa			#402 <141					87-03 <600							#402 <141		UR1 Class	
	0.21														VIVID	CITI	2000	حصات	VIVID	(171	C000	Oldos	VIVID	\ TT1	(000	#402	
	0.24	25	14	12.0	9.4	8.8	7.0	5.9	4.7	F	190	29%	99%	С	319	9%	94%	1/0	06:	0	05	V-2	4=-				
110 -03	0.26 0.28	30 35	15	13 14		9.6	7.7	6.4	5.1	F		31%			303 290	11%	95%		394 376	6% 8%	86%	XC	479	4%	74% 77%	IIC	61
-us Nozzles	0.28	40	17 18	15		11.0	8.3		5.6 5.9	F		33%			279		95% 96%		360		89% 91%		460 443	4% 5%	80%		<u>58</u>
	0.32	45	19	16		12.0	9.5		6.3	F	169	36%	98%	M	269	16%	96%	С	346	9%	92%	VC	428	5%	82%	UC	57
		50	20	17	13	12.0	10.0	8.3	6.6	F	165	37%	98%		260	17%	97%		333		93%		414		84%		55
	0.34							0.4	7 ^																		
	0.37	60	22	18	15	14.0	11.0	_	7.3	F	159 156		97%		244	19% 20%			311		94%		391	6% 7%	86%		52°
					15	14.0 14.0	11.0	9.5	7.6	F F		39% 40% 41%	97%	M	237	20%	97% 97% 98%	С	301 292	12%	94% 95% 95%	С	381 371	7% 7%	86% 87% 88%	UC	50 49

NOTE: 'SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. 'Shown application information is based on water @ 80°F in a controlled environment and should not be considered actual. Information is provided for comparison to other Combo-Jet® spray tips, for educational purposes only. Repeat testing results can vary.

### **COMBO-JET 110° Spray Tips - Standard Sprayer Systems**

🜓 Disclaimer: These charts are published for comparative purposes to demonstrate the differences in the series of Combo-Jet® spray tips. Data used to populate this chart is extrapolated from third party testing data from a controlled conditions test with water as the testing solution. Actual spray applications with active chemical ingredients may change the spray dynamics and spray tip performance specifications. Wilger is not liable for any misuse or misrepresentation of this information, leading to (but not limited to) incorrect spray application, crop damage, or any other harm. (Not limited to human, livestock or environmental). Always verify these charts with the most recent charts found on the www.wilger.net, and ALWAYS follow chemical label nozzle requirements.

ASABE Spray Classification (ASABE S572.1 Standard)
Spray quality is categorized based on Dv0.1 and VMD droplet sizes.
Objective testing data (by 3rd party), from spray spectrum recording equipment (without wind tunn use), has been used to classify spray quality for this chart. Extra data (e.g. VMD, etc.) can vary

between testing equipment and method, and is provided as an educational resource only.

Fine (F) Medium (M) Coarse (C) '
Very Coarse (VC)
Extremely Coarse (XC)
Ultra Coarse (UC) VMD (Volume Median Diameter) The median droplet (in u) for a sprayed volume. Half of the volume is made of droplets smaller, with half made up of droplets larger.

% <141μ (% Driftable Fines) Percentage of volume which is likely to drift. As wind & boom height increase, observed spray drift will increase substantially.

% <600μ (% of Small Droplets) % of volume which is made up of 'small' droplets, useful for coverage As % of useful droplets lowers, overall coverage is reduced.

s sizeu up to 11	0-06 verified o										arse (C	(U)		004	10.01				10.01		04.04	224			00.04	LIDIA
	1	Boom psi			er Speed 12.5					ER1 Class					10-04											UR110 Class V
	us gpm 0.28	20	8gpa 11	8.4	6.7	5.6	4.2	3.4	2.8	M	240		<600 97%	Class	VMD	<141	<000	UldSS	VIVID	< 141	<000	Class	VIVID	<141	<000	#40292
	0.32	25	13	9.4	7.5	6.3	4.7	3.8	3.1	M	232	20%		С	330	9%	93%									11-10232
110	0.35	30	14	10	8.2	6.9	5.1	4.1	3.4	M	225	22%			314	11%	94%	VC	416	5%	84%	XC	510	3%	69%	
-04	0.37	35	15	11	8.9	7.4	5.6	4.4	3.7	M	220	23%			300	12%	95%	VC	395	6%	87%	XC	488	4%	73%	UC 6
Nozzles	0.40	40	16	12	10	7.9	5.9	4.8	4.0	F	215	24%	96%		288	14%	95%		377	7%	89%	VC	469	4%	76%	UC 6
	0.42	45	17	13	10	8.4	6.3	5.0	4.2	F	210	25%	96%		278	15%	96%	C	361	8%	91%	VC	453	5%	78%	UC 5
	0.45	50	18	13	11	8.9	6.6	5.3	4.4	F	206	26%	96%		269	16%	96%	C	346	8%	92%	VC	438	5%	80%	UC 5
	0.49 0.51	60	19	15 15	12	10	7.3	5.8 6.1	4.8	F	199 196	28%	96%		253 246	17% 18%	96% 97%	C	321 310	9% 10%	94%	VC C	412 401	6% 6%	83% 84%	UC 5
	0.53	65 70	21	16	13	10	7.6	6.3	5.0	F	194	29%	96%	M	239	19%	97%	C	300	10%	95%	С	391	6%	85%	UC 5
	0.57	80	22	17	13	11	8.4		5.6	F	189				228	20%	97%			11%		C	372	7%	87%	UC 4
	Flow	Boom			er Speed					_	10-05		81-05						10-05				10-05	#4028		UR110
	us gpm	psi	10 <sub>GPA</sub>	12.5		18gpa	20gpa	25gpa	30gpa	Class	VMD	<141	<600		VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141		
	0.35	20	11	8.4	7.0	5.8	5.3	4.2	3.5		248		95%	0	077	70/	000/							-	<u> </u>	#40292
110	0.40	25	12	9.4	7.8	6.5	5.9	4.7	3.9	M	237	20%			377	7%	89%	VO	400	00/	700/	VO	F00	00/	CON	
110 -05	0.43	30 35	13 14	10	9.3	7.1	6.4	5.1	4.3	M	228 220	24%	95% 95%		355 338	8% 10%	91% 93%	XC	486 464	3% 4%	72% 75%	XC	530 516	2%	63% 66%	UC 6
Vozzles	0.47	40	15	12	10	8.3	7.4	5.9	5.0	F	214	26%			322	11%	93%	VC	445	5%	78%	XC	503	3%	68%	UC 6
NUZZICS	0.53	45	16	13	11	8.8	7.9	6.3	5.3	F	208	27%	95%		309	12%	94%		428	5%	80%	XC	492	3%	70%	UC 6
	0.56	50	17	13	11	9.2	8.3	6.6	5.5	F	203		95%		296	13%	95%		412	6%	82%	XC	482	3%	72%	UC 5
	0.61	60	18	15	12	10	9.1	7.3	6.1	F	194	30%	95%		275	15%	96%	C	386	7%	85%	XC	465	3%	74%	UC 5
	0.64	65	19	15	13	11	10	7.6	6.3	F	190	31%	95%		266	16%	96%	С	374	7%	86%	XC	458	4%	75%	UC 5
	0.66	70	20	16	13	11	10	7.9	6.5	F	187	32%		M	257	16%	96%	C	364	7%	87%	VC	451	4%	76%	UC 5
	0.71	80	21	17	14	12	11	8.4	7.0		180		95%		242	17%	97%	C	344	8%	88%	VC	438	4%	78%	UC 5
	Flow	Boom	10gpa		er Speed		0" spa 20gpa			Class	10-06 VMD		81-06 <600			#4028	37-06 <600		10-06				10-06	#4028 <141		UR110 Class V
	us gpm 0.42	psi 20	10gpa	10	15gpa 8.4	7.0	6.3	4.2	3.6	C	282	14%		Ulass	VIVID	<141	<000	Ulass	VIVID	<141	<000	Class	VIVID	<141	<000	#40292
	0.42	25	14	11	9.4	7.8	7.0	4.7	4.0	M	270	16%														#40232
110	0.52	30	15	12	10	8.6	7.7	5.1	4.4	M	261	18%		VC	416	6%	84%									
-06	0.56	35	17	13	11	9.3	8.3	5.6	4.8	M	253	19%	94%		392	7%	87%	XC	490	4%	71%	XC	546	2%	61%	UC 6
Vozzles	0.60	40	18	14	12	10	8.9	5.9	5.1	M	246	20%	94%		371	8%	89%	XC	474	4%	74%	XC	529	2%	64%	UC 6
	0.64	45	19	15	13	11	10	6.3	5.4	M	240	21%	95%		353	9%	90%		461	4%	76%	XC	514	3%	66%	UC 6
	0.67	50	20	16	13	11	10	6.6	5.7	M	235	22%	95%		337	10%	92%	VC	448	4%	78%	XC	501	3%	68%	UC 6
	0.73	60	22	17	15	12	11	7.3	6.2	M	225	24%	95%		308	12%	93%	VC	427	5%	81%	XC	478	3%	71%	UC 5
	0.76	65	23	18	15	13	11	7.6	6.5	M	221	25%	95%		296	13%	94%	VC	418	5%	82%	XC	468	3%	72%	UC 5
	0.79	70 80	24 25	19 20	16	13	12	7.9 8.4	7.2	F	217 211		95% 95%	M	284 264	13% 14%	94% 95%	VC C	409 394	5% 6%	83% 85%	XC VC	459 442	3% 4%	74% 75%	UC 5
	Flow	Boom			er Speed					_	10-08				10-08											UR110
	us gpm	psi	15 <sub>GPA</sub>								VMD				VMD									<141		
	0.57	20	11	9.3	8.4	6.7	5.6	4.8	4.2		327		91%													#40292
	0.63	25	13	10	9.4	7.5	6.3	5.4	4.7		307		92%													
110	0.69	30	14	11	10	8.2	6.9	5.9	5.1	С	290	17%	93%		453	6%	67%									
-08	0.75	35	15	12	11	8.9	7.4	6.4	5.6	M	276	19%	94%	XC	429	7%	71%		506	5%	57%			3%		
Vozzles	0.80	40 45	16 17	13	12	10	7.9 8.4	7.2	5.9 6.3	M	264 254	21%	95% 95%		408 390	7% 8%	74% 77%	UC	483 464	5% 6%	61% 64%		569 551	4%	47% 49%	UC 6
	0.89	50	18	15	13	11	8.9	7.6	6.6		244	22%	95%		374	9%	79%	XC	446	6%	67%		534	4%	51%	UC 6
	0.98	60	19	16	15	12	10	8.3	7.3	F	228	23%			346	10%	82%	XC	416	7%	70%		506	4%	55%	UC 5
	1.02	65	20	17	15	12	10	8.7	7.6	F	221	24%			334	10%	83%	XC	403	7%	72%	UC	493	5%	56%	UC 5
	1.06	70	21	17	16	13	10	9.0	7.9	F	214		97%		322	11%	84%	XC	391	7%	73%	UC	482	5%	57%	UC 5
	1.13	80	22	19	17	13	11	10	8.4	F	202		97%		302	11%	86%	VC	369	8%	76%	XC	461	5%	60%	UC 5
	Flow	Boom			er Speed	d (on 2		ıcing) @	9	ER1	10-10		81-10	SR1	10-10	#4028	37-10	MR1		#402	91-10	DR1	10-10	#4028	86-10	UR110
	us gpm	psi	15 <sub>GPA</sub>	18gpa	20gpa	25 <sub>GPA</sub>	30gpa	40 <sub>GPA</sub>	50gpa	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class V
	0.71	20 25	14	12	11	9.4	7.0	5.3	4.2	VC C	362 341	10%														#40292
110	0.79	30	16 17	14	13	10	7.8 8.6	6.4	5.1	C	341	14%	90%	XC	470	6%	62%									
	0.07	35	19	15	14	11	9.3	6.9	5.6		310		91%			7%		UC	499	5%	56%	UC	596	5%	57%	UC 6
lozzles	1.00	40	20	17	15	12		7.4	5.9			17%							478							
	1.06	45	21	18	16	13	11	7.9	6.3	_	287		92%		405	8%	73%	XC	459	5%	62%	UC	574	5%		UC 6
	1.12	50	22	18	17	13	11	8.4	6.6	M	277	19%	93%	XC	388	8%	75%	XC	442	6%	64%	UC	565	6%	51%	UC 6
	1.22	60	24	20	18	15	12	9.1	7.3	M	260		94%		358	9%	79%		413	6%	67%	UC		6%		
	1.27	65	25	21	19	15	13	10	7.6		253		94%		345	10%	80%	XC	400	6%	69%			6%		
	1.32	70	26	22	20	16	13	10	7.9	M F	246		94%		333	10%	81%	XC	388	7%	70%		537	6%	46%	
	1.41	80	28	Spraye	21 er Speed	17	14 0" spa	11 cing) @	8.4	_	234 0-125		94%		311 10-125				367 10-125				525			UC 5
	Flow us gpm	Boom psi			30gpa								<600		VMD									<141		
	0.99	25	15	12	10	8.4				XC	421		70%		VIVID	7141		Olabo	VIVID	7141	~000	Oidoo	VIVID	(TT)		
	1.08	30	16	13	11	9.2		7.1	6.4	XC	400		74%		501	4%	56%									
110	1.17	35	17	14	12	10	8.7	7.7		XC			76%			5%	62%	UC	618	4%	39%		647	3%	35%	
-125	1.25	40	19	15	12	11	9.3	8.3	7.4	VC	369	11%	79%	XC	445	5%	66%	UC	593	4%	43%	UC	630	4%	37%	
Vozzles	1.33	45	20	16	13	11	10	8.8	7.9		357		80%		423	6%	70%	UC	571	4%	47%			4%	39%	
	1.40	50	21	17	14	12	10	9.2	8.3		346		82%		403	6%	72%	UC	552	5%	49%			4%		
	1.53	60	23	18	15	13	11	10	9.1		336		83%			7%	74%		535	5%	52%	UC	592	4%	42%	-
	1.59	65	24	19 20	16	14	12	11	10		319		85%		355	7%	78%		506	5%	55%			5%	44%	-
	1.05			1 20	16	14	12	11	10		312	13%	85%	С	342	8%	79%		493 481	5% 6%	58%		563 555	5%	45%	-
	1.65 1.77	70 80	25 26	21	18	15	13	12	11	C	305	1 40/	86%	С	329	8%	80%							5%	46%	

### **COMBO-JET 110° Spray Tips - Standard Sprayer Systems**

Comprehensive rate & speed charts for any nozzle spacing/speed/rate is available on Tip Wizard. Try it today!

Disclaimer: These charts are published for comparative purposes to demonstrate the differences in the series of Combo-Jet® spray tips. Data used to populate this chart is extrapolated from third party testing data from a controlled conditions test with water as the testing solution. Actual spray applications with active chemical ingredients may change the spray dynamics and spray tip performance specifications. Wilger is not liable for any misuse or misrepresentation of this information, leading to (but not limited to) incorrect spray application, crop damage, or any other harm. (Not limited to human, livestock or environmental). Always verify these charts with the most recent charts found on the www.wilger.net, and ALWAYS follow chemical label nozzle requirements.

	Flow	Boom		Sprave	r Snee	d (on 2	0" sna	cina) @	) _	FR1	10-15	#402	81-15	SR1	10-15	#402	87-15	MR1	10-15	#402	91-15	DR1	10-15	#402	86-15
	us gpm	psi	25gpa	30gpa	35 <sub>GPA</sub>	40gpa	45gpa	50gpa	55gpa	Class	VMD	<141	<600		VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	_
	1.19	25	14	12	10	8.8	7.8	7.0	6.4	XC	416		68%	Oldoo			1000	Olaco			1000	Oldoo			
	1.30	30	15	13	11	10	8.6	7.7	7.0	XC	398		72%	UC	538	5%	51%								
110	1.40	35	17	14	12	10	9.3	8.3	7.6	XC	383	11%	74%	UC	515	5%	55%	UC	590	4%	43%	UC	641	4%	43%
	1.50	40	18	15	13	11	10	8.9	8.1	VC	370	12%	76%	UC	496	6%	58%	UC	574	4%	45%		624	4%	46%
Nozzles	1.59	45	19	16	14	12	11	10	8.6	VC	358	12%	77%		478	6%		UC	560	5%	47%		610	4%	48%
	1.68	50	20	17	14	12	11	10	9.1	С	348	13%			463	6%	64%	UC	548	5%	49%		597	4%	50%
	1.84	60	22	18	16	14	12	11	10	С	330		81%		436	7%	67%	UC	527	5%	52%		575	4%	53%
	1.91	65	23	19	16	14	13	11	10	C	322		82%		424	7%	69%	UC	517	5%	53%		565	4%	54%
	1.98	70	24	20	17	15	13	12	11	С	315		82%		413	7%	70%	UC	508	5%	54%			4%	55%
	2.12	80	25	21	18	16	14	13	11	С	302		84%			8%	72%			5%	56%	UC	540	5%	58%
	Flow	Boom				d (on 2					10-20		81-20						10-20	_	91-20				
	us gpm	psi	30 <sub>GPA</sub>			45GPA							<600	Class	VMD	<141	<600	Class	VMD	<141	<600				
	1.58	25	16	13	12	10	9.4	8.5	7.8	XC	473	7%	60%												
110	1.73	30	17	15	13	11	10	9.4	8.6	XC	453	8%	64%	LIC	407	CO/	E00/	LIC	E74	E0/	450/	-			
110 -20	1.87 2.00	35	19	16 17	14	12	11	10 11	9.3	XC	437 422	8% 9%	66% 68%	VC	497 479	6% 6%		UC	574 557	5% 5%	45% 48%	-			
Nozzles	2.12	40 45	20	18	15 16	13	12	11	11	XC	410	9%	70%		463	7%	65%	UC	542	5%	50%	-			
IVOZZIES	2.12	50	22	19	17	_		12	11	XC		9%	70%		449	7%	67%	UC	529	6%	52%	-			
	2.45	60	24	21	18	15 16	13 15	13	12	XC	399 379		74%		424	8%	70%	UC	506	6%	55%	1			
	2.55	65	25	22	19	17	15	14	13	VC	379		75%		413	8%	72%		496	6%	56%				
	2.65	70	26	22	20	17	16	14	13	VC	362		76%		403	8%	73%		487	6%	57%	1			
	2.83	80	28	24	21	19	17	15	14	C	348		78%		385	8%	75%		470	7%	59%				
		Boom				d (on 2										#4028		, AU	410	1 70	10070	J			
	us gpm	psi														<141									
	1.98	25	17	15	13	12	11	10	8.4	XC		7%	60%					ĺ							
	2.17	30	18	16	14	13	12	11	9.2	XC	453	7%	65%					1							
110	2.34	35	20	17	15	14	13	12	10	XC	437	7%	68%	UC	484	6%	59%								
-25	2.50	40	21	19	17	15	14	12	11	XC	422	7%	71%	XC	468	6%	62%								
Nozzles	2.65	45	23	20	18	16	14	13	11	XC	410	8%	73%		453	7%	64%								
	2.80	50	24	21	18	17	15	14	12	XC	399	8%	74%		441	7%	66%								
	3.06	60	26	23	20	18	17	15	13	XC	380	8%	77%		419	8%	69%								
	3.19	65	27	24	21	19	17	16	14	VC	371	8%	78%		409	8%	70%								
	3.31	70	28	25	22	20	18	16	14	VC	364	8%	79%		400	8%	71%								
	3.54	80	30	26	23	21	19	18	15	C	350	8%	81%	XC	384	8%	73%	J							
		Boom				d (on 2						#402													
	us gpm	psi				70gpa					VMD	<141													
	2.37	25	18	14	12	10	8.8	7.8			484	6%	58%												
110	2.60	30	19	15	13	11	10	8.6	7.7	XC	466	6%	61%												
110 -30	2.81 3.00	35	21 22	17 18	14	12	10	9.3	8.3 8.9	XC	451	7% 7%	63% 65%	-											
-30 Nozzles	3.00	40	24	19	16	13	11	10	10	XC	437 425	8%	67%												
NUZZIES	3.18	45	25	20	17	14	12	11	10	XC	415	8%	68%	-											
	3.67	50 60	25	22	18	14 16	14	12	11	XC	396	9%	70%	-											
	3.82	65	28	23	19	16	14	13	11	XC	388	9%	71%												
	3.97	70	29	24	20	17	15	13	12	XC		9%	72%												
	J.91	70	_ 29	24	1 20	17	ΙÜ	10	12	ΛU	301	970	1270	1											

#### LERAP Drift Reduction Star Rating for COMBO-JET 110° Spray Nozzles [For UK applicators]

Local Environmental Risk Assessments for Pesticides (LERAP) certification is completed in the UK to provide applications a means to qualify a local drift reduction assessment based on the nozzles used for an application.

The 4-star LERAP rating is a new rating that illustrates the highest classification for drift reduction within the standard certification. (List updated January 2021)

١.	LERAP RATING	Nozzle	Pressure Range
1		DR110-025	1.0 - 2.5 BAR
1		DR110-03	1.6 - 3.0 BAR
1		DR110-04	1.0 - 5.0 BAR
1	***	DR110-05	1.6 - 5.0 BAR
1	75%	DR110-06	3.1 - 5.0 BAR
1	Drift Reduction	MR110-04	1.0 - 2.5 BAR
_	Dint neudonon	MR110-05	1.6 - 5.0 BAR
		MR110-06	1.6 - 5.0 BAR
		SR110_05	10-15 RAR

LERAP RATING	Nozzle	Pressure Range
	DR110-025	2.6 - 3.5 BAR
**	DR110-03	3.1 - 5.0 BAR
<b>50</b> %	MR110-04	2.6 - 3.5 BAR
Drift Reduction	SR110-05	1.6 - 3.0 BAR
	LEDAD	

Drift Reduction

SR110-05

1.6 - 3.0 BAR

More information on LERAP certification, process, and the most up to date listing of approved nozzles and

their ratings, is available from the Health and Safety Executive (HSE), also available online @ https://secure.pesticides.gov.uk/SprayEquipment

For the updated list on COMBO-JET

nozzles, visit www.wilger.net/LERAP

### **COMBO-JET 80° Spray Tips - PWM Spray Systems**

Comprehensive rate & speed charts for any nozzle spacing/speed/rate is available on Tip Wizard. Try it today!

Disclaimer: These charts are published for comparative purposes to demonstrate the differences in the series of Combo-Jet® spray tips. Data used to populate this chart is extrapolated from third party testing data from a controlled conditions test with water as the testing solution. Actual spray applications with active chemical ingredients may change the spray dynamics and spray tip performance specifications. Wilger is not liable for any misuse or misrepresentation of this information, leading to (but not limited to) incorrect spray application, crop damage, or any other harm. (Not limited to human, livestock or environmental). Always verify these charts with the most recent charts found on the www.wilger.net, and ALWAYS follow chemical label nozzle requirements.

ASABE Spray Classification (ASABE S572.1 Standard)
Spray quality is categorized based on Dv0.1 and VMD droplet sizes.

Objective testing data (by 3rd party), from spray spectrum recording equipment (without wind tunnel use), has been used to classify spray quality for this chart. Extra data (e.g. VMD, etc.) can vary between testing equipment and method, and is provided as an educational resource only.

Tips sized up to 110-06 verified on Phase Doppier Particle Analyzer (PDPA); tips sized over 110-06 verified on Malwern.

Fine (F)

VMD (Volume Median Diameter) The median droplet (in  $\mu$ ) for a sprayed volume. Half of the volume is made of droplets smaller, with half made up of droplets larger.

% <141µ (% Driftable Fines) Percentage of volume which is likely to drift. As wind & boom height increase, observed spray drift will increase substantially.

% <600µ (% of Small Droplets) % of volume which is made up of 'small' droplets, useful for coverage. As % of useful droplets lowers overall coverage is reduced.

#### Duty Cycle (Effective 'on time' of solenoid)

The duty cycle is the effective on time of a PWM solenoid. Generally speed ranges are based on a 25% - 100% duty cycle. When selecting a nozzle, often a duty cycle of 60-80% is recommended at typical speeds, providing flexibility for upper speed & turning situations, as well as slower spraying speeds. It is not advised to spray below 40% duty cycle.

Calculating Duty Cycle on Printed Charts (Useful for nozzle sizing & selection) On Wilger printed charts, typically a SPEED RANGE is provided, but the duty cycle % is a dynamic factor based on the sprayers travel speed. To calculate a duty cycle at a given travel speed, divide CURRENT sprayer speed into max nozzle speed. (e.g. 15mph / 20mph max = 75% duty cycle)

Nozzle	Flow	Boom	Tip	Applic	cation Rate in		/ Acre		Spray	Classi	fication	ı; VMI	D (Drop	olet Siz	e in μ);	%<1	41μ (D	rift %)	; %<60	)0μ (S	Small D	roplets)	)
Size & Angle	Rate USGPM	PSI	psi			zle Spacing				Serie				Series		0.		° Serie				Series	
Aligie		Danie	T:		prayer Spee				VMD														
	Flow us gpm	Boom psi	Tip psi	2gpa	yer Speed (o 3gpa	4GPA			80-005 VMD													#4020 <141	
	0.035	20	20	1.3-5.3	0.9-3.5	0.7-2.6	0.5-2.1	F	167			Cidoo	VIVID	(141	<b>\000</b>	Ciass	VIVID		<b>\</b> 000	Oldac	VIVID	141	
	0.040	25	25	1.5-5.9	1-3.9	0.7-2.9	0.6-2.3	F	157	40%	100%					M	261	11%	99%	С	311	6%	10
80	0.043	30	30	1.6-6.4	1.1-4.3	0.8-3.2	0.7-2.6	F	149	46%	100%					М	236	17%	98%		276	11%	
-005	0.047	35	35	1.7-6.9	1.2-4.6	0.9-3.5	0.7-2.8	F	142	51%	100%					M	217	22%	97%	M	250		
Nozzles	0.050	40	40	1.9-7.4	1.3-5	0.9-3.7	0.8-3	F	137	55%	100%					F	201	26%	96%	M	230		
	0.053	45	45	2-7.9	1.3-5.3	1-3.9	0.8-3.2	F	132	59%	100%					F	189	30%		F	213	23%	
	0.056	50	50	2.1-8.3	1.4-5.5	1.1-4.2	0.8-3.3	늗	128	63%	100%					늗	178	33%	94%	는	200	25%	
	0.061	60 65	60 65	2.3-9.1 2.4-9.5	1.5-6.1 1.6-6.3	1.1-4.5 1.2-4.7	0.9-3.6 1-3.8	÷	121 118	68% 71%	100% 100%					÷	161 154	39% 41%	93%	Ė	178 169		
	0.066	70	70	2.5-9.8	1.6-6.5	1.2-4.7	1-3.0	÷	116	73%	100%					÷	148	44%		Ė	161	35%	
	0.000	80	80	2.8-11	1.8-7	1.3-5.3	1.1-4.2	Ė	111	78%	100%					Ė	138	48%		F	148	38%	
	Flow	Boom	Tip		ver Speed (o			ER8	0-0067		0-0067	SR80	0-0067	#4028	8-0067	MR80	0-0067		0-0067		0-0067	#40280	
	us gpm	psi	psi	2gpa	3 <sub>GPA</sub>	4 <sub>GPA</sub>	5 <sub>GPA</sub>	Class		<141	<600			<141		Class	VMD	<141	<600			<141	<6
	0.047	20	20	1.8-7	1.2-4.7	0.9-3.5	0.7-2.8	F	199	21%	100%												
	0.053	25	25	2-7.9	1.3-5.2	1-3.9	0.8-3.1	F	183	29%	100%					M	231	18%	99%	C	337		10
80	0.058	30	30	2.2-8.6	1.4-5.7	1.1-4.3	0.9-3.4	F	171	35%	100%					<u>F</u>	211	24%	98%		308		10
-0067	0.063	35	35	2.3-9.3	1.6-6.2	1.2-4.7	0.9-3.7	F	161	40%	100%					F	195	29%	97%		285	11%	
Nozzles	0.067	40 45	40 45	2.5-9.9 2.8-11	1.7-6.6 1.8-7	1.3-5 1.3-5.3	1-4	F	153 147	45% 49%	100% 100%					F	182 171	33% 37%	96%	M	267 252	13% 15%	
	0.071	50	50	2.8-11	1.0-7	1.4-5.6	1.1-4.2	F	141	52%	100%					F	162	40%	94%		239		
	0.082	60	60	3-12	2-8.1	1.5-6.1	1.2-4.9	Ė	131	58%	100%					Ė	148	46%	93%		218		
	0.085	65	65	3.3-13	2.1-8.5	1.6-6.3	1.3-5.1	F	128	61%	100%					Ė	142	49%		F	210	21%	
	0.089	70	70	3.3-13	2.2-8.8	1.7-6.6	1.3-5.3	F	124	63%	100%					F	136	51%		F	202	22%	
	0.095	80	80	3.5-14	2.4-9.4	1.8-7	1.4-5.6	F	118	68%	100%					F	127	55%	90%	F	189		
	Flow	Boom	Tip		yer Speed (o			ER	80-01	#402		SR8	30-01	#4028		MR	80-01		90-01	DR	80-01	#4028	
	us gpm	psi	psi	2GPA	3GPA	4GPA	5GPA	Class	VMD	<141	<600	Class	VMD	<141	<600	<u>Class</u>	VMD	<141	<600	Class	VMD	<141	<
	0.07	20	20	2.5-10	1.8-7	1.3-5.2	1.1-4.2	F	176	28%	100%		293	8%	97%								
80	0.08	25 30	25 30	3-12 3.3-13	2-7.8 2.2-8.6	1.5-5.9 1.6-6.4	1.2-4.7 1.3-5.1	Ė	165 156	35% 41%	100% 100%		259 234	15% 20%	97% 97%	М	219	23%	97%	С	312	10%	94
-01	0.09	35	35	3.5-13	2.2-6.0	1.7-6.9	1.4-5.5	F	149	45%	100%		215	25%	97%	F	204	27%			292	12%	95
Nozzles	0.10	40	40	3.8-15	2.5-9.9	1.9-7.4	1.5-5.9	Ė	144	49%	100%		199	29%	97%	Ė	192	30%	97%		275	14%	96
	0.11	45	45	4-16	2.5-10	2-7.9	1.6-6.3	F	139	53%	100%		187	33%	97%	Ė	182	33%	97%	M	261	15%	9
	0.11	50	50	4.3-17	2.8-11	2.1-8.3	1.7-6.6	F	135	56%	100%		176	36%	98%	F	173	36%	97%	M	249	17%	98
	0.12	60	60	4.5-18	3-12	2.3-9.1	1.8-7.3	F	128	61%	100%	F	159	41%	98%	F	159	40%	97%	M	230	19%	
	0.13	65	65	4.8-19	3.3-13	2.4-9.4	1.9-7.6	F	125	64%	100%	F	152	44%	98%	F	153	42%	97%	M	221	20%	
	0.13	70	70	5-20	3.3-13	2.5-9.8	2-7.8	F	122	66%	100%		146	46%	98%	F	148	44%	97%	F	214		
	0.14	80	80	5.3-21	3.5-14	2.5-10	2.1-8.4	FDO	117	70%	100%		135	50%	98%	MDO	139	48%	97%	P.D.C	202		10
	Flow	Boom	Tip	Spra 3gpa	yer Speed (o 4 <sub>GPA</sub>	n zu spacir 5gpa	ig) @ 6gpa		0-015 VMD	#402 <i>1</i> <141	'0-015 <600				8-015 <600						0-015	#4028 <141	
	us gpm 0.11	psi <b>20</b>	psi 20	2.5-10	2-7.8	1.6-6.3	1.3-5.2	Class	200	21%	100%	Class	VIVID	<141	<000	Class	VIVID	<141	<000	Class	VIVID	< 141	< (
	0.12	25	25	3-12	2.2-8.8	1.8-7	1.5-5.8	Ė	189	25%	100%	С	287	12%	94%								$\vdash$
80	0.13	30	30	3.3-13	2.4-9.6	1.9-7.7	1.6-6.4	F	180	29%	100%		264	16%	95%	С	324	10%	94%	VC	419	4%	8
-015	0.14	35	35	3.5-14	2.5-10	2.1-8.3	1.7-6.9	F	173	32%	100%	_	245	19%	96%	Č	302	12%	95%	VC	398	5%	8
Nozzles	0.15	40	40	3.8-15	2.8-11	2.2-8.9	1.9-7.4	F	167	34%	100%	M	231	22%	96%	С	285	14%	96%	С	381	6%	9
	0.16	45	45	4-16	3-12	2.4-9.4	2-7.8	F	162	37%	100%		219	24%	97%	M	270	16%	97%	С	367	6%	9
	0.17	50	50	4.3-17	3-12	2.5-9.9	2.1-8.3	F	158	39%	100%		208	26%	97%	M	257	17%	97%	C	354	7%	9:
	0.18	60	59	4.5-18	3.5-14	2.8-11	2.3-9.1	F	151	42%	100%		191	30%	97%	M	237	19%	98%	C	333	8%	9.
	0.19	65 70	64	4.8-19	3.5-14	2.8-11	2.4-9.4	F	148	44%	100%	F	184	31%	97%	M	228	21% 22%	98%	C	325	8%	94
	0.20 0.21	70 80	69 79	5-20 5.3-21	3.8-15 4-16	3-12 3.3-13	2.5-9.8 2.5-10	F	145 140	45% 48%	100% 100%	F	178 168	33%	98% 98%	M F	221 208	23%	99%	C	317 303	9% 10%	9
	Flow	Boom	Tip		ver Speed (o			_	80-02		70-02		30-02	#4028			80-02		90-02		80-02	#4028	
	us gpm	psi	psi	3gpa	4 <sub>GPA</sub>	5gpa	6GPA	Class	VMD	<141	<600		VMD		<600				<600			<141	
	0.14	20	20	3.5-14	2.5-10	2.1-8.3	1.7-6.9	F	185		100%												
	0.16	25	25	4-16	3-12	2.3-9.3	2-7.8	F	177	31%	100%	С	275	12%	94%								
80	0.17	30	29	4.3-17	3.3-13	2.5-10	2.1-8.5	F	171	34%	100%		258	15%	95%		328	8%	94%		456	3%	8
-02	0.19	35	34	4.5-18	3.5-14	2.8-11	2.3-9.2	F	166				245	18%	96%		312	10%			437	4%	
Nozzles	0.20	40	39	5-20	3.8-15	3-12	2.5-9.8	F	162	38%	100%		235	20%	96%		299	11%			421	4%	
	0.21	45	44	5.3-21	4-16	3-12	2.5-10	F	158					22%		C	288	12%			408	5%	
	0.22 0.24	50 60	49 50	5.5-22	4-16	3.3-13	2.8-11	F	155	42%	100% 100%		217	24% 27%	97%		279	13%			396 376	5% 6%	
		60	59 64	6-24 6.3-25	4.5-18 4.8-19	3.5-14 3.8-15	3-12 3.3-13	F	150 148		100%		204 199	28%	98% 98%	M M	263 257	15% 16%			368	6%	
	1 11 25						. 0.0-10								JU /0	IVI	201	10/0	1 20 /0	U	()()()	1 U/0 I	1 O
	0.25 0.26	65 70	69	6.5-26	4.8-19	4-16	3.3-13	F	146		100%		194			M	251		95%		361	7%	

NOTE: 'SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. 'Shown application information is based on water @ 80°F in a controlled environment and should not be considered actual. Information is provided for comparison to other Combo-Jet® spray tips, for educational purposes only. Repeat testing results can vary.



#### COMBO-JET 80° Spray Tips - PWM Spray Systems

ASABE Spray Classification (ASABE S572.1 Standard)

Spray quality is categorized based on Dv0.1 and VMD droplet sizes.

Objective testing data (by, 3rd party, from spray spectrum recording equipment (without wind tunner Coarse (C) use), has been used to classify spray quality for this chart. Extra data (e.g. VMD, etc.) can vary hetween testing equipment and method, and is provided as an educational resource only.

Live Standard (PSIPA): tibe sized over 110-06 verified on Malvern.

VMD (Volume Median Diameter) The median droplet (in µ) for a sprayed volume. Half of the volume is made of droplets smaller, with half made up of droplets larger.

% <141µ (% Driftable Fines) Percentage of volume which is likely to drift. As wind & boom height increase, observed spray drift will increase substantially.

% <600µ (% of Small Droplets) % of volume which is made up of small' droplets, useful for coverage As % of useful droplets lowers. overall coverage is reduced.

Duty Cycle (Effective 'on time' of solenoid)

The duty cycle is the effective 'on time' of a PWM solenoid. Generally speed ranges are based on a 25% - 100% duty cycle. When selecting a nozzle, often a duty cycle of 60-80% is recommended at typical speeds, providing flexibility for upper speed & turning situations, as well as slower spraying speeds. It is not advised to spray below 40% duty cycle.

