

WILGER
SPRAYER &
LIQUID FERTILIZER
PARTS CATALOG

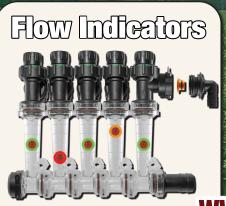
REVISED JANUARY 2022

WORLD CLASS SPRAYING COMPONENTS



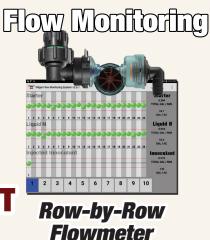






Visual Detection of Plugged Lines

FOR MORE INFORMATION VISIT



ISO 9001;2015



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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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FEATURED & NEW SPRAYER PARTS FOR 2022

New COMBO-JET® Double-Down & Agrifac Adapters



New options for Double-Down Spraying!

Ideal for high-volume applications, tough to reach targets, and making the most out of the nozzles you have on hand.



COMBO-RATE® Top Turrets

A top take-off turret is even more compact for larger PWM solenoids.

Available with **double-down spray** options, with backwards compatibility with all COMBO-RATE parts.



2" & 5" Outlet Extensions

For extending nozzles down 2"/5" to avoid boom frame interference for angled spray nozzles & more.





COMBO-RATE® Swivel End Body

A new COMBO-RATE end body that provides a swivel joint that is **adjustable in**15° increments, and locked into place for crop adapted spraying or fence-row nozzle spraying.



COMBO-RATE® Boom End Flush Valve

A new 'last nozzle body' that is integrated directly into a flush valve for a super compact boom end nozzle & flush valve.



Perfect Recirc. Booms



Remove Deadspots for Boom Hygiene

Compact Flush

& Recirc

MEIN



Stronger Compact Fittings



- The sprayer boom fittings for the next generation of sprayers Heavy-duty boom fittings that open up plumbing possibilities
- Ultimate configurations available for recirculating sprayer booms
- Common compatibility with common 1" flange fittings & more
- Even more fittings released into 2022







Easy Flange

Boom End Conversion for

Case TWS







Clean & Easy Recirculating Sprayer Boom Configurations



New COMBO-RATE Pre-Assembled Manifolds for estate, yard & ATV sprayers

Need to replace your yard sprayer's control manifold?

Building your own yard or ATV sprayer?

COMBO-RATE manifolds are modular and can be expanded or modified with any COMBO-RATE fittings. From pressure regulators, pressure gauges, to anything else that might be required.





COMBO-JET® Nozzle Bodies for PWM

Are you retrofitting your sprayer to PWM?

Cost-effective & compact nozzle

body for any tight sprayer boom.

40623-NM 1" Combo-Jet Triple Swivel 40663-NM 1" Square Lug Triple Swivel Nozzle Body

High-Flow COMBO-RATE II Bodies

21/32" inlet nozzle bodies can provide 45% more flow for flow rates upwards of 60 US GPA @ 15MPH with a single outlet.

Check the COMBO-RATE section.



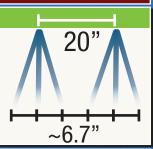
NEW LIQUID FERTILIZER PARTS FOR 2022



NEW 3-Hole Fertilizer Streamer Nozzles

Precision molded & color-coded liquid fertilizer streamer caps for consistent liquid fertilizer with less plant burn. Available in molded sizes from 0.15-2.0 us gpm.

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



New O-Ring Seal Fittings & Assemblies





20576-00 20576-02 Peplacement

20644-00 4 Outlet EFM Manifold with new Straight 10 PSI Manual ON/OFF Check Valves

New pre-assembled Flowmeter Manifolds

New electronic flowmeter manifolds with straight check valve allow for easy ordering and building of systems.

Simply replicate each section of the implement with manifolds of the same size, cap off the ends, add a hose feed, and away you go.

Available in manifolds of 1-4 Outlets.

Wilger Electronic Row-By-Row Flow Monitoring System

20549-00

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



20515-00

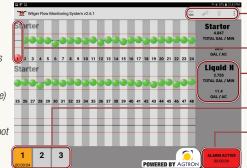
Simply enough, one of the highest compliments you can give farm equipment is "It works.

No fuss, no muss, it does the job it is supposed to do.

We are proud that for years, applicators have had exactly that (and more) to say about the EFM system.

The system worked after set up and typically ends up helping troubleshoot other equipment issues unrelated to the EFM, saving unexpected downtime & costs

With a customize-able app and interface based on user input, it will quickly pay itself off in value for the farm.



Simple menu and tools for setting up & customizing screens

Yellow & Red balls & lines show

Up to 3 different products can be monitored on one EFM system at the same time.

Two Simplified Views Single Product View

3 screens showing up to 72 rows

Multi-Product View:

10 sections up to 24 rows /section

Mutable Alarm button is able to alarm even if app is operating in the background



Fittings Swivel 360°



Crystal Clear lowmeter



Superior Chemical Resistance





High Accuracy Flowmeter



Acid Resistant **Parts**



EFM systems are developed by OEM manufacturers using WILGER parts

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! ORS metering orifice calculator, Flow Indicator Ball Selector, and further improved Tip Wizard spray tip search.

Tip Wizard aims to lead the industry as the WIZARD 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 Tip Advantage

Less plugging, as the path of flow always gets larger

40% longer strainer that snaps & seals into place

SR / MR / DR / UR 50% 75% 90% 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, creating solid mass droplets, for maximum spray velocity and more meaningful spray.

Without needing consistent air induction for drift reduction, Combo-Jet spray tips are the preferred tip for Pulse Width Modulation (PWM) spraying systems.

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

MR110-06







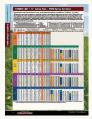
TIP WIZARD ONLINE



EXCEL-BASED CHARTS



PRINTED TIP 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.



	Comparison Criteria	ER Series Extended Range	SR Series Small Reduction	MR Series Mid-Range Reduction	DR Series Drift Reduction	UR Series Drift Reduc
	Spray Tip Design	Conventional Flat Fan	Pre-orifice Drift Reduction	Pre-orifice Drift Reduction	Pre-orifice Drift Reduction	Dual Cham
	Spray Quality @40PSI	Medium	Coarse	Extremely Coarse	Extremely Coarse	Ultra
THE PARTY NAMED IN	Droplet Size ¹ @40PSI	Smallest (246µ VMD¹)	Medium (371μ VMD¹)	Large (474µ VMD¹)	Very Large (529µ VMD¹)	Ultra Coars
のでは	% <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 designed for certai that require exce
	Drift Potential	Most likely to drift	Lower drift potential	Major reduction in drift	Very low drift potential	They are not be to spray tip series tha
	Coverage	Best	Excellent	Very good	Good	on the chemica up-to-date I

¹Based on an XX110-06 nozzle @ 40 psi (2.75 BAR)

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

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

Drift Reduction

Dual Chamber Drift Red.

UR110-06

Ultra-Coarse

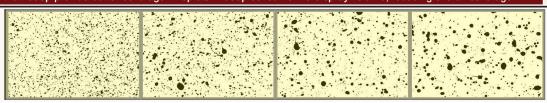
ra Coarse (633µ VMD¹)

UR spray tips are specialty spray tips, designed for certain chemical applications that require exceptional drift reduction.

hey are not be to be replaced with other ray tip series that are not approved to be on the chemical label. Always follow up-to-date label information.

Refer to chemical application label for naximum pressures, speeds and application information.

More information available at www.wilger.net



Selecting the Right Spray Quality & Droplet Size

Diffitus Effects

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 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). Some chemical label will also stipulate which nozzles can be used.

Application Information: Minimum volume requirement on chemical label Reference max pressure for conventional nozzles like ER series. Water Volume: Minimum 22 L per acre. 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 Chard 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.

*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.

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 a 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.

First-timer's look at Tip Wizard



% of Volume < 500p For a relative factor of small

droplets in ideal conditions



oreall CANADA 1 (ESS) 242-3121

USA 1 (877) 953-7695

Beginner's Guide to using Tip Wizard

- 1 Choose application units, spray system type, and search function (e.g. Search for tips)
- **Enter** application rate, spraying speed¹, nozzle spacing, and spray tip angle². Since PWM systems can modulate flow by changing the spray duration, enter the MAX typical spraying speed ²Spray tip angle required is based on nozzle spacing and boom height. Always maintain 100% overlap.
- 3 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 for spraying in ideal conditions. Using the droplet size (VMD) allows a more advanced way to filter through series of tips.

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. Nozzles and Pressure: 30 to 40 psi (210 to 275 kPa) when using conventional flat fan nozzles. Try avoid non-drift reduction tips. 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 & co Spray Categories as per **ASABE S572.1** Classification

■ Extremely Fine ■ Very Fine ■ Fine ■ Medium ■ Coarse ■ Very Coarse □ Extremely Coarse ■ Ultra Coarse

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

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.

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.

2 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).

3 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 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.

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.

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.

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 30-60PSI 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% ✓ Excellent **@35PSI: DUTY CYCLE: 90%** ✓ 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

Part No:	et® SR110-06 40287-06 Color: o: Not Required	: Grey				☆
Pressure (psi) 😯	Speed Range (mph) ♀	DC (%) @ 14 mph	Class	VMD (μ) ♀	<141 (%) 😯	<600 (%)
25	3.3-13.2	>100	XC	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 0 µ	11	92

Picking Nozzles for Dual-tip 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 divide it into parts that would provide the same flow rate.

For example: If a 110-10 nozzle size is required for an application, suitable pairs would be like a '110-06 + 110-04' or '110-05 + 110-05', as the cumulative size would be able to apply the same rate as a single 110-10. For consistency, 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)

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.

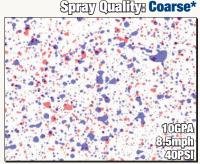
FOCUS ON: SPEED & PRESSURE for a required APPLICATION RATE

*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.

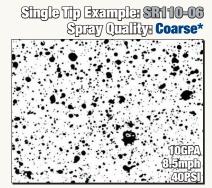
Try to pick a size that allows a duty cycle of 60-80% at your typical sprayer speed, allowing sufficient speed up/down.

2 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.

■ MR110-04 ↔ MR110-02



Example 2x SR110-03 Spry Quality Coarse* 1002 Semph



*IMPORTANT: FOR PWM SPRAYERS (Pressure-drop through solenoid): Depending on the solenoid used, for larger nozzle sizes (or cumulative nozzle sizes for double-down nozzles) 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).

3 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.

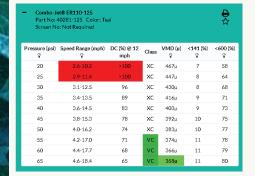
Since you are splitting a single 'large' nozzle into two smaller nozzles, you should take advantage of getting a much higher %<600µ than possible with a single nozzle.

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 ~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.

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



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.

COMBO-JET ER 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**

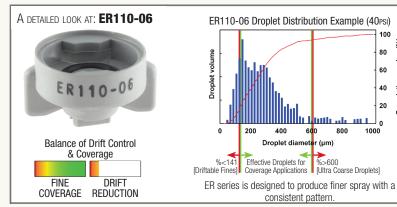


Consistent Pattern at Lower PSI





Acid Resistant Nozzles



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

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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	Щ	IL.	F	F	F
ER80-02	F	F	F	F	F	F	Щ	II.	F	F	F
ER80-025	M	M	F	F	F	F	I.	II.	F	F	F
ER80-03	M	M	F	F	F	F	I.	II.	F	F	F
ER80-04	M	M	M	M	M	F	I.	II.	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

Pressure (PSI)	20	25	30	35	40	45	50	60	65	70	80
ER110-01	F	F	F	F	F	F	F	F	F	F	F
ER110-015	F	F	F	F	F	F	F	F	F	F	F
ER110-02	F	F	F	F	F	F	F	F	F	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	F	F	F
ER110-05	M	M	M	M	F	F	F	F	F	F	F
ER110-06	C	M	M	M	M	M	M	M	M	F	F
ER110-08	C	C	C	M	M	M	M	F	F	F	F
ER110-10	VC	C	C	C	C	C	M	M	M	M	F
ER110-125		XC	XC	XC	VC	VC	C	C	C	C	C
ER110-15		XC	XC	XC	VC	VC	C	C	C	C	C
ER110-20		XC	VC	VC	C						
ER110-25		XC	VC	VC	C						
ER110-30		UC	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 Spray Tip: Stainless Steel O-ring: FKM, 13mm x 3mm #40260-00 (viton avail.) Cap: Glass-reinforced Polypropylene

ASABE Spray Classification

(ASABE S572.1 Standard)

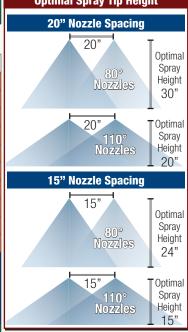
Spray quality is categorized based on Dv0.1 and VMD droplet sizes. Objective testing data (by 3rd party), from spray spectrum recording equipment (without wind tunnel use), has been used to classify spray quality for this chart. Chart shown includes spray quality at tested data points as well as extranolated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

Optimal Spray Tip Height



COMBO-JET SR 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

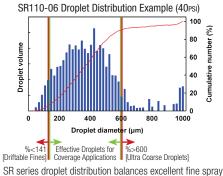
Consistent Pattern at Lower PSI





Acid Resistant **Nozzles**





coverage while reducing driftable fines.