Calculating Duty Cycle on Printed Charts (Useful for nozzle sizing & selection) On Wilger printed charts, typically a SPEED RANGE is provided, but the duty cycle % is a dynamic factor based on the sprayers travel speed. To calculate a duty cycle at a given travel speed, divide CURRENT sprayer speed into max nozzle speed. (e.g. 15mph / 20mph max = 75% duty cycle)

								_															
	Flow	Boom	Tip		yer Speed (o				0-025										0-025			#4028	30-025
	us gpm	psi	psi	3gpa	4gpa	5gpa	6gpa	Class	VMD		<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
	0.17	20	19	4.3-17	3.3-13	2.5-10	2.2-8.6	M	234	17%													
	0.20	25	24	4.8-19	3.5-14	3-12	2.4-9.7	M	220	20%	100%	С	318	9%	91%								
80	0.21	30	29	5.3-21	4-16	3.3-13	2.8-11	F	210		100%	С	299	11%	92%	VC	429	4%	80%	XC	463	3%	77%
-025	0.23	35	34	5.8-23	4.3-17	3.5-14	2.8-11	F	202	25%	100%	С	283	13%	93%	VC	405	5%	83%	VC	446	4%	79%
Nozzles	0.25	40	39	6-24	4.5-18	3.8-15	3-12	F	195	28%	100%	M	270	15%	94%	C	386	6%	84%	VC	432	4%	80%
	0.26	45	44	6.5-26	4.8-19	4-16	3.3-13	F	189	29%	100%	M	260	16%	95%	С	370	7%	86%	VC	420	5%	82%
	0.28	50	49	6.8-27	5-20	4-16	3.5-14	F	184	31%	100%	M	250	18%	95%	С	356	8%	87%	VC	410	5%	83%
	0.30	60	58	7.5-30	5.5-22	4.5-18	3.8-15	F	175	34%	100%	М	235	20%	96%	С	333	9%	88%	С	393	6%	84%
	0.31	65	63	7.8-31	5.8-23	4.8-19	4-16	F	171		100%		228	21%	96%	С	324	9%	89%	С	386	6%	85%
	0.33	70	68	8-32	6-24	4.8-19	4-16	F	168		100%		223	22%	97%	С	315		90%	С	379	7%	86%
	0.35	80	78	8.8-35	6.5-26	5.3-21	4.3-17	F				F		24%		С		11%			367	7%	87%
		Boom	Tip	Spra	yer Speed (o	n 20" spacin	g) @	ER8	80-03		70-03	SR8	30-03	#402	88-03	MR	30-03	#4029	90-03		30-03	#4028	
	us gpm	psi	psi	4gpa	5gpa	6.0gpa	8gpa	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
	0.21	20	19	3.8-15	3-12	2.5-10	1.9-7.7	M	235	17%	99%												
	0.23	25	24	4.3-17	3.5-14	3-12	2.2-8.6	M	224	20%	99%	С	373	7%	88%								
80	0.26	30	29	4.8-19	3.8-15	3.3-13	2.4-9.5	F	215	22%		С	349	9%	89%	VC	437	4%	80%	XC	485	3%	71%
-03	0.28	35	34	5-20	4-16	3.5-14	2.5-10	F	208	24%	99%	С	330	11%	90%	VC	414	5%	83%		466	3%	74%
Nozzles	0.29	40	39	5.5-22	4.3-17	3.8-15	2.8-11	F		26%		С	314	12%	91%	VC	395	6%	85%	VC	451	4%	76%
	0.31	45	43	5.8-23	4.8-19	3.8-15	3-12	F			99%	С	300	13%		С	378	7%	86%	VC	437	5%	78%
	0.33	50	48	6-24	5-20	4-16	3-12	F	193	29%		Č	289	14%	92%	Č	364		87%	VC	426	5%	80%
	0.36	60	58	6.8-27	5.3-21	4.5-18	3.3-13	F		31%	99%	M	270	16%	93%	C	341	9%	89%	VC	406	6%	82%
	0.38	65	63	7-28	5.5-22	4.8-19	3.5-14	F		32%		M	262	17%	93%	C	332		90%	C	398		83%
	0.39	70	68	7.3-29	5.8-23	4.8-19	3.5-14	F		33%		M	255	18%	93%	C	323		90%	Č	391	7%	
	0.42	80	77	7.8-31	6.3-25	5.3-21	3.8-15	F		35%		M	242		94%	Č	308		91%	Č	378		85%
		Boom	Tip		yer Speed (o		g) @		80-04		70-04		30-04		88-04				90-04		30-04	#4028	
	us gpm		psi	4gpa	5gpa	7.5	10gpa		VMD	<141			VMD		<600				<600			<141	
	0.27	20	19	5-20	4-16	2.8-11	2-8.1	М	254	16%	99%												
	0.31	25	23	5.8-23	4.5-18	3-12	2.3-9.1	M	242	18%	99%	С	377	5%	85%								
80	0.34	30	28	6.3-25	5-20	3.3-13	2.5-10	M	233	20%	99%	С	356	6%	86%	VC	428	5%	79%	XC	551	2%	60%
-04	0.36	35	33	6.8-27	5.5-22	3.5-14	2.8-11	M	226	22%		С	339	8%	88%	VC	409	6%	81%	XC	531	2%	64%
Nozzles	0.39	40	37	7.3-29	5.8-23	3.8-15	3-12	M	219	23%	99%	С	323	9%	89%	С	393	7%	83%	XC	515	3%	67%
	0.41	45	42	7.5-30	6-24	4-16	3-12	F	214	24%		С	310	10%	90%	С	379	8%	84%	XC	500	3%	69%
	0.43	50	47	8-32	6.5-26	4.3-17	3.3-13	F	209	25%	99%	С	298	11%	90%	С	367	8%	86%	XC	488	3%	71%
	0.47	60	56	8.8-35	7-28	4.8-19	3.5-14	F	201	27%	99%	С	277	13%	91%	С	348		87%	XC	467	4%	74%
	0.49	65	61	9.3-37	7.3-29	5-20	3.8-15	F	198	28%	99%	M	268	14%	92%	C	340	10%	88%		458	4%	75%
	0.51	70	66	9.5-38	7.5-30	5-20	3.8-15	F		29%		M	260	14%	92%	С	332		89%	VC	450	5%	76%
	0.55		75	10-41	8.3-33	5.5-22	4-16	F	189	30%	99%	M	245	16%	93%	С		12%	90%		436	5%	78%
	Flow		Tip	Spra	yer Speed (o		g) @	ER8	80-05	#402		SR8	30-05	#402	88-05	MR	30-05		90-05		30-05	#4028	
	us gpm												VAAD		000						1/0.40	-1.11	<600
		POI	psi	6gpa	8gpa	10gpa	12gpa			<141		Class	VIVIU	<141	<600	Class	VMD	<141	<600	Class	VMD	< 141	
	0.34	20	18	6GPA 4.3-17	3-12	10gpa 2.5-10	12gpa 2.1-8.3	С	303	10%	95%	Class	VIVID	<141		Class	VMD	<141	<600	Class	VMD	<141	
	0.34 0.38	20 25	18 23	4.3-17 4.8-19		2.5-10 2.8-11	2.1-8.3 2.3-9.3			10%	95%	Class VC		4%	80%		VMD	<141	<600		VMD	<141	
80	0.34	20	18	4.3-17	3-12	2.5-10	2.1-8.3 2.3-9.3 2.5-10	С	303	10%	95% 95% 95%					Class	VMD 517		65%	Class	587	1%	53%
80 -05	0.34 0.38	20 25	18 23	4.3-17 4.8-19	3-12 3.5-14	2.5-10 2.8-11	2.1-8.3 2.3-9.3	C	303 287 274 263	10% 13% 15% 17%	95% 95% 95% 95%	VC	424	4%	80% 82% 83%								53%
	0.34 0.38 0.41	20 25 30	18 23 27	4.3-17 4.8-19 5-20	3-12 3.5-14 3.8-15	2.5-10 2.8-11 3-12	2.1-8.3 2.3-9.3 2.5-10	C C	303 287 274 263	10% 13% 15%	95% 95% 95% 95% 95%	VC VC C	424 400	4% 6%	80% 82%	XC	517	3%	65%	XC	587 567 551	1%	53% 57%
-05	0.34 0.38 0.41 0.45	20 25 30 35	18 23 27 32	4.3-17 4.8-19 5-20 5.5-22	3-12 3.5-14 3.8-15 4.3-17	2.5-10 2.8-11 3-12 3.3-13	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12	C C M	303 287 274 263 255 247	10% 13% 15% 17% 19% 20%	95% 95% 95% 95% 95%	VC VC C C	424 400 380 362 347	4% 6% 8%	80% 82% 83%	XC XC XC VC	517 496	3% 3%	65% 69%	XC XC XC	587 567	1% 2%	53% 57% 60%
-05	0.34 0.38 0.41 0.45 0.48	20 25 30 35 40	18 23 27 32 36	4.3-17 4.8-19 5-20 5.5-22 6-24	3-12 3.5-14 3.8-15 4.3-17 4.5-18	2.5-10 2.8-11 3-12 3.3-13 3.5-14	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3.3-13	C C M M	303 287 274 263 255 247	10% 13% 15% 17% 19% 20% 21%	95% 95% 95% 95% 95% 95%	VC VC C C C	424 400 380 362	4% 6% 8% 9% 10% 11%	80% 82% 83% 85% 86% 87%	XC XC XC VC VC	517 496 478 463 450	3% 3% 4% 4% 5%	65% 69% 71%	XC XC XC XC	587 567 551	1% 2% 2%	53% 57% 60% 63%
-05	0.34 0.38 0.41 0.45 0.48 0.50	20 25 30 35 40 45	18 23 27 32 36 41	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3.3-13 3.5-14	C C M M	303 287 274 263 255 247 241 230	10% 13% 15% 17% 19% 20% 21% 23%	95% 95% 95% 95% 95% 95% 95%	VC VC C C C	424 400 380 362 347 333 309	4% 6% 8% 9% 10% 11% 13%	80% 82% 83% 85% 86% 87% 88%	XC XC XC VC VC	517 496 478 463 450 428	3% 3% 4% 4%	65% 69% 71% 74% 75% 78%	XC XC XC XC XC	587 567 551 536	1% 2% 2% 2%	53% 57% 60% 63% 65% 68%
-05	0.34 0.38 0.41 0.45 0.48 0.50 0.53	20 25 30 35 40 45 50	18 23 27 32 36 41 45	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3.3-13	C C M M M	303 287 274 263 255 247 241	10% 13% 15% 17% 19% 20% 21% 23% 24%	95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C	424 400 380 362 347 333	4% 6% 8% 9% 10% 11%	80% 82% 83% 85% 86% 87% 88% 88%	XC XC XC VC VC VC	517 496 478 463 450	3% 3% 4% 4% 5%	65% 69% 71% 74% 75%	XC XC XC XC	587 567 551 536 524	1% 2% 2% 2% 3%	53% 57% 60% 63% 65% 68% 69%
-05	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.58	20 25 30 35 40 45 50	18 23 27 32 36 41 45 54	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16	C C M M M M	303 287 274 263 255 247 241 230 225 221	10% 13% 15% 17% 19% 20% 21% 23% 24% 25%	95% 95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C	424 400 380 362 347 333 309	4% 6% 8% 9% 10% 11% 13% 13%	80% 82% 83% 85% 86% 87% 88% 89%	XC XC XC VC VC	517 496 478 463 450 428	3% 3% 4% 4% 5% 5%	65% 69% 71% 74% 75% 78% 79% 80%	XC XC XC XC XC	587 567 551 536 524 503	1% 2% 2% 2% 3% 3%	53% 57% 60% 63% 65% 68% 69% 71%
-05	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.58 0.61	20 25 30 35 40 45 50 60 65	18 23 27 32 36 41 45 54 59	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 5.8-23 6.3-25	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17	C C C M M M M M	303 287 274 263 255 247 241 230 225 221 214	10% 13% 15% 17% 19% 20% 21% 23% 24% 25% 27%	95% 95% 95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C	424 400 380 362 347 333 309 299 289 271	4% 6% 8% 9% 10% 11% 13% 13% 14%	80% 82% 83% 85% 86% 87% 88% 89% 89%	XC XC XC VC VC VC C	517 496 478 463 450 428 419 410 396	3% 3% 4% 4% 5% 5% 6% 6% 7%	65% 69% 71% 74% 75% 78% 79% 80% 82%	XC XC XC XC XC XC XC XC	587 567 551 536 524 503 494 486 471	1% 2% 2% 2% 3% 3% 3% 4% 4%	53% 57% 60% 63% 65% 68% 69% 71% 73%
-05	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.58 0.61 0.63 0.67	20 25 30 35 40 45 50 60 65 70	18 23 27 32 36 41 45 54 59 63	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 5.8-23 6.3-25 yer Speed (0	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 9) @	C C M M M M M M M	303 287 274 263 255 247 241 230 225 221 214 30-06	10% 13% 15% 17% 19% 20% 21% 23% 24% 25% 27% #402	95% 95% 95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C	424 400 380 362 347 333 309 299 289 271 30-06	4% 6% 8% 9% 10% 11% 13% 14% 15% #402	80% 82% 83% 85% 86% 87% 88% 89% 90% 888-06	XC XC VC VC VC C C	517 496 478 463 450 428 419 410 396 30-06	3% 4% 4% 5% 5% 6% 6% 7% #4029	65% 69% 71% 74% 75% 78% 79% 80% 82% 90-06	XC XC XC XC XC XC XC XC VC	587 567 551 536 524 503 494 486 471 30-06	1% 2% 2% 2% 3% 3% 3% 4% 4%	53% 57% 60% 63% 65% 68% 69% 71% 73% 80-06
-05	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.58 0.61 0.63 0.67 Flow us gpm	20 25 30 35 40 45 50 60 65 70 80 Boom psi	18 23 27 32 36 41 45 54 59 63 72 Tip psi	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 5.8-23 6.3-25 yer Speed (0	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 12gpa	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 g) @	C C M M M M M M M F ER8	303 287 274 263 255 247 241 230 225 221 214 80-06 VMD	10% 13% 15% 17% 19% 20% 21% 23% 24% 25% 27% #402 <141	95% 95% 95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C	424 400 380 362 347 333 309 299 289 271 30-06	4% 6% 8% 9% 10% 11% 13% 14% 15% #402	80% 82% 83% 85% 86% 87% 88% 89% 89%	XC XC VC VC VC C C	517 496 478 463 450 428 419 410 396 30-06	3% 4% 4% 5% 5% 6% 6% 7%	65% 69% 71% 74% 75% 78% 79% 80% 82% 90-06	XC XC XC XC XC XC XC XC VC	587 567 551 536 524 503 494 486 471 30-06	1% 2% 2% 2% 3% 3% 3% 4% 4%	53% 57% 60% 63% 65% 68% 69% 71% 73% 80-06
-05	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.61 0.63 0.67 Flow us gpm 0.40	20 25 30 35 40 45 50 60 65 70 80 Boom psi 20	18 23 27 32 36 41 45 54 59 63 72 Tip psi 17	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 6.3-25 yer Speed (0 10gpa 3-12	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 12gpa 2.5-9.8	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 15GPA 2-7.8	C C C M M M M M M F ER8	303 287 274 263 255 247 241 230 225 221 214 80-06 VMD 331	10% 13% 15% 17% 19% 20% 21% 23% 24% 25% 27% #402 <141 11%	95% 95% 95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C	424 400 380 362 347 333 309 299 289 271 80-06 VMD	4% 6% 8% 9% 10% 11% 13% 14% 15% #402 <141	80% 82% 83% 85% 86% 87% 88% 89% 90% 88-06 <600	XC XC VC VC VC C C	517 496 478 463 450 428 419 410 396 30-06	3% 4% 4% 5% 5% 6% 6% 7%	65% 69% 71% 74% 75% 78% 79% 80% 82% 90-06	XC XC XC XC XC XC XC XC VC	587 567 551 536 524 503 494 486 471 30-06	1% 2% 2% 2% 3% 3% 3% 4% 4%	53% 57% 60% 63% 65% 68% 69% 71% 73% 80-06
-05 Nozzles	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.58 0.61 0.63 0.67 Flow us gpm 0.40 0.44	20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25	18 23 27 32 36 41 45 54 59 63 72 Tip psi 17 22	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 5.8-23 6.3-25 yer Speed (o 10gPA 3-12 3.3-13	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 12GPA 2.5-9.8 2.8-11	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 15gPA 2-7.8 2.2-8.8	C C C M M M M M M F ER8	303 287 274 263 255 247 241 230 225 221 214 80-06 VMD 331 316	10% 13% 15% 17% 19% 20% 21% 23% 24% 25% 27% #402 <141 11% 13%	95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C	424 400 380 362 347 333 309 299 289 271 80-06 VMD	4% 6% 8% 9% 10% 11% 13% 14% 15% #402 <141	80% 82% 83% 85% 86% 87% 88% 89% 90% 88-06 <600	XC XC VC VC VC C C C MR8	517 496 478 463 450 428 419 410 396 30-06 VMD	3% 3% 4% 4% 5% 5% 6% 6% 7% #4029 <141	65% 69% 71% 74% 75% 78% 80% 82% 90-06 <600	XC XC XC XC XC XC XC XC Class	587 567 551 536 524 503 494 486 471 80-06 VMD	1% 2% 2% 2% 3% 3% 4% 4% #4028 <141	53% 57% 60% 63% 65% 68% 71% 73% 80-06
-05 Nozzles	0.34 0.38 0.41 0.45 0.45 0.50 0.53 0.61 0.63 0.67 Flow us gpm 0.40 0.44 0.48	20 25 30 35 40 45 50 65 70 80 Boom psi 20 25 30	18 23 27 32 36 41 45 54 59 63 72 Tip psi 17 22 26	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 5.8-23 6.3-25 yer Speed (o 10gPA 3-12 3.3-13	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 12gPA 2.5-9.8 2.8-11 3-12	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 15gPA 2-7.8 2.2-8.8	C C C M M M M M M M F ER8 Class C C C C	303 287 274 263 255 247 241 230 225 221 214 30-06 VMD 331 316 305	10% 13% 15% 17% 19% 20% 21% 23% 24% 25% 27% #402 <141 11% 13% 15%	95% 95% 95% 95% 95% 95% 95% 95%	VC CC CC CC CSR8 CClass	424 400 380 362 347 333 309 299 289 271 80-06 VMD 456 435	4% 6% 8% 9% 10% 11% 13% 14% 15% #402 <141	80% 82% 83% 85% 86% 87% 88% 89% 89% 90% 88-06 <600	XC XC VC VC VC C C C MR8 Classs	517 496 478 463 450 428 419 410 396 30-06 VMD	3% 3% 4% 4% 5% 5% 6% 6% 7% #4029 <141	65% 69% 71% 74% 75% 78% 79% 80% 82% 90-06 <600	XC XC XC XC XC XC XC XC XC XC XC XC	587 567 551 536 524 503 494 486 471 30-06 VMD	1% 2% 2% 2% 3% 3% 4% 4% #4023 <141	53% 57% 60% 63% 65% 68% 71% 73% 80-06
-05 Nozzles 80 -06	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52	20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30 35	18 23 27 32 36 41 45 54 59 63 72 Tip psi 17 22 26 30	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 5.8-23 6.3-25 yer Speed (0 10gPA 3-12 3.3-13 3.5-14 4-16	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 12gpa 2.5-9.8 2.8-11 3-12 3.3-13	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 156PA 2-7.8 2.2-8.6 2.4-9.6	C C C M M M M M M F ER8 Class C C C	303 287 274 263 255 247 241 230 225 221 214 80-06 VMD 331 316 305 295	10% 13% 15% 17% 19% 20% 21% 23% 24% 25% 27% #402 <141 11% 13% 15% 17%	95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C VC VC VC VC	424 400 380 362 347 333 309 299 271 80-06 VMD 456 435 418	4% 6% 8% 9% 10% 11% 13% 14% 15% #402 <141 3% 4% 5%	80% 82% 83% 85% 86% 87% 88% 89% 90% 88-06 <600 76% 79% 81%	XC XC VC VC VC C C C MR8 XC	517 496 478 463 450 428 419 410 396 30-06 VMD	3% 3% 4% 4% 5% 5% 6% 6% 7% #4029 <141	65% 69% 71% 74% 75% 78% 80% 82% 90-06 <600	XC XC XC XC XC XC XC XC XC XC XC XC	587 567 551 536 524 503 494 486 471 30-06 VMD	1% 2% 2% 2% 3% 3% 4% 4% #4023 <141	53% 57% 60% 63% 65% 68% 71% 73% 80-06 <600
-05 Nozzles 80 -06	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.56	20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30 35 40	18 23 27 32 36 41 45 54 59 63 72 Tip psi 17 22 26 30 35	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 6.3-25 yer Speed (0 10GPA 3-12 3.3-13 3.5-14 4-16 4.3-17	2.5-10 2.8-11 3.12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 120° spacin 120°A 2.5-9.8 2.8-11 3-12 3.3-13	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3-12 3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 15gpa 2-7.8 2.2-8.8 2.4-9.6 2.5-10	C C C M M M M M M M M F ER8 C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 241 230 225 221 214 80-06 VMD 331 316 305 295 287	10% 13% 15% 17% 19% 20% 21% 23% 24% 25% 27% #402 <141 11% 13% 15% 17%	95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C C VC VC VC VC	424 400 380 362 347 333 309 299 271 80-06 VMD 456 435 418 404	4% 6% 8% 9% 10% 11% 13% 13% 14% 54402 444 5% 6%	80% 82% 83% 85% 86% 87% 88% 89% 90% \$8-06 <600 76% 79% 81% 82%	XC XC VC VC VC C C C MR8 Class XC XC	517 496 478 463 450 428 419 410 396 80-06 VMD 544 524 509	3% 3% 4% 4% 5% 5% 6% 6% 7% <141 2% 3% 3%	65% 69% 71% 74% 75% 78% 80% 80% 82% 90-06 <600 61% 64% 67%	XC XC XC XC XC XC XC XC XC XC XC XC XC X	587 567 551 536 524 503 494 486 471 30-06 VMD	1% 2% 2% 2% 3% 3% 3% 4% 4% =402 <141 1% 1% 2%	53% 57% 60% 63% 65% 68% 69% 71% 73% 80-06 <600 48% 52% 54%
-05 Nozzles 80 -06	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.61 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.56 0.59	20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30 35 40	18 23 27 32 36 41 45 54 59 63 72 Tip psi 17 22 26 30 35 39	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 5.8-23 6.3-25 yer Speed (0 10gPA 3-12 3.3-13 3.5-14 4-16 4.3-17 4.5-18	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 12@PA 2.5-9.8 2.8-11 3-12 3.3-13 3.5-14 3.8-15	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3-3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 15gPA 2-7-8 2.2-8.8 2.4-9.6 2.5-10 2.5-10 2.3-12	C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 241 230 225 221 214 80-06 VMD 331 316 305 295 287 281	10% 13% 15% 17% 19% 20% 21% 23% 24% 25% 4402 <141 11% 13% 15% 17% 18%	95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C C VC VC VC VC VC C C	424 400 380 362 347 333 309 299 289 271 30-06 VMD 456 435 418 404 392	4% 6% 8% 9% 10% 11% 13% 14% 15% #402 <141 3% 5% 6% 7%	80% 82% 83% 85% 86% 87% 88% 89% 90% 88-06 <600 76% 81% 82% 84%	XC XC XC VC VC C C C XC XC XC XC XC	517 496 478 463 450 428 419 410 396 VMD 544 524 509 495	3% 3% 4% 4% 5% 5% 6% 6% 7% <141 2% 3% 3% 3%	65% 69% 71% 74% 75% 78% 80% 82% 90-06 <600 61% 64% 67% 69%	XC X	587 567 551 536 524 503 494 486 471 30-06 VMD 613 595 579 566	1% 2% 2% 2% 3% 3% 3% 4% 4% *4402 <141 1% 2% 2%	53% 57% 60% 63% 65% 68% 69% 71% 73% 80-06 <600 48% 52% 54% 56%
-05 Nozzles 80 -06	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.61 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.59 0.63	20 25 30 35 40 45 50 66 65 70 80 Boom psi 20 25 30 35 40	18 23 27 32 36 41 45 54 59 63 72 Tip psi 17 22 26 30 35 39 43	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24 6.3-25	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 5.8-23 6.3-25 yer Speed (0 10gPA 3-12 3.3-13 3.5-14 4-16 4.3-17 4.5-18 4.8-19	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 12GPA 2.5-9.8 2.8-11 3-12 3.3-13 3.5-14 3.8-15 3.8-15	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3-3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 15epa 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-12	C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 241 230 225 221 214 80-06 VMD 331 316 305 295 287 281 275	10% 13% 15% 17% 19% 20% 21% 23% 24% 25% 27% #402 <141 11% 13% 15% 17% 18% 19% 21%	95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 347 333 309 299 271 80-06 VMD 456 435 418 404 392 382	4% 6% 8% 9% 10% 11% 13% 14% 15% #402 <141 3% 5% 6% 7%	80% 82% 83% 85% 86% 87% 89% 90% 88-06 <600 76% 81% 82% 84% 85%	XC XC VC VC VC C C MR8 XC XC XC XC XC	517 496 478 463 450 428 419 410 396 30-06 VMD 544 524 509 495 483	3% 3% 4% 5% 5% 6% 6% 7% #4029 <141 2% 3% 3% 3% 4%	65% 69% 71% 74% 75% 80% 82% 90-06 <600 61% 64% 67% 69% 71%	XC X	587 567 551 536 524 503 494 486 471 80-06 VMD 613 595 579 566 555	1% 2% 2% 3% 3% 4% 4% 4141 1% 2% 2% 2%	53% 57% 60% 63% 65% 68% 69% 71% 73% 80-06 <600 48% 52% 54% 55% 56%
-05 Nozzles 80 -06	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.61 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.56 0.59 0.63	20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30 35 40 40 45 50 60 65 70 80 80 80 80 80 60 60 60 60 60 60 60 60 60 60 60 60 60	18 23 27 32 36 41 45 54 59 63 72 Tip psi 17 22 26 30 35 35 39 43	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24 6.3-25 6.8-27	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 5.8-23 5.8-23 5.8-23 5.8-23 5.8-23 5.3-25 yer Speed (o 10gPA 3-12 3.3-13 3.5-14 4-16 4.3-17 4.5-18 4.8-19 5-20	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 12gPA 2.5-9.8 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4.3-17	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3.12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 g) © 15cm 2-7.8 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3.12 3.5-14	C C C C C C C C M M	303 287 274 263 255 247 241 230 225 221 214 80-06 VMD 331 316 305 295 287 281 275 265	10% 13% 15% 17% 20% 21% 23% 24% 25% 27% #402 <141 11% 13% 15% 17% 18% 21% 22%	95% 95% 95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 347 333 309 299 271 80-06 VMD 456 435 418 404 492 382 364	4% 6% 8% 9% 10% 11% 13% 14% 15% <141 3% 4% 5% 6% 7% 7% 8%	80% 82% 83% 85% 86% 87% 88% 89% 89% 90% 5600 76% 79% 81% 82% 82% 84%	XC XC VC VC VC C C MR8 Classs XC XC XC XC XC VC	517 496 478 463 450 428 419 410 396 VMD 544 524 509 495 483 463	3% 3% 4% 5% 5% 6% 6% 6% 402 <141 2% 3% 3% 4% 4%	65% 69% 71% 75% 78% 79% 80% 82% 90-06 <600 61% 64% 67% 71% 74%	XC X	587 567 551 536 524 503 494 486 471 471 80-06 VMD 613 595 579 566 555 535	1% 2% 2% 3% 3% 3% 4% 4% #4020 <141 1% 2% 2% 3%	53% 57% 60% 63% 65% 68% 69% 71% 73% 80-06 <60 48% 52% 54% 56% 61%
-05 Nozzles 80 -06	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.61 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.56 0.59 0.63 0.69 0.71	20 25 30 35 40 45 50 60 65 70 80 80 20 25 30 35 40 45 45 50 66 65 65 66 65 65 60 66 65 60 66 65 60 60 60 60 60 60 60 60 60 60 60 60 60	18 23 27 32 36 41 45 54 59 63 72 Tippsi 17 22 26 30 35 39 43 52 57	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24 6.3-25 6.8-27 7-28	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 6.3-25 yer Speed (o 10gPA 3-12 3.3-13 3.5-14 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 126PA 2.5-9.8 2.8-11 3-12 3.3-13 3.5-14 3.8-15 3.8-15 4.3-17 4.5-18	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3-13 3.5-14 3.8-15 4.3-17 g) @ 156PA 2-7.8 2.2-8.8 2.4-9.6 2.5-10 3.8-11 3-12 3-12 3-5-14 3.5-14	C C C C C C C C C C C M M M	303 287 274 263 255 247 241 230 225 221 214 00-06 331 316 305 295 287 281 2281 225 227 265 260	10% 13% 15% 17% 20% 21% 23% 24% 25% 27% 4402 411 11% 13% 15% 17% 28% 29% 2141 213% 2141 213% 2141 213% 213% 213% 213% 213% 213% 213% 213	95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 333 309 299 271 30-06 VMD 456 435 418 404 392 382 364 357	4% 6% 8% 9% 11% 13% 13% 14% 4402 -141 3% 4% 6% 6% 7% 7% 8%	80% 82% 83% 85% 86% 89% 89% 89% 90% <600 76% 81% 82% 82% 84% 82% 84% 87%	XC XC XC VC VC VC C C MR8 Classs XC XC XC XC VC VC VC VC VC VC VC VC	517 496 478 463 450 428 419 410 396 50-06 VMD 524 524 509 495 493 463 463 463	3% 3% 4% 5% 5% 6% 6% 6% 44029 <1411 2% 3% 3% 3% 4% 4% 5%	65% 69% 71% 75% 78% 80% 82% <600 61% 64% 67% 77% 75%	XC X	587 567 551 536 524 503 494 486 471 80-06 VMD 613 595 579 566 555 535 527	1% 2% 2% 3% 3% 3% 4% 4% 44020 <141 1% 2% 2% 2% 3% 3% 3%	53% 57% 60% 63% 65% 68% 69% 71% 73% 80-06 <600 48% 52% 56% 56% 61% 63%
-05 Nozzles 80 -06	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.58 0.61 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.56 0.59 0.63 0.69 0.71 0.74	20 25 30 35 40 45 50 60 65 70 80 80 80 80 80 20 25 30 35 40 45 40 45 65 65 65 65 66 65 65 66 65 65 60 60 60 60 60 60 60 60 60 60 60 60 60	18 23 27 32 36 41 45 54 59 63 72 Tip psi 17 22 26 30 35 39 43 59 59 59 59 59 59 59 59 59 59 59 59 59	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24 6.3-25 6.8-27 7-28 7.3-29	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 5.8-23 5.8-23 5.8-23 5.3-25 yer Speed (o 10GPA 3.3-13 3.5-14 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 5.5-22	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 126PA 2.5-9.8 2.8-11 3-12 3.3-13 3.5-14 3.8-15 3.8-15 4.5-18	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3-3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 15@A 2-7.8 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3.12 3.5-14 3.12 3.12 3.5-14 3.8-15	C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 241 230 225 221 214 316 0-06 VMD 331 316 305 295 287 281 275 260 265 265 265 265 275 287 281 295 295 295 295 295 295 295 295	10% 13% 15% 17% 20% 21% 23% 24% 4402 <141 11% 13% 15% 17% 18% 21% 23% 24%	95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 333 309 299 289 271 30-06 VMD 456 435 418 404 392 382 382 364 357	4% 6% 8% 9% 10% 11% 13% 15% #402 <141 3% 6% 7% 8% 9%	80% 82% 83% 86% 87% 88% 89% 90% 88-06 <600 79% 81% 82% 84% 85% 87% 87%	XC XC XC VC VC VC C C C XC XC XC VC VC VC VC VC VC XC XC XC XC XC VC VC VC	517 496 478 463 450 428 419 396 30-06 VMD 524 529 495 483 463 454 447	3% 4% 4% 5% 6% 6% 7% #402! <141 2% 3% 3% 4% 4% 5%	65% 69% 71% 75% 78% 80% 82% 600-06 <600 61% 67% 69% 71% 75% 75% 76%	XC X	587 551 536 524 503 494 486 471 30-06 VMD 613 595 579 566 555 535 527 519	1% 2% 2% 3% 3% 4% 4% 4% 1% 1% 2% 2% 3% 3% 3% 3% 3%	53% 57% 60% 63% 65% 68% 71% 73% 80-06 <600 52% 54% 52% 61% 63% 64%
-05 Nozzles 80 -06	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.59 0.63 0.67 0.63	20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 40 45 50 65 65 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	18 23 27 32 36 41 45 59 63 72 Tip psi 17 22 26 30 35 39 43 52 57 61 70	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6.8-27 7-28 7.3-29 7.8-31	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 6.8-24 6.8-24	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 2.5-9.8 2.5-9.8 2.5-9.8 2.5-9.8 3.3-13 3.5-14 3.8-15 3.8-15 4.3-17 4.5-18 5-20	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 15epa 2-7.8 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-12 3-12 3-5-14 3.8-15 4-16	C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 241 230 225 221 214 30-06 VMD 331 316 305 287 281 275 265 260 260 260 275 281 295 295 295 295 295 295 295 295	10% 13% 15% 17% 20% 21% 24% 25% **402 **141 11% 13% 15% 17% 18% 21% 23% 24% 24% 24% 24% 24% 24% 24% 24% 24% 24	95% 95% 95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 347 333 309 299 271 30-06 VMD 456 435 418 404 392 382 364 357 350 338	4% 6% 8% 9% 10% 11% 13% 14% 14% 4402: <141 3% 6% 7% 7% 8% 9% 9%	80% 82% 83% 86% 87% 88% 89% 89% <600 76% 81% 82% 84% 85% 87% 88% 88%	XC XC VC VC VC C C C XC XC VC	517 496 478 463 450 428 419 410 396 30-06 VMD 524 509 495 483 463 463 454 447 433	3% 3% 4% 4% 5% 6% 7% #402! <141 2% 3% 3% 3% 4% 4% 5% 5% 5% 5% 5% 5% 5% 6% 7%	65% 69% 71% 75% 78% 80% 80% 82% <600 61% 64% 67% 69% 71% 74% 75% 76% 78%	XC X	587 551 536 524 503 494 486 0 VMD 613 595 579 566 555 535 527 519 506	1% 2% 2% 3% 3% 3% 4% 4% #402! <141 1% 2% 2% 3% 3% 3% 3% 3% 3%	53% 57% 60% 63% 65% 68% 68% 71% 73% 80-06 <600 <48% 52% 54% 61% 63% 64% 66%
-05 Nozzles 80 -06	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.56 0.59 0.63 0.67 Flow	20 25 30 40 45 50 60 65 70 80 Boom psi 20 25 30 35 40 45 50 66 66 70 80 80 80 80 80 80 80 80 80 80 80 80 80	18 23 27 36 41 45 59 63 72 Tip psi 17 22 26 30 35 35 39 43 52 57 61 70 Tip	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24 6.3-25 6.8-27 7-28 7.3-29 7.8-31 Spra	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 6.3-25 yer Speed (0 10GPA 3-12 3.3-13 3.5-14 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 5.5-22 6.24 yer Speed (0	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 12gPA 2.5-9.8 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4.3-17 4.5-18 4.5-18 5-20 n 20" spacin	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3.12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 15gm 2-7.8 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-12 3-12 3-14 3.5-14 3.8-15 4.16 g) @	C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 241 230 225 221 214 40-06 VMD 305 295 287 281 275 265 260 265 249 0-08	10% 13% 15% 19% 20% 21% 23% 25% 27% #402 <141 11% 13% 15% 17% 21% 23% 24% 24% 24% 24% 24% 24% 24% 24% 24% 24	95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 347 333 309 299 289 271 30-06 VMD 456 435 418 404 392 382 364 357 350 338 309	4% 6% 8% 9% 10% 11% 13% 14% 15% #402 <141 3% 4% 6% 7% 8% 9% 10% 11% 11% 11% 11% 11% 11% 11% 11% 11	80% 82% 83% 85% 86% 87% 89% 99% 90% 88-06 <600 76% 82% 82% 85% 87% 85% 87% 88% 88% 88%	XC XC VC VC VC C C C MR8 XC	517 496 478 463 450 428 419 410 396 30-06 VMD 524 495 483 463 454 447 447 433 30-08	3% 4% 4% 5% 6% 7% #402: <141 2% 3% 4% 4% 5% 5% 5%	65% 69% 71% 74% 75% 80% 82% 80% 64% 6600 61% 67% 71% 75% 75% 69% 71% 75% 75% 75% 90008	XC X	587 567 551 536 524 486 471 30-06 VMD 613 595 579 566 555 535 527 519 506 80-08	1% 2% 2% 2% 3% 3% 4% 4% #402! <141 1% 1% 2% 2% 3% 3% 3% 3% 3% 4,4402!	53% 57% 60% 63% 63% 68% 69% 71% 73% 80-06 <600 48% 52% 54% 63% 63% 64% 66% 80-08
-05 Nozzles 80 -06	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.61 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.59 0.63 0.69 0.71 0.74 0.79 Flow us gpm	20 25 30 40 45 50 60 80 80 80 80 25 30 35 40 45 50 60 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	18 23 27 36 41 45 59 63 72 17 22 26 30 35 39 43 55 57 61 70 Tip psi	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24 6.3-25 6.8-27 7-28 7.3-29 7.5-30 7.5-3	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 6.3-25 yer Speed (o 10gea 3-12 3.3-13 3.5-14 4-16 4.8-19 5-20 5.3-21 5.5-22 6-24 yer Speed (o	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 126PA 2.5-9.8 2.8-11 3-12 3.3-13 3.5-14 3.8-15 3.8-15 4.3-17 4.5-18 4.5-18 4.5-18 0 n 20" spacin	2.1-8.3 2.3-9.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 15gra 2-7.8 2.2-8.8 2.4-9.6 2.5-10 3.5-14 3.8-15 4-16 g) @ 20gra	C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 241 230 225 221 214 300 0-06 VMD 331 316 305 295 287 281 275 260 260 260 270 280 280 280 280 280 280 280 280 280 28	10% 13% 15% 20% 21% 22% 24% 25% 27% #402 <141 11% 15% 15% 12% 24% 24% 24% 24% 24% 24% 24% 24% 24% 2	95% 95% 95% 95% 95% 95% 95% 95% 95% (<000 92% 91% 91% 91% 91% 90% 90% 90%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 347 333 309 299 271 30-06 VMD 456 435 418 404 392 382 364 357 350 338	4% 6% 8% 9% 10% 11% 13% 14% 15% #402 <141 3% 6% 7% 6% 7% 8% 99% 10% 4402	80% 82% 83% 86% 87% 88% 89% 89% <600 76% 81% 82% 84% 85% 87% 88% 88%	XC XC VC VC VC C C C MR8 XC	517 496 478 463 450 428 419 410 396 30-06 VMD 524 495 483 463 454 447 447 433 30-08	3% 4% 4% 5% 6% 7% #402: <141 2% 3% 4% 4% 5% 5% 5%	65% 69% 71% 75% 78% 80% 80% 82% 600 61% 64% 67% 69% 71% 74% 75% 76% 78%	XC X	587 557 551 536 524 494 486 471 30-06 VMD 613 595 579 566 555 535 527 519 506 80-08	1% 2% 2% 3% 3% 3% 4% 4% #402! <141 1% 2% 2% 3% 3% 3% 3% 3% 3%	53% 57% 60% 63% 63% 68% 69% 71% 73% 80-06 <600 48% 52% 54% 63% 63% 64% 66% 80-08
80 -06 Nozzles	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.58 0.61 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.56 0.63 0.69 0.71 0.74 0.79 Flow us gpm 0.40 0.52	20 25 30 35 40 45 50 66 65 70 80 80 95 20 25 30 45 50 66 66 67 70 80 80 80 80 80 80 80 80 80 80 80 80 80	18 23 27 32 36 41 45 59 63 72 Tip psi 17 22 26 30 35 39 43 52 57 61 70 Tippsi 22 61 70 70 70 70 70 70 70 70 70 70 70 70 70	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24 6.3-25 6.8-27 7-28 7.3-29 7.8-31 Spra 7.5-21 5.5-22 6-24 6.3-25 6.8-27 7-28 7.3-29 7.8-31 Spra 7.5-21 6.5-22 6.5-24 6.3-25 6.8-27 7-28 7.3-29 7.8-31 Spra 7.5-21 6.5-22 6.5-24 6.3-25 6.8-27 7-28 7.3-29 7.8-31 Spra 7.5-30 7.5-3	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 5.8-23 5.8-23 6.3-25 yer Speed (0 10gPA 3-12 3.3-13 3.5-14 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 5.5-22 6-24 yer Speed (0	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 126PA 2.5-9.8 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4.3-17 4.5-18 4.5-18 4.5-18 4.5-18 4.5-18 4.5-18 4.5-18 4.5-18 4.3-9.3	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3-3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 15gPA 2.7-8 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-12 3-12 3-12 3-14 3-12 3-12 3-14 3-14 3-16 3-17 3-16 3-17 3-16 3-16 3-17 3-16 3-17 3-18	C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 241 230 225 221 214 80-06 331 316 305 285 287 281 275 265 260 249 00-08	10% 13% 15% 19% 20% 21% 24% 25% 244 11% 13% 15% 19% 244 244 21% 23% 24% 24% 244 244 11% 11% 12%	95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 347 333 309 299 289 271 100-06 435 448 404 392 382 382 357 350 338 80-08 VMD	4% 6% 8% 9% 10% 13% 13% 14% 15% <141 3% 4% 7% 6% 7% 8% 9% 90 10% 4402 <141	80% 82% 85% 85% 86% 89% 89% 89% 88-06 600 76% 82% 84% 85% 87% 88% 88-08 88-08	XC XC VC VC VC C C C MR8 XC	517 496 478 463 450 428 419 410 396 30-06 VMD 524 495 483 463 454 447 447 433 30-08	3% 4% 4% 5% 6% 7% #402: <141 2% 3% 4% 4% 5% 5% 5%	65% 69% 71% 74% 75% 80% 82% 90-06 64% 67% 67% 71% 75% 75% 69% 71% 75% 75% 75% 75% 75% 75% 75% 75%	XC X	587 557 551 536 524 494 486 471 30-06 VMD 613 595 579 566 555 535 527 519 506 80-08	1% 2% 2% 2% 3% 3% 4% 4% #402! <141 1% 1% 2% 2% 3% 3% 3% 3% 3% 4,4402!	53% 57% 60% 63% 63% 68% 69% 71% 73% 80-06 <600 48% 52% 54% 63% 63% 64% 66% 80-08
80 -06 Nozzles	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.61 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.56 0.63 0.69 0.71 0.74 0.79 Flow us gpm 0.63	20 25 30 35 40 45 50 60 65 70 80 Boom psi 22 25 30 35 40 60 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	18 23 27 32 36 41 45 59 63 72 Tip psi 17 22 30 35 52 57 61 70 Tip psi 20 24	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24 6.3-25 6.8-27 7-28 7.3-29 7.8-31 Spra 12GPA 3.5-14 3.8-15	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 6.3-21 5.5-22 6.24 yer Speed (0 15gra 2.8-11 3-12	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 12gPA 2.5-9.8 2.5-9.8 3.3-13 3.5-14 3.8-15 3.8-15 4.3-17 4.5-18 5-20 n 20" spacin 18gPA 2.5-9.8 2.5-10	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3.12 3.13 3.5-14 3.8-15 4-16 4.3-17 g) @ 2-7.8 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3.5-14	C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 241 230 225 221 214 30-66 VMD 331 295 287 265 265 249 0-08 VMD 338 336 338 345	10% 13% 17% 19% 20% 21% 24% 25% #402 <141 11% 23% 21% 23% 24% 25% *#402 <141 11% 23% 24% 24% 24% 24% 25% 24% 25% 24% 25% 24% 25% 25% 25% 25% 25% 25% 25% 25% 25% 25	95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 347 333 309 289 271 30-06 VMD 456 435 418 404 4392 382 364 404 392 383 364 VMD 554	4% 6% 8% 9% 10% 11% 13% 13% 14% 402:<141 3% 6% 7% 8% 9% 10% #402:<141 6%	80% 82% 83% 85% 86% 88% 89% 89% 88-06 <600 79% 81% 82% 87% 85% 87% 85% 87% 88-08 88-08 600	XC XC VC VC VC C C C MR8 XC	517 496 478 463 450 428 419 410 396 30-06 VMD 524 495 483 463 454 447 447 433 30-08	3% 4% 4% 5% 6% 7% #402: <141 2% 3% 4% 4% 5% 5% 5%	65% 69% 71% 74% 75% 80% 82% 90-06 64% 67% 67% 71% 75% 75% 69% 71% 75% 75% 75% 75% 75% 75% 75% 75%	XC X	587 557 551 536 524 494 486 471 30-06 VMD 613 595 579 566 555 535 527 519 506 80-08	1% 2% 2% 2% 3% 3% 4% 4% #402! <141 1% 1% 2% 2% 3% 3% 3% 3% 3% 4,4402!	53% 57% 60% 63% 63% 65% 68% 69% 71% 80-06 <600 48% 52% 54% 56% 61% 66% 80-08
80 -06 Nozzles	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.58 0.61 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.56 0.59 0.63 0.63 0.67 Flow us gpm 0.74 0.74 0.79 Flow us gpm 0.56 0.63 0.63 0.63	20 25 30 35 40 45 50 60 65 70 20 25 30 35 40 45 50 60 65 70 80 Boom psi 40 45 80 Boom psi 20 60 60 60 60 60 60 60 60 60 60 60 60 60	18 23 36 41 45 54 59 63 72 Tip psi 20 24 28	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24 6.3-25 6.8-27 7-28 7.3-29 7.8-31 Spra 12 <sub>GPA</sub> 3.5-14 3.8-15 4-16	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 6.3-25 yer Speed (o 10gPA 3-12 3.3-13 3.5-14 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 5.5-22 4.5-22 5.8-23 6.3-25 yer Speed (o 10gPA 2.8-11 3.3-13 3.3-13	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 12gpa 2.5-9.8 2.8-11 3-12 3.3-13 3.5-14 3.8-15 3.8-15 4.3-17 4.5-18 4.5-10 2.8-11	2.1-8.3 2.3-9.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3-12 3-12 3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 156PA 2.2-8.8 2.4-9.6 2.5-10 3.8-15 4-16 g) @ 206PA 2.1-8.3 2.3-9.1 2.3-9.9	C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 241 230 225 221 214 80-06 VMD 305 295 287 281 275 260 256 260 256 249 90-08 VMD 368 368 378 388 388 388 388 388 388 388 388 38	10% 13% 15% 19% 20% 21% 25% 24% 25% <141 11% 13% 23% 24% 24% 244 25% 4402 24% 24% 24% 4402 24% 4402 444 4402 4440 4440	95% 95% 95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 347 333 309 299 289 271 30-06 VMD 456 418 404 392 364 357 350 308 VMD 456 57 404 405 405 405 405 405 405 405 405 405	4% 6% 8% 9% 10% 13% 13% 15% #402 <141 3% 4% 6% 7% 9% 9% 9% 9% 94 10% 514 10% 11% 11% 11% 11% 11% 11% 11% 11% 11%	80% 82% 83% 85% 86% 88% 89% 88-06 <600 76% 81% 82% 84% 85% 85% 85% 85% 85% 85% 85% 600 57%	XC XC VC VC VC C C MR8 Class XC XC XC XC C C C C C C C C C C C C C	5177 496 478 463 450 478 419 410 524 509 495 483 463 454 447 473 30-08 VMD	3% 4% 4% 5% 6% 6% 6% 44% 3% 44% 444  244 44% 5% 5% 44% 45% 44% 44% 44% 44% 44%	65% 69% 71% 74% 75% 80% 82% 800-06 <600 61% 64% 69% 75% 75% 76% 75% 76% 78% <600	XC X	587 567 551 536 524 503 494 486 471 30-06 VMD 613 595 579 566 555 527 519 500 500 500 500 500 500 500 500 500 50	1% 2% 2% 3% 3% 4% 4% 4% 11% 2% 2% 38 38 38 38 38 38 38 38 44024 <141	53% 60% 63% 65% 68% 69% 71% 73% 80-06 <60 48% 52% 54% 66% 80-08 <60
80 -06 Nozzles	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.56 0.59 0.63 0.67 Flow us gpm 0.40 0.40 0.40 0.40 0.40 0.40 0.52 0.56 0.59 0.63 0.69 0.71 0.74 0.79 Flow us gpm 0.56 0.63 0.67 0.63	20 25 30 35 40 45 50 60 65 70 80 80 80 80 80 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	18 23 27 32 36 41 45 54 59 63 72 Tip psi 35 39 43 52 77 61 70 Tip psi 20 24 28 32	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24 6.3-25 6.8-27 7-28 7.3-29 7.8-31 26PA 3.5-14 3.8-15 4-16 4.5-18	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 6.3-25 yer Speed (o 10gPA 3-12 3.3-13 3.5-14 4-16 4.8-19 5-20 5.3-21 5.5-22 6-24 yer Speed (o 15gPA 2.8-11 3.12 3.3-13 3.5-14	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 12@PA 2.5-9.8 2.8-11 3-12 3.3-13 3.5-14 3.8-15 3.8-15 4.3-17 4.5-18 4.5-18 5-20 n 20" spacin 18@PA 2.3-9.3 2.5-10 2.8-11 3-12	2.1-8.3 2.3-9.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4.3-17 g) @ 156PA 2-7.8 2.2-8.8 2.4-9.6 2.5-10 3.8-15 4-16 g) @ 2.06PA 2.1-8.3 2.3-9.1 2.3-9.1 2.3-9.1	C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 230 225 221 230 225 221 336 305 295 295 265 265 260 256 249 300 256 249 300 305 305 305 305 305 305 305 305 305	10% 13% 17% 19% 20% 21% 22% 24% 25% #402 <141 11% 13% 19% 23% 24% 24% 4402 24% 4402 44% 14% 14% 14% 14% 14%	95% 95% 95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 347 333 309 299 289 271 80-06 435 418 392 382 364 404 392 357 350 388 VMD	4% 6% 8% 9% 10% 13% 13% 14% 14% 4402 <141 3% 4% 6% 7% 8% 9% 10% 64 4402 <141 66% 7% 88%	80% 82% 83% 85% 86% 88% 89% 90% 88-06 <600 76% 81% 82% 84% 85% 87% 88% 89% 85% 600 52% 55% 600 60%	XC XC VC VC VC C C C MRR Classs XC XC VC	517 496 478 463 450 428 419 396 30-06 VMD 544 524 509 495 483 463 463 464 447 433 80-08 VMD	3% 3% 4% 4% 5% 6% 77% #402! <141 2% 3% 3% 4% 5% 5% 5% 5% 44% 47% 47% 47% 47% 47% 47% 47% 47% 47	65% 69% 71% 74% 80% 80% 80% 6600 61% 64% 69% 71% 75% 69% 69% 66% 69% 66% 66% 66% 66% 66% 66	XC X	587 567 551 536 524 486 471 30-06 VMD 613 595 579 566 555 535 535 50-08 VMD	1% 2% 2% 2% 3% 3% 3% 4% 4% #4024 <141 1% 3% 3% 34% 44024 <141 33% 34% 34% 34% 34% 34% 34% 34% 34% 34%	53% 57% 60% 63% 65% 68% 71% 73% 80-00 <60 52% 54% 61% 63% 64% 66% 80-08 <60
80 -06 Nozzles	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.58 0.61 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.56 0.63 0.69 0.71 0.74 0.79 Flow us gpm 0.40 0.52 0.63 0.69 0.71 0.74 0.79 Flow us gpm 0.63 0.69 0.71 0.74 0.79 Flow us gpm 0.67 0.74 0.79 Flow us gpm 0.74 0.79 Flow us gpm 0.71 0.74 0.79 Flow us gpm 0.74 0.79 Flow us gpm 0.71 0.74 0.79 Flow us gpm 0.74 0.79 Flow us gpm 0.74 0.79 Flow us gpm 0.74 0.79 Flow us gpm 0.74 0.79 Flow us gpm 0.74 0.79 Flow us gpm 0.74 0.79 Flow us gpm 0.74 0.79 Flow us gpm 0.74 0.79 Flow us gpm 0.74 0.79 Flow us gpm 0.76 0.62 0.77 0.77 0.77 0.77	20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30 35 50 60 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	18 23 27 32 36 41 45 59 63 72 Tip psi 35 57 61 70 Tip psi 20 24 28 32 36	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24 6.3-25 6.8-27 7-28 7.3-29 7.8-31 Spra 12GPA 3.5-14 3.8-15 4-16 4.5-18 4.8-19	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 5.8-23 5.8-23 6.3-25 yer Speed (0 10gPA 3-12 3.3-13 3.5-14 4-16 4.3-17 4.5-18 4.8-19 5-20 6-24 yer Speed (0 15gPA 2.8-11 3-12 3.3-13 3.5-14 3-12 3.3-13 3.5-14	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 12GPA 2.5-9.8 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4.3-17 4.5-18 4.5-18 4.5-18 4.5-18 4.5-18 4.5-18 4.5-18 4.5-18 4.5-18 4.5-18 4.5-18 4.5-18 3.8-15 4.3-17 4.3-17 4.3-17 4.3-17 4.3-17 4.3-17 4.3-17 4.3-17 4.3-17 4.3-17 4.3-17 4.3-17 4.3-11	2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3-3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 15gPA 2.7-8 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-12 3-12 3-12 3-12 3-14 3-12 3-12 3-14 3-14 3-17 3-12 3-11 3-12 3-11 3-12	C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 230 225 221 214 30-06 WMD 331 331 305 295 287 287 281 275 260 260 295 249 0-08 349 345 326 326 327 328 329 329 329 329 329 329 329 329 329 329	10% 13% 17% 19% 20% 24% 25% #402 <141 11% 15% 17% 23% 24% 26% 4402 24, 141 11% 23% 24, 24, 44, 12% 14, 14, 15% 17% 18% 18% 18% 18% 18% 18% 18% 18% 18% 18	95%   95%   95%   95%   95%   95%   95%   95%   95%   95%   95%   95%   95%   95%   95%   95%   91%   91%   91%   91%   90%   90%   86%   88%   90%   90%   90%   90%   90%   86%   88%   90%   90%   90%   90%   90%   90%   90%   86%   88%   90%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 347 271 30-06 VMD 456 435 418 404 439 384 404 392 382 364 VMD 524 450 450 450 450 450 450 450 450 450 45	4% 6% 8% 9% 10% 13% 13% 14% \$402:<141 3% 4% 6% 7% 88 #402:<<141 10% #402:<<141 6% 7% 88 88 88	80% 82% 83% 85% 86% 89% 89% -6000 76% 79% 81% 82% 82% 85% 87% 88~08 88-06 52% 6000 57% 6000 57% 6000 6000	XC XC VC VC VC C C C MRR Classs  XC XC VC VC VC VC UC UC MRR Class	517 496 478 463 450 428 419 410 524 524 483 463 30-06 VMD 495 483 464 47 433 30-08 VMD	3% 3% 4% 4% 5% 6% 6% 4402! <141 7% 7%	65% 69% 71% 74% 80% 80% 82% 6600 61% 61% 67% 74% 8090-06 64% 71% 75% 76% 78% 6600	XC X	587 567 551 536 524 486 30-06 VMD 613 595 579 566 555 535 50-08 VMD	1% 2% 2% 2% 3% 3% 4% 4% 4% 11% 11% 12% 2% 3% 3% 3% 34% 4402t <141 3% 3% 44%	53% 57% 60% 63% 65% 68% 69% 71% 73% 66% 52% 52% 54% 66% 61% 61% 66% 80-08 60% 55% 64% 65% 65% 65% 65% 65% 65% 65% 65% 65% 65
80 -06 Nozzles	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.58 0.61 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.56 0.59 0.63 0.69 0.71 0.74 0.79 Flow us gpm 0.62 0.67 0.71 0.75 0.79	20 25 30 35 40 45 50 60 65 70 80 80 80 80 80 25 30 40 45 50 66 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	18 23 27 32 36 41 45 54 559 57 61 17 22 266 20 24 28 32 36 39	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24 6.3-25 6.8-27 7-28 7.3-29 7.3-31 8.3	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 6.3-25 yer Speed (0 10gPA 3-12 3.3-13 3.5-14 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 5.5-22 6-24 yer Speed (0 15gPA 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 12gPA 2.5-9.8 2.5-9.8 3.3-13 3.5-14 3.8-15 3.8-15 4.3-17 4.5-18 5-20 n 20" spacin 18gPA 2.5-9.8 2.5-10 2.8-11 3-12 3.3-13	2.1-8.3 2.3-9.3 2.3-9.3 2.5-10 2.8-11 3-12 3.12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 9) © 156M 2.2-7.8 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-12 3-12 3-12 3-12 3-12 3-12 3	C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 221 221 221 214 30-06 WMD 305 287 281 275 260 260 260 0-08 WMD 368 368 371 312 326 331 368 368 368 368 368 378 378 378 378 378 378 378 378 378 37	10% 13% 17% 19% 20% 24% 25% 27% #4022 <141 11% 13% 15% 21% 23% 24% 24% 24% 24% 24% 4402 <141 12% 14% 16% 18% 18% 18% 29% 29% 29% 29% 29% 29% 29% 29% 29% 29	95% 95% 95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 347 333 309 299 271 80-06 435 435 4418 404 392 382 418 404 392 382 VMD 50-08 VMD	4% 6% 8% 9% 10% 11% 13% 13% 15% #402 <141 3% 6% 7% 8% 9% 4402 <141 6% 7% 88 88 9%	80% 82% 83% 85% 86% 89% 90% 88-06 <600 76% 82% 84% 85% 87% 88% 88-08 <600 52% 60% 66%	XC XC VC VC VC C C MRR Classs  XC VC	517 496 478 463 463 450 428 419 396 30-06 VMD 544 524 509 495 483 454 447 473 30-08 VMD	3% 3% 4% 5% 6% 7% #402: <141  2% 3% 3% 4% 4% 5% 5% #402: <141  7% 8%	65% 699% 71% 74% 75% 78% 80% 82% 800-06 61% 64% 67% 69%    65% 65% 65% 69% 69% 69% 69%	XC X	587 567 551 536 524 503 494 471 80-06 VMD 613 595 579 566 555 527 519 500 80-08 VMD	1% 2% 2% 2% 3% 3% 3% 4% 4% 4% 1% 1% 2% 2% 3% 3% 3% 44021 <141 3% 44021 <1414	53% 57% 60% 63% 65% 68% 69% 71% 73% 80-06 <600 48% 66% 80-08 <600 58% 66% 66% 55% 55% 55% 55% 55%
80 -06 Nozzles	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.58 0.61 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.56 0.59 0.63 0.67 0.71 0.74 0.79 Flow us gpm 0.56 0.62 0.56 0.63 0.67 0.71 0.75 0.75	20 25 30 35 40 45 50 60 65 70 80 80 80 80 22 25 30 45 50 66 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	18 23 36 41 45 54 59 63 72 Tip psi 20 26 61 70 Tip psi 20 24 28 32 36 39 47	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24 6.3-25 6.8-27 7-28 7.3-29 7.8-31 Spra 12GPA 3.5-14 3.8-15 4-16 4.5-18 4.8-19 5-20 5.5-22	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 6.3-25 yer Speed (o 10gPA 3-12 3.3-13 3.5-14 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 5.5-22 6.24 yer Speed (o 15gPA 2.8-11 3-12 3.3-13 3.5-14 4.16 4.3-17	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 126PA 2.5-9.8 2.8-11 3-12 3.3-13 3.5-14 3.8-15 3.8-15 4.3-17 4.5-18 4.5-18 4.5-18 5-20 n 20" spacin 186PA 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3-13 3.5-14	2.1-8.3 2.3-9.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 156PA 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3.12 3-12 3.5-14 3.8-15 4-16 g) @ 20GPA 2.1-8.3 2.3-9.1 2.8-11 2.8-11 2.8-11 2.8-11 2.8-11 2.8-11 3.3-13	C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 230 225 221 214 0-06 VMD 305 295 287 281 275 260 249 VMD 368 345 345 345 345 345 345 345 345 345 345	10% 13% 17% 19% 20% 23% 24% 25% 27% #402 <141 11% 13% 15% 23% 24% 24% 24% 24% 24% 141 12% 402 <141 12% 26% 214 402 24% 24% 24% 24% 24% 24% 24% 24% 24% 24	95% 95% 95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 347 333 309 299 271 80-06 VMD 456 435 418 404 392 364 357 350 00-08 VMD 456 450 448 464 464 464 465 464 464 464 464 464 464	4% 6% 8% 9% 10% 13% 13% 4402 <141 3% 4402 <141 15% 6% 7% 9% 996 996 908 840 840 840 840 840 840 840 840 840 8	80% 82% 83% 85% 86% 88% 89% 90% 88-06 <600 76% 81% 82% 84% 87% 88% 89% 87% 600 57% 60% 63% 63% 66% 70%	XC XC VC VC VC C C C MR8 CClass XC XC VC	517 496 478 463 450 428 419 396 30-06 VMD 544 524 495 495 483 30-08 VMD 532 544 47 433 50-08 50-06 495 495 495 495 495 495 495 495 495 495	3% 3% 4% 5% 5% 6% 7% #402! <141  2% 3% 3% 4% 5% 5% 5% 5% 5% 5% 5% 7% 4% 9%	65% 69% 71% 74% 78% 78% 80% 82% 800-06 <600 61% 64% 69% 71% 78% <600 65% 67% 67% 67% 67%	XC X	587 567 551 536 524 503 494 486 471 30-06 VMD 613 595 579 566 555 527 519 500 VMD	1% 2% 2% 2% 3% 3% 4% 4% 4% 1% 1% 2% 2% 2% 2% 2% 2% 2% 3% 3% 3% 3% 3% 3% 3% 3% 4% 44% 4%	53% 57% 60% 63% 65% 68% 69% 71% 71% 80-06 52% 54% 61% 63% 64% 80-08 <600
80 -06 Nozzles	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.61 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.56 0.59 0.63 0.69 0.71 0.74 0.79 Flow us gpm 0.56 0.63 0.67 0.63 0.69 0.71 0.74 0.79 0.79 0.71 0.75 0.62 0.67 0.79 0.89 0.	20 25 30 35 40 45 50 60 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	18 23 36 41 45 54 59 63 72 Tip psi 26 30 43 52 26 30 43 52 20 24 28 32 36 39 47 51	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24 6.3-25 6.8-27 7-28 7.3-29 7.8-31 Spra 12@PA 3.5-14 3.8-15 4-16 4.5-18 4.8-19 5-20 5.5-22 5.5-22	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 5.8-23 6.3-25 yer Speed (0 10gPA 3-12 3.3-13 3.5-14 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 5.5-22 6-24 yer Speed (0 15gPA 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 12gpa 2.5-9.8 2.8-11 3-12 3.3-13 3.5-14 3.8-15 3.8-15 4.3-17 4.5-18 4.5-18 5-20 n 20" spacin 18gpa 2.3-9.3 2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15	2.1-8.3 2.3-9.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 9) @ 156PA 2.2-8.8 2.4-9.6 2.5-10 3.8-15 4-16 9) @ 2.8-11 3-12 3.5-14 3.8-15 4-16 9) @ 2.8-11 3-12 3.5-14 3.8-15 4-16 3.8-15 4-16 3.8-15 4-16 3.8-15 4-16 3.3-13 3.3-13	C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 230 225 221 230 225 221 331 305 295 295 265 295 200 200 200 200 200 200 200 200 200 20	10% 13% 17% 19% 20% 25% 24% 25% #402 <141 11% 13% 15% 11% 23% 24% 24% 24% 24% 26% 244 402 244 14% 26% 244 26% 24% 24% 24% 24% 24% 24% 24% 24% 24% 24	95% 95% 95% 95% 95% 95% 95% 95% 95% 95%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 347 299 289 271 30-06 WMD 456 435 418 392 382 364 404 392 383 364 404 392 406 407 408 408 409 409 409 409 409 409 409 409 409 409	4% 6% 8% 9% 10% 13% 13% 14% 14% 4402 <141 3% 4402 (141 6% 7% 58 84 98 10% 88 89 10% 10%	80% 82% 83% 85% 86% 88% 89% 90% 88-06 <600 76% 84% 85% 87% 88% 88% 85% 86% 600 60% 66% 66% 66% 66% 66%	XC XC VC VC VC C C C MRR Classs  XC XC VC VC VC XC	517 496 478 463 450 428 419 410 500 500 495 483 463 30-06 495 483 30-08 WMD 544 447 433 30-08 WMD	3% 3% 4% 4% 5% 6% 7% #402! <141  7% 7% 8% 8% 9%	65% 69% 71% 74% 80% 80% 80% 6600 61% 64% 69% 71% 76% 76% 69% 67% 69% 67% 69% 77% 74%	XC X	587 567 551 536 524 486 471 30-06 VMD 613 595 566 555 535 535 537 519 506 30-08 VMD 613 599 565 556	1% 2% 2% 2% 3% 3% 3% 4% 4% 4% 4021 3% 3% 3% 3% 4021 341 3% 44021 411 3% 446 45%	53% 57% 60% 63% 68% 69% 71% 80-06 <600 48% 52% 54% 56% 63% 64% 66% 80-08 <500 55% 61% 65% 65% 65% 65% 65% 65% 69% 69% 71% 600 52% 600 600 600 600 600 600 600 600 600 60
80 -06 Nozzles	0.34 0.38 0.41 0.45 0.48 0.50 0.53 0.58 0.61 0.63 0.67 Flow us gpm 0.40 0.44 0.48 0.52 0.56 0.59 0.63 0.67 0.71 0.74 0.79 Flow us gpm 0.56 0.62 0.56 0.63 0.67 0.71 0.75 0.75	20 25 30 35 40 45 50 60 65 70 80 80 80 80 22 25 30 45 50 66 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	18 23 36 41 45 54 59 63 72 Tip psi 20 26 61 70 Tip psi 20 24 28 32 36 39 47	4.3-17 4.8-19 5-20 5.5-22 6-24 6.3-25 6.5-26 7.3-29 7.5-30 7.8-31 8.3-33 Spra 7.5 4-16 4.5-18 4.8-19 5.3-21 5.5-22 6-24 6.3-25 6.8-27 7-28 7.3-29 7.8-31 Spra 12GPA 3.5-14 3.8-15 4-16 4.5-18 4.8-19 5-20 5.5-22	3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 6.3-25 yer Speed (o 10gPA 3-12 3.3-13 3.5-14 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 5.5-22 6.24 yer Speed (o 15gPA 2.8-11 3-12 3.3-13 3.5-14 4.16 4.3-17	2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 n 20" spacin 126PA 2.5-9.8 2.8-11 3-12 3.3-13 3.5-14 3.8-15 3.8-15 4.3-17 4.5-18 4.5-18 4.5-18 5-20 n 20" spacin 186PA 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3-13 3.5-14	2.1-8.3 2.3-9.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3-13 3.5-14 3.8-15 4-16 4.3-17 g) @ 156PA 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3.12 3-12 3.5-14 3.8-15 4-16 g) @ 20GPA 2.1-8.3 2.3-9.1 2.8-11 2.8-11 2.8-11 2.8-11 2.8-11 2.8-11 3.3-13	C C C C C C C C C C C C C C C C C C C	303 287 274 263 255 247 241 230 225 221 214 30-06 WMD 331 331 305 295 287 287 260 260 249 30-08 345 326 287 269 269 269 269 279 289 289 289 289 289 289 289 289 289 28	10% 13% 17% 19% 20% 24% 25% 4402 25% 4411 11% 15% 15% 23% 24% 23% 244% 20% 244% 20% 2141 11% 23% 244% 26% 4402 21% 23% 24% 26% 23% 24% 25%	95%   95%   95%   95%   95%   95%   95%   95%   95%   95%   95%   95%   95%   95%   95%   92%   91%   91%   91%   90%   86%   88%   92%   92%   92%   92%   92%   92%   92%   94%   94%   94%	VC VC C C C C C C C C C C C C C C C C C	424 400 380 362 347 333 309 299 271 80-06 VMD 456 435 418 404 392 364 357 350 00-08 VMD 456 450 448 464 464 464 465 464 464 464 464 464 464	4% 6% 8% 9% 10% 13% 13% 14% 5% 6% 7% 7% 8% 9% 10% 402 <141 6% 7% 6% 7% 88% 99% 10% 88% 99% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10	80% 82% 83% 85% 86% 88% 89% 90% 88-06 <600 76% 81% 82% 84% 87% 88% 89% 87% 600 57% 60% 63% 63% 66% 70%	XC XC VC VC C C C XC	517 496 478 463 450 428 419 396 30-06 VMD 544 524 495 495 483 30-08 VMD 532 544 47 433 50-08 50-06 495 495 495 495 495 495 495 495 495 495	3% 3% 4% 4% 6% 5% 6% 7% #402! <141  7% 7% 8% 9% 10%	65% 69% 71% 74% 80% 80% 80% 6600 61% 64% 69% 71% 76% 76% 69% 67% 69% 67% 69% 77% 74%	XC X	587 567 551 536 524 486 471 30-06 VMD 613 595 579 566 555 535 500 80-08 VMD 613 595 595 600 613 613 600 600 600 600 600 600 600 60	1% 2% 2% 2% 3% 3% 4% 4% 4% 1% 1% 2% 2% 2% 2% 2% 2% 2% 3% 3% 3% 3% 3% 3% 3% 3% 4% 44% 4%	53% 57% 60% 63% 65% 68% 69% 711% 80-06 <600 54% 55% 55% 61% 63% 64% 66% 80-08

NOTE: 'SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. "Shown application information is based on water @ 80°F in a controlled environment and should not be considered actual. Information is provided for comparison to other Combo-Jet® spray tips, for educational purposes only. Repeat testing results can vary.



### **COMBO-JET 80° Spray Tips - PWM Spray Systems**

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Disclaimer: These charts are published for comparative purposes to demonstrate the differences in the series of Combo-Jet® spray tips. Data used to populate this chart is extrapolated from third party testing data from a controlled conditions test with water as the testing solution. Actual spray applications with active chemical ingredients may change the spray dynamics and spray tip performance specifications. Wilger is not liable for any misuse or misrepresentation of this information, leading to (but not limited to) incorrect spray application, crop damage, or any other harm. (Not limited to human, livestock or environmental). Always verify these charts with the most recent charts found on the www.wilger.net, and ALWAYS follow chemical label nozzle requirements.

Fine (F) ASABE Spray Classification (ASABE S5/2.1 Standard)

Spray quality is categorized based on Dv.0.1 and VMD droplet sizes.

Objective testing data (by 3rd party), from paray spectrum recording equipment (without wind tunner use), has been used to classify spray quality for this chart. Extra data (e.g. VMD, etc.), can vary between testing equipment and method, and is provided as a neducational resource only.

Extremely Coarse (XC)

Ultra Coarse (UC)

Ultra Coarse (UC) ASABE Spray Classification (ASABE S572.1 Standard)

VMD (Volume Median Diameter) sprayed volume. Half of the volume is made of droplets smaller, with half made up of droplets larger.

% <141µ (% Driftable Fines) Percentage of volume which is likely to drift. As wind & boom height increase, observed spray drift will increase substantially

% <600µ (% of Small Droplets) % of volume which is made up of small' droplets, useful for coverage As % of useful droplets lowers, overall coverage is reduced

	Flow	Boom	Tip	Spra	yer Speed (o	n 20" spacin	g) @	ER80-10	#402	70-10	SR8	30-10	#402	88-10	MR8	80-10	#402	90-10	DR8	0-10	#4028	80-10
	us gpm	psi	psi	15gpa	18gpa	20gpa	25gpa	Class VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
	0.73	30	21	3.5-14	3-12	2.8-11	2.2-8.6	XC 450	9%	78%												
	0.79	35	25	4-16	3.3-13	3-12	2.3-9.3	XC 429	10%			538	6%	49%								
	0.84	40	28	4.3-17	3.5-14	3-12	2.5-10	XC 412	11%		UC	520	6%	54%								
	0.89	45	32	4.5-18	3.8-15	3.3-13	2.8-11	VC 398	12%		UC	504	7%	57%		539	5%	63%		605	5%	53%
	0.94	50	35	4.8-19	4-16	3.5-14	2.8-11	VC 385	13%		UC	489	7%	60%		527	6%	65%		595	5%	55%
	1.03	60	42	5-20	4.3-17	3.8-15	3-12	C 364	15%		XC	464	8%	64%		507	6%	68%		577	5%	589
	1.07	65	46	5.3-21	4.5-18	4-16	3.3-13	C 356	15%		XC	453	8%	66%		498	7%	69%	UC	569	6%	599
	1.11	70	49	5.5-22	4.5-18	4.3-17	3.3-13	C 348	16%		XC	442	9%	67%	UC	490	7%	70%	UC	562	6%	60%
	1.19	80	56	6-24	5-20	4.5-18	3.5-14	M 334	17%		XC	424	9%	70%	XC	476	7%	72%	UC			62%
	Flow	Boom	Tip		yer Speed (o			ER80-125		70-125							#4029				#4028	
	us gpm	psi	psi	15gpa	18gpa	20gpa	25gpa	Class VMD		<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<60
	0.91	35	21	4.5-18	3.8-15	3.5-14	2.8-11	XC 451	9%	77%											$\vdash$	<u> </u>
80	0.97	40	24	4.8-19	4-16	3.5-14	3-12	XC 436	10%			535	6%	50%							$\vdash$	<u> </u>
-125	1.03	45	27	5-20	4.3-17	3.8-15	3-12	XC 423	11%		UC	520	6%	53%							$\vdash$	<u> </u>
Nozzles	1.09	50	30	5.5-22	4.5-18	4-16	3.3-13	XC 412				508	7%	55%								
	1.19	60	36	6-24	5-20	4.5-18	3.5-14	VC 393	12%		UC	486	8%	59%		566	6%	59%		605	4%	539
	1.24	65	39	6.3-25	5-20	4.5-18	3.8-15	VC 385	13%		XC	476	8%	61%		558	6%	60%		597	5%	549
	1.29	70	42	6.3-25	5.3-21	4.8-19	3.8-15	C 377		84%	XC	467	8%	62%		551	6%	61%			5%	55%
	1.38	80	48	6.8-27	5.8-23	5-20	4-16	C 364		85%	XC	451	9%	64%		538	7%	63%	UC	577	5%	57%
	Flow	Boom	Tip		yer Speed (o			ER80-15		70-15	SR	30-15		88-15		30-15		90-15	DR8	0-15	#4028	
	us gpm	psi	psi	18gpa	20gpa	25gpa	30gpa	Class VMD	<141		Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<60
80	1.08	40	21	4.5-18	4-16	3.3-13	2.8-11	XC 459	7%	76%											$\overline{}$	$\vdash$
	1.14	45	23	4.8-19	4.3-17	3.5-14	2.8-11	XC 444	8%	77%	ш	F70	F0/	4.40/								$\vdash$
Nozzles	1.20	50	26	5-20	4.5-18	3.5-14	3-12	XC 430	9%	78%	UC	572	5%	44%							$\overline{}$	$\vdash$
	1.32	60	31	5.5-22	5-20	4-16	3.3-13	XC 408	10%		UC	550	6%	48%	ш	F00	00/	C00/	ш	COF	00/	F00
	1.37	65	34 36	5.8-23 6-24	5-20 5.3-21	4-16	3.5-14	XC 399 XC 390	11%		UC	540	6% 6%	50%	UC	500	8% 8%	68%	UC	625 616	3%	50% 51%
	1.43	70 80	41	6.3-25	5.8-23	4.3-17 4.5-18	3.5-14	VC 375	12%		UC	531 515	6%	54%	XC	491 476	9%	69% 71%	UC	602	3%	549
							3.8-15	ER80-20		70-20		30-20				30-20	#402			0-20	#4028	
	Flow	Boom	Tip	Spra 15gpa	yer Speed (o									88-20		VMD		<600		VMD	<141	
80	us gpm 1.37	psi <b>50</b>	psi 19	6.8-27	20 <sub>GPA</sub> 5-20	30gpa 3.5-14	40 <sub>GPA</sub> 2.5-10	Class VMD		<600 66%	Ulass	עואוט	<141	<600	Ulass	VIVID	<141	<000	Class	VIVID	<141	<01
-20	1.50	60	23		5.5-22	3.8-15	2.5-10	UC 496	7%	69%	HC	587	5%	41%	$\vdash$			-	$\vdash$			
Nozzles	1.56	65	24	7.5-30 7.8-31	5.8-23	3.8-15	3-12	UC 496	8%	70%	UC	577	5%	43%			-				$\overline{}$	
NUZZIES	1.62	70	26	8-32	6-24	4-16	3-12	XC 477	8%	71%	UC	568	5%	45%			-				$\overline{}$	
	1.73	80	30	8.5-34	6.5-26	4-16	3.3-12	XC 477	9%	73%	UC	551	5%	48%	IIC	564	5%	58%	IIC	628	3%	509
100 140		80		8.5-34	0.0-20	4.3-17	3.3-13	1 10 1 400	9%	13%	UU	201	3%	40%	UU	204		58%		628		20%

NOTE: 'SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. 'Shown application information is based on water @ 80°F in a controlled environment and should not be considered actual. Information is provided for comparison to other Combo-Jet® spray tips, for educational purposes only. Repeat testing results can vary.



### **COMBO-JET 110° Spray Tips - PWM Spray Systems**

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ASABE Spray Classification (ASABE S572.1 Standard)

ASABE Spray Classification: (ASABE 3012.1 outlined 5)

Spray quality is categorized based on Dv0.1 and VMD droplet sizes.

Objective testing data (by 3rd party), from spray spectrum recording equipment (without wind tunnel use), has been used to classify spray quality for this chart. Extra data (e.g. VMD, etc.) can vary very Coarse (VC)

Extremely Coarse (VC)

Extremely Coarse (VC)

Ithra Coarse (UC)

VMD (Volume Median Diameter) The median droplet (in  $\mu$ ) for a sprayed volume. Half of the volume is made of droplets smaller, with half made up of droplets larger.

% <141µ (% Driftable Fines) Percentage of volume which is likely to drift. As wind & boom height increase, observed spray drift will increase substantially.

% <600µ (% of Small Droplets) % of volume which is made up of 'small' droplets, useful for coverage. As % of useful droplets lowers. overall coverage is reduced.

Ti	os sized up to	110-06 verifie	d on Phase D	oppler Par	ticle Analyzer (PDPA	); tips sized over 11	0-06 verified on M	alvem. 📕 Ultra	Coa	rse (UC	()	half	made	up of dr	oplets la	rger.	dr	ift will in	crease s	ubstantia	ally.	(	overall co	overage	s reduce	ed.
N	lozzle	Flow	Doom	Tin	Applica	tion Rate ir	n US Gallon	s / Acre			Spray	Classi	ficatio	n; VM[	) (Drop	let Size	e in µ	); %<1	41μ (D	rift %);	%<6	i00μ (S	mall Di	roplets)		
	Size &	Rate	Boom PSI	Tip psi			zle Spacing				o° Serie				° Serie			MR110				DR110			UR Se	
4	Angle	USGPM					d in Miles						Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class '	VMD
		Flow	Boom	Tip			n 20" spac		EK1	10-01		81-01														
		us gpm 0.07	psi 20	psi 20	2 <sub>GPA</sub> 2.5-10	3 <sub>GPA</sub> 1.8-7	4 <sub>GPA</sub> 1.3-5.2	5gpa 1.1-4.2	F	149		<600 100%														
		0.07	25	25	2.9-12	2-7.8	1.5-5.2	1.2-4.7	F	144		100%														
	110	0.09	30	30	3.3-13	2.2-8.6	1.6-6.4	1.3-5.1	F	140		100%														
	-01	0.09	35	35	3.5-14	2.3-9.2	1.7-6.9	1.4-5.5	F	136		100%														
N	ozzles	0.10	40	40	3.8-15	2.5-9.9	1.9-7.4	1.5-5.9	F	133		100%														
		0.11	45	45	3.9-16	2.5-10	2.0-7.9	1.6-6.3	F	131		100%														
		0.11	50	50	4.2-17	2.8-11	2.1-8.3	1.7-6.6	F	128		100%														
		0.12	60 65	60 65	4.6-18 4.7-19	3.0-12 3.2-13	2.3-9.1 2.4-9.4	1.8-7.3 1.9-7.6	F	124 123		100%														
		0.13	70	70	4.9-20	3.3-13	2.5-9.8	2.0-7.8	F	121		100%														
		0.14	80	80	5.3-21	3.5-14	2.5-10	2.1-8.4	F	118		100%														
		Flow	Boom	Tip		er Speed (o	n 20" spac			10-015										1-015						
		us gpm	psi	psi	3gpa	4gpa	5gpa	6gpa	Class	VMD		<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600		
		0.11	20	20	2.5-10	2.0-7.8	1.6-6.3	1.3-5.2	F	153		100%	D.A.	200	210/	000/										
	110	0.12	25 30	25 30	2.9-12 3.2-13	2.2-8.8 2.4-9.6	1.8-7.0 1.9-7.7	1.5-5.8 1.6-6.4	F	148 145		100%	M	226 216	21% 24%	98% 98%	С	323	11%	94%	С	368	7%	92%		
	-015	0.13	35	35	3.5-14	2.4-9.0	2.1-8.3	1.7-6.9	F	143		100%	F	207	26%	98%	C	298	14%	96%	C	346	8%	93%		
	ozzles	0.15	40	40	3.7-15	2.8-11	2.2-8.9	1.9-7.4	F	139		100%	F	200	28%	98%	Č	279		97%	С	329	10%	94%		
		0.16	45	45	3.9-16	3.0-12	2.4-9.4	2.0-7.8	F	137	53%	100%	F	194	30%	98%	M	262	18%	98%	С	315	11%	95%		
		0.17	50	50	4.1-17	3.1-12	2.5-9.9	2.1-8.3	F	135		100%	F	188	32%	98%	M		20%	98%	С	302	12%	95%		
		0.18	60	59	4.5-18	3.5-14	2.8-11	2.3-9.1	F	131		100%	F	178	34% 36%	98%	M F		23%	99%	C	282 273	14% 15%			
		0.19	65 70	64 69	4.7-19 4.9-20	3.5-14 3.8-15	2.8-11 3.0-12	2.4-9.4	F	129 128		100%	F	173 169	37%	98% 98%	F		25%	99%	M	265	15%			
		0.21	80	79	5.2-21	3.9-16	3.3-13	2.5-10	F	125		100%	F	162		98%	F			100%	M	252	17%			
		Flow	Boom	Tip			n 20" spac			10-02		81-02	SR1	10-02	#4028			10-02		91-02		10-02	#4028			
		us gpm	psi	psi	3 <sub>GPA</sub>	4 <sub>GPA</sub>	5 <sub>GPA</sub>	6 <sub>GPA</sub>	Class	VMD		<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600		
		0.14	20	20	3.5-14	2.5-10	2.1-8.3	1.7-6.9	F	173		100%	B.4	000	000/	000/										
	110	0.16 0.17	25 30	25 29	3.9-16 4.3-17	2.9-12 3.3-13	2.3-9.3 2.5-10	2.0-7.8 2.1-8.5	F	166 160		100% 100%		228 220	20% 22%	99% 99%	С	317	11%	95%	VC	433	5%	82%		
	-02	0.17	35	34	4.5-17	3.5-14	2.8-11	2.3-9.2	F	155		100%			24%	99%	C	297		96%	VC	412	6%	85%		
N	ozzles	0.20	40	39	4.9-20	3.8-15	3.0-12	2.5-9.8	F	151		100%		207	26%	99%		281	15%	97%	VC	394		87%		
		0.21	45	44	5.3-21	3.9-16	3.1-13	2.5-10	F	147		100%	F	202	27%	99%			17%	97%	С	378	7%	88%		
		0.22	50	49	5.5-22	4.1-16	3.3-13	2.8-11	F	144		100%	F	197	28%	99%	M		18%	97%	С	364	8%	90%		
		0.24	60 65	59 64	6.0-24 6.3-25	4.5-18 4.8-19	3.5-14 3.8-15	3.0-12 3.3-13	F	138 136		100% 100%	F	189 185	31% 32%	99%	M	237	21% 22%	98% 98%	CC	339 328	9% 10%	91%		
		0.26	70	69	6.5-26	4.8-19	3.9-16	3.3-13	F	133		100%	F	182	32%	99%	M		23%	98%	С	318	10%			
l		0.28	80	79	7.0-28	5.3-21	4.3-17	3.5-14	F	129		100%	F	176	34%	99%	F	210	25%	99%	Č	299	11%	94%		
		Flow	Boom	Tip			n 20" spac			10-025		31-025	SR11					10-025				10-025		6-025	UR110	
		us gpm	psi	psi	3gpa	4GPA	5gpa	6gpa	Class		<141		Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141			VMD
		0.17	20 25	19 24	4.3-17 4.8-19	3.3-13 3.5-14	2.5-10 2.9-12	2.2-8.6 2.4-9.7	F	194 190		100%	М	246	17%	98%									#4029	2-025
	110	0.20	30	29	5.3-21	4.0-16	3.3-13	2.4-9.7	F	187		100%		237	19%	98%	С	353	8%	90%	VC	437	5%	79%		
	-025	0.23	35	34	5.8-23	4.3-17	3.5-14	2.8-11	F	184		100%		230	21%	98%	Č	337	10%	92%	VC	418	6%	83%	UC	568
N	ozzles	0.25	40	39	6.1-24	4.5-18	3.8-15	3.1-12	F	181		100%		223	22%	98%		322	11%	93%	VC	401	6%	86%	UC	546
		0.26	45	44	6.5-26	4.8-19	3.9-16	3.3-13	F	179		100%	M	218	24%	98%		310		94%	С	386	7%	88%		526
		0.28	50 60	49 58	6.8-27 7.5-30	5.1-21 5.5-22	4.1-17 4.5-18	3.5-14 3.8-15	F	177 173		100%	F		25% 27%	98% 98%	C C	299 280	15%	95% 96%	CC	373 350	8% 9%	89% 91%		509 478
		0.30	65	63	7.8-31	5.8-23	4.8-19	3.9-16	F	173		100%	F		28%	98%		271	16%	96%	C	340	9%	92%		465
		0.33	70	68	8.1-32	6.1-24	4.8-20	4.1-16	F	170		100%	F	196	28%	98%	M	263	16%	96%	C	331	10%	93%		453
		0.35	80	78	8.8-35	6.5-26	5.3-21	4.3-17	F	168	31%	100%		190	30%	98%	М	249	18%	97%	С	314	10%	94%	XC	431
		Flow	Boom	Tip			n 20" spac			10-03										91-03					UR11	
		us gpm 0.21	psi <b>20</b>	psi 19	4 <sub>GPA</sub> 3.8-15	5 <sub>GPA</sub> 3-12	6.0 <sub>GPA</sub> 2.5-10	8gpa 1.9-7.7	Class	VMD 100	26%		Class	AIMD	<141	<600	Class	VIVID	<141	<600	Class	VIVID	<141	<600	Class 1	
		0.21	25	24	4.3-17	3.5-14	2.9-10	2.2-8.6	F	191		99%	С	322	9%	93%									#4028	2-05
	110	0.26	30	29	4.8-19	3.8-15	3.3-13	2.4-9.5	F		31%			307		95%	VC	399	6%	86%						=
	-03	0.28	35	34	5.1-20	4.1-16	3.5-14	2.5-10	F	179	33%	98%	С	293	13%	95%	С	380	7%	88%		464				618
N	ozzles	0.29	40	39	5.5-22	4.3-17	3.7-15	2.8-11	F	175				282		96%		364		90%		447		79%		596
		0.31	45	43	5.8-23	4.8-19	3.9-15	2.9-12	F	170				272		96%		350		91%		432				576
		0.33	50 60	48 58	6.1-24 6.8-27	4.9-20 5.3-21	4.1-16 4.5-18	3.1-12 3.3-13	F	167 160	39%	98% 97%		263 247		97% 97%		337	10% 11%	93% 94%		419 396	6%	83% 86%		558 527
		0.38	65	63	7.0-28	5.5-22	4.7-19	3.5-13	F	157		97%				97%			12%	95%	C	385	7%			514
		0.39	70	68	7.3-29	5.8-23	4.8-19	3.6-14	F	155		97%				97%				95%	Č	376	7%			501
		0.42	80	77	7.8-31	6.3-25	5.3-21	3.8-15	F		42%					98%		281	14%	96%	C	359		89%		478
N	OTE, 10D	MD DD I	ID coray	tine incl	ude pre-prifice	o(e) Pro orific	oc are not int	orchangoahlo	hotwo	on diffo	ront enr	y tine of	difforo	nt corio	2Chow	n applied	ation in	oformatic	n ic hac	od on w	ator @	ΩΩ°E in	a contro	allod onv	ironmont	and

NOTE: 'SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. "Shown application information is based on water @ 80°F in a controlled environment and should not be considered actual. Information is provided for comparison to other Combo-Jet® spray tips, for educational purposes only. Repeat testing results can vary.