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	C	M	M	M	M	F	F	F	F	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	C	C	C	C	C	C	M	M	M	M
SR80-04	C	C	C	C	C	C	C	M	M	M
SR80-05	VC	VC	C	C	C	C	C	C	C	C
SR80-06	XC	VC	VC	VC	C	C	C	C	C	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	C	C	C	C	M	M	M	M	M	F
SR110-04	C	C	C	C	C	M	M	M	M	M
SR110-05	C	C	C	C	C	C	C	M	M	M
SR110-06	VC	VC	C	C	C	C	C	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" Heigh 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]

-01	-015	-02	-025	-03		-05	-06	-08	-10	-125	-15	-20	-25	-30
40285-01	40285-015	40285-01	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 MR 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



Superior Drift



Reduction

Consistent

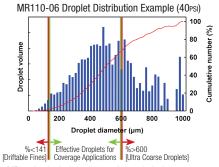
Pattern at

Lower PSI



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	F	F	F	F	F	F	F	F	F
MR80-01	M	F	F	F	F	F	F	F	F
MR80-015	C	C	C	M	M	M	M	M	F
MR80-02	C	C	C	C	C	M	M	M	M
MR80-025	VC	VC	C	C	C	C	C	C	С
MR80-03	VC	VC	C	C	C	C	C	C	C
MR80-04	VC	VC	C	C	C	C	C	C	С
MR80-05	XC	XC	VC	VC	VC	VC	C	C	C
MR80-06	XC	XC	XC	XC	VC	VC	VC	VC	C
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	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							
MR80-30		UC							
MR80-40		UC	UC	UC	UC	XC	XC	XC	XC

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

Pressure (PSI)	30	35	40	45	50	60	65	70	80
MR110-015	C	C	C	M	M	M	F	F	F
MR110-02	C	C	C	M	M	M	M	M	F
MR110-025	C	C	C	C	C	C	M	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	C	C	C
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 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.

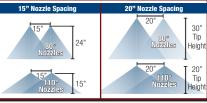
Objective 3rd party testing data, from spray spectrum recording equipment (without wind tunnel use), has been used to classify spray quality for this chart. Chart shown includes spray quality at tested data points as well as extrapolated data points.

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



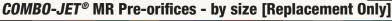
	LERAP Ratings for MR Series As of January 2021
MR110-04	☆☆☆75% ☆☆50% 1.0-2.5bar 2.6-3.5bar
MR110-05	☆☆☆90% ☆☆☆75% 1.0-1.5bar 1.6-5.0bar
MR110-06	☆☆☆ 90% ☆☆☆ 75% 1.0-1.5bar 1.6-5.0bar

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 Visit www.wilger.net for updated charts



-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	40285-01	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 DR 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

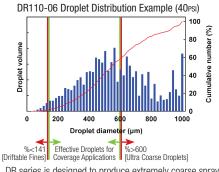
Pattern at

Lower PSI



Balance of Drift Control & Coverage

FINE DRIFT COVERAGE REDUCTION



DR series is designed to produce extremely coarse spray with very minimal drift.

Sprayers

Solid Mass

Spray

Droplets

Perfect

for PWM



Acid Resistant **Nozzles**

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

Pressure (PSI)	30	35	40	45	50	60	65	70	80
DR80-005	C	M	M	F	F	F	F	F	Œ.
DR80-0067	C	C	M	M	M	M	F	F	Œ.
DR80-01	C	C	C	M	M	M	M	E	щ
DR80-015	VC	VC	C	C	C	C	C	С	С
DR80-02	XC	VC	VC	VC	VC	C	C	С	С
DR80-025	XC	VC	VC	VC	VC	C	C	С	С
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	VC	VC						
DR80-06	XC								
DR80-08	UC								
DR80-10	UC								
DR80-125	UC								
DR80-15	UC								
DR80-20		UC							
DR80-25		UC							
DR80-30		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	C	C	C
DR110-03	XC	XC	VC	VC	VC	C	C	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	40285-01	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)

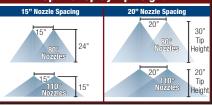
Spray quality is categorized based on Dv0.1 and VMD droplet sizes.
Objective 3rd party testing data, from spray spectrum recording
equipment (without wind tunnel use), has been used to classify spray
quality for this chart. Chart shown includes spray quality at tested data points as well as extrapolated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



	LERAP Ratings for DR Series As of January 2021
DR110-025	☆☆☆ 75% ☆☆ 50% 1.0-2.5bar 2.6-3.5bar
DR110-03	↑ ↑ ↑ ↑ 1.0-1.5bar 1.6-2.5bar 2.6-3.5bar
DR110-04	☆☆☆ 75% 1.0-5.0Bar
DR110-05	፟ጏጏጏጏ 90% ፏቷቷ 75% 1.0-1.5bar 1.6-5.0bar
DR110-06	☆☆☆90% ☆☆☆75% 1.0-3.0bar 3.1-5.0bar

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

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

				atings for DR Series ger.net for updated charts
4.5	00	٥٢	00	

COMBO-JET UR 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

Solid Mass

Spray

Droplets



Spray Drift

Ultra Low

Lasting

Stainless

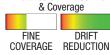
Tips

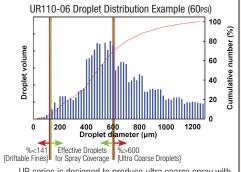
Acid Resistant

Nozzles



Balance of Drift Control & Coverage





UR series is designed to produce ultra coarse spray with extremely little drift.

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]

-06 -08 40292-2 *U.S. Patent No. 10,603,681

		ngs for UR nuary 2021	Series
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 Spra	ay Tip Height
15" Nozzle Spacing	20" Nozzle Spacing
15" 24" Nozzles	20" 30° Nozziles 30"
15" 110° Nozzles	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 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.

chemic				<u> </u>							C	. 01	£! L!	\ /B # I) /D===	I-+ C:		0/ .4	44 /D		0/ .00	0/0	all D		`
Nozzle Angle &	Flow Rate	Boom Pressure			on Rate Spacin						Spray ER80°		fication es			let Size ' Serie				<u>rift %);</u> ° Seri			<u>mall Di</u> 0R80°		
Sizes	USGPM	PSI			with A								<600												
	Flow	Boom			olicatio				,,,,		0-005				*****	VI II				(4029					
	us gpm		2gpa	3 _{GPA}	4 _{GPA}	5gpa	6gpa	7gpa		CLASS	VMD	<141	<600							<141					
	0.035	20	5.3	3.5	2.6	2.1	1.8	1.5	1.3	F			100%												
	0.040	25	5.9	3.9	2.9	2.3	2.0	1.7	1.5	F	157		100%					M	261	11%	99%	C	311	6%	100
80°	0.043	30	6.4	4.3	3.2	2.6	2.1	1.8	1.6	F	149		100%					M	236	17%	98%	С	276	11%	100
-005	0.047	35	6.9	4.6	3.5	2.8	2.3	2.0	1.7	F	142		100%					M	217	22%	97%	M	250	16%	100
lozzles	0.050	40	7.4	5.0	3.7	3.0	2.5	2.1	1.9	F	137		100%					F	201	26%	96%	М	230	19%	100
	0.053	45	7.9	5.3	3.9	3.2	2.6	2.3	2.0	Ė	132	59%	100%					F	189	30%	95%	F	213	23%	100
	0.056	50 60	8.3 9.1	5.5 6.1	4.2	3.3	2.8 3.0	2.4	2.1	F	128 121		100% 100%					Ė	178 161	33%	94%	F	200 178	25% 30%	100
	0.061	65	9.5	6.3	4.7	3.8	3.2	2.7	2.4	F	118		100%					F	154	41%	92%	F	169	33%	
	0.066	70	9.8	6.5	4.7	3.9	3.3	2.8	2.5	Ė	116		100%					Ė	148	44%	91%	Ė	161	35%	100
	0.000	80	11	7.0	5.3	4.2	3.5	3.0	2.6	VF	111		100%					Ė	138	48%	90%	F	148	38%	
_	Flow	Boom	- ' '		olicatio				2.0	ER80		(4027							0-0067		0-007)			(4028)	
	us gpm		2 _{GPA}	3 _{GPA}	4 _{GPA}	5 _{GPA}	6 _{GPA}	7 _{GPA}	8 _{GPA}	CLASS			<600				Ì	CLASS	VMD		<600			<141	
	0.047	20	7.0	4.7	3.5	2.8	2.3	2.0	1.8	F	199	21%	100%												
	0.053	25	7.9	5.2	3.9	3.1	2.6	2.2	2.0	F	183	29%	100%					M	231	18%	99%	С	337	6%	100
80°	0.058	30	8.6	5.7	4.3	3.4	2.9	2.5	2.2	F	171	35%	100%					F	211	24%	98%	С	308	9%	100
-0067	0.063	35	9.3	6.2	4.7	3.7	3.1	2.7	2.3	F	161		100%					F	195	29%		С	285	11%	100
lozzles	0.067	40	9.9	6.6	5.0	4.0	3.3	2.8	2.5	F	153		100%					F	182	33%	96%	M	267	13%	100
	0.071	45	11	7.0	5.3	4.2	3.5	3.0	2.6	F	147		100%					F	171	37%	95%	M	252	15%	100
	0.075	50	11	7.4	5.6	4.4	3.7	3.2	2.8	F	141		100%					F	162	40%	94%	M	239	17%	100
	0.082	60	12	8.1	6.1	4.9	4.1	3.5	3.0	F	131		100%					F	148	46%		M	218	20%	
	0.085	65	13	8.5	6.3	5.1	4.2	3.6	3.2	F	128		100%					F	142	49%	92%	F	210	21%	100
	0.089	70 80	13 14	8.8 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	22% 24%	100
	Flow	Boom	14		olicatio			4.0	J.J		30-01		0-01)	SR	0-01	(4028	8-01)	MRS	30-01	(4029		DRS	109 30-01	(4028	_
	us gpm	psi	4 _{GPA}	5GPA	6GPA	7.5 _{GPA}	8GPA	9gpa	10 _{GPA}	CLASS	VMD	<141		CLASS	VMD	<141	<600		VMD		<600			<141	<60
	0.07	20	5.3	4.2	3.5	2.8	2.6	2.3	2.1	F	175		100%	C	292		97%				1000				
	0.08	25	5.9	4.7	3.9	3.1	2.9	2.6	2.3	F	164		100%	M	258	29%	97%								
80°	0.09	30	6.4	5.1	4.3	3.4	3.2	2.9	2.6	F	156		100%	M	233		97%	M	218	23%	97%	С	312	10%	949
-01	0.09	35	6.9	5.6	4.6	3.7	3.5	3.1	2.8	F	149		100%	F	214	29%	97%	F	204	27%	97%	Č	291	12%	95%
lozzles	0.10	40	7.4	5.9	5.0	4.0	3.7	3.3	3.0	F	143	49%	100%	F	199	29%	97%	F	191	30%	97%	С	274	14%	969
	0.11	45	7.9	6.3	5.3	4.2	3.9	3.5	3.2	F	139		100%	F	186	29%	97%	F	181	33%		M	260	15%	979
	0.11	50	8.3	6.6	5.5	4.4	4.2	3.7	3.3	F	134	56%	100%	F	176	29%	98%	F	173	36%	97%	M	248	17%	989
	0.12	60	9.1	7.3	6.1	4.8	4.5	4.0	3.6	F	128		100%	F	159	29%	98%	F	159	40%		M	229	19%	99%
	0.13	65	9.5	7.6	6.3	5.0	4.7	4.2	3.8	F	125		100%	<u>F</u>	152		98%	F	153	42%		M	221	20%	
	0.13	70	9.8	7.9	6.5	5.2	4.9	4.4	3.9	Ė	122		100%	<u>F</u>	146	29%	98%	F	148	44%		F	214	21%	
	0.14 Flow	80 Boom	11	8.4 Ani	7.0 plicatio	5.6	5.3	4.7	4.2	FRR	117 0-015		100% 0-015)	SBS	135	29%		MRS	139	48%			202	23%	
	us gpm	psi	4 _{GPA}	5gpa		7.5gpa	8GPA		12gpa						VMD	<141				<141				<141	
	0.11	20	7.9	6.3	5.3	4.2	3.9	3.2	2.6	F	199		100%			```	1000				1000				100
	0.12	25	8.8	7.0	5.9	4.7	4.4	3.5	2.9	F	188		100%	С	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%	M	262	16%	95%	С	323	10%	94%	VC	418	4%	879
-015	0.14	35	10	8.3	6.9	5.6	5.2	4.2	3.5	F	173	32%	100%	M	244	19%	96%	С	301	12%	95%	VC	397	5%	89%
Vozzles	0.15	40	11	8.9	7.4	5.9	5.6	4.5	3.7	F	167	34%	100%	M	230	22%	96%	С	283	14%		С	380	6%	90%
	0.16	45	12	9.5	7.9	6.3	5.9	4.7	3.9	F	162		100%	M	218	24%	97%	M	269	16%	97%	С	365	6%	919
	0.17	50	12	10	8.3	6.6	6.2	5.0	4.2	F	158		100%	F	207	26%	97%	M	256	17%		С	353	7%	92%
	0.18	60	14	11	9.1	7.3	6.8	5.5	4.5	F	151		100%	E E			97%	M	726	200/-	98%	С	332	8%	949
	0.19	65	14	11	9.5	7.6	7.1	5.7	4.7		1 1 1 0			_	191	30%			236	20%			324	8%	949
	0.20	70	15	12	9.8	7.9					148		100%	Ė	184	32%	97%	M	227	21%		С			95%
	0.21						7.4	5.9	4.9	F	145	46%	100%	F	184 177	32% 33%	97% 98%	M M	227 220	21% 22%	99%	С	316	9%	050
		80 Boom	16	13	11	8.4	7.9	6.3	4.9 5.3	F	145 140	46% 48%	100% 100%	F F SRS	184 177 167	32% 33% 36%	97% 98% 98%	M M F	227 220 207	21% 22% 23%	99% 99%	C C	316 302	10%	
	Flow	Boom	16	13 Ap	11 plicatio	8.4 n Spee	7.9 d (mph	6.3	5.3	F ER8	145 140 30-02	46% 48% (4027	100% 100% 0-02)		184 177 167 0-02	32% 33% 36% (4028	97% 98% 98% 8-02)	M M F MR8	227 220 207 30-02	21% 22% 23% (4029	99% 99% 0-02)	C C DR8	316 302 30-02		0-02
	Flow us gpm	Boom psi	16 5gpa	13 App 6gpa	11 olicatio 7.5gpa	8.4 n Spee 8gpa	7.9 d (mph 10gpa	6.3 @ 12gpa	5.3 15gpa	F	145 140 80-02 VMD	46% 48% (4027 <141	100% 100% (0-02) <600		184 177 167 0-02	32% 33% 36%	97% 98% 98% 8-02)	M M F MR8	227 220 207 30-02	21% 22% 23% (4029	99% 99%	C C DR8	316 302 30-02	10%	0-02
	Flow	Boom psi 20	16	13 App 6gpa 7.0	11 olicatio 7.5gpa 5.6	8.4 n Spee 8 _{GPA} 5.3	7.9 d (mph	6.3 @ 12gpa 3.5	5.3 15gpa 2.8	F ER8	145 140 80-02 VMD	46% 48% (4027 <141 28%	100% 100% 0-02)	CLASS	184 177 167 80-02 VMD	32% 33% 36% (4028 <141	97% 98% 98% 8-02) <600	M M F MR8	227 220 207 30-02	21% 22% 23% (4029	99% 99% 0-02)	C C DR8	316 302 30-02	10%	0-02
80°	Flow us gpm 0.14	Boom psi	16 5gpa 8.4	13 App 6gpa	11 olicatio 7.5gpa	8.4 n Spee 8gpa	7.9 d (mph 10gpa 4.2	6.3 @ 12gpa	5.3 15gpa	F ER8	145 140 80-02 VMD 184	46% 48% (4027 <141 28% 31%	100% 100% 0-02) <600 100%	CLASS C	184 177 167 0-02	32% 33% 36% (4028 <141	97% 98% 98% 8-02)	M M F MR8	227 220 207 30-02	21% 22% 23% (4029	99% 99% 0-02)	C C DR8	316 302 30-02	10%	0-02 <60
80° -02	Flow us gpm 0.14 0.16 0.17 0.19	Boom psi 20 25	16 5GPA 8.4 9.4 10 11	13 App 6gPA 7.0 7.8 8.6 9.3	11 olicatio 7.5gpa 5.6 6.3 6.9 7.4	8.4 n Spee 8GPA 5.3 5.9 6.4 6.9	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6	6.3	5.3 15gpa 2.8 3.1 3.4 3.7	F ER8 CLASS F	145 140 30-02 VMD 184 176	46% 48% (4027 <141 28% 31% 34% 36%	100% 100% 0-02) <600 100% 100% 100% 100%	C M M	184 177 167 80-02 VMD 273 257 244	32% 33% 36% (4028 <141 13% 16% 18%	97% 98% 98% 8-02) <600 94% 95% 96%	M M F MR8 CLASS	227 220 207 30-02 VMD 326 310	21% 22% 23% (4029 <141 8% 10%	99% 99% 0-02) <600 94% 94%	C C DR8	316 302 80-02 VMD 454 435	10% (4028 <141 3% 4%	80°
-02	Flow us gpm 0.14 0.16 0.17 0.19 0.20	Boom psi 20 25 30 35 40	16 5GPA 8.4 9.4 10 11 12	13 App 6GPA 7.0 7.8 8.6	11 olicatio 7.5gpa 5.6 6.3 6.9 7.4 7.9	8.4 n Spee 8GPA 5.3 5.9 6.4 6.9 7.4	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9	6.3 12GPA 3.5 3.9 4.3 4.6 5.0	5.3 15gpa 2.8 3.1 3.4 3.7 4.0	F ER8 CLASS F F F F	145 140 30-02 VMD 184 176 170 166 161	46% 48% (4027 <141 28% 31% 34% 36% 38%	100% 100% (0-02) <600 100% 100% 100% 100%	C M M M	184 177 167 60-02 VMD 273 257 244 233	32% 33% 36% (4028 <141 13% 16% 18% 20%	97% 98% 98% 8-02) <600 94% 95% 96% 96%	M M F MR8 CLASS	227 220 207 30-02 VMD 326 310 298	21% 22% 23% (4029 <141 8% 10% 11%	99% 99% 0-02) <600 94% 94% 94%	C C C DR8	316 302 30-02 VMD 454 435 419	10% (4028 <141 3% 4% 4%	80° 80° 83° 84°
-02	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21	Boom psi 20 25 30 35 40 45	5GPA 8.4 9.4 10 11 12 13	13 App 6GPA 7.0 7.8 8.6 9.3 9.9	11 7.5gpa 5.6 6.3 6.9 7.4 7.9 8.4	8.4 n Spee 8GPA 5.3 5.9 6.4 6.9 7.4 7.9	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9 6.3	6.3 12GPA 3.5 3.9 4.3 4.6 5.0 5.3	5.3 15gpa 2.8 3.1 3.4 3.7 4.0 4.2	F ER8 CLASS F	145 140 30-02 VMD 184 176 170 166 161 158	46% 48% (4027 <141 28% 31% 34% 36% 38% 40%	100% 100% 0-02) <600 100% 100% 100% 100% 100%	C M M M M M	184 177 167 30-02 VMD 273 257 244 233 224	32% 33% 36% (4028 <141 13% 16% 18% 20% 22%	97% 98% 98% 8-02) <600 94% 95% 96% 96% 97%	M M F MR8 CLASS	227 220 207 30-02 VMD 326 310 298 287	21% 22% 23% (4029 <141 8% 10% 11% 13%	99% 99% 0-02) <600 94% 94% 94% 94%	C C C DR8	316 302 80-02 VMD 454 435 419 406	10% (4028 <141 3% 4% 4% 5%	80° 83° 84° 86°
-02	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21 0.22	Boom psi 20 25 30 35 40 45 50	5GPA 8.4 9.4 10 11 12 13 13	13 App 6GPA 7.0 7.8 8.6 9.3 9.9 11	11 7.5GPA 5.6 6.3 6.9 7.4 7.9 8.4 8.9	8.4 n Spee 8GPA 5.3 5.9 6.4 6.9 7.4 7.9 8.3	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6	6.3 12GPA 3.5 3.9 4.3 4.6 5.0 5.3 5.5	15gpa 2.8 3.1 3.4 3.7 4.0 4.2 4.4	F ER8 CLASS F F F F	145 140 80-02 VMD 184 176 170 166 161 158 155	46% 48% (4027 <141 28% 31% 34% 36% 38% 40% 42%	100% 100% 0-02) <600 100% 100% 100% 100% 100% 100%	CLASS M M M M M	184 177 167 60-02 VMD 273 257 244 233 224 216	32% 33% 36% (4028 <141 13% 16% 18% 20% 22% 24%	97% 98% 98% 8-02) <600 94% 95% 96% 96% 97% 97%	M M F MR8 CLASS	227 220 207 30-02 VMD 326 310 298 287 277	21% 22% 23% (4029 <141 8% 10% 11% 13% 14%	99% 99% 0-02) <600 94% 94% 94% 94% 95%	C C DR8	316 302 80-02 VMD 454 435 419 406 394	10% (4028 <141 3% 4% 4% 5% 5%	80° 80° 83° 84° 86° 87°
-02	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21 0.22 0.24	Boom psi 20 25 30 35 40 45 50 60	5GPA 8.4 9.4 10 11 12 13 13	13 App 6GPA 7.0 7.8 8.6 9.3 9.9 11 11	11 plicatio 7.5gpa 5.6 6.3 6.9 7.4 7.9 8.4 8.9 9.7	8.4 n Spee 8GPA 5.3 5.9 6.4 6.9 7.4 7.9 8.3 9.1	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3	6.3 12GPA 3.5 3.9 4.3 4.6 5.0 5.3 5.5 6.1	15GPA 2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8	F ER8 CLASS F F F F F	145 140 30-02 VMD 184 176 170 166 161 158 155	46% 48% (4027 <141 28% 31% 34% 36% 38% 40% 42% 45%	100% 100% 0-02) <600 100% 100% 100% 100% 100% 100% 100%	CLASS M M M M M F	184 177 167 60-02 VMD 273 257 244 233 224 216 203	32% 33% 36% (4028 <141 13% 16% 18% 20% 22% 24% 27%	97% 98% 98% 8-02) <600 94% 95% 96% 96% 97% 97% 98%	M M F MR8 CLASS	227 220 207 30-02 VMD 326 310 298 287 277 262	21% 22% 23% (4029 <141 8% 10% 11% 13% 14% 16%	99% 99% 0-02) <600 94% 94% 94% 95% 95%	C C DR8	316 302 80-02 VMD 454 435 419 406 394 375	10% (4028 <141 3% 4% 4% 5% 5% 6%	80° 80° 83° 84° 86° 87° 88°
-02	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21 0.22 0.24 0.25	Boom psi 20 25 30 35 40 45 50 60 65	5GPA 8.4 9.4 10 11 12 13 13 15	13 App 6GPA 7.0 7.8 8.6 9.3 9.9 11 11 12	11 Dicatio 7.5gpa 5.6 6.3 6.9 7.4 7.9 8.4 8.9 9.7 10	8.4 n Spee 8GPA 5.3 5.9 6.4 6.9 7.4 7.9 8.3 9.1 9.5	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6	6.3 12GPA 3.5 3.9 4.3 4.6 5.0 5.3 5.5 6.1 6.3	15GPA 2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8 5.0	F ERS CLASS F F F F F F	145 140 30-02 VMD 184 176 166 161 158 155 150 147	46% 48% (4027 <141 28% 31% 36% 36% 38% 40% 42% 45% 46%	100% 100% 0-02) <600 100% 100% 100% 100% 100% 100% 100% 1	CLASS M M M M F F	184 177 167 60-02 VMD 273 257 244 233 224 216 203 198	32% 33% 36% (4028 <141 13% 16% 18% 20% 22% 24% 27% 29%	97% 98% 98% 8-02) <600 94% 95% 96% 96% 97% 97% 98% 98%	M M F MR8 CLASS	227 220 207 30-02 VMD 326 310 298 287 277 262 255	21% 22% 23% (4029 <141 8% 10% 11% 13% 14% 16% 17%	99% 99% 0-02) <600 94% 94% 94% 95% 95%	C C DRECTOR	316 302 30-02 VMD 454 435 419 406 394 375 366	3% 4% 5% 6% 6%	80° 83° 84° 86° 87° 88° 88°