#### **COMBO-JET 110° Spray Tips - PWM Spray Systems**

Comprehensive rate & speed charts for any nozzle spacing/speed/rate is available on Tip Wizard. Try it today!

Duty Cycle (Effective 'on time' of solenoid)

The duty cycle is the effective 'on time' of a PVMM solenoid. Generally speed ranges are based on a 25% - 100% duty cycle. When selecting a nozzle, often a duty cycle of 60-80% is recommended at typical speeds, providing flexibility for upper speed & turning situations, as well as slower spraying speeds. It is not advised to spray below 40% duty cycle.

Calculating Duty Cycle on Printed Charts (Useful for nozzle sizing & selection)
On Wilger printed charts, typically a SPEED RANGE is provided, but the duty cycle % is a dynamic factor
based on the sprayers travel speed. To calculate a duty cycle at a given travel speed, divide
CURRENT sprayer speed into max nozzle speed. (e.g. 15mph / 20mph max = 75% duty cycle)

	upper spe	Jou & IUIIII	rig situe	uiono, ac	Well as slowe	a spraying spo	Joua. It is not	advised to spi	ay bon	OW 40 /0	duty cyc	,10.		in Little	prayor	opoou i	iito iii	ux nozz	ic spec	u. (c.y.	ТЭПІР	I / ZUIII	pii iiiux	- 13/0	auty cycle)
			Boom	Tip		er Speed (o			ER1	10-04			SR1		#402		MR1	10-04	#402	91-04	DR1	10-04	#4028	36-04	UR110-04
		us gpm	psi	psi	4 <sub>GPA</sub>	5 <sub>GPA</sub>	7.5	10gpa	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class VMD
		0.27	20	19	5-20	4-16	2.8-11	2-8.1	M	243	18%	97%													#40292-04
	440	0.31	25	23	5.8-23	4.5-18	3-12	2.3-9.1	M	235	20%	97%	C	335	9%	92%	110	405	40/	000/	V0		00/	070/	
	110	0.34	30	28	6.3-25	5-20	3.3-13	2.5-10	M	228	21%	97%	C	319	10%	93%		425	4%	83%	XC	519	3%	67%	110 001
	-04 Nozzles	0.36 0.39	35 40	33	6.8-27 7.3-29	5.5-22	3.5-14	2.8-11	M	222 217	23% 24%	97% 97%	C	306 294	12% 13%	94%	VC C	404 386	5%	86% 88%	XC	497 478	3% 4%	71% 74%	UC 631 UC 611
	INUZZIES	0.39	45	42	7.5-29	5.8-23 6-24	3.8-15 4-16	3-12 3-12	F	213	25%	96%	C	284	14%	95%	C	370	6% 7%	90%	VC	462	4%	77%	UC 611 UC 593
		0.43	50	47	8-32	6.5-26	4.3-17	3.3-13	F	209	26%	96%	C	275	15%	96%	C	355	8%	91%	VC	447	5%	79%	UC 577
		0.47	60	56	8.8-35	7-28	4.8-19	3.5-14	Ė	202	27%	96%	M	259	17%	96%	Č	330	9%	93%	VC	421	6%	82%	UC 549
		0.49	65	61	9.3-37	7.3-29	5-20	3.8-15	F	199	28%	96%	M	252	18%	97%	Č	319	9%	94%	VC	410	6%	83%	UC 537
		0.51	70	66	9.5-38	7.5-30	5-20	3.8-15	F	196	29%	96%	M	245	18%	97%	С	309	10%	95%	С	400	6%	84%	UC 526
		0.55	80	75	10-41	8.3-33	5.5-22	4-16	F	191	30%	95%	M	233	19%	97%	С	291	11%	95%	С	381	7%	86%	UC 505
		Flow	Boom	Tip	Spray	er Speed (o	n 20" spac			10-05	#4028		SR1	10-05	#4028	87-05	MR1	10-05	#402	91-05	DR1	10-05	#4028	36-05	UR110-05
		us gpm	psi	psi	6gpa	8gpa	10gpa	12gpa	Class	VMD	<141		Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class VMD
		0.34	20	18	4.3-17	3-12	2.5-10	2.1-8.3	M	253	17%	95%	0	000	CO/	000/					_				#40292-05
	110	0.38 0.41	25 30	23	4.8-19	3.5-14	2.8-11	2.3-9.3	M	242 233	19% 21%	95% 95%	C	388	6%	88% 90%	VC	501	3%	69%					
	110 -05	0.41	35	32	5-20 5.5-22	3.8-15 4.3-17	3-12 3.3-13	2.5-10 2.8-11	M	225	23%	95%	C	367 349	7% 9%			478	4%	73%	XC	525	2%	64%	UC 652
	Nozzles	0.48	40	36	6-24	4.5-18	3.5-14	3-12	M	219	25%	95%	C	334	10%	93%	VC	459	4%	76%	XC	513	3%	66%	UC 634
	HOLLIOO	0.50	45	41	6.3-25	4.8-19	3.8-15	3-12	F	213	26%	95%	Č	320	11%	94%	VC	442	5%	78%	XC	502	3%		UC 618
\		0.53	50	45	6.5-26	5-20	4-16	3.3-13	F	208	27%	95%	Č	308	12%	94%	VC	427	5%	80%	XC	492	3%	70%	UC 604
		0.58	60	54	7.3-29	5.5-22	4.3-17	3.5-14	F	199	29%	95%	С	287	14%	95%	С	400	6%	83%	XC	475	3%	73%	UC 582
		0.61	65	59	7.5-30	5.8-23	4.5-18	3.8-15	F	195	30%	95%	С	277	15%	96%	С	389	6%	84%	XC	467	3%	74%	UC 572
		0.63	70	63	7.8-31	5.8-23	4.8-19	4-16	F	191	31%	95%	M	269	15%	96%	С	378	7%	85%	XC	460	4%	75%	UC 563
		0.67	80	72	8.3-33	6.3-25	5-20	4.3-17	F	185	32%	95%	M	253	17%	97%	C	359	7%	87%	VC	448	4%	77%	UC 547
		Flow	Boom	Tip		er Speed (o				10-06	#4028			10-06				10-06		91-06		10-06	#4028		UR110-06
		us gpm 0.44	psi 25	psi 22	7.5 4.5-18	10gpa 3.3-13	12gpa 2.8-11	15gpa 2.2-8.8	Class C	VMD 278	<141 15%	94%	Class	VMD	<141	<000	UidSS	VMD	<141	<600	OldSS	VMD	<141	<600	Class  VMD  #40292-06
	110	0.44	30	26	4.8-19	3.5-13	3-12	2.4-9.6	M	268	16%	94%	VC	438	5%	81%									π40232-00
	-06	0.40	35	30	5.3-21	4-16	3.3-13	2.5-10	M	260	18%	94%	VC	414	6%	84%	XC	506	3%	68%	XC	563	2%	58%	
3	Nozzles	0.56	40	35	5.5-22	4.3-17	3.5-14	2.8-11	M	253	19%	94%	C	393	7%	87%	XC	490	3%	71%	XC	547	2%	61%	UC 653
		0.59	45	39	6-24	4.5-18	3.8-15	3-12	M	247	20%	94%	С	375	8%	88%	XC	477	4%	74%	XC	532	2%	63%	UC 636
		0.63	50	43	6.3-25	4.8-19	3.8-15	3-12	M	242	21%	95%	С	358	9%	90%	XC	465	4%	76%	XC	519	3%	65%	UC 622
		0.69	60	52	6.8-27	5-20	4.3-17	3.5-14	M	233	23%	95%	C	330	11%	92%	VC	443	5%	79%	XC	496	3%	69%	UC 597
		0.71	65	57	7-28	5.3-21	4.5-18	3.5-14	M	228	23%	95%	C	318	11%	93%	VC	434	5%	80%	XC	486	3%	70%	UC 587
		0.74	70	61	7.3-29	5.5-22	4.5-18	3.8-15	M	225	24%	95%	C	306	12%	93%	VC	426	5%	81%	XC	476	3%	71%	UC 578
		0.79	80 Doom	70 Tip	7.8-31	6-24	5-20	4-16	F ED1	218 10-08	25%	95%	CD1	285 10-08	13%	94%	VC MD1	410	5%	83%	XC	460	3%	73%	UC 561 UR110-08
		Flow us gpm	Boom psi	Tip psi	12gpa	er Speed (o 15gpa	18gpa	20gpa	Class	VMD		<600				87-08				91-08  <600		10-08 VMD	#4028 <141		Class VMD
		0.56	<b>25</b>	20	3.5-14	2.8-11	2.3-9.3	2.1-8.3	C	328	14%	90%	Ulass	VIVID	V141	<b>\000</b>	Ulass	VIVID	×141	<b>\000</b>	Class	VIVID	V141	<b>\000</b>	#40292-08
M	110	0.62	30	24	3.8-15	3-12	2.5-10	2.3-9.1	C	312	15%	92%	UC	489	4%	59%									1140232 00
2	-08	0.67	35	28	4-16	3.3-13	2.8-11	2.5-9.9	Č	298	17%	93%	XC	465	5%	64%									
	Nozzles	0.71	40	32	4.5-18	3.5-14	3-12	2.8-11	С	286	18%	93%	XC	445	6%	68%	UC	522	4%	54%	UC	606	3%	42%	
		0.75	45	36	4.8-19	3.8-15	3-12	2.8-11	M	275	19%	94%	XC	427	7%	71%		503	5%	58%	UC	588	3%	44%	
		0.79	50	39	5-20	4-16	3.3-13	3-12	M	266	20%	95%	XC	410	7%	74%	UC	486	5%	61%	UC	571	4%	47%	UC 654
		0.87	60	47	5.5-22	4.3-17	3.5-14	3.3-13	M	249	21%	95%	XC	382	8%	78%		455	6%	65%	UC	543	4%	50%	UC 623
4		0.91	65	51	5.5-22	4.5-18	3.8-15	3.3-13	M	242	22%	96%	VC	370	9%	79%	XC	442	6%	67%	UC	530	4%	52%	UC 610
_		0.94 1.01	70 80	55 63	5.8-23 6.3-25	4.8-19 5-20	4-16 4.3-17	3.5-14	M	235	23% 24%	96% 96%	VC C	359 338	9% 10%	80% 83%	XC	430 408	6% 7%	69% 71%	UC	519 498	4% 4%	53% 56%	UC 598 UC 578
		Flow	Boom	Tip	Spray	er Speed (o	n 20" spac	ina) @	ER1	10-10	#4028			10-10	#402	87-10	MR1		#402	91-10	DR1	10-10	#4028	36-10	UR110-10
		us qpm	psi	psi	15gpa	18gpa	20gpa	25gpa	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class VMD
$\leq$	110	0.73	30	21	3.5-14	3-12	2.8-11	2.2-8.6	VC	357	11%	88%													#40292-10
4		0.79	35	25	4-16	3.3-13	3-12	2.3-9.3	С	343	12%	89%	UC	502	5%	56%									
		0.84	40	28	4.3-17	3.5-14	3-12	2.5-10	С	330	13%	90%	UC	480	6%	60%			4%	51%					
$\overline{}$		0.89	45	32	4.5-18	3.8-15	3.3-13	2.8-11	С	319	15%	91%	XC	461	6%	64%	UC	514	4%	54%	UC		5%	58%	
Ç.		0.94	50	35	4.8-19	4-16	3.5-14	2.8-11	C	310	16%	91%	XC	444	7%	67%	UC	497	5%	57%	UC	595	5%	56%	
9		1.03 1.07	60 65	42	5-20 5.3-21	4.3-17	3.8-15 4-16	3-12 3.3-13	C	293	17%	92%	XC	414	8%	72% 73%			5% 5%	61% 62%	UC	580	5% 5%	54% 53%	UC 648 UC 634
1		1.11	70	46	5.5-22	4.5-18 4.5-18	4.3-17			285	18% 19%	92%	YC.	380	8%	75%	YC.	456	6%	64%		573 566	5%		UC 621
7		1.19	80	56	6-24	5-20		3.5-14	M	266	20%	93%	VC	368	9%	78%	XC:	423	6%			555			
		Flow	Boom			er Speed (o				0-125		1-125		10-125				10-125		91-125		10-125	#4028		000
~		us gpm	psi	psi	15gpa	18gpa	20gpa	25gpa		VMD			Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	
		0.84	30	18	4.3-17	3.5-14	3.3-13	2.5-10	XC	447	8%	64%													
ģ	110	0.91	35	21	4.5-18	3.8-15	3.5-14	2.8-11	XC	430	8%	68%													
1	-125	0.97	40	24	4.8-19	4-16	3.5-14	3-12	XC	416	9%			529		50%				-	_				
8	Nozzles	1.03	45	27	5-20	4.3-17	3.8-15	3-12	XC	403	9%	73%		506		55% 59%	IIC-	600	40/	270/					
		1.09 1.19	50 60	30	5.5-22 6-24	4.5-18 5-20	4-16 4.5-18	3.3-13 3.5-14	XC	392 383		75% 77%		487 469		62%			4% 4%	37% 40%	IIC	646	3%	35%	
		1.24	65	39	6.3-25	5-20	4.5-18	3.8-15	VC	366	11%			439		67%	IIC	587	4%	44%	UC		4%	37%	1
C		1.29	70	42	6.3-25	5.3-21	4.8-19	3.8-15	VC		11%					69%			4%	46%		618	4%	39%	1
		1.38	80	48	6.8-27	5.8-23	5-20	4-16	C	351		81%		413		71%			5%	48%	UC		4%	40%	
		Flow	Boom	Tip	Spray	er Speed (o	n 20" spac	ing) @		10-15	#4028	31-15	SR1	10-15	#4028	87-15		10-15	#402	91-15		10-15	#4028	36-15	
		us gpm	psi	psi	18gpa	20gpa	25gpa	30gpa	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	
H		1.08	40	21	4.5-18	4-16	3.3-13	2.8-11	XC	434		65%													
1	110	1.14	45	23	4.8-19	4.3-17	3.5-14	2.8-11	XC	423		67%	110	FC4	407	400/									
	-15	1.20	50	26	5-20	4.5-18	3.5-14	3-12	XC	413		69%	UC		4%	46%	LIC	604	40/	410/					
9,	Nozzles	1.32 1.37	60 65	31	5.5-22 5.8-23	5-20 5-20	4-16 4-16	3.3-13 3.5-14	XC	395 387	11% 11%			534 522		52% 54%			4% 4%	41%	IIC	646	4%	42%	
		1.43	70	36	6-24	5.3-21	4.3-17	3.5-14	XC	380	11%	74%	IIC	511	5%	56%	IIC	586	4%	44%		637	4%	43%	
		1.52	80	41	6.3-25	5.8-23	4.5-18	3.8-15		367	12%				6%	59%			5%			620	4%	46%	
4		Flow	Boom		Spray	er Speed (o				10-20					#402								. , ,	, , ,	,
7		us gpm	psi	psi	15gpa	20gpa	30gpa	40gpa	Class	VMD	<141	<600			<141										
Š,	110	1.37	50	19	6.8-27	5-20	3.5-14	2.5-10		504	6%	54%													
	-20	1.50	60	23	7.5-30	5.5-22	3.8-15	2.8-11	UC	484	7%			557		46%									
	Nozzles	1.56	65	24	7.8-31	5.8-23	3.8-15	3-12	XC	476	7%	60%		546		48%									
		1.62	70	26	8-32	6-24	4-16	3-12	XC	468		61%		536		51%	LIC	EUO	/10/	100/					
		1.73	80	30	8.5-34	6.5-26	4.3-17	3.3-13	XC	453	8%	04%	UU	518	6%	J 55%	UU	593	4%	42%	J				

# **COMBO-JET**<sub>®</sub> Metering Orifices & Fertilizer Streamer Caps

#### **COMBO-JET**<sub>®</sub> Fertilizer Streamer Caps

Color-coded 3-hole streamer nozzles designed for streaming liquid fertilizer on consistent spacing to minimize leaf burn.



Operating Pressure	10-60 PSI
O-rings	FKM (viton avail.)
O-IIIIgs	,
Material	Glass-reinforced Polypropylene



### **COMBO-JET**<sub>®</sub> Metering Orifices

Metering orifice snap into any Combo-Jet or Radialock caps to meter fertilizer or chemical flow rates.





#### **UR series Orifices**

If you are looking for replacement two-piece pre-orifices for Combo-Jet UR series spray tips, visit the UR series spray tip page for part numbers.



20]/// /	Ma		lass-reinfo		3-Hole			style orifice combo-Jet s			SHOR	1	205.45	part ni	umbers.		400	00 07
~6.7"	<b>+</b>	literiai	Polypropyl	lene S	treamer Ca	p 🌉 /	/	e metering o				-04 402 to not requi					402	92-27
			1	40" 0						_			_			00" 0		
Combo-Jet Streamer Nozzle	Metering Orifice	Pres.	Flow Rate		utlet Sp			utlet Sp tion Rate:	_		utlet Sp tion Rate	_		utlet Spation Rates	_		utlet Sp	s (GPA) @
Size	Size	(PSI)	(us gpm)		5.0 мрн		4.5 мрн		6.5 MPH	4.5 мрн	5.0 мрн	6.5 MPH	7.5 мрн	10 мрн	15 MPH	4.5 мрн	5.0 мрн	6.5 мрн
		15	0.03	4.0	3.6	2.8	3.3	3.0	2.3	2.7	2.4	1.9	1.4	1	0.7	1.3	1.2	0.9
Using	$\Theta$	20	0.04	4.6	4.2	3.2	3.9	3.5	2.7	3.1	2.8	2.1	1.6	1.2	0.8	1.5	1.4	1.1
Tip Wizard	-005	25	0.04	5.2	4.7	3.6	4.3	3.9	3.0	3.5	3.1	2.4	1.7	1.3	0.9	1.7	1.6	1.2
makes	COMBO-JET Metering	30	0.04	5.7	5.1	3.9	4.7	4.3	3.3	3.8	3.4	2.6	1.8	1.4	0.9	1.9	1.7	1.3
selecting	Orifice	35 40	0.05 0.05	6.1 6.6	5.5 5.9	4.2 4.5	5.1 5.5	4.6 4.9	3.5 3.8	4.1 4.4	3.7	2.8 3.0	2.1	1.5 1.6	1	2.0	1.8 2.0	1.4 1.5
metering	40285-005	45	0.05	7.0	6.3	4.8	5.8	5.2	4.0	4.4	4.2	3.2	2.1	1.6	1.1	2.3	2.0	1.6
orifices &		15	0.04	5.4	4.9	3.7	4.5	4.1	3.1	3.6	3.2	2.5	1.9	1.4	0.9	1.8	1.6	1.2
streamer caps easy!		20	0.05	6.3	5.6	4.3	5.2	4.7	3.6	4.2	3.8	2.9	2.1	1.6	1	2.1	1.9	1.4
easy:	-0067	25	0.05	7.0	6.3	4.8	5.8	5.2	4.0	4.7	4.2	3.2	2.3	1.7	1.1	2.3	2.1	1.6
	COMBO-JET	30	0.06	7.7	6.9	5.3	6.4	5.7	4.4	5.1	4.6	3.5	2.5	1.9	1.2	2.6	2.3	1.8
WILGER	Metering Orifice	35	0.06	8.3	7.4	5.7	6.9	6.2	4.8	5.5	5.0	3.8	2.7	2	1.3	2.8	2.5	1.9
*	40285-007	40	0.07	8.8	8.0	6.1	7.4	6.6	5.1	5.9	5.3	4.1	2.8	2.1	1.4	2.9	2.7	2.0
TIP WIZARD		45 15	0.07	9.4 8.1	8.4 7.3	6.5 5.6	7.8 6.8	7.0 6.1	5.4 4.7	6.3 5.4	5.6 4.9	4.3 3.7	3 2.8	2.2	1.5 1.4	3.1 2.7	2.8	2.2 1.9
TRY IT FREE AT	8	20	0.07	9.4	8.4	6.5	7.8	7.0	5.4	6.3	5.6	4.3	3.1	2.1	1.6	3.1	2.4	2.2
WWWWILGERNET	-01	25	0.08	10	9.4	7.3	8.7	7.9	6.0	7.0	6.3	4.8	3.4	2.6	1.7	3.5	3.1	2.4
App Store	COMBO-JET	30	0.09	11	10	8	10	8.6	6.6	7.7	6.9	5.3	3.7	2.8	1.9	3.8	3.4	2.7
GETITON Google Play	Metering Orifice	35	0.09	12	11	9	10	9.3	7.2	8.3	7.4	5.7	4	3	2	4.1	3.7	2.9
Google Play	40285-01	40	0.10	13	12	9	11	10	7.7	8.8	8.0	6.1	4.2	3.2	2.1	4.4	4.0	3.1
		45 15	0.11	14 12	13 11	10 8.4	12 10	9.1	8.1 7.0	9.4 8.1	8.4 7.3	6.5 5.6	4.4	3.3	2.2	4.7	4.2 3.6	3.2 2.8
		20	0.11	14	13	10	12	11	8.1	9.3	8.4	6.5	4.7	3.5	2.3	4.7	4.2	3.2
	-015	25	0.12	16	14	11	13	12	9.0	10	9.4	7.2	5.1	3.9	2.6	5.2	4.7	3.6
	COMBO-JET	30	0.13	17	15	12	14	13	10	11	10	7.9	5.6	4.2	2.8	5.7	5.1	4.0
120	Metering Orifice	35	0.14	19	17	13	15	14	11	12	11	8.6	5.9	4.5	3	6.2	5.6	4.3
40443-015	40285-015	40 45	0.15	20 21	18 19	14 15	17 18	15 16	11 12	13 14	12	9.1	6.3 6.6	4.7 5	3.2	6.6	5.9	4.6
		15	0.16 0.12	16	15	11	13	12	9.3	11	13 10	10 7.4	5.6	4.2	2.8	7.0 5.4	6.3 4.8	4.8 3.7
	8	20	0.14	19	17	13	16	14	11	12	11	8.6	6.2	4.7	3.1	6.2	5.6	4.3
	-02	25	0.16	21	19	14	17	16	12	14	12	10	6.8	5.1	3.4	6.9	6.2	4.8
	COMBO-JET	30	0.17	23	21	16	19	17	13	15	14	11	7.4	5.5	3.7	7.6	6.8	5.3
	Metering Orifice	35	0.19	25	22	17	21	18	14	16	15	11	7.9	5.9	4	8.2	7.4	5.7
40443-02	40285-02	40 45	0.20 0.21	26 28	24 25	18 19	22 23	20 21	15 16	18 19	16 17	12 13	8.4 8.8	6.3 6.6	4.2 4.4	8.8 9.3	7.9 8.4	6.1 6.4
		15	0.15	20	18	14	17	15	12	13	12	9.3	7	5.2	3.5	6.7	6.1	4.7
	8	20	0.18	23	21	16	19	17	13	16	14	11	7.8	5.9	3.9	7.8	7.0	5.4
	-025	25	0.20	26	23	18	22	20	15	17	16	12	8.6	6.4	4.3	8.7	7.8	6.0
4.00	COMBO-JET	30	0.22	29	26	20	24	21	16	19	17	13	9.2	6.9	4.6	10	8.6	6.6
	Metering Orifice	35 40	0.23	31 33	28	21	26	23 25	18	21	18 20	14 15	9.9 10	7.4 7.9	4.9	10	9.2	7.1
40443-025	40285-025	40	0.25 0.26	33	30 31	23 24	27 29	26	19 20	22	20	16	10	7.9 8.3	5.2 5.5	11 12	10 10	7.6 8.1
		15	0.18	24	22	17	20	18	14	16	15	11	8.4	6.3	4.2	8.1	7.3	5.6
	8	20	0.21	28	25	19	23	21	16	19	17	13	9.4	7	4.7	9.3	8.4	6.5
	-03	25	0.24	31	28	22	26	23	18	21	19	14	10	7.7	5.1	10	9.4	7.2
	COMBO-JET Metering	30	0.26	34	31	24	29	26	20	23	21	16	11	8.3	5.6	11	10	7.9
3.2	Orifice	35 40	0.28	37 40	33 36	26 27	31 33	28 30	21 23	25 26	22	17 18	12 13	8.9 9.5	5.9 6.3	12 13	11	8.6 9.1
40443-03	40285-03	45	0.30	42	38	29	35	32	24	28	25	19	13	10	6.6	14	13	10
		15	0.24	32	29	22	27	24	19	22	19	15	11	8.4	5.6	11	10	7.5
	8	20	0.28	37	34	26	31	28	22	25	22	17	13	9.4	6.3	12	11	8.6
	-04	25	0.32	42	38	29	35	31	24	28	25	19	14	10	6.9	14	13	10
1907	COMBO-JET Metering	30	0.35	46	41	32	38	34	26	30	27	21	15	11	7.4	15	14 15	11
	Orifice	35 40	0.37	49 53	44 47	34 37	41 44	37 40	28 30	33 35	30	23 24	16 17	12 13	7.9 8.4	16 18	16	11 12
40443-04	40285-04	45	0.40	56	50	39	47	42	32	37	34	26	18	13	8.8	19	17	13
		15	0.31	40	36	28	34	30	23	27	24	19	12	9.1	6.1	13	12	9.3
		20	0.35	47	42	32	39	35	27	31	28	22	14	11	7	16	14	11
	-05	25	0.40	52	47	36	43	39	30	35	31	24	16	12	7.8	17	16	12
1900	COMBO-JET Metering	30	0.43	57	51	40	48	43	33	38	34	26	17	13	8.6	19	17	13
	Orifice	35 40	0.47	62 66	56 59	43 46	51 55	46 49	36 38	41	37 40	28 30	19 20	14 15	9.3 9.9	21 22	19 20	14 15
40443-05	40285-05	45	0.50	70	63	48	58	53	40	47	40	32	21	16	11	23	21	16



# **COMBO-JET**<sub>®</sub> Metering Orifices & Fertilizer Streamer Caps

Common Liquid Weight, Specific Gravity, and Conversion Factor for Flow Rate:

Required Flow Rate x Conversion Factor = Flow Rate adjusted for density

[WATER] 8.34 lbs/gal Specific Gravity 1.0 Conversion Factor: 1.00 [28-0-0] 10.67 lbs/gal Specific Gravity 1.28 Conversion Factor: 1.13

[10-34-0] 11.65 lbs/gal Specific Gravity 1.28 Conversion Factor: 1.18

	Matadaa	1	El	10" 0	utlet Sp	acing	12" O	utlet Sp	acina	15" O	utlet Sr	acina	20" ()	utlet Sp	acina	30" 0	utlet Sp	nacing
	Metering Orifice	Pres. (PSI)	Flow Rate			•			-			s (GPA) @			•		tion Rate	_
	Size	(F31)	(us gpm)		5.0 мрн	6.5 мрн	4.5 мрн	5.0 мрн	6.5 мрн			6.5 мрн		10 мрн	15 мрн	4.5 мрн	_	6.5 мрн
		15	0.37	49	44	34	40	36	28	32	29 34	22	15	11	7.3	16	15	11
	06	20 25	0.42 0.47	56 63	50 56	39 43	47 52	42 47	32 36	37 42	38	26 29	17 19	13 14	8.4 9.4	19 21	17 19	13 14
	-06 COMBO-JET	30	0.52	69	62	48	57	51	40	46	41	32	21	15	10	23	21	16
28%	Metering Orifice	35	0.56	74	67	51	62	56	43	49	44	34	22	17	11	25	22	17
40443-06	40285-06	40	0.60	79	71	55	66	59	46	53	48	37	24	18	12	26	24	18
40443-00	(2)	45	0.64	84	76	58 45	70	63	48 37	56 43	50	39	25	19 15	13	28 22	25	19
	Short*	15 20	0.49 0.57	65 75	58 67	52	54 62	49 56	43	50	39 45	30 34	19 22	17	9.7	25	19 22	15 17
	-08	25	0.63	84	75	58	70	63	48	56	50	39	25	19	13	28	25	19
9 2	COMBO-JET [Short]	30	0.69	91	82	63	76	69	53	61	55	42	27	21	14	30	27	21
	40285-08s	35	0.75	99	89	68	82	74	57	66	59	46	30	22 24	15	33	30	23 24
40443-08	[Long] 40285-08	40 45	0.80 0.85	106 112	95 101	73 78	93	79 84	61 65	70 75	63 67	49 52	32 34	25	16 17	35 37	32 34	26
	Short*	15	0.62	81	73	56	68	61	47	54	49	37	24	18	12	27	24	19
		20	0.71	94	84	65	78	70	54	63	56	43	28	21	14	31	28	22
	-10 COMBO-JET	25	0.79	105	94	73	87	79	60	70	63	48	31	24	16	35	31	24
	[Short]	30 35	0.87 0.94	115 124	103 112	80 86	96 103	86 93	66 72	77 83	69 74	53 57	34 37	26 28	17 19	38 41	34 37	27 29
	40285-10s [Long]	40	1.00	133	119	92	111	99	77	88	80	61	40	30	20	44	40	31
40443-10	40285-10	45	1.07	141	127	97	117	105	81	94	84	65	42	32	21	47	42	32
	Short*	15	0.76	101	91	70	84	76	58	67	60	47	30	23	15	34	30	23
	-125	20 25	0.88	116 130	105 117	81 90	97 108	87 98	67 75	78 87	70 78	54 60	35 39	26 29	17 20	39 43	35 39	27 30
4 7	COMBO-JET	30	1.08	130	117	90	108	107	75 82	95	78 86	66	43	32	20	43	43	33
300	[Short] 40285-125s	35	1.17	154	139	107	128	115	89	103	92	71	46	35	23	51	46	36
40443-125	[Long] 40285-125	40	1.25	165	148	114	137	123	95	110	99	76	49	37	25	55	49	38
40443-125	40265-125	45	1.32	175	157	121	145	131	101	116	105	81	52	39	26	58	52	40
	T T	15 20	0.92 1.06	121 140	109 126	84 97	101 117	91 105	70 81	81 93	73 84	56 65	36 42	27 32	18 21	40 47	36 42	28 32
		25	1.19	157	141	108	131	117	90	104	94	72	47	35	23	52	47	36
4 2	-15	30	1.30	172	154	119	143	129	99	114	103	79	51	39	26	57	51	40
785	COMBO-JET	35	1.40	185	167	128	154	139	107	124	111	86	56	42	28	62	56	43
40443-15	[Long] 40285-15	40 45	1.50 1.59	198 210	178 189	137 145	165 175	149 158	114 121	132 140	119 126	91 97	59 63	45 47	30 32	66 70	59 63	46 48
		15	1.22	161	145	112	135	121	93	108	97	75	48	36	24	54	48	37
		20	1.41	186	168	129	155	140	108	124	112	86	56	42	28	62	56	43
		25	1.58	208	188	144	174	156	120	139	125	96	63	47	31	69	63	48
	-20 COMBO-JET	30 35	1.73 1.87	228 247	206 222	158 171	190 206	171 185	132 142	152 164	137 148	105 114	69 74	51 55	34 37	76 82	69 74	53 57
	[Long]	40	2.00	264	237	183	220	198	152	176	158	122	79	59	40	88	79	61
40443-20	40285-20	45	2.12	280	252	194	233	210	161	186	168	129	84	63	42	93	84	65
	m	15	1.53	202	182	140	168	152	117	135	121	93	61	45	30	67	61	47
	1111	20 25	1.77 1.98	233 261	210 235	162 181	194 217	175 196	135 151	156 174	140 157	108 120	70 78	53 59	35 39	78 87	70 78	54 60
	-25	30	2.17	286	257	198	238	214	165	191	171	132	86	64	43	95	86	66
	COMBO-JET	35	2.34	309	278	214	257	232	178	206	185	142	93	69	46	103	93	71
	[Long] 40285-25	40	2.50	330	297	228	275	247	190	220	198	152	99	74	49	110	99	76
		45 15	2.65 1.84	350 243	315 218	242 168	292 202	263 182	202 140	233 162	210 146	162 112	105 73	79 55	53 36	117 81	105 73	81 56
		20	2.12	280	252	194	234	210	162	187	168	129	84	63	42	93	84	65
	(==)	25	2.37	313	282	217	261	235	181	209	188	145	94	70	47	104	94	72
	-30	30 35	2.60 2.81	343 371	309 334	238 257	286 309	257 278	198 214	229 247	206 222	158 171	103 111	77 83	51 56	114 124	103 111	79 86
	COMBO-JET [Long]	40	3.00	371	334	257	330	278	214	264	238	1/1	111	83	56 59	132	111	91
	40285-30	45	3.18	420	378	291	350	315	242	280	252	194	126	95	63	140	126	97
		15	2.45	323	291	224	269	242	186	215	194	149	97	73	48	108	97	75
		20 25	2.83	373 417	336 375	258 289	311 347	280 313	215 241	249 278	224 250	172 192	112 125	84 94	56 63	124 139	112 125	86 96
		30	3.16 3.46	417	411	316	381	343	263	304	274	211	137	103	69	152	137	105
	-40 COMBO-JET	35	3.74	493	444	342	411	370	285	329	296	228	148	111	74	164	148	114
	[Long] 40285-40	40	4.00	527	475	365	439	396	304	352	316	243	158	119	79	176	158	122
	::0/408E4U	45	4.24	559	503	387	466	420	323	373	336	258	168	126	84	186	168	129
		15 20	3.06 3.54	405 467	364 420	280 323	337 389	303 350	233 269	270 311	243 280	187 216	121 140	91 105	61 70	135 156	121 140	93 108
		25	3.96	522	470	362	435	392	301	348	313	241	157	118	78	174	157	121
		20								004	0.40	064	172	129	86	191	172	132
	-50	30	4.33	572	515	396	477	429	330	381	343	264						
	COMBO-JET	30 35	4.33 4.68	618	556	428	515	463	356	412	371	285	185	139	93	206	185	143
		30	4.33															

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## COMBO-JET® Narrow-Angle Nozzles for Spot Spraying

A full selection of narrow angle spray nozzles for use in specialty applications that require a narrow, but thick pattern. These nozzles are fully compatible with PWM spray systems, and other optical spray systems. Contact factory for availability.

#### COMBO-JET® ER & DX Series of 20°, 40° & 60° Spray Nozzles for Optical & Spot Spraying

The DX (drift redux) & ER (fine spray) narrow angle spray nozzles.

						/				$\overline{}$	
1					Application Rate in US Gallons / Acre	l /	\ I		\		
1	Nozzle	Flow	Room	Tip	on 10" Nozzle Spacing		<u> </u>	_		A22000000000	
1	Size	Rate	PSI	psi	*using solenoid for ON/OFF control*	- 33		ARREA		Andread	EU BA
	OIZO	USGPM	101	ры	@ Sprayer Speed in Miles / Hour	20° N	ozzles	40° No	zzles	60° No	zzles
ı											

For smaller sizes of nozzles in narrow-angle varieties, please contact Wilger.