-02	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21 0.22 0.24 0.25 0.26	800m psi 20 25 30 35 40 45 50 60 65 70	5GPA 8.4 9.4 10 11 12 13 13 15 15	13 App 6GPA 7.0 7.8 8.6 9.3 9.9 11 11 12 13 13	11 Dicatio 7.5gpa 5.6 6.3 6.9 7.4 7.9 8.4 8.9 9.7 10	8.4 n Spee 8GPA 5.3 5.9 6.4 6.9 7.4 7.9 8.3 9.1 9.5 9.8	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9	6.3 12GPA 3.5 3.9 4.3 4.6 5.0 5.3 5.5 6.1 6.3 6.5	5.3 2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8 5.0 5.2	CLASS F F F F F F F F	145 140 30-02 VMD 184 176 170 166 161 158 155 150 147	46% 48% (4027 <141 28% 31% 36% 38% 40% 42% 45% 46% 47%	100% 100% 0-02) <600 100% 100% 100% 100% 100% 100% 100% 1	CLASS M M M M F F F	184 177 167 60-02 VMD 273 257 244 233 224 216 203 198 193	32% 33% 36% (4028 <141 13% 16% 18% 20% 22% 24% 27% 29% 30%	97% 98% 98% 98% 8-02) <600 94% 95% 96% 97% 97% 98% 98% 98%	M M F MR8 CLASS	227 220 207 30-02 VMD 326 310 298 287 277 262 255 249	21% 22% 23% (4029 <141 8% 10% 11% 13% 14% 16% 17%	99% 99% 0-02) <600 94% 94% 94% 95% 95% 95%	C C C C C C C C	316 302 30-02 VMD 454 435 419 406 394 375 366 359	3% 4% 5% 6% 6% 7%	80% 83% 84% 86% 87% 88% 90%
-02	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21 0.22 0.24 0.25 0.26	800m psi 20 25 30 35 40 45 50 60 65 70	5GPA 8.4 9.4 10 11 12 13 13 15	13 App 6GPA 7.0 7.8 8.6 9.3 9.9 11 11 12 13 13	11 Dicatio 7.5GPA 5.6 6.3 6.9 7.4 7.9 8.4 8.9 9.7 10	8.4 n Spee 8GPA 5.3 5.9 6.4 6.9 7.4 7.9 8.3 9.1 9.5 9.8	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4	6.3 12GPA 3.5 3.9 4.3 4.6 5.0 5.3 5.5 6.1 6.3 6.5 7.0	15GPA 2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8 5.0	CLASS F F F F F F F F	145 140 30-02 VMD 184 176 170 166 161 158 155 150 147 145 142	46% 48% (4027 <141 28% 31% 36% 38% 40% 42% 45% 46% 47% 49%	100% 100% (0-02) <600 100% 100% 100% 100% 100% 100% 100% 99% 99% 99%	CLASS M M M M F F F	184 177 167 30-02 VMD 273 257 244 233 224 216 203 198 193 184	32% 33% 36% (4028 <141 13% 16% 18% 20% 22% 24% 27% 29% 30% 32%	97% 98% 98% 8-02) <600 94% 95% 96% 97% 97% 98% 98% 98%	M M F F MR8 CLASS	227 220 207 30-02 VMD 326 310 298 287 277 262 255 249 239	21% 22% 23% (4029 <141 8% 10% 11% 13% 14% 16% 17% 17% 19%	99% 99% 0-02) <600 94% 94% 94% 95% 95% 95% 95%	C C C C C C C	316 302 30-02 VMD 454 435 419 406 394 375 366 359 346	3% 4% 5% 5% 6% 6% 7%	80% 80% 83% 84% 86% 87% 88% 90% 91%
-02	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21 0.22 0.24 0.25 0.26 0.28 Flow	Boom psi 20 25 30 35 40 45 50 66 65 70 80 Boom	5GPA 8.4 9.4 10 11 12 13 13 15 15 16	13 App 6GPA 7.0 7.8 8.6 9.3 9.9 11 11 12 13 13 14	11 Dicatio 7.5GPA 5.6 6.3 6.9 7.4 7.9 8.4 8.9 9.7 10 11 Dicatio	8.4 n Spee 8GPA 5.9 6.4 6.9 7.4 7.9 8.3 9.1 9.5 9.8 11 n Spee	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 d (mph	6.3 202 12GPA 3.5 3.9 4.3 4.6 5.0 5.3 5.5 6.1 6.3 6.5 7.0	15GPA 2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8 5.0 5.2 5.6	ER8 CLASS F F F F F F F F F F F F F F F F F F	145 140 80-02 VMD 184 176 166 161 158 155 150 147 145 142 0-025	46% 48% (4027 <141 28% 31% 36% 36% 40% 42% 45% 46% 47% 49% (4027	100% 100% (-02) <600 100% 100% 100% 100% 100% 100% 100% 99% 99% 99% 99%	CLASS C M M M M F F F SR80	184 177 167 30-02 VMD 273 257 244 233 224 216 203 198 193 184 0-025	32% 33% 36% (4028 <141 13% 16% 18% 20% 22% 24% 27% 29% 30% 32% (40288	97% 98% 98% 8-02) <600 94% 95% 96% 97% 97% 98% 98% 98% -025)	M M M M M M M M M M M M M M M M M M M	227 220 207 30-02 VMD 326 310 298 287 277 262 255 249 239 0-025	21% 22% 23% (4029 <141 8% 10% 11% 13% 14% 16% 17% 19% (4029)	99% 99% 0-02) <600 94% 94% 94% 95% 95% 95% 95%	C C C C C C DR8	316 302 30-02 VMD 454 435 419 406 394 375 366 359 346 0-025	3% 4% 5% 6% 6% 7% 7% (4028	80° 83° 84° 86° 87° 88° 90° 91° 9-02
-02	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21 0.22 0.24 0.25 0.26 0.28 Flow us gpm	Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi	5GPA 8.4 9.4 10 11 12 13 15 15 16 17	13 App 6gPA 7.0 7.8 8.6 9.3 9.9 11 11 12 13 14 App 6gPA	11 Dicatio 7.5GPA 5.6 6.3 6.9 7.4 7.9 8.4 8.9 9.7 10 11 Dicatio 7.5GPA	8.4 n Spee 8GPA 5.3 5.9 6.4 6.9 7.4 7.9 8.3 9.1 9.5 9.8 11 n Spee 8GPA	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 d (mph	6.3 @ 12gpa 3.5 3.9 4.3 4.6 5.0 5.3 5.5 6.1 6.3 6.5 7.0 @ 12gpa	5.3 2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8 5.0 5.2 5.6	FER8 CLASS FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	145 140 30-02 VMD 184 176 166 161 158 155 150 147 145 142 0-025 VMD	46% 48% (4027 <141 28% 31% 36% 36% 40% 42% 45% 46% 47% 49% (4027 <141	100% 100% (0-02) <600 100% 100% 100% 100% 100% 100% 100% 1	CLASS C M M M M F F F SR80	184 177 167 30-02 VMD 273 257 244 233 224 216 203 198 193 184 0-025	32% 33% 36% (4028 <141 13% 16% 18% 20% 22% 24% 27% 29% 30% 32%	97% 98% 98% 8-02) <600 94% 95% 96% 97% 97% 98% 98% 98% -025)	M M M M M M M M M M M M M M M M M M M	227 220 207 30-02 VMD 326 310 298 287 277 262 255 249 239 0-025	21% 22% 23% (4029 <141 8% 10% 11% 13% 14% 16% 17% 19% (4029)	99% 99% 0-02) <600 94% 94% 94% 95% 95% 95% 95%	C C C C C C DR8	316 302 30-02 VMD 454 435 419 406 394 375 366 359 346 0-025	3% 4% 5% 6% 6% 7% 7% (4028	80° 83° 84° 86° 87° 88° 90° 91° 9-02
	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21 0.22 0.24 0.25 0.26 0.28 Flow us gpm 0.18	Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi 20	5GPA 8.4 9.4 10 11 12 13 15 15 16 17	13 App 6GPA 7.0 7.8 8.6 9.3 9.9 11 11 12 13 14 App 6GPA 8.8	11 Dicatio 7.5gpa 5.6 6.3 6.9 7.4 7.9 8.4 8.9 9.7 10 11 Dicatio 7.5gpa 7.0	8.4 n Spee 8GPA 5.3 5.9 6.4 6.9 7.4 7.9 8.3 9.1 9.5 9.8 11 n Spee 8GPA 6.6	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 d (mph 10gpa 5.3	6.3	5.3 15gpa 2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8 5.0 5.2 5.6 15gpa 3.5	FER8 CLASS FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	145 140 80-02 VMD 184 176 166 161 158 155 150 147 145 142 0-025 VMD 232	46% 48% (4027 <141 28% 31% 36% 38% 40% 42% 45% 46% 47% 49% (4027 <141 17%	100% 100% 0-02) <600 100% 100% 100% 100% 100% 100% 100% 99% 99% 99% 0-025) <600 100%	CLASS C M M M M M M F F F F F SR80 CLASS	184 177 167 30-02 VMD 273 257 244 233 224 216 203 198 193 184 0-025 VMD	32% 33% 36% (4028 <141 13% 16% 18% 20% 22% 24% 27% 29% 30% (40288 <141	97% 98% 98% 8-02) <600 94% 95% 96% 97% 97% 98% 98% 98% -025) <600	M M M M M M M M M M M M M M M M M M M	227 220 207 30-02 VMD 326 310 298 287 277 262 255 249 239 0-025	21% 22% 23% (4029 <141 8% 10% 11% 13% 14% 16% 17% 19% (4029)	99% 99% 0-02) <600 94% 94% 94% 95% 95% 95% 95% 95%	C C C C C C DR8	316 302 30-02 VMD 454 435 419 406 394 375 366 359 346 0-025	3% 4% 5% 6% 6% 7% 7% (4028	80° 83° 84° 86° 87° 88° 90° 91° 9-02
-02 lozzles	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21 0.22 0.24 0.25 0.26 0.28 Flow us gpm 0.18	Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25	5GPA 8.4 9.4 10 11 12 13 13 15 15 16 17 5GPA 11	13 App 6gPA 7.0 7.8 8.6 9.3 9.9 11 11 12 13 14 App 6gPA	11 Dicatio 7.5GPA 5.6 6.3 6.9 7.4 7.9 8.4 8.9 9.7 10 11 Dicatio 7.5GPA 7.0 7.8	8.4 n Spee 8GPA 5.3 5.9 6.4 6.9 7.4 7.9 8.3 9.1 9.5 9.8 11 n Spee 8GPA 6.6 7.3	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 d (mph 10gpa 5.3 5.9	6.3 202 12GPA 3.5 3.9 4.3 4.6 5.0 5.3 5.5 6.1 6.3 6.5 7.0 202 12GPA 4.4 4.9	5.3 15gpa 2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8 5.0 5.2 5.6 15gpa 3.5 3.9	FER8 CLASS FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	145 140 30-02 VMD 184 176 166 161 158 155 150 147 145 142 0-025 VMD 232 219	46% 48% (4027 <141 28% 31% 36% 38% 40% 42% 45% 46% 47% 49% (4027 <141 17% 21%	100% 100% 0-02) <600 100% 100% 100% 100% 100% 100% 100% 99% 99% 99% 0-025) <600 100%	CLASS C M M M M M M M F F F F SR80 CLASS	184 177 167 60-02 VMD 273 257 244 233 224 216 203 198 198 193 184 0-025 VMD	32% 33% 36% (4028 <141 13% 16% 18% 20% 22% 24% 27% 29% 30% 32% (40288 <141	97% 98% 98% 98% 8-02) <600 94% 95% 96% 97% 98% 98% 98% -025) <600 91%	M M F F MR8 CLASS	227 220 207 30-02 VMD 326 310 298 287 277 262 255 249 239 0-025 VMD	21% 22% 23% (4029 <141 8% 10% 11% 13% 14% 16% 17% 17% (4029 <141	99% 99% 0-02) <600 94% 94% 94% 95% 95% 95% 95% 95%	C C C C C C C C C C C C C C C C C C C	316 302 30-02 VMD 454 435 419 406 394 375 366 359 346 0-025	3% 4% 4% 5% 6% 6% 7% (4028) <141	809 839 849 869 879 889 909 919 0-02
-02	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21 0.22 0.24 0.25 0.26 0.28 Flow us gpm 0.18	Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi 20	5GPA 8.4 9.4 10 11 12 13 15 15 16 17	13 App 6GPA 7.0 7.8 8.6 9.3 9.9 11 11 12 13 14 App 6GPA 8.8 9.8	11 Dicatio 7.5gpa 5.6 6.3 6.9 7.4 7.9 8.4 8.9 9.7 10 11 Dicatio 7.5gpa 7.0	8.4 n Spee 8GPA 5.3 5.9 6.4 6.9 7.4 7.9 8.3 9.1 9.5 9.8 11 n Spee 8GPA 6.6	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 d (mph 10gpa 5.3	6.3	5.3 15gpa 2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8 5.0 5.2 5.6 15gpa 3.5	ER8 CLASS F F F F F F F F F F CLASS M M	145 140 30-02 VMD 184 176 170 166 161 158 155 150 147 145 142 0-025 VMD 232 219	46% 48% (4027 <141 28% 31% 36% 36% 36% 40% 42% 45% 46% 47% 49% (4027 <141 17% 21% 23%	100% 100% 0-02) <600 100% 100% 100% 100% 100% 100% 100% 99% 99% 99% 0-025) <600 100%	CLASS C M M M M M M F F F F F SR80 CLASS	184 177 167 30-02 VMD 273 257 244 233 224 216 203 198 193 184 0-025 VMD	32% 33% 36% (4028 <141 13% 16% 18% 20% 22% 24% 29% 30% 32% (40288 <141 9% 11%	97% 98% 98% 3-02) <600 94% 95% 96% 97% 98% 98% 98% -025) <600	M M F F MR8 CLASS	227 220 207 30-02 VMD 326 310 298 287 277 262 255 249 239 0-025	21% 22% 23% (4029 <141 8% 10% 11% 13% 14% 16% 17% 19% (4029)	99% 99% 0-02) <600 94% 94% 94% 95% 95% 95% 95% 95%	C C C C C C DR8	316 302 30-02 VMD 454 435 419 406 394 375 366 359 346 0-025 VMD	3% 4% 5% 6% 6% 7% 7% (4028	809 839 849 869 879 889 909 919 0-02 <60
-02 lozzles 80° -025	Flow us gpm 0.14 0.16 0.20 0.21 0.22 0.24 0.25 0.26 0.28 Flow us gpm 0.18 0.20 0.20	Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30	16 5GPA 8.4 9.4 10 11 12 13 15 15 16 17 5GPA 11 12 13	13 App 6GPA 7.0 7.8 8.6 9.3 9.9 11 11 12 13 13 14 App 6GPA 8.8 9.8	11 olicatio 7.5gpa 5.6 6.3 6.9 7.4 7.9 8.4 8.9 9.7 10 10 11 olicatio 7.5gpa 7.0 7.8 8.6	8.4 n Spee 8GPA 5.3 5.9 6.4 6.9 7.4 7.9 8.3 9.1 9.5 9.8 11 n Spee 8GPA 6.6 7.3 8.0	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 d (mph 10gpa 5.3 5.9 6.4	6.3 (@) 12GPA 3.5 3.9 4.3 4.6 5.0 5.3 5.5 6.1 6.3 6.5 7.0 (@) 12GPA 4.4 4.9 5.4	5.3 15gpa 2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8 5.0 5.2 5.6 15gpa 3.5 3.9 4.3	ER8 CLASS F F F F F F F F F F F F F F F F F F	145 140 30-02 VMD 184 176 170 166 161 158 155 150 147 145 142 0-025 VMD 232 219	46% 48% (4027 <141 28% 31% 36% 38% 40% 42% 45% 45% 49% (4027 <141 17% 21% 21% 23% 28% 28%	100% 100% 0-02) <600 100% 100% 100% 100% 100% 100% 100% 99% 99% 99% 0-025) <600 100%	CLASS C M M M M M M F F F F SR88 CLASS C C C C	184 177 167 0-02 VMD 273 257 244 233 224 216 203 198 193 184 VMD 315 296	32% 33% 36% (4028 <141 13% 16% 20% 22% 24% 27% 30% 30% 30% (4028 <141 9% (11% 11% 13% 15%	97% 98% 98% 3-02) <600 94% 95% 96% 97% 98% 98% 98% -025) <600 91% 94% 94%	M M MR8 CLASS	227 220 207 30-02 VMD 326 310 298 287 277 262 255 249 239 0-025 VMD	21% 22% 23% (4029 <141 8% 10% 11% 13% 16% 17% 17% 19% (4029) <141	99% 99% 0-02) <600 94% 94% 95% 95% 95% 95% 0-025) <600	C C C C C C C C C C C C C C C C C C C	316 302 30-02 VMD 454 435 419 406 394 375 366 359 346 0-025 VMD	3% 4% 4% 5% 6% 6% 7% 7% (4028) <141	80° 80° 83° 84° 86° 87° 88° 90° 91° 0-02 <60° 77°
-02 lozzles	Flow us gpm 0.14 0.16 0.17 0.20 0.21 0.22 0.24 0.25 0.26 0.28 Flow us gpm 0.18 0.20 0.20	Boom psi 20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30 35	5GPA 8.4 9.4 10 11 12 13 15 15 16 17 5GPA 11 12 13	13 Appl 66PA 7.0 7.8 8.6 9.3 9.9 11 11 12 13 13 14 Appl 66PA 8.8 9.8 11	11 olicatio 7.5gpa 5.6 6.3 6.9 7.4 7.9 8.4 8.9 9.7 10 10 11 olicatio 7.5gpa 7.0 7.8 8.6 9.3	8.4 n Spee 8GPA 5.3 5.9 6.4 6.9 7.4 7.9 8.3 9.1 9.5 9.8 11 n Spee 8GPA 6.6 7.3 8.0 8.7	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4 d (mph 10gpa 5.3 5.9 6.4 6.9	6.3 12GPA 3.5 3.9 4.3 4.6 5.0 5.3 5.5 6.1 6.3 6.5 7.0 2 12GPA 4.4 4.9 5.4	5.3 15gpa 2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8 5.0 5.2 5.6 15gpa 3.5 3.9 4.3 4.6	F ER8 CLASS F F F F F F F F F F F F F F F F F F	145 140 180-02 VMD 184 176 166 161 158 155 150 147 145 142 0-025 VMD 232 219 209	46% 48% (4027 <141 28% 31% 36% 38% 40% 42% 45% 45% 49% (4027 <141 17% 21% 21% 23% 28% 28%	100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 99% 99% 99% 0-025) <600 100% 100% 100%	CLASS C M M M M M M F F F F SR88 CLASS C C C C	184 177 167 00-02 VMD 273 257 244 233 224 216 203 198 193 184 0-025 VMD	32% 33% 36% (4028 2141 13% 20% 22% 24% 24% 30% 30% 30% 30% 312% (40288 <141 11% 11% 115% 17%	97% 98% 98% 98% 9-20 94% 95% 96% 97% 98% 98% 98% 98% 98% 98% 98% 98% 98% 95% 98%	M M M F CLASS C C C C C C C C C C C C C C C C C C	227 220 207 30-02 VMD 326 310 298 287 277 272 262 255 249 239 0-025 VMD	21% 22% (4029 <141 8% 10% 11% 13% 14% 17% 19% (4029 <141 5% 6%	99% 99% 0-02) <600 94% 94% 95% 95% 95% <600 81% 83%	C C C C C C C C C C C C C C C C C C C	316 302 30-02 VMD 454 435 419 406 394 375 366 359 346 0-025 VMD	10% (4028 <141 3% 4% 5% 5% 6% 6% 7% (4028) <141 3% 4%	80° 80° 83° 84° 86° 88° 89° 90° 91° 0-02 <60° 77° 81°
-02 lozzles 80° -025	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21 0.25 0.28 Flow us gpm 0.18 0.20 0.22 0.23 0.25 0.26 0.28 0.26 0.28 0.26 0.20 0.20 0.20 0.22 0.23 0.25 0.27 0.28	Boom psi 20 25 30 440 445 50 Boom psi 20 25 30 35 440 45 50 65 40 45 50 60 65 50 50 50 50 60 65 50 50 50 50 50 50 50 50 50 50 50 50 50	5GPA 8.4 10 11 12 13 15 16 17 5GPA 11 12 13 11 12 13 14 15 16 17	13 Appl 66FPA 7.0 7.8 8.6 9.3 9.9 11 11 12 13 13 14 Appl 66FPA 8.8 9.8 11 12 12 13	11 12 15 15 16 16 16 16 17 10 10 11 10 10 10 11 10 17 10 10 10 10 10 10 10 10 10 10	8.4 n Spee 86PA 6.9 7.4 7.9 8.3 9.1 9.5 9.8 11 9.5 8.0 8.7 9.3 8.0 8.7 9.3 9.3 9.3 9.3 9.8 10	7.9 d (mph 10ePA 4.2 4.7 5.1 5.6 5.9 6.3 6.6 6.7 7.9 8.4 d (mph 110ePA 5.3 5.9 6.4 6.9 7.4 7.9	6.3 2	5.3 15gpa 2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8 5.0 5.2 5.6 15gpa 4.3 4.3 5.0 5.2 5.6 5.0 5.2 5.6 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	ERS CLASS M M F F F F F F F F F F F F F F F F F	145 140 30-02 VMD 184 176 161 158 155 150 147 145 142 209 209 200 194 188 182	46% 48% (4027 <141 31% 34% 36% 38% 40% 45% 46% 47% 49% (4027 <141 17% 21% 23% 26% 38% 38% 38% 38% 38% 40% 40% 45% 45% 49% 49% 49% 40% 40% 40% 40% 40% 40% 40% 40% 40% 40	100% 100%	CLASS C M M M M M M M M M M M M M M M M M M M	184 177 167 167 20-02 VMD 273 257 244 233 224 216 203 188 193 184 0-025 VMD 315 296 281 268 268 267 248	32% 33% 36% (4028 <141 13% 16% 18% 20% 22% 24% 29% 30% 32% (4028 <141 13% 11% 13% 11% 13% 15% 17% 18%	97% 98% 98% 95% 96% 96% 97% 98% 98% 98% 98% 98% 98% 98% 98% 98% 99% 99	M M F MR8 CLASS	227 220 207 30-02 VMD 326 310 298 287 277 262 255 249 239 VMD 425 401 382 367 353	21% 22% 23% (4029 <141 8% 10% 11% 13% 14% 16% 17% 4029 <141 5% 6% 6% 7% 8%	99% 99% 0-02) <600 94% 94% 95% 95% 95% <600 81% 83% 85% 86% 87%	C C C C C C C C C C C C C C C C C C C	316 302 00-02 VMD 454 435 419 406 3394 375 366 359 346 00-025 VMD	10% (4028 < 141 3% 4% 5% 6% 7% (4028 < 141 3% 4% 4% 5% 5% 6% 5% 6% 5% 6% 7% 5% 6% 5% 6% 5% 6% 5% 6% 5% 6% 5% 6% 5% 6% 5% 6% 5% 6% 5% 6% 5% 6% 6% 5% 6% 6% 6% 6% 6% 6% 6% 6	809 839 849 869 909 919 0-02 <60 779 819 829 839
-02 lozzles 80° -025	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21 0.22 0.24 0.25 0.26 0.28 Flow us gpm 0.18 0.20 0.22 0.23 0.25 0.25 0.25 0.21 0.22 0.23 0.25 0.25 0.27 0.28 0.31	Boom psi 20 25 30 35 40 45 50 40 25 30 35 40 45 50 60 60 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	5GPA 8.4 10 11 12 13 13 15 16 17 5GPA 11 12 13 14 15 16 17 18	13 Appl 66FPA 7.0 7.8 8.6 9.3 9.9 11 11 12 13 13 14 Appl 66FPA 8.8 9.8 11 12 12 13 14 14 15	11 11 10 10 10 10 10 10 10 10	8.4 n Spee 86PA 5.3 5.9 6.4 6.9 7.4 7.9 8.3 11 n Spee 6.6 7.3 8.0 8.7 9.3 9.8 10 11	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.9 8.4 d (mph 10gpa 5.3 5.9 6.4 6.9 7.4 9.3 9.1	6.3 20 126PA 3.5 4.3 4.6 5.0 5.3 5.5 7.0 20 126PA 4.4 4.9 5.4 5.8 6.2 6.6 6.6 6.9 7.6	5.3 15gPA 2.8 3.1 3.4 3.7 4.0 4.2 4.4 5.0 5.2 5.6 15gPA 3.5 3.9 4.3 4.6 5.0 5.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6	FERS CLASS M M FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	145 140 30-02 184 176 170 166 161 158 155 150 147 142 0-025 VMD 232 219 209 200 194 188 182 174	46% 48% (4027	100% (0-02) (-600 M) (0-02) (-	CLASS C M M M M M M F F F CLASS C C C C M M M M M M M M M M M M M M M	184 177 167 167 20-02 273 257 244 216 203 198 199 184 0-025 VMD 315 296 281 268 257 248 233	32% 33% 36% 4028 <141 13% 16% 18% 20% 22% 24% 27% 29% 40288 <141 9% 11% 13% 15% 15% 18% 20%	97% 98% 98% 98% 95% 96% 97% 96% 98% 98% 98% 98% 98% 98% 98% 98% 98% 99% 99	M M F MR8 CLASS	227 220 207 30-02 VMD 326 310 298 287 277 262 255 249 239 0-025 VMD 425 401 382 367 333 333	21% 22% 23% (4029 <141 10% 11% 13% 16% 17% 4029 <141 5% 6% 6% 6% 6% 9%	99% 99% 0-02) <600 94% 94% 94% 95% 95% 95% <600 81% 83% 86% 86% 89%	C C C C C C C C C C C C C C C C C C C	316 302 30-02 VMD 454 435 406 394 375 366 0-025 VMD 460 443 430 430 431 430 431	10% (4028 < 141 3% 4% 4% 5% 6% 7% 7% (4028 < 141 3% 4% 5% 5% 6% 6% 6% 7% 7% 7% 6% 6% 6% 6% 7% 7% 6% 6% 6% 6% 6% 6% 6% 6% 6% 6	80% 83% 84% 86% 87% 88% 89% 90% 91% 0-02 <60 77% 79% 81% 82% 83% 85%
-02 lozzles 80° -025	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21 0.22 0.24 0.25 0.26 0.28 Flow us gpm 0.18 0.20 0.22 0.23 0.25 0.27 0.23 0.25 0.31 0.31	Boom psi 20 25 30 40 45 50 80 Boom psi 20 25 30 35 40 45 50 66 65 50 66 65 60 66 65 60 66 65 60 66 65	5GPA 8.4 10 11 12 13 15 15 16 17 11 12 13 14 15 16 17 17 18 19	13 Appl 66PA 7.0 9.3 9.9 11 11 12 13 14 Appl 66PA 8.8 8.8 8.8 11 12 12 13 14 15 16	1110icatio 7.5gra 5.6 6.3 6.9 7.4 7.9 9.7 10 10 10 11 10icatio 7.5gra 8.6 9.3 9.9 11 11 11 11 11	8.4 n Spee 8spA 5.3 5.9 6.4 6.9 7.4 9.5 9.8 11 n Spee 8spA 6.6 7.3 9.8 9.3 9.3 9.1 11 12	7.9 d (mph 10cpa 4.2 4.7 5.1 5.6 6.3 6.6 7.3 7.6 7.9 5.3 5.9 9.1 9.5	6.3 12GPA 3.5 4.3 4.6 5.0 5.3 5.5 7.0 2 12GPA 4.9 5.4 4.9 5.4 6.6 6.9 7.6 7.9	5.3 15gpa 2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8 5.0 5.2 5.6 15gpa 4.3 4.6 5.0 5.0 6.1 6.3	F ER8 CLASS F F F F F F F F F F F F F F F F F F F	145 140 30-02 VMD 184 176 166 158 155 150 147 142 20-025 VMD 232 219 209 200 194 188 182 174	46% 48% (4027 < 141 17% 28% 45% 46% 42% 45% 46% 21% 28% 30% 36% 38% 36% 36% 36% 36% 36% 36% 36%	100% (CLASS C M M M M M M F F F SR80 CLASS C C C M M M M M M M M M M M M M M M M	184 177 167 100-02 VMD 273 2257 244 233 224 216 198 198 199 184 VMD 209 203 203 224 226 203 225 203 224 226 227 227 228 229 239 249 249 257 249 257 267 267 278 278 278 278 278 278 278 278 278 27	32% 33% 36% 4028 2141 13% 16% 18% 20% 22% 22% 29% 30% 22% 40288 411 9% 11% 13% 15% 17% 88 20% 22% 22% 22% 22% 22% 22% 23% 24% 24% 25% 25% 25% 25% 25% 25% 25% 25	97% 98% 98% 3-02) <600 94% 96% 96% 97% 98% 98% 98%025) <600 91% 94% 94% 95% 96% 95% 96%	M M F CLASS C C C C C C C C C C C C C C C C C C	227 220 207 30-02 VMD 326 310 298 287 277 277 262 255 249 239 401 382 401 382 401 382 367 353 330 321	21% 22% 23% (4029 <141 8% 10% 11% 13% 44% 17% 414 17% (4029 <141 5% 6% 6% 7% 8% 9% 10%	99% 99% 0-02) <600 94% 94% 95% 95% 95% <600 81% 83% 86% 87% 89%	C C C VC VC C C C C C C VC VC VC VC VC V	316 302 30-02 VMD 454 435 419 406 394 375 366 0-025 VMD 460 443 430 443 430 448 408 331 383	10% (4028 < 141	80% 83% 84% 86% 87% 88% 89% 90% 91% 0-024 <60 77% 81% 82% 83% 85% 85%
-02 ozzles 80° -025	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21 0.22 0.24 0.25 0.26 0.28 Flow us gpm 0.18 0.20 0.22 0.23 0.25 0.25 0.25 0.21 0.22 0.23 0.25 0.25 0.27 0.28 0.31	Boom psi 20 25 30 35 40 45 50 40 25 30 35 40 45 50 60 60 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	5GPA 8.4 10 11 12 13 13 15 16 17 5GPA 11 12 13 14 15 16 17 18	13 Appl 66FPA 7.0 7.8 8.6 9.3 9.9 11 11 12 13 13 14 Appl 66FPA 8.8 9.8 11 12 12 13 14 14 15	11 11 10 10 10 10 10 10 10 10	8.4 n Spee 86PA 5.3 5.9 6.4 6.9 7.4 7.9 8.3 11 n Spee 6.6 7.3 8.0 8.7 9.3 9.8 10 11	7.9 d (mph 10gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.9 8.4 d (mph 10gpa 5.3 5.9 6.4 6.9 7.4 9.3 9.1	6.3 20 126PA 3.5 4.3 4.6 5.0 5.3 5.5 7.0 20 126PA 4.4 4.9 5.4 5.8 6.2 6.6 6.6 6.9 7.6	5.3 15gPA 2.8 3.1 3.4 3.7 4.0 4.2 4.4 5.0 5.2 5.6 15gPA 3.5 3.9 4.3 4.6 5.0 5.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6	FERS CLASS M M FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	145 140 30-02 184 176 170 166 161 158 155 150 147 142 0-025 VMD 232 219 209 200 194 188 182 174	46% 48% (4027 -141 28% 31% 36% 36% 40% 42% 45% 46% 47% 49% (4027 -141 17% 23% 30% 30% 30% 31% 34% 34% 34% 34% 34% 34% 34% 34% 34% 34	100% (0-02) (-600 M) (0-02) (-	CLASS C M M M M M M F F F CLASS C C C C M M M M M M M M M M M M M M M	184 177 167 167 20-02 273 257 244 216 203 198 199 184 0-025 VMD 315 296 281 268 257 248 233	32% 33% 44028 4141 418% 129% 129% 11% 13% 12% 22% 22% 24% 27% 129% 11% 13% 20% 27% 12% 22% 12% 22% 12% 22%	97% 98% 98% 98% 95% 96% 97% 96% 98% 98% 98% 98% 98% 98% 98% 98% 98% 99% 99	M M F MR8 CLASS	227 220 207 30-02 VMD 326 310 298 287 277 262 255 249 239 0-025 VMD 425 401 382 367 333 333	21% 22% 23% (4029 <141 8% 10% 13% 16% 17% (4029 <141 5% 6% 6% 7% 8% 9% 10%	99% 99% 0-02) <600 94% 94% 94% 95% 95% 95% <600 81% 83% 86% 86% 89%	C C C C C C C C C C C C C C C C C C C	316 302 30-02 VMD 454 435 406 394 375 366 0-025 VMD 460 443 430 430 431 430 431	10% (4028 < 141 3% 4% 4% 5% 6% 7% 7% (4028 < 141 3% 4% 5% 5% 6% 6% 6% 7% 7% 7% 6% 6% 6% 6% 7% 7% 6% 6% 6% 6% 6% 6% 6% 6% 6% 6	80% 83% 84% 86% 87% 88% 89% 90% 91% 0-02 <60 77% 79% 81% 82% 83% 85%