As spot-spraying systems continue to develop, Wilger expects to have a variety of nozzles developed to support the new improvements to maximize effectiveness.

				the ne	w improve	ements to	maximize	effectiveness.		
	Flow	Boom	Tip		Speed (o			Drift	Drift	Drift
	us gpm	psi	psi*	5qpa	7.5gpa	10qpa	12.5gpa	Reduction	Reduction	Reduction
	0.13	30	30	15.4	10.2	7.7	6.1	DX20-015	DX40-015	DX60-015
-015	0.15	40	40	17.7	11.8	8.9	7.1	#42220-015	#42240-015	#42260-015
	0.17	50	50	19.8	13.2	9.9	7.9	Fine Spray	Fine Spray	Fine Spray
	0.18	60	59	21.7	14.5	10.9	8.7	ER20-015	ER40-015	ER60-015
	0.20	70	69	23.5	15.7	11.7	9.4	#42120-015	#42140-015	#42160-015
	Flow	Boom	Tip	Sprayer	Speed (o	n 10" spa	cing) @	Drift	Drift	Drift
	us gpm	psi	psi	7.5gpa	10gpa	12.5gpa	15gpa	Reduction	Reduction	Reduction
	0.17	30	29	13.6	10.2	8.2	6.8	DX20-02	DX40-02	DX60-02
-02	0.20	40	39	15.7	11.8	9.4	7.9	#42220-02	#42240-02	#42260-02
	0.22	50	49	17.6	13.2	10.5	8.8	Fine Spray	Fine Spray	Fine Spray
	0.24	60	59	19.2	14.4	11.5	9.6	ER20-02	ER40-02	ER60-02
	0.26	70	69	20.8	15.6	12.5	10.4	#42120-02	#42140-02	#42160-02
	Flow	Boom	Tip		Speed (o			Drift	Drift	Drift
	us gpm	psi	psi	7.5gpa	10gpa		15.0gpa	Reduction	Reduction	Reduction
	0.21	30	29	16.9	12.7	10.2	8.5	DX20-025	DX40-025	DX60-025
-025	0.25	40	39	19.6	14.7	11.7	9.8	#42220-025	#42240-025	#42260-025
	0.28	50	49	21.9	16.4	13.1	10.9	Fine Spray	Fine Spray	Fine Spray
	0.30	60	58	23.9	18.0	14.4	12.0	ER20-025	ER40-025	ER60-025
	0.33	70	68	25.9	19.4	15.5	12.9	#42120-025	#42140-025	#42160-025
	Flow	Boom	Tip		Speed (o 12.5gpa			Drift	Drift	Drift
	us gpm 0.26	psi 30	psi 29	10gpa 15.2	12.5gpa 12.1	15gpa 10.1	17.5gpa 8.7	Reduction DX20-03	Reduction DX40-03	Reduction DX60-03
-03	0.20	40	39	17.5	14.0	11.7	10.0	#42220-03	#42240-03	#42260-03
-03	0.23	50	48	19.6	15.7	13.0	11.2			
	0.36	60	58	21.4	17.2	14.3	12.3	Fine Spray ER20-03	Fine Spray ER40-03	Fine Spray ER60-03
	0.39	70	68	23.2	18.5	15.4	13.2	#42120-03	#42140-03	#42160-03
	Flow	Boom	Tip		Speed (o			Drift	Drift	Drift
	us gpm	psi	psi	12.5gpa	15qpa	17.5qpa	20gpa	Reduction	Reduction	Reduction
	0.34	30	28	15.9	13.3	11.4	10.0	DX20-04	DX40-04	DX60-04
-04	0.39	40	37	18.4	15.3	13.1	11.5	#42220-04	#42240-04	#42260-04
	0.43	50	47	20.6	17.1	14.7	12.9	Fine Spray	Fine Spray	Fine Spray
	0.47	60	56	22.5	18.8	16.1	14.1	ER20-04	ER40-04	ER60-04
	0.51	70	66	24.3	20.3	17.4	15.2	#42120-04	#42140-04	#42160-04
	Flow	Boom	Tip	Sprayer	Speed (o		cing) @	Drift	Drift	Drift
	us gpm	psi	psi	15gpa	17.5gpa	20gpa	22.5gpa	Reduction	Reduction	Reduction
	0.41	30	27	16.3	14.0	12.2	10.9	DX20-05	DX40-05	DX60-05
-05	0.48									
		40	36	18.8	16.2	14.1	12.6	#42220-05	#42240-05	#42260-05
	0.53	50	45	21.1	18.1	15.8	14.1	Fine Spray	Fine Spray	Fine Spray
	0.53 0.58	50 60	45 54	21.1 23.1	18.1 19.8	15.8 17.3	14.1 15.4	Fine Spray ER20-05	Fine Spray ER40-05	Fine Spray ER60-05
	0.53 0.58 0.63	50 60 70	45 54 63	21.1 23.1 24.9	18.1 19.8 21.4	15.8 17.3 18.7	14.1 15.4 16.6	Fine Spray ER20-05 #42120-05	Fine Spray ER40-05 #42140-05	Fine Spray ER60-05 #42160-05
	0.53 0.58 0.63 Flow	50 60 70 Boom	45 54 63 Tip	21.1 23.1 24.9 Sprayer	18.1 19.8 21.4 Speed (o	15.8 17.3 18.7 n 10" spa	14.1 15.4 16.6 cing) @	Fine Spray ER20-05 #42120-05 Drift	Fine Spray ER40-05 #42140-05 Drift	Fine Spray ER60-05 #42160-05 Drift
	0.53 0.58 0.63 Flow us gpm	50 60 70 Boom psi	45 54 63 Tip psi	21.1 23.1 24.9 Sprayer 17.5gpa	18.1 19.8 21.4 Speed (o 20gpa	15.8 17.3 18.7 n 10" spa 22.5gpa	14.1 15.4 16.6 cing) @ 25gpa	Fine Spray ER20-05 #42120-05 Drift Reduction	Fine Spray ER40-05 #42140-05 Drift Reduction	Fine Spray ER60-05 #42160-05 Drift Reduction
	0.53 0.58 0.63 Flow us gpm 0.48	50 60 70 Boom psi 30	45 54 63 Tip psi 26	21.1 23.1 24.9 Sprayer 17.5gpa 16.5	18.1 19.8 21.4 Speed (o 20gpa 14.4	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8	14.1 15.4 16.6 cing) @ 25gpa 11.5	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06	Fine Spray ER60-05 #42160-05 Drift Reduction DX60-06
-06	0.53 0.58 0.63 Flow us gpm 0.48 0.56	50 60 70 Boom psi 30 40	45 54 63 Tip psi 26 35	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06 #42240-06	Fine Spray ER60-05 #42160-05 Drift Reduction DX60-06 #42260-06
	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.63	50 60 70 Boom psi 30 40	45 54 63 Tip psi 26 35 43	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0 21.2	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 18.6	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray	Fine Spray ER60-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray
	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.63 0.69	50 60 70 Boom psi 30 40 50 60	45 54 63 Tip psi 26 35 43 52	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 18.6 20.4	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray ER40-06	Fine Spray ER60-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06
	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.63 0.69 0.74	50 60 70 Boom psi 30 40 50 60 70	45 54 63 Tip psi 26 35 43 52 61	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3 25.1	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 18.6 20.4 22.0	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9 16.3 17.6	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #42120-06	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray ER40-06 #42140-06	Fine Spray ER60-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06 #42160-06
	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.63 0.69 0.74 Flow	50 60 70 Boom psi 30 40 50 60 70 Boom	45 54 63 Tip psi 26 35 43 52 61 Tip	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3 25.1 Sprayer	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 18.6 20.4 22.0 Speed (o	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 n 10" spa	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9 16.3 17.6 cing) @	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #42120-06 Drift	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray ER40-06 #42140-06 Drift	Fine Spray ER60-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06 #42160-06 Drift
	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.63 0.69 0.74 Flow us gpm	50 60 70 Boom psi 30 40 50 60 70 Boom psi	45 54 63 Tip psi 26 35 43 52 61 Tip psi	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3 25.1 Sprayer 22.5gpa	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 18.6 20.4 22.0 Speed (o 25gpa	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 n 10" spa 27.5gpa	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9 16.3 17.6 cing) @ 30gpa	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #42120-06 Drift Reduction	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray ER40-06 #42140-06 Drift Reduction	Fine Spray ER60-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06 #42160-06 Drift Reduction
-06	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.63 0.69 0.74 Flow us gpm 0.62	50 60 70 Boom psi 30 40 50 60 70 Boom psi 30	45 54 63 Tip psi 26 35 43 52 61 Tip psi 24	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3 25.1 Sprayer 22.5gpa 16.3	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 18.6 20.4 22.0 Speed (o 25gpa 14.6	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 n 10" spa	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9 16.3 17.6 cing) @ 30gpa 12.2	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #42120-06 Drift	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray ER40-06 #42140-06 Drift	Fine Spray ER60-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06 #42160-06 Drift
	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.63 0.69 0.74 Flow us gpm	50 60 70 Boom psi 30 40 50 60 70 Boom psi	45 54 63 Tip psi 26 35 43 52 61 Tip psi	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3 25.1 Sprayer 22.5gpa	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 18.6 20.4 22.0 Speed (o 25gpa 14.6 16.9	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 n 10" spa 27.5gpa 13.3	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9 16.3 17.6 cing) @ 30gpa	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #42120-06 Drift Reduction DX20-08 #42220-08	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray ER40-06 #42140-06 Drift Reduction DX40-08 #42240-08	Fine Spray ER60-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06 #42160-06 Drift Reduction DX60-08 #42260-08
-06	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.63 0.69 0.74 Flow us gpm 0.62 0.71	50 60 70 Boom psi 30 40 50 60 70 Boom psi 30	45 54 63 Tip psi 26 35 43 52 61 Tip psi 24 32	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3 25.1 Sprayer 22.5gpa 16.3 18.8	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 18.6 20.4 22.0 Speed (o 25gpa 14.6	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 n 10" spa 27.5gpa 13.3 15.4	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9 16.3 17.6 cing) @ 30gpa 12.2	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #42120-06 Drift Reduction DX20-08	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray ER40-06 #42140-06 Drift Reduction DX40-08	Fine Spray ER60-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06 #42160-06 Drift Reduction DX60-08
-06	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.63 0.69 0.74 Flow us gpm 0.62 0.71 0.79	50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40	45 54 63 Tip psi 26 35 43 52 61 Tip psi 24 32	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3 25.1 Sprayer 22.5gpa 18.8 21.0	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 18.6 20.4 22.0 Speed (o 25gpa 14.6 16.9 18.9	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 n 10" spa 27.5gpa 13.3 15.4 17.2	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9 16.3 17.6 cing) @ 30gpa 12.2 14.1 15.7	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #42120-06 DX20-08 #42220-08 Fine Spray	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray ER40-06 #42140-06 Drift Reduction DX40-08 #42240-08 Fine Spray	Fine Spray ER60-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06 #42160-06 Drift Reduction DX60-08 #42260-08
-06	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.63 0.69 0.74 Flow us gpm 0.62 0.71 0.79 0.87	50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 50 60	45 54 63 Tip psi 26 35 43 52 61 Tip psi 24 32 39	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3 25.1 Sprayer 22.5gpa 16.8 21.0 23.0 24.8 Sprayer	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 20.4 22.0 Speed (o 25gpa 14.6 16.9 18.9 20.7 22.4 Speed (o	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 n 10" spa 27.5gpa 13.3 15.4 17.2 18.8 20.3 n 10" spa	14.1 15.4 16.6 16.0 25gpa 11.5 13.3 14.9 16.3 17.6 cing) @ 30gpa 12.2 14.1 15.7 17.2 18.6 cing) @	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #42120-06 Beduction DX20-08 #42220-08 Fine Spray ER20-08	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray ER40-06 #42140-06 DX40-08 #42240-08 Fine Spray ER40-06	Fine Spray ER60-05 #42160-05 Drift Reduction DX60-06 #42260-06 #42160-06 #42160-06 #42260-08 #42260-08 Fine Spray ER60-08
-06	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.63 0.69 0.74 Flow us gpm 0.62 0.71 0.79 0.87 0.97	50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 50 60 70 Boom	45 54 63 Tip psi 26 35 43 52 61 Tip psi 24 32 39 47 55 Tip psi	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3 25.1 Sprayer 22.5gpa 16.3 18.8 21.0 23.0 24.8 Sprayer 27.5gpa	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 20.4 22.0 Speed (o 25gpa 14.6 16.9 18.9 20.7 22.7 22.4 30.9	15.8 17.3 18.7 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 n 10" spa 27.5gpa 13.3 15.4 17.2 18.8 20.3 10" spa 20.3 20.3 20.5 20.5 20.5 20.5 20.5 20.5 20.5 20.5	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9 16.3 17.6 cing) @ 30gpa 12.2 14.1 15.7 17.2 18.6 cing) @ 35gpa	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #42120-06 Drift Reduction DX20-08 #42220-08 Fine Spray ER20-08 #42120-08	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray ER40-06 #2140-06 Drift Reduction DX40-08 #42240-08 #42140-08 #42140-08	Fine Spray ER60-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06 #42160-06 Drift Reduction DX60-08 #42260-08 #42160-08
-06	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.69 0.74 Flow us gpm 0.62 0.71 0.79 0.87 0.94 Flow us gpm 0.62 0.79	50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 50 60 70 80 80 80 80 80 80 80 80 80 80 80 80 80	45 54 63 Tip psi 26 35 43 52 61 Tip psi 24 32 32 39 47 55 Tip psi 21	21.1 23.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3 25.1 Sprayer 22.5gpa 16.3 18.8 21.0 23.0 24.8 Sprayer 27.5gpa 15.7	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 20.4 22.0 Speed (o 25gpa 14.6 16.9 18.9 20.7 22.4 Speed (o 30gpa 14.4	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 27.5gpa 13.3 15.4 17.2 18.8 20.3 n 10" spa 22.5gpa 13.3	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9 16.3 17.6 cing) @ 30gpa 12.2 14.1 15.7 17.2 18.6 cing) @ 30gpa 12.2	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #42120-06 Drift Reduction DX20-08 #42220-08 Fine Spray ER20-08 #42120-08 Drift Reduction DX20-10	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray ER40-06 #42140-06 Drift Reduction DX40-08 #42240-08 Fine Spray ER40-08 #42140-08 Drift Reduction DX40-10	Fine Spray ER60-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06 #42160-06 Drift Reduction DX60-08 #42260-08 #42160-08 #42160-08 Print Spray ER60-08 #42160-08
-06	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.63 0.69 0.74 Flow us gpm 0.62 0.71 0.79 0.87 0.94 Flow us gpm 0.62 0.71 0.79 0.87 0.94 0.73	50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 40 50 60 70 80 80 80 80 80 80 80 80 80 80 80 80 80	45 54 63 Tip psi 26 35 43 52 61 Tip psi 24 32 39 47 55 Tip psi 22 43 22 24 32 39 47 52 24 32 47 47 52 52 52 52 52 52 52 52 52 52 52 52 52	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3 25.1 Sprayer 22.5gpa 16.3 18.8 21.0 23.0 24.8 Sprayer 27.5gpa 15.7 18.2	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 20.4 22.0 Speed (o 25gpa 14.6 16.9 18.9 20.7 22.4 Speed (o 30gpa 14.4 16.6	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 17.5gpa 17.5gpa 17.5gpa 18.8 20.3 n 10" spa 32.5gpa 13.3 15.4 17.2 18.8 19.5 19.5 19.5 19.5 19.5 19.5 19.5 19.5	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 17.6 cing) @ 30gpa 12.2 14.1 15.7 17.2 18.6 cing) @ 35gpa 12.4 14.9	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #42120-06 Drift Reduction DX20-08 #42220-08 Fine Spray ER20-08 #42120-08 Drift Reduction DX20-08 #42120-08	Fine Spray ER40-05 #42140-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray ER40-06 #42140-08 #42240-08 Fine Spray ER40-08 #42140-08 Drift Reduction DX40-08 #42140-08 Drift Reduction DX40-10 #42240-10	Fine Spray ER60-05 #42160-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06 #42160-08 Fine Spray ER60-08 #42260-08 Fine Spray ER60-08 #42160-08 #42160-08 #42160-08 Drift Reduction DX60-10 #42260-10 #42260-10
-06	0.53 0.58 0.63 0.69 0.74 Flow us gpm 0.62 0.71 0.79 0.87 0.94 Flow us gpm 0.62 0.71 0.79 0.87 0.94 0.94	50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 40 50 60 70 80 40 40 40 40 40 40 40 40 40 40 40 40 40	45 54 63 Tip psi 26 35 43 52 61 Tip psi 24 32 39 47 55 55 11 12 12 12 12 12 12 13 13 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15	21.1 23.9 Sprayer 17.5ppa 16.5 19.0 21.2 23.3 25.1 Sprayer 22.5ppa 16.3 18.8 21.0 23.0 24.8 Sprayer 27.5ppa 15.7 18.2 20.3	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 20.4 22.0 Speed (o 25gpa 14.6 16.9 22.2 30gpa 14.6 16.9 16.9 20.7 22.4 Speed (o 30gpa 14.4 16.6 16.6 16.6 16.6 16.6 16.6 16.6	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 n 10" spa 27.5gpa 13.3 15.4 17.2 18.8 20.3 n 10" spa 32.5gpa 13.3 15.4 17.2 18.8 19.5	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9 16.3 17.6 cing) @ 30gpa 12.2 14.1 15.7 17.2 18.6 cing) @ 35gpa 12.2 14.1 15.7 17.2 18.6 19.0	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #42120-06 Drift Reduction DX20-08 #42120-08 Fine Spray ER20-08 #42120-08 Fine Spray ER20-08 #42120-08	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray ER40-06 #42140-08 Drift Reduction DX40-08 #42240-08 Fine Spray ER40-08 #42140-08 Drift Reduction DX40-10 Fine Spray ER40-08	Fine Spray ER60-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06 #42160-08 Drift Reduction DX60-08 #42260-08 #42260-08 Fine Spray ER60-08 #42160-08
-06	0.53 0.58 0.63 0.63 0.69 0.74 Flow us gpm 0.69 0.74 Flow us gpm 0.62 0.71 0.79 0.87 0.94 Flow us gpm 0.48 0.56 0.74 Flow us gpm 0.62 0.71 0.79 0.87 0.94	50 60 70 80om psi 30 40 50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 50 60 70 80 80 80 80 80 80 80 80 80 80 80 80 80	45 54 63 Tip psi 26 35 43 52 61 Tip psi 24 32 39 47 55 Tip psi 24 32 39 47 55 47 55 47 55 47 55 56 57 57 57 57 57 57 57 57 57 57 57 57 57	21.1 23.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3 25.1 Sprayer 22.5gpa 16.3 18.8 21.0 23.0 24.8 Sprayer 27.5gpa 15.7 18.2 20.3 22.2	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 18.6 20.4 22.0 25gpa 14.6 16.9 18.9 20.7 22.7 22.4 30gpa 14.4 16.6 18.9	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 27.5gpa 13.3 15.4 17.2 18.8 20.3 32.5gpa 13.3 15.4 17.2 18.8 20.3 15.4 17.2 18.8 20.3 15.4 17.2 18.8 20.3 15.4 17.2 18.8 20.3 18.8 20.3 18.8 20.3 18.8 20.3 18.8 20.3 18.8 20.3 18.8 20.3 18.8 20.3 18.8 20.3 18.8 20.3 18.8 20.3 18.8 20.3 18.8 20.3 20.3 20.3 20.3 20.3 20.3 20.3 20.3	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9 16.3 17.6 30gpa 12.2 14.1 15.7 17.2 18.6 cing) @ 35gpa 12.4 14.3 16.0 17.5	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #2120-06 Drift Reduction DX20-08 #42220-08 Fine Spray ER20-08 #42120-08 Drift Reduction DX20-10 #42220-10 Fine Spray ER20-08	Fine Spray ER40-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray ER40-06 #2140-06 Drift Reduction DX40-08 Fine Spray ER40-08 #42240-08 Fine Spray ER40-08 #42140-08 Drift Reduction DX40-10 Fine Spray ER40-10 Fine Spray ER40-10	Fine Spray ER60-05 #42160-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06 #42260-08 #42260-08 #42160-08 Drift Reduction DX60-08 #42160-08 Drift Reduction DX60-10 #42260-10 #42260-10 #4260-10 #4260-10 #4260-10 #100-00 #10
-06	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.63 0.69 0.74 Flow us gpm 0.62 0.71 0.79 0.87 0.94 Flow us gpm 0.62 0.71 0.79 0.87 0.94 1.09	50 60 70 80om psi 30 40 50 60 70 80om psi 30 40 50 60 70 80om psi 30 40 50 60 70 80om 90 90 90 90 90 90 90 90 90 90 90 90 90	45 54 63 Tippsi 26 35 43 52 61 Tippsi 24 32 39 47 55 Tippsi 21 28 35 47 47 47 47 47 47 47 47 47 47 47 47 47	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3 25.1 Sprayer 22.5gpa 16.3 18.8 21.0 23.0 24.8 Sprayer 27.5gpa 15.7 18.2 20.3 22.2 24.0	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 20.4 22.0 Speed (o 25gpa 14.6 16.9 18.9 20.7 22.4 Speed (o 30gpa 14.4 16.6 18.6 20.4 22.0	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 27.5gpa 27.5gpa 13.3 15.4 17.2 18.8 20.3 n 10" spa 32.5gpa 13.3 15.4 17.2 18.8 20.3 15.4 17.2 18.8 20.3 15.4 17.2	14.1 15.4 16.6 16.6 17.5 18.9 18.9 18.9 18.1 18.1 18.1 18.1 18.1	Fine Spray ER20-05 #42120-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #42120-06 Drift Reduction DX20-08 #42120-08 Drift Reduction DX20-10 #42120-10 #4220-10 #42120-10 #42120-10 #42120-10 #42120-10 #42120-10 #42120-10	Fine Spray ER40-05 #42140-05 #42140-05 Drift Reduction DX40-06 #42240-06 Fine Spray ER40-06 #42140-08 Fine Spray ER40-08 #42140-08 Drift Reduction DX40-10 #42240-10 #42240-10 #42240-10 #42140-10 #42140-10 #42140-10 #42140-10	Fine Spray ER60-05 #42160-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06 #42160-08 #42260-08 #42160-08 #42160-08 Drift Reduction DX60-08 #42160-08 Drift Reduction DX60-10 #42260-10 #42260-10 #42260-10 #42260-10 #42160-10 #42160-10 #42160-10 #42160-10
-06	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.63 0.69 0.74 Flow us gpm 0.62 0.71 0.79 0.87 0.94 Flow us gpm 0.79 0.87 0.94 1.03 1.11 Flow	50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 50 60 70 80 60 70 80 80 80 80 80 80 80 80 80 80 80 80 80	45 54 63 Tip psi 26 35 43 52 61 Tip psi 24 32 39 47 55 Tip psi 24 47 55 52 47 47 55 54 47 55 55 56 57 57 57 57 57 57 57 57 57 57 57 57 57	21.1 23.1 24.9 Sprayer 17.5qpa 16.5 19.0 21.2 23.3 25.1 Sprayer 22.5qpa 16.3 18.8 21.0 23.0 24.8 Sprayer 27.5qpa 15.7 18.2 20.3 22.2 24.0 Sprayer	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 18.6 22.0 25gpa 14.6 16.9 18.9 20.7 22.4 Speed (o 30gpa 14.4 16.6 18.6 20.0 Speed (o 30gpa 14.4 Speed (o 30gpa 30g	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 n 10" spa 27.5gpa 13.3 15.4 17.2 18.8 20.3 n 10" spa 32.5gpa 13.3 15.4 17.2 18.8 20.3 n 10" spa 15.4 17.2 18.8 20.3 n 10" spa 15.4 17.2 18.8 20.3 15.4 17.2 18.8 20.3 15.4 17.2 18.8 20.3 15.4 20.3 15.4 20.3 15.4 20.3 15.4 20.3 15.4 20.3 15.4 20.3 15.4 20.3 15.4 20.3 20.3 20.3 20.3 20.3 20.3 20.3 20.3	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9 16.3 17.6 cing) @ 30gpa 12.2 14.1 15.7 17.2 18.6 cing) @ 35gpa 12.4 14.9 14.9 15.7 17.2 18.6 cing) @ 35gpa 12.2 14.1 15.7 17.5 18.6 cing) @ 35gpa 17.6 cing) @ 35gpa 17.6 cing) @ 30gpa 12.2 14.1 15.7 17.2 18.6 cing) @ 35gpa 18.3	Fine Spray ER20-05 #42120-05 #42120-05 #220-06 #42220-06 Fine Spray ER20-06 #42120-08 #4220-08 #42120-08 #42120-08 #2120-08 #42120-09 #2120-10 #2220-10 #2220-10 Fine Spray ER20-10 #22120-10 Drift Reduction DX20-10 #22120-10 Fine Spray ER20-10 #22120-10 Drift Redux	Fine Spray ER40-05 #42140-05 #42140-05 #42140-06 #42240-06 Fine Spray ER40-06 #42240-08 Fine Spray ER40-08 #42140-08 #42140-08 #42140-08 #42140-09 #42140-10 #42240-10 Fine Spray ER40-10 #42140-10 Drift Reduction DX40-10 #42240-10 Fine Spray ER40-10 #42140-10 Drift Redux	Fine Spray ER60-05 #42160-05 #42160-06 #42260-06 Fine Spray ER60-06 #42160-08 #42260-08 #100-08 #42160-08 #100
-06 -08	0.53 0.58 0.63 0.63 0.69 0.74 Flow us gpm 0.62 0.71 0.79 0.87 0.94 1.03 1.11 Flow us gpm 1.03 1.11 Flow us gpm 1.03 1.11 Flow us gpm 1.03 1.11 Flow us gpm 1.03 1.11 Flow us gpm 1.03	50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 50 60 70 70 80 60 70 70 80 70 80 70 80 80 70 80 80 80 80 80 80 80 80 80 80 80 80 80	45 54 63 Tip psi 26 35 43 52 61 Tip psi 24 32 39 47 55 Tip psi 21 28 35 42 49 Tip psi	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3 25.1 Sprayer 22.5gpa 16.3 18.8 21.0 23.0 24.8 Sprayer 27.5gpa 15.7 18.2 20.3 22.2 24.0 Sprayer 30gpa	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 18.6 20.4 22.0 Speed (o 25gpa 14.6 16.9 16.9 20.7 22.4 Speed (o 30gpa 14.4 16.6 20.4 22.0 20.7 20.7 20.7 20.7 20.7 20.7 20.7	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 n 10" spa 27.5gpa 13.3 15.4 17.2 18.8 20.3 n 10" spa 32.5gpa 13.3 15.4 17.2 18.8 20.3 17.2 18.8 20.3 17.2 18.8 20.3 19.5 19.5 19.5 19.5 19.5 19.5 19.5 19.5	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9 16.3 17.6 cing) @ 30gpa 12.2 14.1 15.7 17.2 18.6 cing) @ 35gpa 12.4 14.3 16.0 17.5 18.9 16.3 17.6 cing) @ 30gpa 12.2 14.1 15.7 17.2 18.6 cing) @ 35gpa 17.6 cing) @ 35gpa 17.5	Fine Spray ER20-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #42120-06 Drift Reduction DX20-08 #42220-08 Fine Spray ER20-08 #42120-08 #42120-09 #42120-10 #42220-10 #4220-10 #4220-10 #4220-10 Prift Redux Bright Redux Br	Fine Spray ER40-05 #42140-05 #42140-06 #42240-06 #42140-06 #42140-06 #00 Fine Spray ER40-06 #00 Fine Spray ER40-08 #00 Fine Spray ER40-10 Fine Spray ER40-10 #00 Fine Spray ER40-10 #00 Fine Spray ER40-10 Fine Spray ER40-10 #00 Fin	Fine Spray ER60-05 #42160-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06 #42160-08 #42160-08 #42260-10 #42260-10 #42260-10 #42260-10 #42260-10 Drift Reduction DX60-10 #42260-10 #42260-10 #42260-10 Prift Reduction DX60-10 #42260-10 #42260-10 #42260-10 Prift Reduction DX60-10 #42260-10 #42260-10 #42260-10 #42260-10 #42260-10 #42260-10 Prift Reduction DX60-125
-06	0.53 0.58 0.63 Flow us gpm 0.48 0.56 0.63 0.69 0.74 Flow us gpm 0.62 0.71 0.79 0.87 0.94 Flow us gpm 1.07 0.87 0.94 1.03 1.11 Flow us gpm 0.73 0.84 0.94 1.03 1.11 Flow us gpm 0.95 0.73 0.84 0.95 0.	50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 50 60 70 Boom psi 30 40 50 60 60 70 Boom psi 30 60 60 60 60 60 60 60 60 60 60 60 60 60	45 54 63 Tippsi 26 35 43 52 61 Tippsi 24 32 24 39 47 55 Tippsi 21 28 35 42 49 10 10 10 10 10 10 10 10 10 10 10 10 10	21.1 23.1 24.9 Sprayer 17.5gpa 16.5 19.0 21.2 23.3 25.1 Sprayer 22.5gpa 16.3 18.8 Sprayer 27.5gpa 15.7 18.2 20.3 22.1 24.0 Sprayer 30gpa 19.3	18.1 19.8 21.4 Speed (o 20gpa 14.4 16.6 18.6 20.4 22.0 Speed (o 25gpa 14.6 16.9 18.9 20.7 22.4 Speed (o 30gpa 14.4 16.6 18.6 20.4 22.0 Speed (o 35gpa 16.5	15.8 17.3 18.7 n 10" spa 22.5gpa 12.8 14.8 16.5 18.1 19.5 27.5gpa 13.3 15.4 17.2 18.8 20.3 15.4 17.2 18.8 20.3 15.4 17.2 18.8 20.3 15.4 17.2 18.8 20.3 19.5 19.5 19.5 19.5 19.5 19.5 19.5 19.5	14.1 15.4 16.6 cing) @ 25gpa 11.5 13.3 14.9 16.3 17.6 cing) @ 30gpa 12.2 14.1 15.7 17.2 18.6 cing) @ 35gpa 12.4 14.3 16.0 17.5 18.9 cing) @ 45gpa 12.9	Fine Spray ER20-05 #42120-05 #42120-05 Drift Reduction DX20-06 #42220-06 Fine Spray ER20-06 #2120-06 Drift Reduction DX20-08 #42220-08 Fine Spray ER20-08 #42120-08 Drift Reduction DX20-10 #2120-10 #2120-10 #2120-10 Drift Reduction DX20-10 #2120-10 #2120-10 #2120-10 #2120-10 Prine Spray ER20-10 Prine Spray ER20-10 #2120-10 Prine Spray ER20-10	Fine Spray ER40-05 #42140-05 #42140-06 Fine Spray ER40-06 #42240-06 Fine Spray ER40-06 #2240-08 Fine Spray ER40-08 #42240-08 Fine Spray ER40-08 #42140-08 Drift Reduction DX40-10 #42240-10 Fine Spray ER40-10 #42240-125 #42240-125	Fine Spray ER60-05 #42160-05 #42160-05 Drift Reduction DX60-06 #42260-06 Fine Spray ER60-06 #42160-06 Fine Spray ER60-08 #42260-08 #42160-08 #42160-08 #42160-10 #42260-10 #42160-10 Drift Reduction DX60-10 #42160-10 Drift Reduction DX60-10 #42160-10 Drift Reduction DX60-10 #42160-10 Drift Reduction DX60-10 #42160-10 Fine Spray ER60-10 #42160-10 Drift Reduction DX60-125 #42260-125
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For larger sizes of nozzles in narrow-angle varieties, please contact Wilger.

As spot-spraying systems continue to develop, Wilger expects to have a variety of nozzles developed in turn to support the new improvements to maximize effectiveness.

\*NOTE: This chart takes into account a relative pressure drop through commonly used PWM solenoids to illustrate some potential flow restriction for larger spot spraying nozzles.

Spot & Broadcast spraying with the same nozzles? Consider COMBO-JET® 80° Nozzles

#### What is optical spot spraying?

Optical spraying systems, or spot spraying based on optical feedback is used for a variety of purposes and with different modes of action.

#### **Spray on Green**

Optics identify 'green' targets in field, and sprays them.

- Pre-plant spraying to clear out established weeds
- Spraying fungicide on plants in field, ignoring dirt.
- Using modes of actions to manage resistant weeds.
- Foliar fertilizer applications on plant only

#### **Green on Green**

Optics & computer differentiate plants in field and spray target plants only.

- Spraying weeds ONLY, avoiding planted crop.
- Spraying crop with fungicide, ignoring weeds.
- Spraying different weeds with different chemicals

While the potential benefits of **Green on Green** provide a great deal of flexibility & means to use cost-prohibitive herbicide regimens, the means to differentiate plants a application time and development of the computing power and learning mechanisms are continually under development.

#### What is the DX series spray nozzle?

Effectively through development of the narrow angle nozzles, there is a relative sweet spot for consistent coverage and maintaining a reasonable level of driftable fines.

Since optical/spot sprayers are typically subject to minimized speeds and narrow spacing, Wilger developed the DX series as a sweet-spot between drift reduction and coverage in those nozzle sizes and angles

Are they still PWM-spray system compatible? Absolutely!

PWM APPROVED

#### Speed up spray nozzle responsivity with INSTA-JET

Faster nozzle pattern generation, faster shut-off, and increased time with an optimal spray pattern are ways to tune in your spot spraying application.

The Insta-jet insert helps improve responsiveness of your nozzle by significantly reducing the amount of cavity space within a nozzle body outlet, such that there is less cavity space to charge between pulses. This means faster ON and OFF time of the nozzle's spray, providing more optimal spraying time.



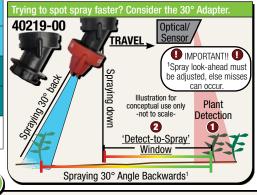
The

The INSTA-JET insert snaps into any COMBO-JET nozzle¹ to handle as one piece.



INSTA-JET snap-in insert 1except UR se

<sup>1</sup>except UR series, or nozzles using adapters that do not allow for use of a snap-in strainer/insta-jet



### **COMBO-JET**<sub>®</sub> Cap Adapters

Order #####-V0 for viton o-ring assemblies

Wilger manufacturers a variety of adapters to adapt Wilger nozzles to other brands of nozzle bodies (e.g. Teejet, Hypro, Arag, etc), provide new functions, or a mix thereof. All adapters self-align cap to common nozzle offset angle.

#### COMBO-JET 50/30 Adapter



40442-00 COMBO-JET outlet to 30° & 50° front/back COMBO-JET outlets -Quarter Turn-

#### COMBO-JET 30/30 Y-Adapter



40440-00 COMBO-JET outlet to dual 30° front/back COMBO-JET outlets -Quarter Turn-

#### 30° COMBO-JET to COMBO-JET



40219-00 COMBO-JET to COMBO-JET, 30° incline (front or back) -Quarter Turn-

#### COMBO-JET DOUBLE-DOWN



40441-00 COMBO-JET outlet to dual COMBO-JET outlets straight down -Quarter Turn-

#### Square Lug to COMBO-JET



40204-00 Converts Square Lug (e.g. Teejet/Hypro) Outlet to COMBO-JET -TWIST-LOCK-

#### **Square Lug to DOUBLE-DOWN**



40206-00 Converts Square Lug Outlet to COMBO-JET Double-Down Outlets -TWIST-LOCK-

#### **COMBO-JET** to Square Lug



40203-00 Converts COMBO-JET Outlet to Square Lug (e.g. Teejet/Hypro) -Quarter Turn-

#### 30° COMBO-JET to Square Luq



40220-00 COMBO-JET to Square Lug, 30° incline (front or back) -Quarter Turn-

#### **JACTO to COMBO-JET**



40207-00 Converts Jacto Outlet to COMBO-JET -Quarter Turn-

#### AGRIFAC to COMBO-JET



40205-00 Converts Agrifac Outlet to COMBO-JET Easy nozzle sleevesnaps into Combo-Jet caps

#### AGRIFAC to DOUBLE-DOWN



40203-00 + 40441-00 Converts Agrifac Outlet to Double COMBO-JET -Quarter Turn-

#### AGRIFAC to 30/30 Y-Adapter



40213-00 Converts Agrifac Outlet to COMBO-JET Y-adapter Outlets -TWIST-LOCK-

#### Y-Adapter or 'Double-Down' mode?

To split up a high volume, coarse spray nozzle into two more meaningful spray qualities. Y-adapter is excellent for vertical growing targets. double-down is better into thick canopies.

Read the 'Tip Guide for Double Nozzle Spraving'

#### PWM-Ready *Double Nozzle Spraving*

Just add the two nozzle sizes together for your PWM nozzle flow For example: MR110-04 + SR110-05

\*PWM solenoid pressure drop would e based on combined size (e.g



40202-00 HARDI Outlet to COMBO-JET -Semi-permanent snap on adapter-

### Radialock Slotted Caps & ER spray tip capsules (80° & 110°)

1/2" Round Slot

Wilger manufacturers caps for using flanged spray tip capsules onto any Combo-Jet nozzle outlets. Gasket is required.

For

1/2" round





# 3/8" Slot 3/8" For 3/8"





### **7/16" Wide Slot**





### HARDI Tip Slot





<sup>2</sup>May be available in colors\*: **Black (-05), Yellow (-04), G Red (-01)** \*Check factory availability of non-black colors. ·04), Green (-03), Willia (+02),

### ER Stainless spray tips with 3/8" capsules









Optimal Height 20"



+ #40160-00 gasket

Looking for narrower 20°, 40° or 60° ER nozzle capsules? Contact Wilger.



Tip Size	-005	-0067	-01	-015	-02	-025	-03	-04	-05	-06	-08
80° ER Tip	ER80-005	ER80-007	ER80-01	ER80-015	ER80-02	ER80-025	ER80-03	ER80-04	ER80-05	ER80-06	ER80-08
Part #	40170-005	40170-007	40170-01	40170-015	40170-02	40170-025	40170-03	40170-04	40170-05	40170-06	40170-08
110° ER Tip	-	-	ER110-01	ER110-015	ER110-02	ER110-025	ER110-03	ER110-04	ER110-05	ER110-06	ER110-08
Part #	-	-	40169-01	40169-015	40169-02	40169-025	40169-03	40169-04	40169-05	40169-06	40169-08

For flow rate & spray quality charts, and more information on ER spray tips, reference the 80° and 110° spray nozzle charts.

### **COMBO-JET**<sub>®</sub> Caps, Adapters & Strainers

Wilger manufacturers a variety of caps that are used for metering flow rates (through hose barb, push-in tube, or streamer caps) or used as accessories for other spraying or plumbing functions.

#### **Plug Caps**



Caps unused Combo-Jet nozzle body outlets

Plug Ca	ар
Assembled Plug	Cap Only
40272-B5	40272-05
40272-85	40272-05

#### **Hose Barb Caps**



Hose barb caps can be used as manifold plumbing parts or for metering flow.

	Hose Barb Caps	
Barb Size	FKM O-ring Assy	Cap Only
1/8"	40420-B5	40420-05
1/4"	40422-B5	40422-05
3/8"	40424-B5	40424-05
1/2"	40426-B5	40426-05

To use cap for metering, order CAP ONLY, with o-ring and 40285-## metering orifice.

#### **Push-in-Tube Caps**



Quick connect tube caps seal on the outside diameter of a tube, and used as manifold plumbing parts or for metering flow.

Quick Co	onnect/Push-in-tu	be Caps
Tube Size (O.D.)	FKM O-ring Assy	Cap Only
1/4"	40435-B5	40435-05
5/16"	40437-B5	40437-05
3/8"	40436-B5	40436-05

To use cap for metering, order CAP ONLY, with o-ring and 40285-## metering orifice.

#### Threaded Outlet Adapters



Combo-Jet Cap with NPT-F threaded port

Threaded Outlet Caps				
Thread Size	FKM O-ring Assy	Cap Only		
1/8" NPT-F	40277-B5	40277-05		
1/4" NPT-F	40273-B5	40273-05		
45° 1/4" NPT-F	40274-B5	40274-05		

For applications that do not required liquid metering orifices (e.g. plumbing manifolds), the -B5 is an assembly that includes an o-ring (#40260-00), seal adapter (#40261-00 in lieu of orifice), and cap.

# COMBO-JET Cap O-rings

is NOT used

Slotted

Plastic

Strainer

for

#40251-00

#40250-00 use 50 mesh for -025 or larger nozzles



13mm x 3mm o-ring for COMBO-JET® Caps & Spray Tips

**COMBO-JET Snap-in Strainers** Combo-jet strainers snap into a metering orifice or cap for an assembly that handles as 'one-piece'

40251-00 40249-00

40249-00

40248-00

Slotted Strainer | Stainless Mesh

use 100 mesh for -02 nozzles o



Adapter for non-metering caps Seal adapter is used to keep

o-ring in place if metering orifice 40261-00

Stainless

Steel for

Chemical

Spraying

40250-00

Mesh Size

100 mesh

25 mesh

### **Hose Drop & Extension Caps**

Hose Drop Caps are used to feed or spray down below a canopy to minimize crop contact.

Outlet	Length	Part #
Combo-Jet	2"	40210-00
to Combo-Jet	5"	40211-00
Combo-Jet Cap to 1/4" NPT-M	16"	22026-00
	24"	22036-00
	36"	22038-00
1/4 INF 1-101	48"	22048-00
	Ţ	5.25



Other styles of Hose Drop Assemblies using threaded inlets are also available. Find them in the DRY BOOMS section of the catalog.

#### **Fertilizer Streamer Caps**



#### 3-hole Fertilizer Streamer Caps [Molded]

3-hole fertilizer streamer (FS3) nozzle improves stream consistency across higher pressure ranges



Color-coded, Single part number ordering

VISIT PAGE 28-29 for both FS3 Fertilizer Streamer Caps & metering orifice charts

#### 2-hole Streamer Caps [Drilled]

2-hole streamer caps are used to stream liquid fertilizer for ~10" coverage 20"



#### 3-hole Streamer Caps [Drilled]

3-hole streamer caps are used to stream liquid fertilizer





Drilled Fertilizer Streamer Caps [CAP ONLY]					
Cap Size Flow Range 2-Hole Cap 3-Hole Cap					
Small	0.05 - 0.4 us gpm	40432-047	40433-047		
Medium	0.2 - 1.0 us gpm	40432-086	40433-067		
Large	0.5 - 3.0 us gpm	40432-104	40433-104		

#### **Ordering** [Drilled] Streamer Caps

For drilled streamer cap assembly, order:

- 1. Metering Orifice (40285-## series)\*
- 2. Streamer cap (2 or 3 hole, sized to flow range
- 3. O-ring seal (40260-00 or 40260-V0)
- 4. [Optional] Slotted Strainer

\*For selecting metering orifices to fit your application, use Tip Wizard, consult flow charts, or use other tools available at www.wilger.net



### **Square Lug Nozzle Outlet Caps** - Only for Square Lug Nozzle Body Outlets (Teejet, Hypro, etc)



40197-05 Square Lug nozzle outlet plug cap

### 3/8" Slot Cap

40248-00

Color

Blue



40159-05 For 3/8" wide flanged spray tips

#### **Threaded Cap**



45° 1/4" NPT-F thread

#### Flanged Strainers



Stainless Steel Strainers for Square-Lug Caps & Nozzles

### **Cap Gaskets**



Gaskets are required to seal all Square Lug Caps

# WILGER Dual-Spray 4+1 [DS41] Nozzle Bodies



### **Dual Spray 4+1 [DS41] Nozzle Bodies**

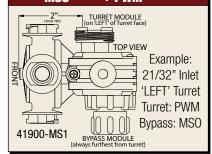
The DS41 nozzle body is the next generation of compact nozzle body. Many significant design changes have been made to improve turret position, durability and strength, and reliability in some of the most challenging environments in spraying.

			DS41 N	Nozzle Bodies with	5/16" Bolt Mount Upp	er Clamp
Boom				Module C	Configuration & Asseml	oly Part#
Pipe/Tube	Nozzle Outlet	Inlet Hole	Turret Control Module	-00	-MS1	-NM
Size	Configuration	Size	Position <sup>1</sup>	MSO on BOTH	MSO on Bypass	No modules on
Oizo			1 00111011	Bypass & Turret	No Module on Turret	Bypass & Turret
	4 CJ (Turret) + 1 CJ (Bypass)	(Turret) 3/8" Inlet	LEFT	41902-00	41902-MS1	41902-NM
			RIGHT	41903-00	41903-MS1	41903-NM
		+ 1 CJ (Bypass)	High Flow	LEFT	41900-00	41900-MS1
1"		21/32" Inlet	RIGHT	41901-00	41901-MS1	41901-NM
(1.315" OD)		3/8" Inlet	LEFT	41912-00	41912-MS1	41912-NM
	4 SqLug (Turret)	3/6 IIIIet	RIGHT	41913-00	41913-MS1	41913-NM
	+ 1 CJ (Bypass)	High Flow	LEFT	41910-00	41910-MS1	41910-NM
		21/32" Inlet	RIGHT	41911-00	41911-MS1	41911-NM

DS41 LEFT & RIGHT bodies are dictated by position of turret module relative to the front faceplate. For ease of ordering, recommended to order 50% LEFT & RIGHT for sprayer retrofits. Bypass' module is always opposite the turret's module.



#### Ordering DS41 as -MS1 with MSO (bypass) + PWM (Turret)







Given the DS41 is ultra compact, the 30/50 was designed to spin on the turret with the 30° angle forward1

> 40442-00 **Perfeet** for cereal fundelde application

<sup>1</sup>When using the 50° nozzle angle forward, removal of the adapter will be required due to the compact nature of the DS41.

### **COMBO-JET**<sub>®</sub> Nozzle Bodies

**Hinged Clamp for easy** installation



**Compact body sits** directly under the boom. Perfect for tight boom frames & heavy

**PWM** solenoids

**Nozzle Bodies can** swap right/left orientation to avoid sprayer boom frame



Debris-cleaning 3/8" inlet slots for less residue buildup

Bodies can be equipped with any combination of control modules, including AIR-OFF, PWM solenoid, Manual ON/OFF or spring-based diaphragm check valves

**Nozzle Bodies available in Combo-Jet or Square Lug styles** (Teejet/Hypro/etc) with 1, 2 or 3 nozzle outlets

#### Single Outlet COMBO-JET® Nozzle Bodies

Robust and cost effective nozzle bodies for sprayers and used on wet boom liquid fertilizer kits.

Boom Pipe	Inlet Size	Outlets	Style	Part#
3/4" (1.05" OD)	3/8"	1 CJ	Check Valve	40611-00
			Check Valve	40621-00
1"	3/8"	1 CJ	Manual On/Off	40621-MS
(1.315" OD)			No Module	40621-NM
	21/32"	1 CJ	No Module	40626-NM



The COMBO-JETO Adventege



40611-P15 Single Outlet w/ 15PSI check valve red) and hose barb cap

Commonly used in liquid fertilizer metering manifolds mounted on plumbed pipe

#### KWIKSTOP™ stops Run-on

KWIKSTOP™passively purges air trapped in the sprayer boom.



Nozzles are fed from the top of the pipe

Less air means Less Nozzle Run-on & Drips

#### Dual Outlet COMBO-JET® Swivel Bodies

Robust and cost effective nozzle bodies for sprayers to switch up to two nozzles by simply rotating the outlet. Safer and easier than handling contaminated nozzles.

Boom Pipe	Inlet Size	Outlets	Style	Part#
3/4" (1.05" OD)	3/8"	2 CJ	Check Valve	40612-00
			Check Valve	40622-00
1"	3/8"	2 CJ	Manual On/Off	40622-MS
(1.315" OD)			No Module	40622-NM
	21/32"	2 CJ	No Module	40627-NM





### High/Low PSI Check Valves

Replace assembly part # ending '-00' to order 4PSI or 15PSI check valves





-00 [Standard]



#### **Triple Outlet COMBO-JET® Swivel Bodies**

Robust and cost effective nozzle bodies for sprayers to switch up to three nozzles by simply rotating the outlet. Safer and easier than handling contaminated nozzles.

9				
Boom Pipe	Inlet Size	Outlets	Style	Part#
3/4" (1.05" OD)	3/8"	3 CJ	Check Valve	40613-00
			Check Valve	40623-00
1"	3/8"	3 CJ	Manual On/Off	40623-MS
(1.315" OD)			No Module	40623-NM
	21/32"	3 CJ	No Module	40628-NM



40631-00



### **Smooth Clamp Bodies**

Swivel bodies have been switched to a standard bolt-mount hinge clamp.



Contact Wilger for a cross-reference chart for the smooth clamp part numbers and their bolt-mount replacement.

#### **Nozzle Body Specifications**

Н					
	Operating Pressure	10*-100PSI			
	Single Outlet Flow Rate	2.1 us gpm @ 5PSI pressure drop 3.1 us gpm @ 10PSI pressure drop			
	Dual Swivel Flow Rate	1.7 us gpm @ 5PSI pressure drop 2.7 us gpm @ 10PSI pressure drop			
	Triple Swivel Flow Rate	1.6 us gpm @ 5PSI pressure drop 2.6 us gpm @ 10PSI pressure drop			
	O-ring Seals	FKM (viton avail.)			
	Materials	SS (screws) Polypropylene (body) Celcon (lower swivel)			

#### **1" KWIKSTOP™ Nozzle Bodies**

Nozzle bodies with raised inlets to passively purge air trapped at the top of a sprayer boom pipe, reducing nozzle run-on & improving boom shut-off response times.

Boom Pipe	Outlets	Style	Part#
4.11	1 CJ	Check Valve	40631-00
(1 01E" OD)	2 CJ	Check Valve	40632-00
(1.315" OD)	3 CJ	Check Valve	40633-00



### **Square Lug Swivel Nozzle Bodies & Accessories**

#### **Single Outlet Square Lug Nozzle Bodies**

Robust and cost effective nozzle bodies for sprayers and used on wet boom liquid fertilizer kits.

Boom Pipe	Outlets	Style	Part#
3/4"	1 Square Lug	Check Valve	40651-00
(1.05" OD)		No Check	40140-00
	1 Square Lug	Check Valve	40661-00
1"		Manual On/Off	40661-MS
(1.315" OD)		No Module	40661-NM
		No Check	40141-00



#### KWIKSTOP™ stops Run-on

KWIKSTOP™passively purges air trapped in the sprayer boom.



Nozzles are fed from the top of the pipe

Less air means Less Nozzle Run-on & Drips

#### **Dual Outlet Square Lug Nozzle Bodies**

Robust and cost effective nozzle bodies for sprayers to switch up to two nozzles by simply rotating the outlet. Safer and easier than handling contaminated nozzles.

Boom Pipe	Outlets	Style	Part#
3/4" (1.05" OD)	2 Square Lug	Check Valve	40652-00
1"		Check Valve	40662-00
(1.315" OD)	2 Square Lug	Manual On/Off	40662-MS
(1.315 00)		No Module	40662-NM



#### High/Low PSI Check Valves

Replace assembly part # ending '-00' to order 4PSI or 15PSI check valves







[BLUE]

-00 [Standard]

-P15' [RED]

### **Triple Outlet Square Lug Nozzle Bodies**

Robust and cost effective nozzle bodies for sprayers to switch up to three nozzles by simply rotating the outlet. Safer and easier than handling contaminated nozzles.

Boom Pipe	Outlets	Style	Part#
3/4" (1.05" OD)	3 Square Lug	Check Valve	40653-00
4.0		Check Valve	40663-00
(1.315" OD)	3 Square Lug	Manual On/Off	40663-MS
(1.315 00)		No Module	40663-NM





40672-00

Commonly used to cost effectively retrofit a sprayer to a PWM spray

#### **Nozzle Body Specifications**

Operating Pressure	10*-100PSI
Single Outlet Flow Rate	2.1 us gpm @ 5PSI pressure drop 3.1 us gpm @ 10PSI pressure drop
Dual Swivel Flow Rate	1.7 us gpm @ 5PSI pressure drop 2.7 us gpm @ 10PSI pressure drop
Triple Swivel Flow Rate	1.6 us gpm @ 5PSI pressure drop 2.6 us gpm @ 10PSI pressure drop
O-ring Seals	FKM (viton avail.)
Materials	SS (screws) Polypropylene (body) Celcon (lower swivel)

#### 1" KWIKSTOP™ Square Lug Nozzle Bodies

Nozzle bodies with raised inlets to passively purge air trapped at the top of a sprayer boom pipe, reducing nozzle run-on & improving boom shut-off response times.

Boom Pipe	Outlets	Style	Part#
1"	1 Square Lug	KWIKSTOP	40671-00
(1 315" OD)	2 Square Lug	KWIKSTOP	40672-00
	3 Square Lug	KWIKSTOP	40673-00





# **Swivel Body Replacement Parts** - For ALL TYPES Swivel Bodies

O-ring Repair Kit, CJ Nozzle Bodies, FKM (6 Bodies) 40166-05 O-ring Repair Kit, CJ Nozzle Bodies, VITON® (6 Bodies) 40193-02 SCREW, Hi-Lo, #10 x 3/4" SS [for Hinged Swivel Bodies]

40155-23 Molded Diaphragm, FKM (replaces 40155-07 + 20455-04) 20455-07 O-ring, 3/8" inlet seal, #110, FKM, Duro 70 20455-04 O-ring, Pressure Pad, Replacement (pairs with 40155-07)

Diaphragm Rubber Seal, EPDM (use w/ #20455-04) 40155-12

Diaphragm Rubber Seal, VITON® (use w/ #20455-04)

### 3/8" Nozzle body inlet o-ring



20455-07

40193-02

## PRODUCT UPGRADE: Diaphragms

A molded, single-piece diaphragm is replacing the two-piece diaphragm rubber + pressure pad o-ring.









#### CJ Nozzle Body Repair Kits\* (up to 6 bodies)

BUNA-N Kit incl 6x Pressure Pad O-rings #20455-04 24x Inner-body O-rings #40155-09 #40155-13 #40155-07 6x Diaphragms #40155-12 de either a pair of #20455-04 & #40155-07, or #40155-23. Both serve the same function.



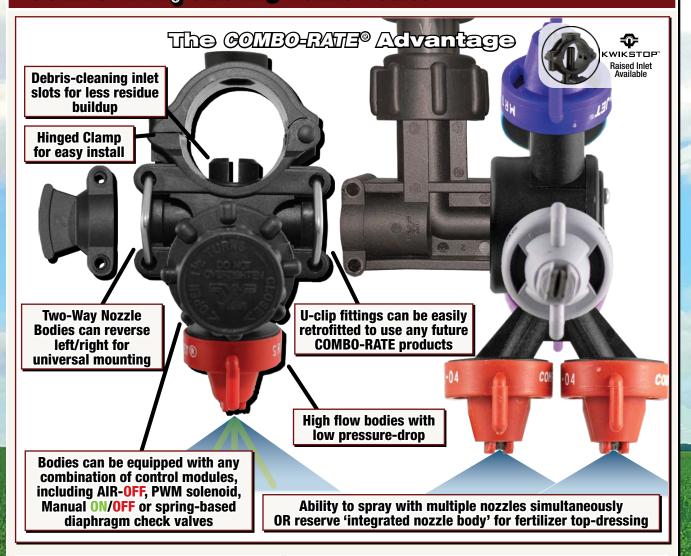






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## **COMBO-RATE** Stacking Nozzle Bodies



#### **COMBO-RATE® Side-fed Saddles**

Robust side-fed saddles mount with a inlet hole on the side of a sprayer boom, with a female combo-clip port for CR bodies









orr ordo rod oddaroo		
Boom Size	Inlet Size	Part#
3/4" Pipe (1.05" OD)	3/8" inlet	41203-00
1" Pipe	3/8" inlet	41200-00
(1.315" OD)	9/16" inlet	41201-00
2" Pipe (2.375" OD)	9/16" inlet	41206-00

#### **COMBO-RATE® II Top or Bottom-fed Saddles**

Combo-Rate II saddles can be fed with an bottom inlet or flipped and fed from a hole in the top of a boom pipe to passively purge air trapped in a sprayer boom.









Combo-Rate female u-clip ports on two sides can be used to attach any Combo-Rate parts

#### **CRII One-Way Stacking Saddles**

ONE-WAY 1" Boom Pipe

Boom Size	Inlet Size	Part#
1/2" Pipe (0.84" OD)	3/8" inlet	41471-00
1" Pipe (1.315" OD)	3/8" inlet	41475-00
	9/16" inlet	41477-00
	21/32" inlet	41479-00

#### CRII Two-Way Stacking Saddles

Boom Size	Inlet Size	Part#
1/2" Pipe (0.84" OD)	3/8" inlet	41472-00
1" Pipe	3/8" inlet	41476-00
(1.315" OD)	9/16" inlet	41478-00

# **COMBO-RATE**<sub>®</sub> II Integrated Nozzle Bodies

#### One-Way Stacking Integrated COMBO-RATE ® II Nozzle Bodies

One-way stacking COMBO-RATE nozzle bodies stack to the left with one open u-clip port. Typically using a manual on/off module, these bodies can be used to spray separately than turrets/bodies or simultaneously from multiple nozzles. Multiple nozzle spraying can be an effective way to improve coverage in high volume applications to make a more meaningful mix of droplets.







#### **HOW THEY WORK:** Manual ON/OFF Check Valves

Since Combo-Rate nozzle bodies stack, a manual way to turn off low to certain outlets is required.

When the knob is OPEN, it acts a standard 10 PSI check valve When the knob is CLOSED, it urns off flow to that nozzle outlet ONLY. It does not effect other stacked nozzle bodies.



Operating Pressure	2(80PSI for air-off)
3/8" Inlet Single Outlet Flow Rate	2.1 us gpm @ 5PSI pressure drop 3.1 us gpm @ 10PSI pressure drop
9/16" Inlet Single Outlet Flow Rate	2.2 us gpm @ 5PSI pressure drop 3.5 us gpm @ 10PSI pressure drop
21/32" Inlet High Flow Single Outlet Flow Rate	3.0 us gpm @ 5PSI pressure drop 4.0 us gpm @ 10PSI pressure drop
O-ring Seals	FKM (viton avail.)
	SS (screws)

Materials

Nozzle Body Specifications

				Nozzle Bo	dies with 5/16"	Bolt Mount Up	per Clamp
	Sch40 Pipe		Chapling		Module Desci	ription & Part#	
Boom Size	Outside	Inlet Size	Stacking Direction	Dia. Check	Manual	Air-Off	PWM
	Diameter		Direction	Valve	ON/OFF	Operated <sup>2</sup>	(w/o Nut)**
1/2"	0.84"	3/8" Inlet	One-Way	41411-00	41413-00	41415-00	41417-00
3/4"	1.05"	3/8" Inlet	One-Way	41421-00	41423-00	41425-00	41427-00
28mm	28mm	3/8" Inlet	One-Way	41481-00	41483-00	41485-00	41487-00
1"	1.315"	3/8" Inlet One-Way	One-Way	41431-00	41433-00	41435-00	41437-00
Į.		9/16" Inlet	One-Way	41441-00	41443-00	41445-00	41447-00
1" KWIKSTOP	1.315"	3/8" Inlet	One-Way	41451-00	41453-00	41455-00	41457-00

#### Two-Way Stacking Integrated COMBO-RATE ® II Nozzle Bodies

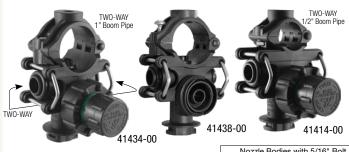
Two-way stacking COMBO-RATE nozzle bodies stack to both directions, with two open u-clip ports. Typically using a manual on/off module, these bodies can be used to spray separately than turrets/bodies or simultaneously from multiple nozzles. Multiple nozzle spraying can be an effective way to improve coverage in high volume applications to make a more meaningful mix of droplets.



\* 10PSI minimum with 10PSI check valve



Glass-Reinforced Polypropylene (body)





				Nozzle Bo	dies with 5/16"	Bolt Mount Upp	per Clamp
	Sch40 Pipe		041-1		Module Desci	ription & Part#	
Boom Size	Outside Diameter	Inlet Size	Stacking Direction	Dia. Check Valve	Manual ON/OFF	Air-Off Operated <sup>2</sup>	PWM (w/o Nut)**
1/2"	0.84"	3/8" Inlet	Two-Way	41412-00	41414-00	41416-00	41418-00
3/4"	1.05"	3/8" Inlet	Two-Way	41422-00	41424-00	41426-00	41428-00
28mm	28mm	3/8" Inlet	Two-Way	41482-00	41484-00	41486-00	41488-00
1"	1.315"	3/8" Inlet	Two-Way	41432-00	41434-00	41436-00	41438-00
'	1.315	9/16" Inlet	Two-Way	41442-00	41444-00	41446-00	41448-00
1" High Flow	1.315"	21/32" Inlet	Two-Way	41462-00	41464-00	41466-00	41468-00
1" KWIKSTOP	1.315"	3/8" Inlet	Two-Way	41452-00	41454-00	41456-00	41458-00

#### Stacked Outlet Specification

	Operating Pressure	10*-100PSI <sup>2</sup> (80PSI for air-off)
	3/8" Inlet Two Outlets Used Flow Rate	3.2 us gpm @ 5PSI pressure drop 5.0 us gpm @ 10PSI pressure drop
	9/16" Inlet Two Outlets Used Flow Rate	3.6 us gpm @ 5PSI pressure drop 6.2 us gpm @ 10PSI pressure drop
	21/32" Inlet High Flow Two Outlets Used Flow Rate	4.6 us gpm @ 5PSI pressure drop 9.0 us gpm @ 10PSI pressure drop
	O-ring Seals	FKM (viton avail.)
	Materials	SS (screws) Glass-Reinforced Polypropylene (body)
L	* 10PSI minimum wi	th 10PSI check valve

#### Combo-Rate Body, Turret Replacement & Auxiliary Parts

40200-02 O-ring, CR Inter-body, #206, FKM O-ring, 3/8" Nozzle Body Inlet Stem, #110, FKM 20455-07 O-ring, 9/16" Nozzle Body Inlet Stem, #206, FKM 40200-02 41361-02 0-ring, 21/32" Nozzle Body Inlet Stem, #115, FKM 20460-04 U-clip, 304SS 41331-03 Screw, Hi Lo, SS, CRII Body Hinge Clamp Screw (for 2016+ newer) 41285-00 Adapter, CR Plug [Covers unused Combo-Rate port]

Plug, Inner CR2 port plug [fits inside side port of CRII bodies] 41502-04 CR Turret Outlet Arm, Combo-Jet Outlet 41502-10 CR Turret Outlet Arm, Square Lug Outlet CR Turret Outlet Arm, Double-Down Combo-Jet Outlet 41502-13

CR Turret Outlet Arm, Plug Diaphragm, Molded, FKM (Replaces #40155-07 + 20455-04) 40155-23 CRII Nozzle Body O-ring Repair Kit, FKM (6 Bodies) 41100-16 CRII Nozzle Body O-ring Repair Kit, VITON® (6 Bodies)

41502-11 CR Turret Repair Kit, FKM (2 Bodies) 41502-12 CR Turret Repair Kit, VITON® (2 Bodies) Plug, CR Clamp to plug 21/32" inlet hole on 1" pipe Requires #20455-07 O-Ring

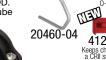


41592-00 **Bolt-Mount** Clamp for any 1.315" OD. pipe or tube

41593-00

21/32" Inlet

Plug Clamp



40155-23 Replaces







Turret Arm Plug







41502-10\*



Inter-body O-ring

Plua

41286-00 Keeps chemical out of a CRII side port hole



COMBO-RATE® Turret Repair Kits (For up to 2 turrets): #41502-11 or -12

COMBO-RATE® II Body Repair Kits\* (For up to 6 bodies): #41100-15 or -16

10x Turret Outlet O-rings #20455-07 #40155-13 4x Turret Core O-rings 2x Diaphragm #41502-06 #40155-07 #41502-V6 #40155-12 2x Combo-Jet Outlet Arm #41502-04 #41502-04 2x Turret Plugs 2x Turret Lock Clips #41502-05 #41502-09

Standard Kit includes

6x Pressure Pad O-rings #20455-04 #20455-V4 6x Inter-body O-rings #40200-02 #40200-V2 6x Diaphragms 40155-07 \*Repair kits may include a pair(s) of #40155-07 and #20455-04 or a single #40155-23. Both ser

41286-00

41502-05

# COMBO-RATE, Stacking Thru & End Bodies

#### **COMBO-RATE®** Thru Bodies

Thru bodies stack onto any existing combo-clip female port and adds an additional combo-clip female port for further expansion.



COMBO-RATE Thru Body				
[Connects to any Combo-Rate female ports]				
Dia. Check	Manual	Air-Off	PWM	
Valve ON/OFF		Operated <sup>2</sup>	(w/o nut)**	
41100-00	41110-00	41125-00	41135-00	

#### **COMBO-RATE®** End Bodies

End bodies stack onto any existing combo-clip female port to add a nozzle body that can be equipped for any spraying needs.



COMBO-RATE End Body				
[Connects to any Combo-Rate female ports]				
Dia. Check	Manual	Air-Off	PWM	
Valve ON/OFF		Operated <sup>2</sup>	(w/o nut)**	
41101-00	41111-00	41126-00	41136-00	

#### **CR** Swivel End Bodies

End bodies that can be fixed in 15° increments for fence-row & crop adapted spraying applications. Attaches to any combo-clip female port.



COMBO-RATE End Body				
[Connects to any Combo-Rate female ports]				
Dia. Check Manual Air-Off PWM				
Valve	ON/OFF	Operated <sup>2</sup>	(w/o nut)**	
41102-00 41112-00 41127-00 41137-00				

**Combo-Rate Stacking Body Specification** 

Operating Pressure 10\*-100PSI 2(80PSI for air-off)

Three styles of turret for best fit & function

O-ring Seals FKM (viton avail.)

Materials Glass-reinforced Polypropylene

Flow Rate 2.1 us gpm (end & thru), 1.6 us gpm (swivel body)

# **COMBO-RATE** Turrets

# 

**Common U-clip connections** for all Combo-Rate parts

Each turret arm is o-ring sealed to minimize dust & debris entry Module threads are compatible with most PWM spray systems

**Top Turret** 

RAVEN

**Front Turret** 





**Bodies can be equipped with any** combination of control modules, including AIR-OFF, PWM solenoid, Manual ON/OFF or spring-based diaphragm check valves

Multiple options for Single CJ, **Square Lug, or Double-Down outlets** 

**Double-Down Turrets allow for dual nozzle spraying for better** overage in high volume & fungicide applications

**COMBO-RATE** turrets provide you options to configure a desired turret configuration, allowing it to be a universal turret for any brand of sprayer or nozzles.

# **COMBO-RATE**<sub>®</sub> Stacking Component Examples



Side-Fed saddle with a thru and end body



Same parts, but different configuration to solve sprayer issues



**CR Turrets** CRII integral body with end body and turret



Thru Bodies **End Bodies** 

Can be fixed in 15° increments Swivel End Bodies

For Fence-row nozzles

# COMBO-RATE Turrets - cont'd

Sprayers have different nozzle requirements, due to spacing, boom frame design & interference, so Wilger has three styles of turrets that can be used to fit any situation.

#### **COMBO-RATE Front Turrets**

Front turrets stack onto any COMBO-RATE nozzle body, mounting on the common u-clip port. Turrets are available in a variety of outlet and module styles, which are mounted onto the 'front' face of the turret.

	Description & Part #			
Number of Outlets	Dia. Check Valve	Manual ON/OFF	Air-Off Operated	PWM (w/o nut)*
3 CJ Outlet	41503-00	41513-00	41543-00	41533-00
4 CJ Outlet	41504-00	41514-00	41544-00	41534-00
5 CJ Outlet	41505-00	41515-00	41545-00	41535-00
3 CJ Outlet + 2 SQ Lug Outlet	41505-32*	41515-32*	41545-32*	41535-32*
Double-Down + 4 CJ Outlet	41506-00	41516-00	41546-00	41536-00



PWM solenoid or other control module to function

#### **HOW THEY WORK:** Manual ON/OFF Valves

Since Combo-Rate nozzle bodies stack a manual way to turn off flow to certain outlets is required.



When the knob is standard 10 PSI check valve

When the knob is CLOSED, it turns off ow to that nozzle outlet ONLY. It does not effect other stacked nozzle bodies.

#### Module Installation & Re-installation

During installation, ensure knob is in OPEN orientation. Otherwise the binding nut cannot seal the check valve module Ensure the orientation tabs (green) are seated properly.

#### COMBO-RATE Side Turrets - Reversible

Side turrets stack onto any COMBO-RATE nozzle body, mounting on the common u-clip port. Turrets are available in a variety of outlet and module styles, which are mounted onto the side of the turret with a reversible module stem.

		Description	ion & Part #		
Number of Outlets	Dia. Check Valve	Manual ON/OFF	Air-Off Operated	PWM (w/o nut)*	
3 CJ Outlet	41603-00	41613-00	41643-00	41633-00	
4 CJ Outlet	41604-00	41614-00	41644-00	41634-00	
5 CJ Outlet	41605-00	41615-00	41645-00	41635-00	
3 CJ Outlet + 2 SQ Lug Outlet	41605-32	41615-32	41645-32	41635-32	
Double-Down + 3 CJ Outlet	41606-00	41616-00	41646-00	41636-00	

Side-Turret Core Replacement kit for Teejet Threaded PWM Solenoid 41602-07 Side-Turret Core Replacement kit for Arag /Hypro Threaded PWM Solenoid 41602-09



# Reversing Orientation

Switch a side turret module stem from left to right in seconds. No extra parts required.



#### **COMBO-RATE Top Turrets**

Top turrets stack onto any COMBO-RATE nozzle body, mounting on the common u-clip port. Turrets are available in a variety of outlet and module styles, which are mounted onto the top of the turret. Ideal for use with bulky PWM solenoids in tight booms.

		Description	Description & Part #		
Number of Outlets	Dia. Check Valve	Manual ON/OFF	Air-Off Operated	PWM (w/o nut)*	
3 CJ Outlet	41803-00	41813-00	41843-00	41833-00	
4 CJ Outlet	41804-00	41814-00	41844-00	41834-00	
5 CJ Outlet	41805-00	41815-00	41845-00	41835-00	
3 CJ Outlet + 2 SQ Lug Outlet	41805-32	41815-32	41845-32	41835-32	
Double-Down + 4 CJ Outlet	41806-00	41816-00	41846-00	41836-00	



Solenoid gasket (Seats on wilger modules to seal on solenoid base)

41133-03



Module points upwards to keep large solenoids (e.g. Hawkeye II) out of the way of other boom parts.

PWM Solenoids

Open module thread must have PWM solenoid or other control module to function

PWM Solenoids



### Double-Down Turrets

Double nozzles from a single turret outlet. Great for double-down PWM spraying.



WWWA',

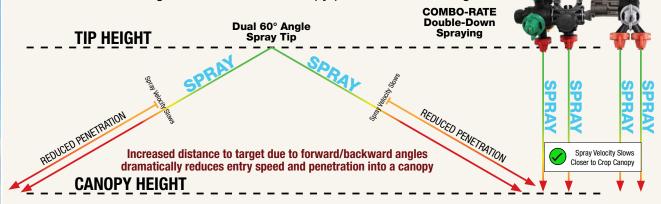
# **Increasing Coverage with Crop-Adapted Spraying**

Different crops require different kinds of spray coverage for best efficacy, so changing how spray is deposited can often provide beneficial results in both coverage and application efficacy. It starts with adapting how the crop is being targeted, ensuring maximizing spray deposition on the target area, and minimizing spray on lessideal or wasted areas.

For example, using two spray tips **straight down** can provide better penetration through thick canopies, allowing for better interior canopy coverage; while two angled spray patterns **forward & backward** can lend to spray coverage at the top canopy foliage or on both front/back of a cereal head.

Why use two nozzles straight down, and not a multi-angle spray tip?

Further distance to target can mean less canopy penetration with angled



**COMBO-RATE** gives you better penetration and coverage for a more consistent application into thick canopy crops.

Examples of *Tough to Penetrate* Crop Canopies



for COMBO-JET

& COMBO-RATE

for Non-Wilger

**Bodies** 







#### **Picking Nozzles for Double-Down Spraying?**

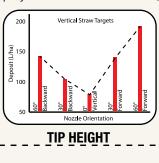
Applicators often already have nozzles to be used in pairs for double down spraying.

E.g. 5 + 10 gal/acre nozzles could be used for 15 gal/acre. *Visit the dual tip spraying guide in the catalog for more info.* 

# What about spraying vertical targets that don't have a dense canopy?

Angled spray for vertical growing targets (e.g. cereal heads) can provide superior coverage

Spraying a vertical target is different than spraying into a canopy. Spraying forward/backward with a nozzles produces spray that can travel horizontal, making it more effective to cover vertical targets *at suitable boom heights*.









Vertical Target Spraying e.g. Applying Fungicide on Wheat

D

# **Dry Boom Nozzle Bodies & Accessories**

#### **Compact Nozzle Bodies**

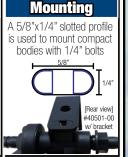
Compact Bodies have many uses, as in-line check valves on planting equipment, estate sprayers, dry boom nozzle bodies, or other situations that would require a compact check valve with a Combo-Jet cap outlet.



a Combo-Jet outlet







#### 5/8" Square-Mount Dry Boom Swivel Nozzle Bodies with 3/8" NPT-F feed

Square-Mount nozzle bodies attach to a boom frame with 5/8" square mounts, and are fed by a 3/8" NPT-F inlet.

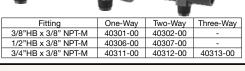




40473-00

Swivel Outlets



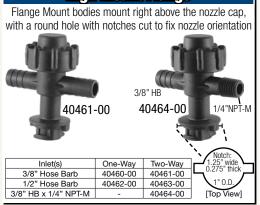




40470-00

#### High Mount Dry Boom Nozzle Bodies with Hose Shank Feed

**High Mount Flange** 





Dual Turret Triple Turret

40471-00

Combo-Jet Outlet | 40470-00 | 40471-00

Swivel Outlets



One-Way	Two-Way
40450-00	40451-00
40452-00	40453-00
-	40454-00
	40450-00 40452-00

# Sq Mt w/o check Square Mount Compact Bodies without check valves 40406-00

Dual Turret Triple Turret

Square Lug Outlet 40472-00 40473-00

L	Inlet(s)	One-Way	Two-Way
ı	1/2" HB	40406-00	40407-00

40407-00

#### 5/8" Square Mount Stainless Steel Clamps

Wilger manufactures a series of 5/8" square mount clamps that are used with compatible nozzle bodies. Refer to the CLAMPS pages to find the full listing of available stainless steel clamps



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# **Dry Boom Nozzle Bodies & Accessories - cont'd**

Rotating Adjustable Swivel Bodies & Hose Drop Assemblies

#### **Hose Drop Adapters**

Nylon hose drops are used to feed bodies to spray down below a canopy to minimize crop contact

#### Hose Drop Adapters

Inlet	Outlet	Length	Part #
	Cullot	16"	22021-00
	1/4"	24"	22031-00
1/4"	NPT-M	36"	22037-00
NPT-M		48"	22047-00
	1/4"	16"	22025-00
	NPT-F	24"	22035-00

22021-00

#### Hose Drop & Extension Caps

Outlet	Length	Part #	] ,
Combo-Jet	2"	40210-00	
to Combo-Jet	5"	40211-00	] -
Combo-Jet Cap to 1/4" NPT-M	16"	22026-00	]
	24"	22036-00	]
	36"	22038-00	]
	48"	22048-00	] [
	т —	-	16





#### Adjustable Swivel Bodies [360° Lockable Rotation Front/Back]

Swivel Bodies can be rotated front to back 360° use for Crop Adapted Spraying or other targeting



		(	Control Modules		
Inlet Size	Outlet(s)	Without Dia.	Dia. Check	Manual On/Off	
1/4"	Single	40225-00	40231-00	40237-00	
NPT-M	Double	40226-00	40232-00	40238-00	
1/4"	Single	40227-00	40233-00	40239-00	
NPT-F	Double	40228-00	40234-00	40240-00	
1/4"NPT-M w/ 1/4"	Single	40229-00	40235-00	40241-00	
NPT-F	Double	40230-00	40236-00	40242-00	
3/8" HB w/ 5/8" Sq. Mount	Single	40243-00	40244-00	40245-00	

40237-03 .... Diaphragm Manual Shut-off Assembly, Replacement (for adjustable swivel bodies only)

#### **Crop Adapted Spraying**

Using adjusted nozzle angles, swath and direction to better adapt to specific crop targets to maximize efficacy or minimize



360° Independent Outlets



Low-Mount Compact Bodies - Contact Factory for availability. (Non-stocked item)

#### 11/16" Thread Mount Low Mount Bodies

A low mounting compact body that attaches to a sprayer boom frame with an 11/16" threaded nut.







40367-00

Inlet Size	One-Way [Left]	One-Way [Right]	Two-Way
3/8" HB	40360-00	40361-00	40362-00
1/2" HB	40365-00	40366-00	40367-00
2//" LID	40370-00	40271-00	40372-00

40155-21 Module Retainer, Replacement 40199-00 Lock Nut. 11/16" Thread





40199-00

#### **5/8" Square Mount Low Mount Bodies**

A low mounting compact body that attaches to a sprayer boom frame with an common 5/8" square mounting port.



40385-00

40382-00

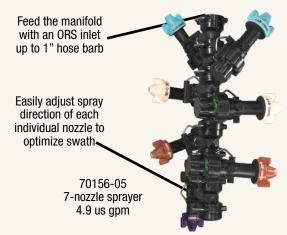
	Inlet Size	One-Way [Left]	One-Way [Right]	Two-Way	Three-Way
	3/8" HB	40380-00	40381-00	40382-00	40383-00
П	1/2" HB	40385-00	40386-00	40387-00	40388-00
	3/4" HB	40390-00	40391-00	40392-00	N/A

40155-21 Module Retainer Replacement

# **COMBO-RATE Boomless Sprayer Manifold Assemblies**

Boomless sprayers are used to spray areas not accessible by traditional boomed sprayers, such as ditches, roadways, pastures, and commercial/industrial areas.

COMBO-RATE boomless sprayers can be configured in hundreds of ways depending on mounting, size, and flow requirement.



Example Assembly	Flow Rate (us gal/min)	Part#
O Normala Describera	1.3 us gal/min	70154-01
3-Nozzle Boomless	2.6 us gal/min	70154-03
Spraying Manifold	5.8 us gal/min	70154-06
	2.3 us gal/min	70155-02
5-Nozzle Boomless	2.9 us gal/min	70155-03
Spraying Manifold	5.8 us gal/min	70155-06
	11.5 us gal/min	70155-12
	3.9 us gal/min	70156-04
7-Nozzle Boomless	4.9 us gal/min	70156-05
Spraying Manifold	9.6 us gal/min	70156-10
	19.5 us gal/min	70156-20



#### Adiustable swath distance charts online



# Stainless Steel Clamps for Sprayer & Liquid Fertilizer Appl.

#### **5/8" Square Mount Clamps**

5/8" Square Mount clamps attach a nozzle body with 5/8" square mount to a tube or pipe



Mount Size	Standard 5/8" Square Mount Clamp (SS)		Adjustable High-Reach 5/8" Square Mount Clamp (SS)
	for Round Tube	for Square Tube	for either Round Tube or Square Tube
1/2"	40320-SS	N/A	3/4" Tube Extra High Reach
3/4"	40321-SS	40325-SS	40343-SS
1"	40322-SS	40326-SS	3/4" to 1-1/4"
1-1/4"	N/A	40327-SS	40341-SS
1-1/2"	N/A	40328-SS	1-1/2" to 2"
2"	N/A	40330-SS	40342-SS
40341-04 Replacement Lock Clip, Plastic			

#### 3/4" Square Mount Clamps for Nozzle Bodies



Sq. Tube Size	Part#
1"	41261-SS
1-1/4"	41262-SS
1-1/2"	41263-SS
2"	41264-SS

Example of Example of 3/4" Square mount clamp and adapters, mounting to a Combo-Rate u-clip port



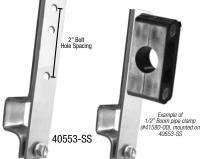
# 41591-00 For 1" Pipe (1.315" O.D.) 41580-00 For 1/2" Pipe (0.84" 0.D.)



#### **Two-Hole Bolt-Mount Clamps for Sg. Tube** Two-Hole Clamps for Flow Indicator, Manifold, & Nozzle Body Mounting 40551-SS 40550-SS 40552-SS Size Part# 40550-SS 1-1/4" 40551-SS

#### Three-Hole Bolt-Mount Clamps for Sq. Tube

Three-Hole Clamps for Sprayer Boom Tube, Nozzle Body & Utility Mounting Boom tube clamps are sold in halves, so two are required for proper use.