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 5572.1 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 Doppler Particle Analyzer (PDPA); tips sized over 110-06 verified on Malwern.

VMD (Volume Median Diameter) The median droplet (in μ) 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.

110-06 verified										se (U					D (Dror		e in μ);			orift %)		00μ (S		ronlets	
Nozzle Angle &	Rate	Boom Pressure PSI	A	(n 20"	Nozzle	IS Gallo Spacir	ıg			R80	° Seri	es		SR80°	° Seri	es	ı	MR80	° Ser	ies		0880°	° Seri	ies
Sizes	USGPM Flow	Boom					- Miles ed (mpl				VMD 30-03		<600 0-03)				<600 88-03)							<141 (4028	
	us gpm	psi	5gpa	6gpa	7.5 _{GP} A	8GPA	10gpa	12gpa	15gpa	Class	VMD	<141	<600				<600								
	0.21	20 25	13 14	11 12	9.4	7.9 8.8	7.0	5.3	4.2	M	233 222	17% 20%	99% 99%	С	368	7%	88%								\vdash
80°	0.26	30	15	13	10	9.6	7.7	6.4	5.1	F	214	23%	99%	С	344	9%	89%	VC	432	5%	81%		481	3%	72
-03	0.28	35 40	17 18	14 15	11	10	8.3	6.9 7.4	5.6 5.9	F	207 201	25% 26%	99%	C	325 309	11% 12%	90%	VC C	409 390	6% 7%	83%	VC	462 447	4%	75
Nozzles	0.30	45	19	16	13	12	9.5	7.4	6.3	F	196	28%	99% 99%	C	296	14%		C	374	7%	86%	VC	433	5%	79
	0.34	50	20	17	13	12	10	8.3	6.6	F	192	29%	99%	С	285	15%		C	360	8%	88%	VC	422	5%	80
	0.37	60 65	22	18 19	15 15	14	11	9.1	7.3	F	184 181	32% 33%	99% 99%	M	266 258	17% 18%		C	337 327	9%	89% 90%	C	403 395	6% 6%	83
	0.40	70	24	20	16	15	12	9.8	7.9	F	179	34%	99%	M	251	18%		С	319	10%	91%	С	387	7%	84
	0.42 Flow	80 Boom	25	21 Apr	17 olicatio	16 n Spe	13 ed (mph	11	8.4	F ER8	174 30-04	35%	99%	M SR8	239 30-04	20%	94%	C MR	304 80-04	11%	92%	С	374 30-04	7%	86
	us gpm 0.28	psi 20	8 _{GPA}		12.5 _{GP/}			25 _{GPA}	30 _{GPA}			<141 16%	<600 99%		VMD		<600				<600	CLASS	VMD	<141	
	0.32	25	13	9	7.5	6.3	4.7	3.8	3.1	M	239	19%	99%	С	369	5%	85%								
80°	0.35	30	14	10	8	6.9	5.1	4.1	3.4	M	230	21%	99%	C	349	7%	87%	VC	420	5%	80%	XC	543	2%	6
-04 Nozzles	0.37	35 40	15 16	11 12	10	7.4	5.6 5.9	4.4	3.7 4.0	M	222 216	22%	99% 99%	C	331 316	9% 10%	88%	VC C	401 385	6% 7%	82%		523 507	3%	68
.022.00	0.42	45	17	13	10	8	6.3	5.0	4.2	F	211	25%	99%	С	303	11%	90%	С	372	8%	85%	XC	493	3%	70
	0.45	50 60	18 19	13 15	11	10	7.3	5.3	4.4	F	206 198	26% 28%	99% 99%	C M	291 270	12% 14%	91% 92%	C	360 341	9%	86%		480 460	4%	72
	0.43	65	20	15	12	10	8	6.1	5.0	F	195	29%	99%	M	261	14%	92%	C	333	11%	88%	VC	451	5%	7
	0.53 0.57	70 80	21	16 17	13	10	8	6.3	5.2	F	192 186	29% 31%	99% 99%	M	252 237	15% 16%	92% 93%	C	326 313	11%	89% 90%	VC C	443 429	5% 5%	7:
	Flow	Boom	22				ed (mpł		3.0		80-05	(4027			80-05		88-05)		80-05		90-05)		429 30-05	(4028	
	us gpm 0.35	psi 20	10gpa 11	12.5gp/	15gpa 7	18gpa	20gpa 5.3	25 _{GPA} 4.2	30gpa 3.5	CLASS	VMD 296	<141 11%	<600 95%	CLASS	VMD	<141	<600	CLASS	VMD	<141	<600	CLASS	VMD	<141	<(
	0.40	25	12	9	8	6.5	5.9	4.7	3.9	Č	280	14%	95%	VC	411	5%	81%								
80°	0.43	30	13	10	9	7	6.4	5.1	4.3	M	267	16%	95%	C	387	7%	83%	XC	504	3%	68%	XC	574	2%	5
-05 Nozzles	0.47	35 40	14 15	11 12	10	8	7.4	5.6	4.6 5.0	M	257 248	18% 20%	95% 95%	C	367 349	9% 10%	84%	VC	483 466	4%	71%		555 538	2%	6
•OZZIOO	0.53	45	16	13	11	9	8	6.3	5.3	M	241	21%	95%	С	334	11%	87%	VC	451	5%	75%	XC	524	3%	6
	0.56	50	17 18	13 15	11	10	8	6.6	5.5	M	235 224	22% 25%	95%	C	320 296	12% 14%		VC VC	438 417	5% 6%	77%		512 492	3%	7
	0.61 0.64	60 65	19	15	13	11	10	8	6.1	M	220	26%	95% 95%	C	286	14%		C	408	6%	81%		483	4%	7
	0.66	70	20	16	13	11	10	8	6.5	F	215	26%	95%	С	276	15%	90%	C	400	6%	81%	VC	475	4%	7:
	0.71 Flow	80 Boom	21	17 Apı	14 olicatio	n Spe	11 ed (mph	8 n) @	7	F ER8	208 30-06	28%	95% 0-06)	M SR8	258 30-06	16%	91% 88-06)	C MR	385 80-06	7%	83%	VC DR8	461 80-06	4%	74 30-0
	us gpm	psi	10gpa	12.5gp/	15gpa	18 _{GP/}	a 20gpa	30 _{GPA}		CLASS		<141	<600	CLASS	VMD	<141	<600	CLASS	VMD	<141	<600	CLASS	VMD	<141	<6
	0.42	20 25	13 14	10 11	9	8	7.0	4.2	3.6 4.0	C	322 308	12% 15%	92% 91%	VC	440	4%	78%								+
80°	0.52	30	15	12	10	9	8	5.1	4.4	С	296	17%	91%	VC	420	5%	81%	XC	526	2%	64%		596	1%	5
-06 Nozzles	0.56	35 40	17 18	13 14	11	10	9	5.6	4.8 5.1	C	287 279	18% 20%	91% 91%	VC C	403 390	6% 7%	83%	XC	508 492	3%	67% 70%		579 564	2%	5
INUZZICS	0.64	45	19	15	13	11	10	6	5.4	C	273	21%	91%	C	378	7%	85%	XC	479	4%	72%		551	2%	59
	0.67	50	20	16	13	11	10	7	6	M	267	22%	90%	C	368	8%	86%	VC	468	4%	73%		540	2%	6
	0.73	60 65	22	17 18	15 15	12	11	8	7	M	257 253	24% 25%	90%	C	351 344	9%	88%	VC VC	448 440	5%	76%		521 513	3%	65
	0.79	70	24	19	16	13	12	8	7	M	249	26%	90%	С	337	10%	89%	VC	433	5%	78%	XC	505	3%	66
	0.85 Flow	80 Boom	25	20 Ani	17	14 n Sno	13 ed (mph	8 n) @	7	M FR9	242 30-08	27% (4027	0-08)	C	326 30-08	10%	90% 88-08)	C MR	419 80-08	6%	80%	XC	492 80-08	(4028	6
	us gpm	psi		18gpa	20gpa	25gp/	A 30gpa	35 _{GPA}		CLASS	VMD	<141	<600				<600								
	0.57	20 25	11	9 10	9	7 8	6	4.8	4.2	C	367 338	12% 15%	86%	UC	516	7%	54%			-					+
80°	0.69	30	14	11	10	8	7	6	5	Č	317	17%	90%	UC	490	8%	59%	UC	540	6%	63%	UC	619	3%	5
-08	0.75	35	15	12	11	9	7	6	6	M	300	19%	92%	XC	468	8%	63%	UC	518	7%	67%	UC	600	4%	5
Nozzles	0.80	40 45	16 17	13 14	12	10	8	7	6	M	286 274	21% 22%	93%	XC	449	9% 10%	66% 69%	UC	500 484	8% 9%	69% 71%		585 571	4%	6
	0.89	50	18	15	13	11	9	8	7	M	264	23%	94%	XC	417	10%	71%	XC	470	9%	73%	UC	559	5%	6
	0.98 1.02	60 65	19 20	16 17	15 15	12 12	10	8	8	F	247 240	26% 27%	95% 95%	VC VC	390 379	11% 12%		XC	448	10%	76% 77%		539 531	5% 5%	6
	1.02	70	21	17	16	13	10	9	8	F	233	28%	95%	VC	368	12%		XC	430	11%	78%	UC	523	6%	6
	1.06	80	22	19 Apr	17	13	11	10	8	F	223 0-10	29%	96%	C	349 80-10	13%	78% 8-10)		415 80-10	12%	80%	UC	509 0-10	6%	69
	1.13	Room	4.5	Ap 18gpa	olicatio 20gpa	n Spec		1) @ 40gpa	50gpa	CLASS	VMD	<141	0-10) <600		VMD	<141			80-10 VMD	(4029 <141	90-10) <600	CLASS	VMD	<141	5U- <
		Boom psi	15gpa	10	11	8	7	5	4	XC		9%	78%	IIC.	527	60/	500/								F
	1.13 Flow us gpm 0.71	psi 20	14	12	1 1 2		8	6	5	XC	428 405	10% 12%	80% 82%	UC	537 512	6% 7%	55%	UC	546	5%	62%	UC	611	4%	5
80° _	1.13 Flow us gpm	psi		13 14	12	10	9	6							490	7%	59%	ÜC	528	6%					5
80° -10	1.13 Flow us gpm 0.71 0.79 0.87 0.94	20 25 30 35	14 16 17 19	13 14 15	13 14	10 11	9	7	6	VC	386	13%	83%	UC							65%		596	5%	
	1.13 Flow us gpm 0.71 0.79 0.87 0.94 1.00	20 25 30 35 40	14 16 17 19 20	13 14 15 17	13 14 15	10 11 12	9 9 10	7	6	С	371	14%	84%	XC	472	8%	63%	UC	513	6%	67%	UC	582	5%	57
	1.13 Flow us gpm 0.71 0.79 0.87 0.94	20 25 30 35	14 16 17 19	13 14 15	13 14	10 11	9	7	6													UC			59
	1.13 Flow us gpm 0.71 0.79 0.87 0.94 1.00 1.06 1.12	20 25 30 35 40 45 50	14 16 17 19 20 21 22 24	13 14 15 17 18 18 20	13 14 15 16 17 18	10 11 12 13 13 15	9 9 10 11 11 11 12	7 7 8 8 9	6 6 6 7 7	C C C	371 358 346 328	14% 15% 16% 18%	84% 85% 86% 87%	XC XC XC XC	472 455 441 415	8% 8% 9% 10%	63% 65% 67% 71%	UC UC UC XC	513 500 489 470	6% 7% 7% 8%	67% 69% 70% 72%	UC UC UC	582 571 561 544	5% 6% 6% 6%	55 59 60 63
	1.13 Flow us gpm 0.71 0.79 0.87 0.94 1.00 1.06 1.12	psi 20 25 30 35 40 45 50	14 16 17 19 20 21 22	13 14 15 17 18 18	13 14 15 16 17	10 11 12 13 13	9 9 10 11 11	7 7 8 8	6 6 6 7	C C	371 358 346	14% 15% 16%	84% 85% 86%	XC XC	472 455 441	8% 8% 9%	63% 65% 67% 71% 72%	UC UC UC	513 500 489	6% 7% 7%	67% 69% 70%	UC UC UC	582 571 561	5% 6% 6%	55 59 60