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# **Nozzle Body Accessories & Replacement Parts**

#### **Combo-Rate Control Modules & Nuts**

Wilger manufacturers a few styles of control modules that can be swapped between any Combo-Rate or Combo-Jet nozzle bodies



#### Inter-body Strainers

Inter-body strainers are used in-between Combo-Rate nozzle bodies to catch burrs or debris during the break-in period of new sprayers, or to further protect\_PWM solenoids



Recommended to apply 20PSI more than spray pres



al operation & quick shut-off

#### **Diaphragm Seals**

Rubber Diaphragms are used in ALL control modules to seal the flow within the check valve



All-in-One Diaphragm, used in parts made after 2019

40155-23

The bottom of the control modules have a groove for a presure pad o-ring or all-in-one diaphragm



Two-piece diaphragm & pressure pad o-ring

Diaphragm

Pressure pad O-Ring

40155-07 40155-12 20455-04 (Buna-N) 20455-V4

Either rubber diaphragm can be typically used, but ensure to replace diaphragm in proper orientation and remove pressure pad o-ring if 40155-23 diaphragm is used. For low pressure & flow, the twopiece may perform better.

#### **0-ring Seals**

O-ring seals are commonly used on many component parts.

FKM material is standard, viton is available.

0-ring	Description/Where Used	FKM#	VITON #
13mm x 3mm	COMBO-JET spray tips	40260-00	40260-V0
#009	CR Top-turret faceplate	41802-04	40802-V4
#015	ORS Metering orifices	40225-04	40225-05
#106	9/16" Nozzle body inlet	51204-04	51204-V4
#108	Module pressure pads	20455-04	20455-V4
#110	3/8" Nozzle body inlet	20455-07	20455-V7
#115	21/32" Nozzle body inlet	41361-02	41361-v2
#116	1/2" QN100 connections	25120-02	25120-V2
#118	ORS Strainer cartridges	-	20576-V4
#119	EFM Sensor housing seal	20580-12	20580-13
#121	CR Turret core seals	41502-06	41502-V6
#203	5/16" Push-In Tube O-ring	20457-03	20457-v3
#206	CR Stacked body side seal	40200-02	40200-v2
#212	0-ring Seal (ORS) fittings	20460-03	20460-15
#214	Boom end flush valve core	-	25175-08
#219	QN100 O-ring seal	25160-02	25160-V2

#### **Air Tees & Reducers**

Tees and Reducers that can be used to couple tube for air or liquid supply





20455-00

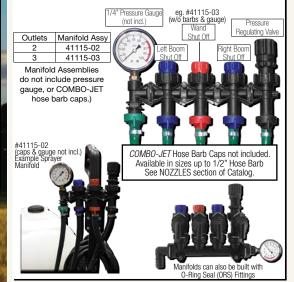
20456-00

	Fitting Type	Description	Part#
	Tee	3/8" x 3/8" x 1/4" O.D.	20455-00
	iee	5/16" x 5/16" x 1/4" O.D.	20457-00
	Reducer	3/8" x 1/4" O.D.	20456-00
Ш.			

# Estate Sprayer Manifolds, Accessories & Adapters

#### **Estate Sprayer Manifold Assemblies**

Wilger manifold assemblies are pre-built manifolds based on common requirements. COMBO-RATE components can be used to expand or change any manifold.



0	Pressure	Manual On/Off	1/4" NPT-F for
Connection	Regulating Valve	Check Valve	Pressure Gauge
Thru Body	41130-00	41110-00	-
End Body	44404.00	41111 00	
Combo-Clip Male	41131-00	41111-00	-
End Body			41251-00
Combo-Clin Female	-	_	41231-00

#### Combo-Clip (CC) Adapters & 3/4" Sq. Mount Clamps

Combo-Clip connections are compatible with all Combo-Rate Fittings and Nozzle Bodies

Outlet	Part #
Plug	41285-00
1/4" NPT-F	41275-00
3/8" NPT-F	41276-00
1/4" NPT-F	41251-00
1/4" NPT-M	41252-00
3/8" NPT-M	41253-00
90° CC-M	41250-00
1/4" NPT-F	41255-00
3/8" NPT-F	41256-00
	Plug 1/4" NPT-F 3/8" NPT-F 1/4" NPT-F 1/4" NPT-M 3/8" NPT-M 90° CC-M 1/4" NPT-F

41261-SS

41262-SS

41263-SS



Clamps for 3/4" Square-Mount Adapters 3/4" Sq. Mount Combo-Clip Adapters can be Nozzle Body Clamps used to convert a traditional dry boom sprayer to use cutting edge COMBO-RATE turrets & fittings

41256-00 w/ 3/4" Sq. Mount Clamp

41285-00

#### **Regulating & Manual On/Off Manifold Valves**



Square Tube

Size

1-1/4

1-1/2





When in 'ON' position,

41251-00

41130-00 41131-00 41110-00 41111-00 Ensure to visit the NOZZLES section of the catalog for the full listing of **COMBO-JET** Caps

# 1/2" & 1" Stainless Steel Tube For Quick-Nut & Quick-Flange Fittings

Wilger Stainless Steel Tubing is engineered for high performing modern sprayers. The high flow sprayer boom tube shares outside dimensions of commonly-used sch40 pipe, but with dramatically reduced weight.



Custom tube lengths, spacing and inlet holes are available by order.

# Larger Inside Diameter

Inside diameter is larger to accommodate higher flow rates

#### **Rolled End for Cost-Effective Manufacturing**

Tube ends are rolled instead of threaded to minimize downtime, and thread leaking/failure

#### **For Recirculating Booms**

Compatible boom fittings & tubing for building recirculating booms

#### 1" Stainless Steel Tubing

Shares 1" sch40 pipe outside diameter (1.315" OD.) with larger 1.25" inside diameter

#### 1.315" 1.25 0.D. I.D.

#### Lighter 1" Boom = Less Fuel weighs 66% of aluminum

weighs 23% of sch40 pipe Lighter than hose

#### 1/2" Stainless Steel Tubing

Shares 1/2" sch40 pipe outside diameter (0.84" OD.) with larger 0.788" inside diameter



#### **Lighter 1/2" Boom = Less Fuel**

weighs 80% of aluminum weighs 28% of sch40 pipe Lighter than hose

#### **Sprayer Tube Shipping Consideration - Length**

Depending on requirement for sprayer tube length, shipping costs are generally less expensive for tubes that are less than 9' (108") in length.

#### **Pre-punched Outlet Spacing**

Sprayer tubes are commonly pre-punched to 20" nozzle spacing, but also available in pre-punched to 10", 15", 30" or custom spacing as required.

#### **Picking the Correct Style of Tube End & Length**

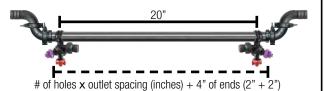
Different sprayer boom configurations require different combinations of lengths of tube.

To simplify the boom configuration & planning process, consider starting with tubes with the least amount of extra material on the ends. This will reduce dead-ends that may trap chemical residue. With the minimal tube length in mind (# of holes on tube x hole spacing), then consider different tube-end configurations.

Some fittings shorten the tube lengths required (as they include the last nozzle), reducing the # of holes required.

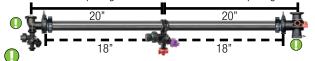
# Standard Tube Ends (2")

Tubes that have 2" of tube after the last nozzle body are commonly used with QN100 or QF100 plumbing parts.



#### **Super Compact Nozzle Body Ends (18")**

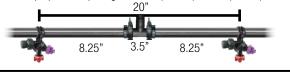
The CR BEFV & QF100 w/ CR clamp integrates the last nozzle for a super compact boom end. The tube should be 2" shorter than the intended nozzle spacing to maintain consistent nozzle spacing.



NOTE: For each CR BEFV/Integrated Elbow, tube will be 1 inlet hole "short"

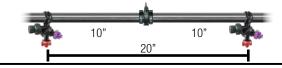
#### Center-fed Section Ends (8" or 8.25")

Tubes that are center-fed with Tees require a pair of longer tube sides to maintain proper 20" spacing with a 4" (QN100) or 3.5"(QF100) wide tee.



#### 10" Ends for Tube to Tube SST

For situations that require two smaller tubes to be joined tube to tube, the 10" ends maintain 20" spacing between the last nozzle bodies



# **Select a Type of Plumbing Parts**

# **NEW Quick-Flange (QF100) Fittings**

A series of flanged adapters that convert either a rolled-end tube (like SST) or other 1.315" OD tube/pipe to a common 1" flange and tool-free clamp system



#### **Quick Nut (QN100 & QN50) Fittings**

A series of quick couplers that use the rolled end to connect to a variety of sweep sprayer fittings to maximize flow capacity and boom hygiene.



# Quick-Flange Fittings & Fluid Supply System

# The Quickflenge Adventage



**Perfect** Recirc. **Booms** 



Stronger Compact **Fittings** 



Compact Boom End **Options** 



No Threads or Sealant Required



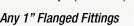
Cutting out Boom Contamination

#### **Retrofitting &** Flange Compatibility

Fittings available for complementing any sort of sprayer boom & more.

#### CAN BE OUTFITTED FOR:

1" sch40 Pipe (1.315" 0D)



Wilger Stainless Tubing

Case Thin Wall Stainless



Compatible with other 1" Flange Fittings



-3/8" Flange Sea Inside

# 2-1/32" Flange Surfac

#### **Compact & Robust Sweep Fittings**

Sweep fittings reduce turbulence & pressure loss, producing a sprayer that is capable of higher flow rates with less



#### **Recirculation Made Easy**

Many options for any recirculating boom



Sweep flange fittings to maximize flow through a sprayer

# Quick-Flange Adapters for Different Sprayer Tubing Types

#### Adapting Quick-Flange Fittings to any 1" PIPE, 1" SST, or Case® TWS Boom Tube

QF100 Fittings can be seamlessly retrofitted or adapted to any 1" Pipe, QN SST, or TWS Booms to a 1" Flange Fitting.

#### Case® Thin-Wall Stainless (TWS) to Quick-Flange Three-piece flange



27312-00

27343-00 adapter end QF100 x 1-1/4" HB, 90° 27316-SK gasket is available Case® is a registered trademarks of CNH Industrial America LLC.

adapter snaps over the boom pipe and tightens with a binding nut, sealing with a TWS to QF100 Seal. \*For greater anti-twist resistance, the skirted

#### Wilger Stainless Steel Tube (SST) to Quick-Flange 3-piece Flange



Three-piece flange adapter snaps over the boom pipe and tightens with a binding nut, sealing with a SST to QF100 Seal.

27312-00 3-piece flange adapter end **27343-00** QF100 x 1-1/4" HB. 90°

#### Through-Pipe to CR BEFV & Thru Elbow

#### Through-Pipe Flange End Adapter Super Flexible Up to 3/4" of excess tube material can fit into a CR BEFV

27382-00 QF100 through-pipe adapter kit

27360-00 CR BEFV for with flange:

Two half-clamps mount on a boom tube, securing to the tube-end adapter. The result is a flanged tube end with up to 1/4-1" of excess tube material sticking out of the adapter. This excess length slides into a CR BEFV (or Elbow w/ top clamp #2737#-00 series), providing greater flexibility.

#### **Cut-Pipe to Quick-Flange**



Compatible with any Quick-Flange or common-flange fittings.

Two half-clamps mount on a boom tube, securing to the cut pipe-end adapter. The result is a common-flange end.

Not shown: An additional compact 2-piece pipe end adapter is also available for Case Thin-wall stainless tube, and Wilger SST. It is not intended for robust, mobile applications, but remains an option for adapting tube to a flange end.

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Determine tube lengths & spacing required for each section. Simply count the number of outlets on each required boom tube between each fold, accounting for separated sections (if required).

STEP(2) Split up nozzle sections based on boom type, or to minimize boom tube length (e.g. 11 nozzles max).

For Recirculating (R) Sprayer Booms: Anticipate keeping sections made with as few boom tubes as possible, as plumbing fittings will only be on the either end of the tube (aside from any tube-to-tube joints on the same section)

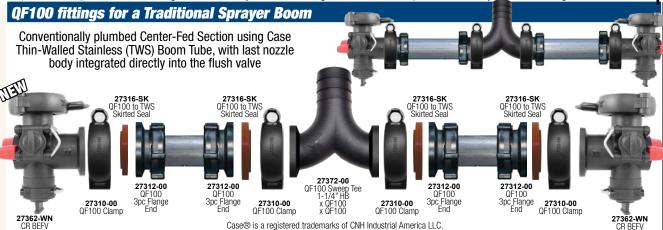
For Standard (S) Sprayer Booms: Anticipate splitting sections in half, allowing for a center-fed sweep tee. providing optimal pressure to each nozzle in each sprayer section.

Determine whether any boom end nozzle bodies (like Combo-Rate Boom End Flush Valve nozzle body) are being used, as they may require different lengths (as they encompass the last outlet on a sprayer boom) Determine the tube end spacing depending on the fittings used.

CR BEFV requires 18" tube end. Tube Joint requires 10" tube end. Regular fittings requires 2" end.

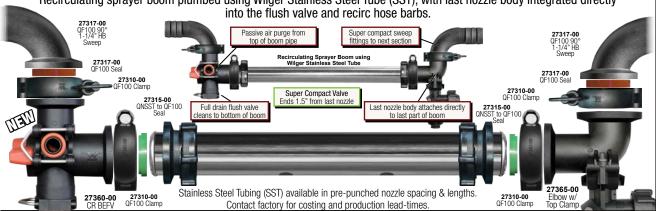
For example, a 5-section recirculation sprayer, with 72 outlets (on 20" spacing) using Combo-Rate End Flush Valve Bodies

	SECTION 1		SECTION 2	SECTION 3		SECTION 4	SECTION 5
STEP ① Section sizing	11 nozzles	20 no	zzles	10 nozzles	20 no	zzles	11 nozzles
STEP 2 Tube Lengths	11 hole	10 hole + 10	O hole joined	10 hole	10 hole + 10	O hole joined	11 hole
STEP 3 Specialty Boom End Considerations	11 hole -2 (CR BEFV) 9 hole tube	10 hole -1 (CR BEFV) 9 hole tube + joint	10 hole -1 (CR BEFV) 9 hole tube + joint	10 hole -2 (CR BEFV) 8 hole tube	10 hole -1 (CR BEFV) 9 hole tube + joint	10 hole <u>-1 (CR BEFV)</u> 9 hole tube + joint	11 hole <u>-2 (CR BEFV)</u> 9 hole tube
STEP 4 Tube/End Lengths to Order	9 hole tube with 18" End (CR BEFV) & 18" End (CR BEFV)	9 hole tube with 18" End (CR BEFV) & 10" End (joint)		8 hole tube with 18" End (CR BEFV) & 18" End (CR BEFV)	18" End (CR BEFV)	9 hole tube with 10" End (joint) & 18" End (CR BEFV)	9 hole tube with 18" End (CR BEFV) & 18" End (CR BEFV)



#### QF100 fittings for a Recirculating Sprayer Boom

Recirculating sprayer boom plumbed using Wilger Stainless Steel Tube (SST), with last nozzle body integrated directly



# Quick-Flange Tube-End Adapters, Seals & Kits

#### QF100 Tube-End & Pipe-End Adapters, Seals & Kits

Gasket seals mate different tube & QF100 fittings together. Ensure correct seals are identified for each connection.

# 3pc End Adapter







2 halves secure over pipe, affixed with binding nut

Max Pressure

100psi/7bar

# Seals Used

Wilger SST uses flared taper gasket



27315-SK [skirt] 27315-00 [std]

Case TWS uses stepped or



# skirted



#### Adapters & Kits

Boom End/T	Adapter/K	
Wilger SST r OR Case TWS fi	[3pc] 27312-00 [2pc] 27313-00	
Cut pipe end	27381-00	
Through pipe e	27382-00	
NPT-F	1/2" NPT-F	27357-00
Threaded Pipe	3/4" NPT-F	27358-00
Adapters	1" NPT-F	27359-00

#### QF100 Gasket Seals

Seal Type	Standard	Skirted*
Sear Type	Seal Part#	Seal Part#
SST Tube x Flange	27315-00	27315-SK
TWS Tube x Flange	27316-00	27316-SK
Flange x Flange	27317-00	27317-SK
Wilger SST to SST	27318-00	27318-SK
Case TWS to TWS	27319-00	27319-SK

\*Skirted gaskets are used when more robust sealed connections are required

# **2pc End Adapter**

27313-00

Wilger SST

for non-mobile applications. requiring low pressure







# gasket



#### **Tube to Flange End Seals**

Gasket seal against a formed tube end profile

Tube to	Standard	Skirted*	
Flange Seals	Seal Part#	Seal Part#	
SST Tube	27215-00	27315-SK	
x Flange	27313-00		
TWS Tube	27316-00	27316-SK	
x Flange	2/310-00		
Skirted gaskets are used when more			

robust connections are required

SST Tube x Flange



27316-00 Standard

TWS Tube x Flange 27316-SK Skirted Gasket\*

MATERIAL: FKM

Looking for 27316-02? It's been replaced by #27316-SK

# **Cut Pipe End Adapter Kit**

27381-00 For any 1.315" OD pipe/tube







27317-00 [std] 27317-SK [skirt]



#### Flange to Flange Fitting Seal

Gasket seals common 1" flange fitting ends

Flange	Standard	Skirted*	
Seal	Seal Part#	Seal Part#	
Flange x	27217-00	27317-SK	
Flange	27317-00	27317-3K	

Gasket seals between

**Tube End to Tube End Seals** 

Seal Part#

Skirted









#### two butt ends of tube

**Most Robust** Use with



Wilger SST 27318-00 27318-SK to SST Case TWS 27319-00 27319-SK to TWS

Seals

Tube to Tube Standard







# Through Pipe Adapter Kit

27382-00 For any 1.315" OD pipe/tube





Up to Kit seals holes, and

CR BEFV or Through-Pipe



#### **Quick-Flange Clamps**

Compact & robust clamps for easy installation & adjustment with hinging bolt. Compatible with common 1" flange fittings.

Poly Clamp	Part#
Butterfly Nut & Bolt	27310-00
Nut & Bolt	27311-00

**Butterfly Nut** Flange Clamp 27310-00

Nut & Bolt Flange Clamp 27311-00



Polypropylene Clamp & Stainless Hardware





# Threaded Pipe Adapter

For male national pipe threaded (NPT) pipes

Available in 1/2", 3/4" & 1" NPT-F sizes









#### Threaded

Uses QF100 Standard Gasket 27317-00 [ std]



# QF100 Adapters & Caps

QF100 Plugs, and other adapters for auxiliary connections to QF100 fittings

•	•	•
Size/Style	Description	Part#
Plug Cap	QF100 Plug Cap	27353-00
Female	QF100 x 1/2" NPT-F	27357-00
Thread	QF100 x 3/4" NPT-F	27358-00
Adapter	QF100 x 1" NPT-F	27359-00
Male Thread	QF100 x QN100-M Thread	27351-00
Adapter	QF100 x TWS-M Thread	27352-00









27352-00 27352-00

E.g. QF100 to QN100 Flush Valve 25160-02 |<sub>7/8</sub> Adapter 0-ring Seal to QN100 27351-00 25175-LV0









# Quick-Flange Fittings & Parts

#### **QF100 Elbows & Hose Barb Fittings**

Compact & high flow sweep fittings for less pressure loss & higher flow capability for a better performing sprayer boom.

Size/Style	Description	Part#
Flange	Elbow, 90°, Compact	27324-00
x Flange	Elbow, 45°, Compact	27326-00
1"	QF100 x 1" HB, Straight	27331-00
Hose Barb	QF100 x 1" HB, 45° Sweep	27332-00
x QF100	QF100 x 1" HB, 90° Sweep	27333-00
1-1/4"	QF100 x 1-1/4" HB, Straight	27341-00
Hose Barb	QF100 x 1-1/4" HB, 45° Sweep	27342-00
x QF100	QF100 x 1-1/4" HB, 90° Sweep	27343-00



1-1/4" HB, Straight



27342-00





27343-00 1-1/4" HB Elbow, 90°



#### **QF100 Sweep Tee & Regular Tee Fittings**

#### **Sweep Tees**

Compact & high flow sweep fittings for less pressure loss & higher flow capability for an improved sprayer boom.

Tee Fittings	Sweep Tee	Regular Tee
lee Fittings	Part#	Part#
QF100 x QF100 x QF100	27371-00	27321-00
QF100 x QF100 x 1-1/4" HB	27372-00	27322-00
QF100 x QF100 x 1" HB	27373-00	27323-00





QF100 x 1-1/4" HB





**Regular Tees** 

27321-00

# TETT

#### **COMBO-RATE** Boom End Flush Valve (CR BEFV)

The Better Boom End Nozzle Body & Valve

A boom end flush valve with two Combo-Rate ports for attaching a fence-row nozzle body, turret, or any COMBO-RATE fittings.

	,
Valve version	Part#
Base Model w/o plugs	27360-00
Recirc Model w/ plugs	27361-00
Non-Recirc model w/ plugs	27362-00
Non regire w/ butterfly put	27262 WN



inlet/outlet **▼**COMBO-RATE u-clip port x2

Full Flush Boom End Flush Valve

0-ring Seal outlet [compatible with any Wilger ORS fittings]

Non-recirc with plugs & Butterfly nut



Easily adaptable for any configuration

#### **Designed for Recirculating Booms** Designed to incorporate an in-line flange

fitting for easy recirc configuration.



#### **Passive Air Purge**

Nozzle pulls air directly from the top of boom pipe reducing nozzle run-on

#### **Super Compact Boom Ends**

The last nozzle body, flush valve and flange outlet combined in one piece





#### **Remove Dead Spots in the boom** Boom ends directly with last nozzle body

and flush valve to ensure boom hygiene

**Designed for** 

#### QF100 Flange Elbow with Nozzle Body Upper Clamp

#### Flange Elbows w/ Body Clamp

Compact flanged elbows with built-in nozzle body clamp

			,
	Compact Elbow		Offset Ext.
Flange to Flange	Module Orientation		Elbow
	Outward	Inward	Inward
3/8" Inlet	27365-00	27366-00	27370-00
21/32" High Flow Inlet	27367-00	27368-00	27369-00



**Super Compact Boom Ends** 

**Offset Extended Elbow** w/ Body Clamp



The offset flange allows for free use of flange fittings for recirculating sprayers ahead of the last nozzle body.

Nozzle bodies would be 'inward' facing.

# Recirculating **Booms**



# 'Through Pipe' Elbow w/ Body Clamp

Use with #27382-00 'Through Pipe' Boom End Adapters ONLY

#27382-00 to	Module Orientation		
Flange	Outward Facing	Inward Facing	
3/8" Inlet	273 <u>7</u> 5-00	273 <u>7</u> 6-00	
21/32" Inlet	273 <u>7</u> 7-00	273 <u>7</u> 8-00	

# 1" Quick-Nut (QN100) Boom Fittings & Stainless Steel Tube

# The QuickNut Fifting & SST Advantage

#### **Lighter Booms - Wilger SST**

weighs 66% of aluminum weighs 23% of sch40 pipe Lighter than hose

#### **Lower Cost**

compared to other pipe plumbed sprayer booms

#### **Recirculating Booms**

Compatible boom fittings & tubing for building recirculating booms

#### **Less Chemical Residue**

compared to hose-plumbed sprayers

#### **High Flow Boom Pipe**

Maintains 1" pipe outside diameter, but inside diameter flows like 1-1/4'



# **QN100 Fittings for a Conventional Sprayer Boom**

Contact Wilger for Custom Boom Tube & Hole Configurations for your sprayer boom.

[CANADA] Wilger Industries Ltd. 1 (833) 242-4121 info@wilger.net

[USA] Wilger Inc. 1 (877) 968-7695 WilgerESC@WilgerESC.com 25161-01 25160-02

25160-03

25171-00

Quick-Nut (QN100) Joint to Hose Barb

Belleville on the

Example of a few possible configurations of 1" Quick-Nut (QN100) Sprayer Fittings

Stainless Tube (SST) to Boom End Flush Valve (BEFV)

25160-02 25171-00

Sweep Tee to Stainless Tube (SST) 41591-00



QN100 Flared End

Sweep Tee to Hose Barb

25160-02

25160-01 25160-03

Boom End Long Handle Male QN



25172-00 Sweep Tee

Straight Barb

#### **QN100 Connectors & Components**

Easy to use boom end fittings and connectors to adapt 1" Wilger Stainless Steel Tubing (SST) to QN100 fittings.

Component Description SS Tube End Female Thread End, 2pc 25170-00 Adapters Male Thread End, split ring 25171-00 Quick Nut Nut with QN100-F Thread 25160-03 QN100 x Plug Cap Plug 25163-01 O-ring for QN100 #219 O-ring, FKM 25160-02 Connections #219 O-ring, viton Threaded QN100 x 3/4" NPT-F Thread 25164-01 Adapters 1" NPT-F x QN100M Bushing 25137-00 Boom Tube Half Clamp, for 1" SST (1.31" OD) 41591-00 Half Clamp, for 1-1/4" Tube 41590-00 Clamps BEFV Cover Cap 25175-10 Replacement BEFV Seal Repair Kit (2 valves) 25175-11 Parts BEFV Handle, Long 25175-13 BEFV Handle, Short 25175-03

25171-00

Split-ring

For QN100 Connections

25160-02



25160-03





25164-01



25163-01



25137-00

#### **QN100 Tee Fittings**

Compact & lightweight sweep tees for any sprayer boom configuration.

Description	Part#
QN100 Flare x QN100M x QN100M	25172-00
1" Hose x QN100M x QN100M	25168-00
1-1/4" Hose x QN100M x QN100M	25169-00



**QN100 Hose Barb Fittings** 

Compact & lightweight hose barb fittings for any sprayer boom configuration.

Size/Style	Description	Part#
1" HB	QN100 x 1" HB, Straight	25166-01
x QN100	QN100 x 1" HB, 90° Sweep	25167-01
1-1/4"	QN100 x 1-1/4" HB, Straight	25160-01
Hose Barb	QN100 x 1-1/4" HB, 45° Sweep	25162-01
x QN100	QN100 x 1-1/4" HB, 90° Sweep	25161-01



QN100 & 1" NPT Boom End Flush Valves

Compact valve for full-drain flushing of booms

compact raise for sam arans maching or scome.		
Type	Description	Part#
QN100	QN100 BEFV, Short Handle	25175-V0
QNTUU	QN100 BEFV, Long Handle	25175-LV0
1" NPT-F	1" NPT BEFV, Short Handle	25176-V0
I NPI-F	1" NPT BEFV, Long Handle	25176-LV0





25170-00

[2-piece female thread adapter]

#25170-01 [Female Thread] #25170-02 [Lock Sleeve]





2x 41591-00



# 1/2" Quick-Nut (QN50) Boom Fittings & Stainless Steel Tube

#### **QN50 Fittings for a Conventional Sprayer Boom**

Contact Wilger for Custom Boom Tube & Hole Configurations for your sprayer boom.

[CANADA] Wilger Industries Ltd. 1 (833) 242-4121 info@wilger.net

[USA] Wilger Inc. 1 (877) 968-7695 WilgerESC@WilgerESC.com

Example of a few possible configurations of 1/2" Quick-Nut (QN50) Sprayer Fittings

For QN50 Connections

25120-02

Stainless Tube (SST) to Plug Cap

25120-02

25131-00

25120-03

25130-00

Sweep Tee to Stainless Tube (SST)

41580-00 25129-00 25120-02



#### **QN50 Connectors & Components**

25130-00

Easy to use boom end fittings and connectors to adapt 1/2" Wilger Stainless Steel Tubing (SST) to QN50 fittings.

	<b>-</b> , ,	-
Component	Description	Part#
SS Tube End	Female Thread End, 2pc	25129-00
Adapters	Male Thread End, split ring	25130-00
Quick Nut	Nut with QN50-F thread	25120-03
Plug	QN50 x Plug Cap	25131-01
O-ring for QN50	#116 O-ring, FKM	25120-02
Connections	#116 O-ring, viton	25120-V2
Thread Adapters	QN100 x 1/4" NPT-F Thread	25127-01
Boom Clamp	Half Clamp, 1/2" SST (0.84" OD)	41580-00





2-piece kit: #25129-01 [Nut] #25129-02 [Sleeve]



#### QN50 Tee & Hose Barb Fittings

Compact & lightweight tee & hose barb fittings for any sprayer boom configuration.

Size/Style	Description	Part#
TEE	QN50M x QN50M x QN50M	25128-00
1/2" Hose	QN50 x 1/2" HB, Straight	25120-01
Barb	QN50 x 1/2" HB, 45° Sweep	25124-01
x QN50	QN50 x 1/2" HB, 90° Sweep	25122-01
3/4" Hose	QN50 x 3/4" HB, Straight	25121-01
Barb	QN50 x 3/4" HB, 45° Sweep	25125-01
x QN50	QN50 x 3/4" HB, 90° Sweep	25123-01

**TWS Flush Valves** 

Compact & Robust

Full Drain Flush Valve

Case TWS BEFV

41402-LV0

Adapting a TWS Flush Valve to 1" NPT-M End A bushing kit can adapt to

any 1" NPT-M pipe end





# Case® Thin Wall Stainless (TWS) Tube Fittings

Easy to use boom end fittings and connectors to adapt to 1" Case Thin walled stainless steel sprayer booms.

Component	Description	Part#
TMO Mala Tala	Male End Adapter, Left Thread	41400-04
TWS Male Tube End Adapter (3pc)	Male End Adapter, Right Thread	41400-05
End Adapter (Spc)	Male End Adapter, Binding Nut	41400-02
Coupler	TWS-F to QN100-F Coupler	41401-01
Quick Nut	TWS Nut, use with QN100 HB	41400-03
O-ring for TWS	#209 square O-ring, FKM	25160-04
Connections	#209 square O-ring, viton	25160-v4
Threaded	1" NPT-F x TWS-M Bushing	41403-00
Adapters	1" NPT-F x TWS-M Bushing kit	41403-v0
Auapters	w/ o-ring	41403-00
Boom Clamp	Half Clamp, for 1" TWS (1.31" OD)	41591-00
	Flush Valve, Short Handle	41402-V0
Boom End Flush	Flush Valve, Long Handle	41402-LV0
Valves (BEFV) &	BEFV Seal Repair Kit (2 valves)	25175-11
Replacement Parts	BEFV Cover Cap	25175-10
nepiacement raits	BEFV Handle, Long	25175-13
	BEFV Handle, Short	25175-03



Compact Handle



piece Adapter TWS Male Thread #41400-04 [l eft] #41400-05 [Right]

#41400-02 [Binding Nut]

41403-00

41400-03

25160-04

# 41402-V0 25175-10

41403-v0

#### **Hose Barb Fittings for TWS**

TWS Connectors are compatible with QN100 Hose Barb Fittings & Accessories

ı	arriod field Barb Fittings a field decided field			
ı		Size/Style	Description	Part#
ı		Plug	QN100 x Plug Cap	25163-01
ı		Adapters	QN100 x 3/4" NPT-F Thread	25164-01
ı	1" HB QN100 x 1" HB, Straight		25166-01	
ı		x QN100	QN100 x 1" HB, 90° Sweep	25167-01
ı		1-1/4"	QN100 x 1-1/4" HB, Straight	25160-01
ı		Hose Barb	QN100 x 1-1/4" HB, 45° Sweep	25162-01
ı		x QN100	QN100 x 1-1/4" HB, 90° Sweep	25161-01



41400-01

400-01 25160-01 Assy 25160-04



#### TWS to QN100 Coupler



ON100 Female 41401-01

Couples TWS-M and QN100M ends

# O-ring Seal (ORS) Fittings & Components



#### **Full Line of Metering Orifices** Precision metering orifices for rates as low as 1.8 us gal/acre

1/8" to 3/8" Push-In Tube

Quick Connect Outlets

#### Standard FKM 0-ring Seals

FKM o-rings are used to maximize chemical resistance & durability.

#### **Compatible with Flow Indicators**

Wilger ORS fittings are used for both Flow Indicator & EFM systems & Adapters

**ORS to COMBO-JET Check Valves** 

Diaphragm check valves with a Combo-Jet outlet

#### **ORS to ORS Check Valves**

Diaphragm check valves with an ORS-F outlet for in-line outlet control to minimize dripping



Dia. Check Valve

Air-Off Operated

[10<sub>PSi</sub>] Manual On/Off 20551-00

[4Psi] Manual On/Off 20551-P4



in-line strainer



20555-00

20556-00

20556-P4





**ORS Manifolds** 

10 PSI Diaphragm Check Valve, 90°

20550-00

10 PSI Diaphragm Check Valve, 90° Radialock or COMBO-JET



PWM/no-check



et	COMBO-JET Caps
0	& Metering Orific
0	A variety of radialock or
4	COMBO-JÉT caps & meterin
0	orifices are available for hos barb, push-in-tube, spray tip
0	and other adapters.



#### **ORS Hose Barb Inlets/Outlets**

For PWM/no-check 20553-00 20558-00 \*4PSI check valves available: change '-00' to '-P4'. For ultra-low flow (<0.1

20550-00

20552-00

O-ring seal hose barb inlets and outlets. Compatible with all ORS metering orifices.

Hose Barbs	Orientation	Part#
1/4"	Straight	20500-00
3/8"	Straight	20501-00
3/6	90°	20511-00
1/2"	Straight	20502-00
1/2	90°	20512-00
5/8"	90°	20514-00
3/4"	Straight	20503-00
3/4	90°	20513-00
1"	Straight	20504-00
'	90°	20515-00



#### ORS Outlet Adapters & Plugs

20563-0

O-ring seal outlets with female threads, plugs and more. Compatible with all ORS metering orifices for metering flow.







0518-00	20519-00	20529
Type	Orientation	Part#
1/4" NPT-F	Straight	20519-00
1/4 NP1-F	90°	20518-00
RS x Sq Lug	Straight	20549-00
ORS Plua	Straight	20529-00

20549-00 ORS x Square Lug adapter adapts to any square lug nozzle cap (e.g. Teejet/Hypro/ Varitarget). ¹Ensure hoses connected are supported well

# **ORS End Caps & Adapters**

O-ring seal end caps are used on any ORS-M ports

Style & Size		Part#
End 0	Сар	20521-00
	3/8"	20544-00
Straight	1/2"	20545-00
Hose Barb	3/4"	20547-00
	1"	20548-00
Push-in Tube	1/4"	20540-00
(seals on O.D.)	5/16"	20541-00
(Seals off O.D.)	3/8"	20542-00
	1/4"	20535-00
NPT-F Thread	3/8"	20536-00
	1/2"	20537-00
NPT-M Thread	1/4"	20530-00



#### **ORS Push-in-Tube Outlets**

O-ring seal quick-connect outlets that seal around the outside diameter of a tube. Compatible with ORS orifices





Tube O.D.	Orientation	Part#
	Straight	20506-00
1/4"	Double	20509-00
	90°	20516-00
5/16"	Straight	20508-00
5/10	90°	20528-00
3/8"	Straight	20507-00
3/6	90°	20517-00



Push-in-tube Splitter

1/4" Straigh



20506-00 Push-In 20516-00 Tube

# O-ring Seal (ORS) Parts & Manifolds

#### **PRO TIP:** Lubricate ORS fittings before assembly

When assembling any flow indicator or 0-ring seal (ORS) parts, using a touch of lubricant (e.g. liquid silicone) on the 0-ring makes assembly easy.

# NEW

#### **ORS In-line Strainer**

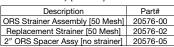
In-line strainer with removable 50-mesh cartridge can be reversed for universal flow direction.





Replacement Strainer 20576-02

20576-00 Strainer Assembly [50 Mesh]





#### **ORS Tees & Other Fittings**

A variety of fittings for splitting manifolds, ORS-F outlets or other auxiliary functions.









20527-00 1/4" NPT-F Port can be drilled out for pressure gauge installation



#### 20523-00 [Port is blocked]

Description	Part#
90° ORS Elbow [M x F]	20520-00
ORS Tee w/ 1/4" NPT-F [M x M x F w/ 1/4" NPT-F]	20526-00
3/8" x Blind ORS Tee [Blind F x M x 3/8" NPT-F]	20523-00
3/8" NPT-F x ORS Tee [ F x M x 1/8" NPT-F]	20524-00
2-Outlet ORS-F Splitter [FxFxM]	20527-00
1" NPT-F x ORS Tee [ M x M x 1" NPT]	20525-00

#### **O-ring Seal (ORS) Manifolds**

ORS manifolds can be configured and plumbed to any size, shape or configuration to suit any application equipment needs such as liquid fertilizer manifolds, estate sprayer manifolds, or any other liquid manifold plumbing.









20571-00

20572-00

20573-00

20574-00

Model	O-ring	Part#
1-Outlet Manifold	FKM	20571-00
1-Outlet Manifold	Body only	20571-01
2-Outlet Manifold	FKM	20572-00
2-Outlet Marillold	Body only	20572-01
3-Outlet Manifold	FKM	20573-00
3-Outlet Marillold	Body only	20573-01
4-Outlet Manifold	FKM	20574-00
4-Outlet Manifold	Body only	20574-01



Body only (no u-clips or o-rings)





Fittings Swivel 360°



No Threads or Sealant Required



Stronger, Compact Fittings

#### Replacement Parts for ORS & Flow Indicator Fittings

Replacement components for ORS Fittings/Kits

riopiacoment components for one ritting.							
Product	Type/Material	Part#					
Ball Retainer	Polypro	20460-02					
U-clip	302 SS	20460-02					
Flow Indicator Kit	Manifold Feed	20460-11					
w/o Indicator Body	Isolated Feed	20480-02					
O-rings for	FKM	20460-03					
ORS fittings	VITON	20460-15					
O-rings for	FKM	40225-04					
metering orifices	VITON	40225-05					









20460-11\*

\*MANFOLD KITS INCLUDE: Ball Retainer (#20460-02), 0-ring (#20460-03) 2x U-clips (#20460-04), Green Ball (#20460-08), Red Plastic Ball 40225-04 (#20460-07), Red Glass Ball (#20460-06), 1/2" SS Ball (#20460-05)

#### **Mounting Clamps for ORS**

Two hole mounting clamps with 1/4" bolt-mount for ORS manifolds and flow indicators

40550-SS

Tube Size	iype i	Paπ#
1" Sq Tube	302 SS	40550-SS
1-1/4" Sq Tube	302 SS	40551-SS
1-1/2" Sq Tube	302 SS	40552-SS





# O-ring Seal (ORS) Metering Orifices & Charts

Precise metering orifices for metering liquid fertilizers, or chemicals. The easier-to-handle orifices fit in any O-ring seal (ORS-M) fitting port, and cannot be inserted backwards. Available in precision molded color-coded sizes or custom drilled sized orifices.











metering orifice selection Available on TRY IT FREE AT WILGER App Store TIP WIZARD

**Use TIP WIZARD for** 

Simply input rate, speed & spacing, and get the best orifice for the job.