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

Nozzle Angle & Sizes	Flow Rate USGPM Flow	Boom Pressure PSI Boom	Α	@ Sp App	n 20" rayer S olicatio	Nozzle peed - n Spee	S Gallor Spacin Miles d (mph	g / Hour) @		CLASS	R80° VMD 0-125	Seri <141	es <600 0-125)	CLASS SR8	SR80° VMD 0-125	Seri <141	es <600 8-125)	CLASS MR8	41µ (D VR80 VMD 80-125	° Seri <141 (4029	es <600 0-125)	CLASS DR8	OR80° VMD 0-125	[°] Seri	es <60
80° -125 Nozzles	us gpm 0.99 1.08 1.17 1.25 1.33 1.40 1.53 1.59 1.65 1.77	25 30 35 40 45 50 60 65 70	20gpa 15 16 17 19 20 21 23 24 25 26	12 13 14 15 16 17 18 19 20 21	10 11 12 12 13 14 15 16 16	8 9 10 11 11 12 13 14 14 15	40gpa 7 8 9 9 10 10 11 12 12 13	7 7 8 8 9 9 10 11 11 12	50gpa 6 6 7 7 8 8 9 10 10	XC XC VC VC C C C C M	VMD 433 413 397 383 372 362 345 338 331 320	141 10% 11% 12% 13% 14% 14% 15% 16% 16%	 <600 79% 81% 82% 83% 84% 85% 87% 87% 88% 88% 	UC UC UC XC XC XC XC XC XC XC	531 509 490 474 460 447 425 416 407 391	<141 6% 7% 8% 8% 9% 10% 10% 11%	 <600 51% 55% 58% 61% 63% 65% 68% 69% 70% 72% 	UC UC UC UC UC UC VC	585 569 556 545 535 519 511 505 493	5% 6% 6% 7% 7% 8% 8% 9%	56% 58% 60% 62% 63% 66% 67% 67% 69%	UC UC UC UC UC UC UC	624 609 595 584 574 557 549 543 531	4% 4% 5% 5% 5% 6% 6% 6%	50% 52% 54% 56% 57% 59% 60% 61%
80° -15 Vozzles	Flow us gpm 1.19 1.30 1.40 1.50 1.59 1.68 1.84 1.91 1.98 2.12	Boom psi 25 30 35 40 45 50 60 65 70 80 80 80 80 80 80 80 80 80 80 80 80 80	25gpa 14 15 17 18 19 20 22 23 24 25	30gPA 12 13 14 15 16 17 18 19 20 21	35GPA 10 11 12 13 14 14 16 16 17	10 10 11 12 12 14 14 15	45gpa 8 9 9 10 11 11 12 13 13	7 8 8 9 10 10 11 11 12 13	55GPA 6 7 8 8 9 9 10 10 11	XC XC XC VC C C C M M	0-15 VMD 434 412 394 379 366 355 337 329 322 310	9% 10% 11% 12% 13% 14% 15% 16% 17% 18%	70-15) <600 78% 79% 80% 81% 82% 82% 83% 84% 84%	UC UC UC UC UC UC VC XC XC	576 554 535 519 505 492 471 461 452	5% 6% 6% 6% 7% 7% 7% 7% 8% 8%	88-15) <6000 43% 47% 51% 53% 56% 58% 61% 62% 63%	UC UC UC XC XC XC XC	513 495 480 467 456 438 430 422	7% 8% 8% 9% 9% 10% 11% 11%	00-15) <600 66% 69% 70% 72% 73% 75% 76% 77% 78%	UC UC UC UC UC UC UC UC	637 620 605 592 581 562 554 547	3% 3% 3% 4% 4% 4% 4% 4%	30-15 <60 48° 51° 55° 57° 59° 61° 62° 63°
80° -20 Nozzles	Flow us gpm 1.58 1.73 1.87 2.00 2.12 2.24 2.45 2.55 2.65 2.83 Flow	800m psi 25 30 35 40 45 50 60 65 70 80	30gpa 16 17 19 20 21 22 24 25 26 28	35gpa 13 15 16 17 18 19 21 22 22 24	40gpa 12 13 14 15 16 17 18 19 20 21	10 11 12 13 14 15 16 17 17	d (mph 50gPA 9 10 11 12 13 13 15 16 17 d (mph	9 9 10 11 11 12 13 14 14 15	60gpa 8 9 9 10 11 11 12 13 13	XC XC XC XC C C C C	0-20 VMD 483 460 442 427 415 403 385 377 370 357	<141 8% 9% 10% 11% 12% 13% 13% 14% 15%	70-20) <600 71% 73% 75% 76% 78% 79% 81% 81% 82% 83% 70-25)	UC UC UC UC UC UC UC XC XC	50-20 VMD 574 551 532 515 500 487 464 454 444 427 30-25	<141 5% 5% 6% 6% 6% 7% 7% 7% 8%	88-20) <600 44% 48% 51% 54% 56% 62% 63% 64% 66% 88-25)	UC UC UC UC UC XC XC	564 542 523 508 494 472 462 453 438	5% 5% 6% 7% 7% 8% 8% 8%	58% 62% 64% 66% 68% 71% 72% 73% 74%	UC UC UC UC UC UC UC UC UC	628 606 587 571 556 533 523 514 498	3% 3% 4% 4% 5% 5% 5% 5%	50° 54° 56° 59° 61° 64° 65° 66°
80° -25 Vozzles	1.98 2.17 2.34 2.50 2.65 2.80 3.06 3.19 3.31 3.54	25 30 35 40 45 50 60 65 70 80	35gpa 17 18 20 21 23 24 26 27 28 30	40gpa 15 16 17 19 20 21 23 24 25 26	45gpa 13 14 15 17 18 18 20 21 22 23	12 13 14 15 16 17 18 19 20 21	55GPA 11 12 13 14 14 15 17 17 18	10 11 12 12 13 14 15 16 16	70gpa 8 9 10 11 11 12 13 14 14 15	VC XC XC VC C C C C C	VMD 485 462 443 427 414 402 383 375 367 354	9% 10% 10% 11% 12% 12% 13% 14% 14%	70% 72% 74% 75% 76% 77% 79% 80% 81%	UC UC UC UC XC XC XC XC XC XC	VMD 532 511 494 479 466 454 434 425 417 402	5% 5% 6% 6% 7% 7% 7% 8% 8%	51% 54% 57% 59% 61% 62% 65% 66% 67% 68%	UC UC UC UC UC UC UC UC	604 583 566 552 539 518 508 500 485	4% 4% 4% 5% 5% 5% 6% 6%	55% 58% 60% 62% 63% 66% 67% 68% 69%	UC UC UC UC UC UC UC UC UC	657 635 617 601 587 563 553 544 528	3% 3% 3% 3% 3% 4% 4% 4% 4%	46' 49' 52' 55' 60' 61' 62' 64'
80° -30 lozzles	Flow us gpm 2.37 2.60 2.81 3.00 3.18 3.35 3.67 3.82 3.97 4.24	Boom psi 25 30 35 40 45 50 60 65 70 80	40gpa 18 19 21 22 24 25 27 28 29 32	14 15 17 18 19 20 22 23 24 25	12 13 14 15 16 17 18 19 20	10 10 11 12 13 14 14 16 16 17	d (mph 80gpa 9 10 10 11 12 12 14 14 15 16	90gpA 8 9 9 10 11 11 12 13 13	100gpa 7 8 8 9 10 10 11 11 12	CLASS UC UC XC	0-30 VMD 506 481 461 444 430 417 397 388 380 366	5% 6% 7% 7% 8% 9% 9% 10%		UC UC UC XC XC XC XC XC	531 508 490 474 461 449 429 421 414 497	\$\leq 141\$ 4% 5% 5% 6% 6% 6% 6% 7% 7% 4%	38-30) <600 50% 54% 57% 59% 61% 62% 65% 66% 67% 56%	UC UC UC UC UC UC UC	591 572 556 542 530 510 501 493	4% 4% 4% 5% 5% 5% 5% 6%	55% 58% 60% 62% 64% 67% 68% 69%	UC UC UC UC UC UC UC UC	525 512 500	2% 2% 3% 3% 3% 3% 3% 4% 4%	51° 54° 57° 59° 63° 66° 68°
80° -40 lozzles	3.74 4.00 4.24 4.47 4.90 5.10 5.29 7.07	Boom psi 35 40 45 50 60 65 70 80 Boom	50gpa 22 24 25 27 29 30 31 42	60gpa 19 20 21 22 24 25 26 35	70gpa 16 17 18 19 21 22 22 30	80 _{GPA} 14 15 16 17 18 19 20 26	d (mph 90gpa 12 13 14 15 16 17 17 23 d (mph	100gpa 11 12 13 13 15 15 16 21	9 10 11 11 12 13 13	XC XC XC XC XC XC XC XC XC	VMD 460 444 430 418 398 390 382 369	7% 8% 9% 9% 10% 10% 11%	71% 73% 74% 75% 77%	UC XC XC XC XC XC XC XC XC XC		<141	38-40) <600 58% 60% 62% 63% 66% 67% 67% 69%	UC UC UC UC UC XC XC	541 524 510	<141	65% 66% 68% 69% 70%	-			
80° -50 Vozzles	us gpm 4.68 5.00 5.30 5.59 6.12 6.37 6.61 7.07		70gpa 20 21 23 24 26 27 28 30	80gpa 17 19 20 21 23 24 25 26	90gPA 15 17 18 18 20 21 22 23	100gpa 14 15 16 17 18 19 20 21	110 _{GPA} 13 14 14 15 17 17 18 19 d (mph	120GPA 12 12 13 14 15 16 16	130gpA 11 11 12 13 14 15 15	XC XC XC XC XC XC XC XC XC	VMD 466 450 437 425 405 396 389 375	7% 7% 8% 8% 9% 9% 9% 10%	 <600 70% 72% 73% 74% 76% 76% 77% 78% 70-60) 	-											
80° -60 lozzles	5.61 6.00 6.36 6.71 7.35 7.65		90 _{GPA} 19 20 21 22 24 25				180gpa 9 10 11 11 12 13		220 _{GPA} 8 8 9 10 10	CLASS	VMD 458 444 433 422 405 397	8% 8% 9% 9% 10%	<600 69% 70% 71% 72%												