Metering Orifice

type, seal & ORS Orifice Part#

Color

21500-V01

Molded ORS Orifice | Custom Drilled Orifice | Blank Orifice/Plug VITON O-ring FKM/viton O-ring FKM/viton O-ring 21XXX-00/21XXX-V0 21000-00/2100-V0 21500-VXXX Color-coded\*

#### Calculating required flow for metering orifice selection

To determine the flow rate (or application rate), use the following equations & density conversion chart:

W = Outlet Spacing (INCH) conv = Conversion Factor based on (per outlet)

GPM specific gravity/weight of liquid

= GPA x mph x W x conv

 $G_{PA} = 5940 \times GPM \text{ (per outlet)}$ mph x W x conv

EASY-TO-USE ORS orifice and ball selector calculator available @ www.WILGER.NET

Solution Weight (lbs/ us gallon)	Specific Gravity	Conversion Factor ( <b>conv</b> )
8.34 (Water)	1.00	1.00
10.65 (28-0-0)	1.28	1.13
11.65 (10-34-0)	1.39	1.18

	Orifice		Flo	w Rate (	US gallo	วทร/minเ	ıte)		Orifice		Flo	w Rate (	US gallo	ons/min	ute)	
	Part#*	10PSI	15PSI	20PSI	25PSI	30PSI	35PSI	40PSI	Part#*	10PSI	15PSI	20PSI	25PSI	30PSI	35PSI	40PSI
	21009-XX	0.005	0.006	0.007	0.008	0.009	0.010	0.010	21075-XX	0.346	0.424	0.490	0.548	0.600	0.648	0.693
	21011-XX	0.008	0.010	0.011	0.013	0.014	0.015	0.016	21078-XX	0.387	0.474	0.547	0.612	0.670	0.724	0.774
	21013-XX	0.011	0.013	0.016	0.017	0.019	0.021	0.022	21500-V03	0.393	0.488	0.563	0.630	0.690	0.745	0.797
	21015-XX	0.014	0.018	0.020	0.023	0.025	0.027	0.029	21081-XX	0.410	0.502	0.580	0.648	0.710	0.767	0.820
18	21500-V003	0.015	0.018	0.021	0.024	0.026	0.028	0.030	21083-XX	0.450	0.552	0.637	0.712	0.780	0.842	0.901
10	21018-XX	0.021	0.025	0.029	0.033	0.036	0.039	0.042	21086-XX	0.468	0.573	0.661	0.739	0.810	0.875	0.935
×	21500-V005	0.025	0.030	0.035	0.039	0.043	0.046	0.050	21089-XX	0.491	0.601	0.694	0.776	0.850	0.918	0.981
X	21020-XX	0.026	0.032	0.037	0.041	0.045	0.049	0.052	21500-V10	0.502	0.615	0.710	0.794	0.870	0.940	1.00
	21022-XX	0.031	0.037	0.043	0.048	0.053	0.057	0.061	21091-XX	0.525	0.643	0.743	0.831	0.910	0.983	1.05
	21500-V007	0.033	0.041	0.047	0.053	0.058	0.063	0.067	21093-XX	0.548	0.672	0.776	0.867	0.950	1.03	1.10
	21025-XX	0.039	0.048	0.056	0.062	0.068	0.073	0.079	21096-XX	0.589	0.721	0.833	0.931	1.02	1.10	1.18
$\chi^3$	21026-XX	0.043	0.053	0.061	0.068	0.075	0.081	0.087	21500-V125	0.624	0.764	0.882	0.986	1.08	1.17	1.25
	21027-XX	0.046	0.056	0.065	0.072	0.079	0.085	0.091	21102-XX	0.652	0.799	0.923	1.03	1.13	1.22	1.30
A.	21028-XX	0.049	0.060	0.069	0.078	0.085	0.092	0.098	21104-XX	0.675	0.827	0.955	1.07	1.17	1.26	1.35
Ġ,	21500-V01	0.050	0.062	0.071	0.079	0.087	0.094	0.100	21107-XX	0.733	0.898	1.037	1.16	1.27	1.37	1.47
	21029-XX	0.064	0.078	0.090	0.100	0.110	0.119	0.127	21500-V15	0.751	0.919	1.061	1.19	1.30	1.40	1.50
je,	21031-XX	0.064	0.078	0.090	0.100	0.110	0.119	0.127	21110-XX	0.774	0.948	1.094	1.22	1.34	1.45	1.55
	21500-V015	0.075	0.092	0.106	0.119	0.130	0.140	0.150	21113-XX	0.820	1.00	1.16	1.30	1.42	1.53	1.64
	21035-XX	0.081	0.099	0.114	0.128	0.140	0.151	0.162	21116-XX	0.860	1.05	1.22	1.36	1.49	1.61	1.72
-	21037-XX	0.087	0.106	0.122	0.137	0.150	0.162	0.173	21120-XX	0.889	1.09	1.26	1.41	1.54	1.66	1.78
	21039-XX	0.098	0.120	0.139	0.155	0.170	0.184	0.196	21125-XX	0.981	1.20	1.39	1.55	1.70	1.84	1.96
- 1	21500-V02	0.104	0.127	0.147	0.164	0.180	0.194	0.208	21500-V20	0.999	1.22	1.41	1.58	1.73	1.87	2.00
	21041-XX	0.110	0.134	0.155	0.173	0.190	0.205	0.219	21128-XX	1.02	1.25	1.45	1.62	1.77	1.91	2.04
2 24	21043-XX	0.115	0.141	0.163	0.183	0.200	0.216	0.231	21130-XX	1.06	1.30	1.50	1.68	1.84	1.99	2.12
ŝ	21500-V025	0.127	0.156	0.180	0.201	0.220	0.238	0.254	21136-XX	1.19	1.46	1.68	1.88	2.06	2.23	2.38
	21046-XX	0.133	0.163	0.188	0.210	0.230	0.248	0.266	21140-XX	1.26	1.55	1.79	2.00	2.19	2.37	2.53
	21047-XX	0.139	0.170	0.196	0.219	0.240	0.259	0.277	21144-XX	1.31	1.61	1.85	2.07	2.27	2.45	2.62
g Ť	21049-XX	0.150	0.184	0.212	0.237	0.260	0.281	0.300	21147-XX	1.35	1.65	1.90	2.13	2.33	2.52	2.69
	21500-V03	0.150	0.184	0.212	0.237	0.260	0.281	0.300	21150-XX	1.44	1.77	2.04	2.28	2.50	2.70	2.89
1100	21051-XX	0.162	0.198	0.229	0.256	0.280	0.302	0.323	21152-XX	1.49	1.82	2.11	2.36	2.58	2.79	2.98
4	21052-XX	0.167	0.205	0.237	0.265	0.290	0.313	0.335	21156-XX	1.55	1.90	2.20	2.46	2.69	2.91	3.11
1	21055-XX	0.191	0.233	0.269	0.301	0.330	0.356	0.381	21161-XX	1.63	2.00	2.31	2.58	2.83	3.06	3.27
	21500-V04	0.202	0.247	0.286	0.320	0.350	0.378	0.404	21166-XX	1.71	2.10	2.42	2.71	2.97	3.21	3.43
100	21060-XX	0.225	0.276	0.318	0.356	0.390	0.421	0.450	21172-XX	1.88	2.31	2.66	2.98	3.26	3.52	3.76
6	21061-XX	0.231	0.283	0.327	0.365	0.400	0.432	0.462	21177-XX	2.00	2.45	2.83	3.16	3.46	3.74	4.00
1	21063-XX	0.248	0.304	0.351	0.393	0.430	0.464	0.497	21182-XX	2.08	2.55	2.95	3.30	3.61	3.90	4.17
	21500-V05	0.254	0.311	0.359	0.402	0.440	0.475	0.508	21187-XX	2.21	2.70	3.12	3.49	3.82	4.13	4.41
<b>X</b> -	21064-XX	0.254	0.311	0.359	0.402	0.440	0.475	0.508	21196-XX	2.45	3.00	3.46	3.87	4.24	4.58	4.90
ī	21065-XX	0.260	0.318	0.367	0.411	0.450	0.486	0.520	21205-XX	2.65	3.25	3.75	4.19	4.59	4.96	5.30
4	21067-XX	0.277	0.339	0.392	0.438	0.480	0.518	0.554	21213-XX	2.85	3.49	4.03	4.51	4.94	5.34	5.70
	21500-V06	0.300	0.368	0.425	0.475	0.520	0.562	0.600	21218-XX	2.98	3.65	4.21	4.71	5.16	5.57	5.96
	21070-XX	0.306	0.375	0.433	0.484	0.530	0.572	0.612	21234-XX	3.47	4.25	4.91	5.49	6.01	6.49	6.94
1	21073-XX	0.329	0.403	0.465	0.520	0.570	0.616	0.658	21250-XX	4.00	4.90	5.66	6.33	6.93	7.49	8.00

# **Wilger Visual Ball Flow Indicators**

# The Flow Incleator Advantage

See Any Application Accurately



1/4" Bolt mount on each column **Fittings** Swivel 360°



Clear Sight Column



**Superior** Chemical Resistance



Simple. without Electronics



No Threads or Sealant Required



Manual ON/OFF Check Valves
Easy to turn off for maintenance or convert equipment to mid-row banding

Larger Metering Orifices Easier handling & cleaning

> Consistent Metering & Easy Cleaning

Ball Suspended Higher

**Desired Flow** 

Ball Suspended Lower

Indicates blockage or plug

Simple Operation. Critical Feedback.

Example of flow indicator function; Overlay colors are for visual purposes only

Flow Indicators are used on Planting Equipment & Sprayers to indicate relative flow blockage or overage.

#### Manifold Feed - Ball Flow Indicators

For monitoring many lines from a single feed (e.g. Liquid fertilizer kits for a planter)







Retainer	
Sight Column	
Red Glass Ball	
/4" Bolt-Mount Hole	2
Stackable RS-F port for inlet	TOO PSI G

Model	Kit Type*	Part#
Ultra Low Flow	Bulk Kit	20475-BULK
	Bagged Kit	20475-00
[0.01-0.24 us gpm]	Body Only	20475-01
Low Flow	Bulk Kit	20470-BULK
	Bagged Kit	20470-00
[0.05-0.65 us gpm]	Body Only	20470-01
Standard Flow	Bulk Kit	20460-BULK
	Bagged Kit	20460-00
[0.07-2.70 us gpm]	Body Only	20460-01

\*Manifold Kits include: Indicator Body, Ball Retainer (#20460-02), O-ring (#20460-03), 2x U-clips (#20460-04), Green Ball (#20460-08), Red Plastic Ball (#20460-07), Red Glass Ball (#20460-06), 1/2" SS Ball (#20460-05)

# Flow Indicator & onnection Specifications'

Max Operating Pressure: 100psi / 7BAR

Max Metered Flow Rate: Up to 8.0 us gpm per column Maximum Operating Temp: 185°F O-ring Seals: FKM (std) / Viton U-clip: Stainless Steel (302) ORS Fittings: Glass-reinforced

Stackable ORS-M port can be capped off Polypropylene Flow Column Material: TPX™ (Polymethylpentene)

#### **Isolated Feed - Ball Flow Indicators**

For monitoring single lines from individual feeds (e.g. Squeeze pump monitoring, chemical injector pumps)



Model	Kit Type**	Part#
Low Flow	Bulk Kit	20490-BULK
[0.05-0.65 us gpm]	Bagged Kit	20490-00
[0.05-0.65 us gpm]	Body Only	20490-01
Standard Flow	Bulk Kit	20480-BULK
[0.07-2.70 us gpm]	Bagged Kit	20480-00
[0.07-2.70 us gpm]	Body Only	20480-01

\*\*Isolated Kits include: Flow Indicator Body, Ball Retainer (#20460-02), U-clip (#20460-04), Green Ball (#20460-08), Red Plastic Ball (#20460-07), Red Glass Ball (#20460-06), 1/2" Stainless Ball

Inlet feed uses Combo-Jet cap. Refer to COMBO-JET caps & adapters.

#### How to Tell Columns Apart? Check the top of the column

FRONT: OW FLOW



#### Required Storage for Flow Indicator Columns

Wilger Flow Indicator columns are made of a specialty UV-stabilized compound (TPX™) that maximizes chemical resistance, providing compatibility for a huge range of chemical applications As with any plastic, UV exposure degrades the flow indicator columns.

To maximize flow indicator column clarity & longevity, completely cover

the flow indicator columns from UV exposure (sun/etc.) when not in use.





If a lighter ball is suspended too high, using the next heavier ball below can help cover changes in application rates or speeds.



# Wilger Visual Ball Flow Indicators - Balls & Setup Guide

#### Flow Indicator Balls & Selection Chart

Weighted balls are used inside flow indicator columns and within the operational flow range, will suspend within the column, showing relative flow rate to other flow columns.

Ball Description & Color	Part #	Flow Indica	tor Columns & Fl	ow Ranges*
	Part #	Ultra Low Flow	Low Flow	Standard Flow
Orange Polypropylene Ball*	20460-13	0.01-0.04 us gpm	0.05-0.12 us gpm	0.07-0.25 us gpm
Green Polypropylene Ball*	20460-08	<b>0.01-0.04</b> us gpm	<b>0.05-0.12</b> us gpm	<b>0.07-0.25</b> us gpm
Red Celcon Ball*	20460-07	<b>0.02-0.06</b> us gpm	<b>0.06-0.16</b> us gpm	<b>0.10-0.35</b> us gpm
White Celcon Ball*	20460-18	<b>0.02-0.06</b> us gpm	<b>0.06-0.16</b> us gpm	<b>0.10-0.35</b> us gpm
Pink Celcon Ball*	20460-14	<b>0.02-0.06</b> us gpm	<b>0.06-0.16</b> us gpm	<b>0.10-0.35</b> us gpm
Red Glass Ball	20460-06	<b>0.06-0.13</b> us gpm	<b>0.12-0.26</b> us gpm	<b>0.21-0.72</b> us gpm
1/2" Stainless Steel (302) Ball	20460-05	0.13-0.24 us gpm	0.18-0.65 us gpm	0.40-1.70 us gpm
7/16" Stainless Steel (302) Ball	20460-10	n/a	n/a	1.00-2.70 us gpm

#### Applying Dark Fertilizers & Variable Rate Applications

With some liquid fertilizers and products being darker (e.g humic acid content), consider a few tips that may help visual representation of flow

#### For Red Liquids

(e.g. Paralign Fertilizer)
White backboard for improved visibility.
White celcon ball for red



#### **For Dark Liquids**

(e.g. Humic Acid)
Pink celcon ball for black
& dark liquids.



#### For Variable Rate

Considering using two balls to better illustrate changes in flow rate. Select a lighter ball for the lower rate, and heavier for the higher rate



\*Density/Viscosity of liquid used can effect operating range. In very dense liquids, balls may float.

#### **Ball Selection Example**

Liquid Weight: 10.67 lbs/ US Gallon

**Speed:** 5 mph **Outlet Spacing:** 30 inch



#### Ultra-Low Flow

Rate: 4.5 US Gal/Acre Flow Rate: 0.129 us gpm Ball: Red Glass



#### Low Flow

Rate: 10 US Gal/Acre Flow Rate: 0.286 us gpm Ball: 1/2" Stainless



#### Standard Flow

Rate: 20 US Gal/Acre Flow Rate: 0.571 us gpm Ball: Red Glass

#### **Guide to Building a Liquid Kit with Flow Indicator Manifolds**

#### **STEP 1 Select: Manifold-Feed** or **Isolated-Feed** Style Flow Columns

Choose the style of flow column that suits the application equipment being monitored

#### STEP 2 Determine Flow Indicator Column Size (e.g. Ultra Low Flow, Low Flow, Standard Flow)

Depending on the flow rates required, select the flow column that would provide the best fit to the required flow rate or range. Usually this is accomplished by finding a column size that has your flow rate towards the middle of the range or higher.

#### STEP 3 Select: Flow Indicator Balls to use

Consult the ball flow chart to determine which balls should be used. It can be optional to use two balls to illustrate a flow rate range.

#### **STEP 4 ORS Check Valves** [Optional]

A variety of check valves are available. Typically an ORS to ORS check valve would be used unless adapting a manifold to combo-jet caps. One check valve is required per flow indicator.

#### **STEP ORS** Inlet Feeds, Tees, & Strainers

Determine how many manifolds are required, whether the manifolds are fed with a Tee fitting, as well as whether an in-line strainer will be added to each manifold. Determine the size & type of inlet fitting. One set of inlet/tee/strainer is required per manifold.

#### STEP ORS Metering Orifices [Optional]

Any metering manifold should have a means to meter the flow for each row to keep rows consistent. Without a metering orifice, the flow rates between rows can vary greatly. One metering orifice would be required per flow indicator column.

#### STEP 🕖 ORS Outlet

Select the size, and style of outlet to be used for each row of product. Consider applying a small bit of lubricant (e.g. liquid silicone) on the o-ring to air in easy installation of outlets and other ORS fittings. The outlet would hold the ORS metering orifice, if used.

#### STEP 3 ORS End Caps & Adapters

A variety of end caps are available as adapters which can be used for many situations, but typical an ORS end cap would be used. Two end caps are required per manifold if a Tee fitting is used.

#### Do you plant at night or in low visibility? Take a look at Wilger's Electronic Flow Monitoring (EFM) System

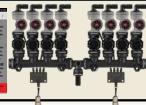
Wilger's row-by-row flowmeter uses the same ORS parts and manifolds, and can be simply added in-line for existing manifolds.

Simply add a flowmeter for each row, and connect the electronic harness to see actual flow rate on each row (up to 196 rows), for flow rates of 0.04-1.53 us gpm.

Flowmeter can also be installed on flow indicators to provide greater accuracy







# Wilger Electronic Flow Monitoring System

# egaliavia gaholinoM woll einoricel eil

See Any Application with Row-by-Row Accuracy

The Wilger electronic flowmeter (EFM) is a serviceable flowmeter designed & built specifically for agricultural chemical & liquid applications.



**Fittings** Swivel 360°



Crystal Clear Flowmeter



**Superior** Chemical Resistance



Serviceable **Flowmeter** for Aa.



High Accuracy **Flowmeter** 



Patented Flowmeter Jets Canadian Patent No. 2951789 ALIS Patent No. 2017376849

#### **Crystal Clear Flowmeters** Enables easy system troubleshooting & verification

**Monitors Huge Flow Range** Accurately measures flow rates

#### of 0.04-1.53 us gpm per row **How It Works**

High Resolution Hall-Effect Sensor & Ceramic Magnet combo provide accurate pulse frequency to determine flow

lowmeter with ceramin

magnet & paddle whee



# Wilger Flow Monitoring System v2.6.4 Starter Rate: 10.0 Gal/Ac Liquid Nitrogen Liquid Innoculant nnoculant

**FREE EFM APP POWERED BY AGTRON** 

The Electronic Flow Monitoring system (powered by Agtron) requires an Android 10 OS Tablet or newer

#### **Trouble-free Connectors**

Keyed Deutsch connectors ensure weather-sealed wiring

#### Monitor up to 3 Products

Simultaneously monitor up to 3 products within the same system

#### **Monitor Any Sized Equip.**

Monitor up to 200 rows or outlets on any equipment

#### **Custom High/Low Alarms** Customize threshold alarms

**Custom Screen Layouts** Customize screen layouts between products, sections, or any other way

#### **Chemical Resistance** Clear TPX material provides

# visual & non-stick surface

#### **Easy Retrofit** Easily retrofits to any

#### existing ORS or Flow Indicator Fittings

#### **Simple Harnessing** Composed of an ECU with dairy-chained product nodes & sensors

#### WIFI communication ECU generates WIFI straight into the cab

#### Build your Electronic Flow Monitoring System with help from www.wilger.net



Use the new EFM system parts kit builder available at www.wilger.net. Simply input your implement size and layout and receive a parts list & quote. It just takes a minute.

# Need help with EFM system SETUP, USE & Troubleshooting? Check www.wilgernet



# **EFM System Manual**

The manual is accessible online (wilger.net) and within the EFM app via the (?) button. It contains Setup, Troubleshooting. Considerations, Maintenance and more.



#### **Video Setup Guide**

The video describes in detail considerations and how to reference sensor locations properly and usage in the EFM system app.



#### Online Troubleshooting

The dedicated page on the website has the most common recent fixes, guides, and troubleshooting information. Check it for quick troubleshooting to save time.

# Wilger Electronic Flow Monitoring System Components

#### **Electronic Flowmeters & Jets**

A clear flowmeter that connects to any ORS outlets, with an accurate flow range of 0.04 - 1.53 us gpm, using patented flow stabilizing jets.

20580-00 EFM KIT



20580-06 Body Assembly EFM BODY ASSY [no jets, wire side showing]



INDESED VER WEED DESCON Easier removal & insertion shipping in 2024



Product Description Flowmeter Assy Kit 20580-00 Electronic Flowmeter Body Body Assembly (no jets) 20580-06 [0.04-1.53 us gpm] Body Only (clear plastic 20580-01 en (up to 0.12 us 20581-01 Replacement Jets 20581-03 (without 50 mesh Blue (0.18 to 0.98 us a 20581-05 snap-in strainer) 20581-07



#### Required Storage for Flowmeters Wilger Flowmeters are made of a specialty UV-stabilized compound (TPX") that maximizes chemical resistance, providing compatibility for a huge range of chemical applications.

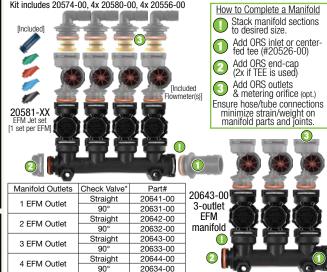
As with any plastic, UV exposure degrades the flow indicator columns To maximize flowmeter clarity & longevity, completely cover the flowmeters from UV exposure (sun/etc.) whenever possible.



#### **Electronic Flowmeter Manifolds**

Pre-assembled manifolds [1-4 Outlets] with a flowmeter and check valve. Simply assemble manifolds, add inlet/outlets, caps and sensor cables.

20644-00 Four Outlet EFM Manifold Kit w/ Check Valve



#### **DEMO ECU & Small Planter Kit (16 or less rows, non-expandable)**

The following is a Compact ECU DEMO unit, which can be used for showroom/demonstrations, but also functional for planters with 16 rows or less being monitored. The CAN to POWER/USB adapter can be used where WIFI is not an option (tradeshows, etc.). The unit also broadcasts via WIFI.

Product	Description of DEMO Kit Parts	Part#
DEMO ECU	DEMO ECU with built-in 16CH node. One per Demo unit (requires 12v x 1.25 amp)	20625-01
DEMO 16CH Harness	DEMO ECU Harness, with A/B/C/D for up to 4 quad- sensor cables to be connected	20625-02
DEMO Power Supply Harness	CAN to USB (for wired tablet without WIFI) & 12v Power Cable (2-wire, 7' length). USB-A port is powered to supply tablet power.	20625-03
Quad-Sensor Cable	A normal quad-sensor cable, used in any Wilger EFM systems via 6-pin connector. Connects for the A/B/C/D of 20625-02. Order 4x 20585-00 for full 16 sensors.	4x 20585-00
Antenna (7")	If ECU connection is via WIFI, an antenna should be used to connect to the tablet.	20603-03
EFM Manifolds	1,2,3, or 4-outlet manifolds with check valves and an included EFM flowmeter. Simply order inlet/outlets/tee and end caps to complete manifold.	20644-00 (4-outlet)

Example 16-row manifold for demonstration

#### EFM DEMO System Parts Checklist

**ELECTRONICS Parts** 1x DEMO ECU (#20625-01)

1x Demo Product Harness (#20625-02) 1x ORS Tee (#20526-00)

1x Antenna (#20603-03)

4x Quad-sensor cable (4x #20585-00)

■ 1x Android Tablet & Mount (non-Wilger) ■ 16x Metering Orifice (#21500-v03) (e.g. Samsung Tab A8)

**PLUMBING Parts** 

4x 4-Outlet Manifolds (#20644-00)

1x Demo Power/USB Cable (#20625-03) 1x 90° 1/2" Hose Inlet (#20513-00) 16x 1/4" Push-in-tube (#20516-00)

2x End Cap (#20521-00)

1x 5GPM Electric pump (non-Wilger)

Small water tank w/ plumbing

Compact ECU \*parts not to scale\* 20625-01

4PSI check valves available: change '-00' to '-P4'. For ultra-low flow (<0.01 us gpm), 4PSI may be required.



Switch for Wired USB Mode

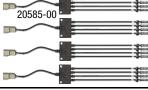
20625-03 CAN to 12v Power Harness

Want to show what the system looks like, without a pump? Download the app, enter info, and plug in some example sensor information, and run the app in TEST/ DEMO mode. (Simulated info) Contact Wilger for more info.



Quad-sensor cable

Connects to A / B / C / D 4x 20585-00

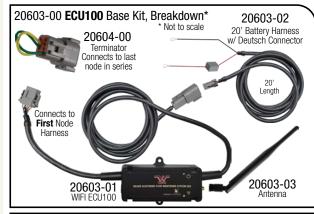


# Wilger Electronic Flow Monitoring ECUs & Electronics

#### Base Electronic ECU & Kits for EFM Systems (expandable up to 196 rows/sensors)

Electronic Control Units (ECU) & components used in EFM systems. ECUs are used to monitor up to 196 outlets, across up to 3 products.

Product	Kit Includes	Part#
ECU100 Base Kit	ECU100, 20' 12v Battery Harness (with fuse), Terminator, 7" Antenna	20603-00
ECU200 Base Kit	ECU200, CAN to 12v Harness, 20' 12v Battery Harness (with fuse), ECU200 Node Harness (#20606-02), Terminator, 7" Antenna, 4x Quad- sensor cables (#20585-00)	20606-00
ECU Splitter Kit	ECU Splitter Cable, Terminator	20605-00
ECU/Node to Node	12' Extension Harness (Node to ECU/Node)	20616-12
Extension Harness	24' Extension Harness (Node to ECU/Node)	20616-24



#### **NEW ECU100 or ECU200? Whats the difference?**

ECU100 and ECU200 share identical function as a controller. Both create their own WIFI signal to the tablet in the cab, sending row-by-row flowmeter information. They differ somewhat in the first node connected, and potentially the use of other components, the harnesses, and cables used. The ECU200 effectively integrates the first 16CH node, as well as provides a CAN plug for future-proofed connections.

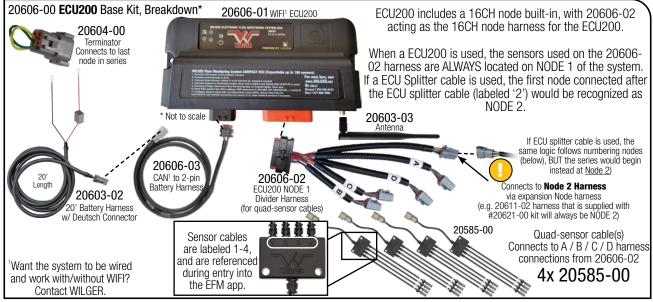




		The same of the sa	
ECU Type	ECU100	ECU200	
Combined Node?	No integrated 16CH node	First 16CH node built-in	
Expandable Size?	Yes, up to 196 sensors	Yes, up to 196 sensors	
Power Cable	2-pin 12v PWR harness	CAN to 2-pin 12v PWR harn.	
Compatibility	Both are compatible to all EFM system components		

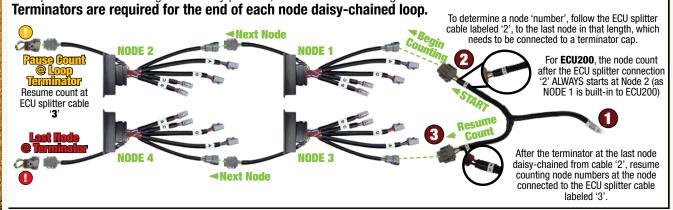


- ① Connects to ECU100 or ECU200.
- 2 If ECU100, first node is Node 1. If ECU200, first node is Node 2. (As ECU200 has built-in Node1)
- Onnects to 2nd node series loop. Node # determined by last node in 1st series loop.





Example: NODE 3 was designated #3 by position, due to NODE 2 closing the series with a terminator.



-1111

#### Wilger Electronic Flow Monitoring System Components

#### **16 Channel (16CH) Product Node Kits & Components**

16CH Product nodes provide communication between sensors and ECU.

Product	Description	Part#		
16CH Node Kit	incl. 16CH Node, 16CH Harness, 4x Quad-sensor cables	20621-00		
Quad-Sensor Cable	4-Sensor Cable (18" long) for 16CH Node	20585-00		
16CH Node/Harness	incl. 16CH Product Node, 16CH Node Harness	20611-00		
16CH Harness Cap	16CH Harness Cover Cap	20612-00		
Sensor Cover Cap	Covers a single sensor on a quad-sensor cable	20585-01		
Node to Quad-Sensor	6' Extension Cable (16CH Harness to quad-sensor cable)	20615-06		
Extensions	12' Extension Cable (16CH Harness to quad-sensor cable)	20615-12		

# Capping Unused Connections & Sensors

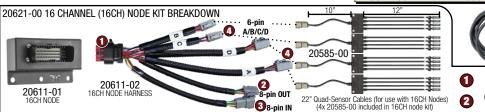
For proper function of your EFM system, each unused connection must be sealed with a node harness cover cap, sensor cap, or terminator. Unsealed Connections have increased chance of shorts, electrical shock, or damage to the system or equipment.

**Unused Node Connections** 









12' NODE to Quad-Sensor Length Extension (6-pin connector)

to Harness Connects to next

node in series

Connects to ECU (or previous node) Connects to (4) quad-sensor cables

20615-12

#### **Channel (4CH) Product Node Kits & Components**

4 Channel Product Nodes & kits provide communication between sensors and ECU. Sensor cables cannot be interchanged between 16CH and 4CH node harnesses. 4CH nodes and sensors are available in limited stock, as Wilger is transitioning to using the 16CH node and components as standard.

Product	Description	Part#
4CH Node Kit	incl. 4CH Node, 4CH Harness, 4x 6" single-sensor cables	20620-00
4CH Node/Harness	incl. 4CH Product Node, 4CH Node Harness	20608-00
4CH Harness Cap	4CH Harness Cover Cap	20609-00
Single-Sensor	6" single-sensor Cable for 4CH Node harness	20584-00
Cables (lim. qty)	10' single-sensor Cable for 4CH Node harness	20584-10

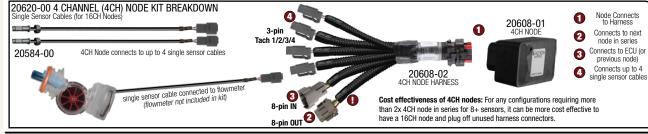
#### Capping Unused Connections

For proper function of your EFM system, each unused connection must be sealed with a 4CH node harness/sensor cover cap, or terminator.

**Unused Sensor Connections** Cap unused 4CH node harness connections #20609-00



Cap all 'last node in series' connections #20604-00



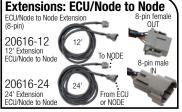
#### **ECU Splitters, Extended Harnesses & Cables**

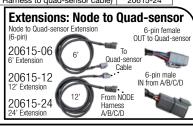
A variety of harnesses available for alternate EFM system configurations or replacement cables and caps

Product	Description	Part#
12v Power Extension	Extends 2-pin power connection by 35'	20603-07
Antenna Extension	Extends connection to ECU antenna, 30' length	20603-05
4' Quad-sensor Cbl	4' Long Quad-sensor cable (48"/20"/20"/48")	20585-04
10' Single Sensor Cbl	10' long single sensor cable	20584-10
Node to Node	12' Extension Cable (8-pin Harness male to 8-pin female)	20616-12
Extensions	24' Extension Cable (8-pin Harness male to 8-pin female)	20616-24
Node to Quad-Sensor Extensions	6' Extension Cable (16CH Harness to quad-sensor cable)	20615-06
	12' Extension Cable (16CH Harness to quad-sensor cable)	20615-12
	24' Extension Cable (16CH Harness to quad-sensor cable)	20615-24

30' Antenna Extension 30' co-axial antenna extension cable to bring ECU antenna closer to the tractor 20603-05 30' Extension ECU antenna has 100' range (50' one-wa

20585-04 Quad-sensor cable (for 16CH node only) === 20584-10 10' single sensor (for 4CH node only)









#### Flowmeter Component Parts

Electronic flow monitoring system parts and components are easily replaceable. For individual component parts that were not listed in the above product breakdowns, find the below.

EFM, Body Assy, TPX, ORS (no jets, body assy only) 20580-06

20580-01 EFM, Body Only, TPX

20580-02 EFM, Module c/w O-ring (no sensor) 20580-08 EFM, Impeller Assembly (20580-09 + 20580-10)

20580-10 FFM. Impeller Magnet, Ceramic

20580-11 EFM, Impeller Axle Pin

20580-13 EFM, O-Ring, #119, VITON® (for EFM module) 20583-00 EFM Sensor Cable, Single w/o Connector 20585-01

EFM sensor rubber cover (for unused sensor cables) 20583-00°

\*Non-stocked/Custom Order



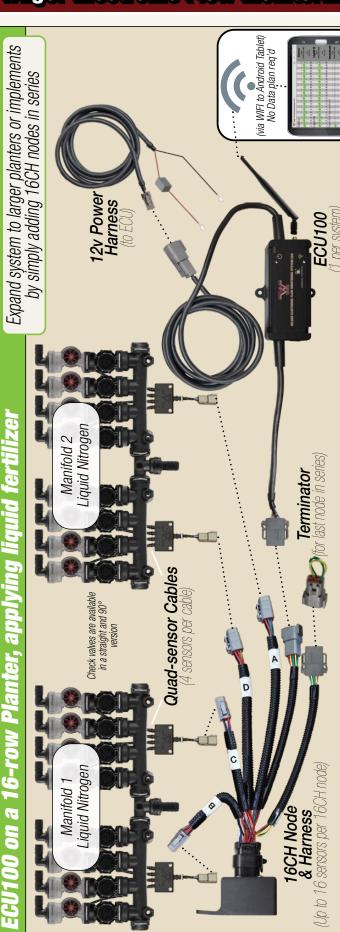
20580-02



20580-11 20580-08

**EFM Retrofit Options** The EFM can easily retrofit into existing flow indicator manifolds. The upgrade gives visual & electronic feedback for the next step of accuracy! More info @ WWW.WILGER.NET

# Wilger Electronic Flow Monitoring System ECU100 Example



# ECU100: Component Checklist for Wilger's Electronic Flow Monitoring System

As equipment & implements greatly vary, this is a simplified approach assuming the implement is fairly standard and evenly spread, with the manifold centrally located

It may be cost effective to move manifolds from the wings of the implement, to the center.

- **Order 1 ECU100 kit** per system. (#20603-00)
- outlets by 16. Round up to nearest whole number. Order that many 16CH Node kits. (#20621-00) Add the # of outlets (including multiples for monitoring multiple products). Divide the total # of 4CH Node kits can be effective for 'extra' outlets in systems, but 16CH node kits are typically cost effective.
- Order 1 EFM assembly kit (#20580-00) per outlet (incl. multiples for monitoring multiple products) Alternatively, order EFM manifold kits (#20631-00 to #20634-00) to fit your requirements for sections

Order 1 ORS Outlet (Page 16) & 1 ORS Check Valve (#20551-00) per EFM body.

[Optional if metering orifice req'd] **Order an ORS orifice for each outlet**, ensure proper metering orifice size for each rate. Use Tip Wizard @ www.wilger.net or via app, to ensure proper sizing. Order manifolds & plumbing components (& end caps) suited for the implement size.

☐ 1x ECU100 KIT per system

1x ORS Manifold Outlet per outlet

1x ORS Outlet Fitting per outlet

1x ORS Check Valve per outlet

- 1x 16CH Node Kit per 16 outlets 1x Flowmeter (EFM) per outlet Extension harnesses if req'd
- 1x Android Tablet [Android 10 0S or newer. Avoid non-brand name tablets that may not be running full 0S)]
- 1x Metering Orifice per outlet [or alt.]

1x End Cap per manifold [2x if center Tee]

1x Inlet Feed or Tee per manifold

For more information, start the conversation on building your EFM system with your Wilger dealer, and for more pictures/information, visit our website at: www.WILGER.NET

# EFM VIDEO TUTORIALS - Setting up EFM App on Android Tablet

app on your Android Tablet. Videos on YOUTUBE, or accessible from www.WillGER.ner Make sure to take advantage of video tutorials on initial setup and planning of EFM system





Use the new EFM system parts kit builder available at www.wilger.net. Simply input your implement size and layout and receive a parts list & quote. Simple as that.

your EFM system liquid kit on www.WILGER.NET

Build ....

# Wilger Electronic Flow Monitoring System ECU200 Example



# ECU200; Component Checklist for Wilger's Electronic Flow Monitoring System

Since the ECU200 includes the FIRST 16CH product node, it changes the ordering checklist slightly.

**Order 1 ECU200 kit** per system. (#20606-00)

Add the # of outlets (incl. multiples for monitoring multiple products). **First subtract 16 outlets from** the total (as the first 16 are included with ECU200), then divide the total # of outlets by 16.

Round up to nearest whole number. **Order that many 16CH Node kits**. (#20621-00) 4CH Node kits can be effective for 'extra' outlets in systems, but 16CH node kits are typically cost effective.

- Order 1 EFM assembly kit (#20580-00) per outlet (incl. multiples for monitoring multiple products) Alternatively, order EFM manifold kits (#20631-00 to #20634-00) for pre-built manifolds with flowmeters installed. Order 1 ORS Outlet & 1 ORS Check Valve (#20551-00 style) per EFM body m
  - Order manifolds & plumbing components (& end caps) suited for the implement size.
- [Optional if metering orifice req'd] **Order an ORS orifice for each outlet**, ensure proper metering orifice size for each rate. Use Tip Wizard @ www.wilger.net or via app, to ensure proper sizing.

G

(via WIFI to Android Tablet)

No Data plan reg'o

1x ORS Manifold Outlet per outlet 1x ORS Outlet Fitting per outlet 1x ORS Check Valve per outlet PLUMBING Parts 1x ECU200 KIT per system, incl. 1st 16CH 1x 16CH Node Kit per adtl. 16 outlet 1x Flowmeter (EFM) per outlet **ELECTRONICS Parts** 

1x Android Tablet [Android 8.0 0S or newer] Extension harnesses if req'd

1x End Cap per manifold [2x if center Tee]

1x Inlet Feed or Tee per manifold

1x Metering Orifice per outlet [or alt.]

For more information, start the conversation for your EFM system with your WILGER, NET Wilger dealer, and for more pictures/information, visit our website at:

# **EFM VIDEO TUTORIALS - Setting up EFM App on Android Tablet**

app on your Android Tablet. Videos on YOUTUBE, or accessible from www.WfllGER.ner Make sure to take advantage of video tutorials on initial setup and planning of EFM system



Simply input your implement size and layout and receive a parts list & quote. Simple as that. Use the new EFM system parts kit builder available at www.wilger.net.

your EFM system liquid kit on www.WILGER.NET



Build ....

# Wilger Electronic Flow Monitoring System App

Product 2 & 3 Setup: [Optional if using multiple products]

Set Product 1 Outlet spacing
Prod 1 Alarm threshold
Jet selection
(Color of jet used in flowmeter)

Product 1 Setup:

GREEN JET

BLUE JET

RED JET

# EFM System App Preview - Setup & Go

Download the Wilger Electronic Flow Monitoring System App.
 (GooglePlay Store, or APK download from www.wilger.net/efm.apk)

Electronic Flow Monitoring System Setup

ECU Setup Page

ECU WIFI Password

# of nodes connected to system

Serial # on ECU case [IMPORTANT]

Single or Multi-Product/screen

Multi Product (Max 196 Runs)

Leave at default 120

Set to # seconds for page scroll

#0

US GAL/MIN

Serial number may have 7-9 digits]

##### = ECU Serial No.

WILGER\_EFI\_##### Password: WILGER\_EFI ###### Preferred Flow UNIT

Preferred Application Rate UNIT

Set Fixed Application Speed

Kph

Mph

16.00 Inch mm

Inch mm

10

Inch mm

12

- Power up ECU, connect tablet to ECU WIFI, and complete ECU setup, including specifying product-specific alarm, outlet spacing & jet selection.
  - (WIFI password is ECU serial number; eg. "WILGER\_EFI\_1234567"; ECU serial number may be between 7-9 digits.
- Set row/outlet locations (on screen) by pairing row # and physical location of sensor (which node/cables it is connected to). Customize page layout by preference (group balls by sections or any other layout by user preference).
- 4 System will now monitor each individual flowmeter individually (on detailed snapshot screen and alarms), by product (with visual balls), and as a whole system.

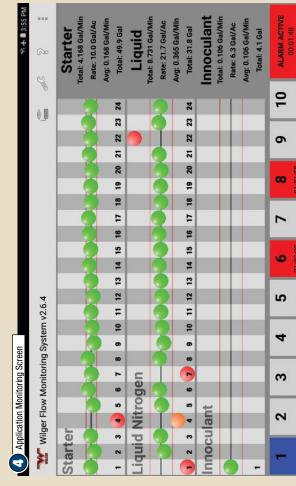
Populate each row of info (corresponds to 1 ball, and up to 24 balls/section) for each sensor used in the system

Electronic Flow Monitoring Sensor Setup

Sensor Setup Page

**E** • 3

Sensor Setup Area:



(1-4) the sensor is connected 10 Sensor # (SNR) - 1/2/3/4 Select the cable number Change 6 1-10 tabs for Section Screens [Multi-Product/Screen View] 1-3 tabs for Product Screens [Single-Product/Screen View] Select the node harness letter the sensor is connected to. Divider Letter (DIV) - A/B/C/D: default 0 Product 1-3 Selection & Label Setup IN sensor is connected to. Set to N/A for blank slot. က Node Number (NODE): Select the node # the Row Label: Name the sensor by outlet # or name (max 3 characters) 0 Product

Now that basic setup is complete, explore the individual row detailed screens, application widgets, advanced calibration screen, and equipment profile saving/recalling as well







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