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 5572.1 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. v.MD, etc.), can vary between testing equipment and method, and is provided as an educational resource only.

Tips sized up to 110-66 verified on Phase Doppler Particle Analyzer (PDPA); tips sized over 110-66 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.

Nozzlo	I	Boom		Analyzer (PC								Spray	Classi	ficati	on. VM	D (Dron	let Size	e in u): %<1	41u (D	rift %):	%<6	:00u (S	mall D	roplets)	
Nozzle Angle &	Flow Rate	Pressure	'			Nozzle			16	Е	R110					° Ser		_		° Ser				° Ser			eries
Sizes	USGPM	PSI				Speed -							<600	CLASS	VMD	<141	<600	CLASS	VMD	<141	<600	CLASS	VMD	<141	<600	CLASS	VMD
110° -01 Nozzles	Flow us gpm 0.07 0.08 0.09 0.10 0.11 0.11 0.12 0.13 0.14 Flow	Boom psi 20 25 30 35 40 45 50 60 65 70 Boom	4GPA 5.3 5.9 6.4 6.9 7.4 7.9 8.3 9.1 9.5 9.8	App 5GPA 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4	3.5 3.9 4.3 4.6 5.0 5.3 5.5 6.1 6.3 6.5 7.0	7.5gPA 2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8 5.0 5.2 5.6 n Spee	d (mph 8GPA 2.6 2.9 3.2 3.5 3.7 3.9 4.2 4.5 4.7 4.9 5.3 d (mph	9GPA 2.3 2.6 2.9 3.1 3.3 3.5 3.7 4.0 4.2 4.4 4.7	10gpa 2.1 2.3 2.6 2.8 3.0 3.2 3.3 3.6 3.8 3.9 4.2	ER1 CLASS F F F F F F F F F F	10-01 VMD 148 144 140 136 133 131 128 124 122 121 118 0-015	(4028) <141 45% 48% 51% 54% 56% 58% 62% 63% 65% 67% (4028)	1-01) <600 100% 100% 100% 100% 100% 100% 100% 1	SR11	0-015	(4028)	7-015)	MR1	10-015	(4029	I-015)	DR11	0-015	(4028)	6-015)		
110° -015 Nozzles	us gpm 0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.20 0.21	20 25 30 35 40 45 50 60 65 70	7.9 8.8 9.6 10 11 12 12 14 14 15	5GPA 6.3 7.0 7.7 8.3 8.9 9.5 10 11 11 12	5.3 5.9 6.4 6.9 7.4 7.9 8.3 9.1 9.5 9.8	7.5gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4	3.9 4.4 4.8 5.2 5.6 5.9 6.2 6.8 7.1 7.4 7.9	3.2 3.5 3.9 4.2 4.5 4.7 5.0 5.5 5.7 5.9 6.3	12gpa 2.6 2.9 3.2 3.5 3.7 3.9 4.2 4.5 4.7 4.9 5.3	F F F F F F F	153 148 145 142 139 137 134 131 129 128 125	44% 47% 49% 52% 53% 55% 58% 59% 61% 63%	100% 100% 100% 100% 100% 100% 100% 100%	M F F F F F	225 215 207 199 193 187 177 173 169 161	21% 24% 26% 28% 30% 32% 34% 36% 37% 39%	98% 98% 98% 98% 98% 98% 98% 98%	C C C M M M F F	322 297 277 261 247 225 216 208 194	18% 20% 23% 24% 25% 28%	94% 96% 97% 98% 99% 99% 99% 100%	C C C C C M M	366 345 328 313 301 281 272 265 251	7% 8% 10% 11% 12% 14% 15% 15%	92% 93% 94% 95% 95% 96% 96% 97%		
110° -02 Nozzles	Flow us gpm 0.14 0.16 0.17 0.19 0.20 0.21 0.22 0.24 0.25 0.26	800m psi 20 25 30 35 40 45 50 60 65 70 80	5GPA 8.4 9.4 10 11 12 13 13 15 15 16	App 6GPA 7.0 7.8 8.6 9.3 9.9 11.0 12.0 13.0 14.0	7.5gpa 5.6 6.3 6.9 7.4 7.9 8.4 8.9 9.7 10.0	Spee 8GPA 5.3 5.9 6.4 6.9 7.4 7.9 8.3 9.1 9.5 9.8 11.0	10gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9	12gpa 3.5 3.9 4.3 4.6 5.0 5.3 5.5 6.1 6.3 6.5 7.0	2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8 5.0 5.2 5.6	CLASS F F F F F F F F F F F F	10-02 VMD 173 166 160 155 151 147 144 138 135 133 128	32% 36% 39% 42% 45% 47% 49% 52% 54% 55%	100% 100% 100% 100% 100% 100% 100% 100%	M M F F F F F F	227 219 212 206 201 196 188 184 181 175	21% 23% 24% 26% 27% 29% 31% 32% 33% 34%	<600 99% 99% 99% 99% 99% 99% 99%	CLASS C C C M M M M M M F	315 295 279 265 254 235 227 220 208	12% 14% 15% 17% 19% 21% 22% 23% 25%	95% 96% 97% 97% 97% 98% 98% 98%	VC VC VC C C C C	431 410 392 376 361 336 325 315 297	5% 6% 7% 8% 9% 10% 11%	82% 85% 87% 89% 90% 92% 92% 93% 94%		
110° -025 Nozzles	Flow us gpm 0.18 0.20 0.22 0.23 0.25 0.27 0.28 0.31 0.32 0.33 0.35	Boom psi 20 25 30 35 40 45 50 60 65 70 80	5GPA 11 12 13 14 15 16 17 18 19 20 21		7.5gpa 7.0 7.8 8.6 9.3 9.9 11 11 12 13	n Spee 8gpa 6.6 7.3 8.0 8.7 9.3 9.8 10 11 12 12	d (mph 10gpa 5.3 5.9 6.4 6.9 7.4 7.9 8.3 9.1 9.5 9.8		15gpa 3.5 3.9 4.3 4.6 5.0 5.3 5.5 6.1 6.3 6.5 7.0		VMD	<141	1-025) <600 100% 100% 100% 100% 100% 100% 100% 1	M M M		(4028) <141 18% 20% 21% 23% 24% 25% 27% 28% 29% 30%	7-025) <600 98% 98% 98% 98% 98% 98% 98% 98% 98%				91% 92% 93% 94% 95% 96% 96% 97%	VC VC VC C C C C	434 414 398 383 370 347 337 328 311	5% 6% 7% 7% 8% 9% 10% 11%	80% 83% 86% 88% 92% 92% 93% 94%		0-025 22-025 561 541 522 504 474 461 448 426
110° -03 Nozzies	Flow us gpm 0.21 0.24 0.26 0.28 0.30 0.32 0.34 0.37 0.38 0.40	Boom	5GPA 13 14 15 17 18 19 20 22 23 24 25	App	olicatio	n Spee 8gpa	d (mph 10gpa) @	15GPA 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3 7.6 7.9 8.4		10-03 VMD 198 190 183 178 173 169 165 159 156	(4028	1-03) <600 99% 99% 99% 98% 98% 98% 98% 97% 97%	Class C C C M M M		(4028 <141 9% 11% 13% 15% 16% 17% 19% 20% 21%	7-03) <600 94% 95% 95% 96% 96% 97% 97% 97%		10-03	(4029 <141 6% 8% 9% 9% 10% 12% 12% 13% 14%	1-03) <600 86% 89% 91% 92% 93% 94% 95% 95%	Class XC XC VC VC	10-03	(4028 <141 4% 5% 5% 6% 6% 7% 7% 8%	6-03)	UR11 #402 UC UC UC UC UC UC	

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 VMID 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. VMIO, etc.) can vary between testing equipment and method, and is provided as an educational resource only.

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

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

% <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.

Nozzle Angle &	Flow Rate	Boom Pressure		Applicat	tion Rat on 20" I	te in US Nozzle	S Galloi Spacin	ns / Acı g		E	R110	Spray)° Ser	ies	S	R110	° Ser	ies	N	IR110)° Ser	ies	D	R110	° Sei		UR Series
Sizes	Flow us gpm	PSI Boom psi	8 _{GPA}	Ap _l 10 _{GPA}	plication 12.5gpa	n Spee 15gpa	d (mph 20gpa) @ 25gpa	30gpa	ER1 CLASS	10-04 VMD	(4028 <141	1-04) <600	SR1	10-04	<141 (4028 <141	7-04)	MR1	10-04	(4029	91-04)	DR1	10-04	(4028	<600 86-04) <600	UR110-04 #40292-04
110° -04 Nozzles	0.28 0.32 0.35 0.37 0.40 0.42 0.45 0.49	20 25 30 35 40 45 50 60 65	11 13 14 15 16 17 18 19 20	8 9 10 11 12 13 13 15 15	6.7 7.5 8 9 10 10 11 12	5.6 6.3 6.9 7.4 7.9 8 9	4.2 4.7 5.1 5.6 5.9 6.3 6.6 7.3	3.4 3.8 4.1 4.4 4.8 5.0 5.3 5.8 6.1	2.8 3.1 3.4 3.7 4.0 4.2 4.4 4.8 5.0	M M M F F F	240 232 225 220 215 210 206 199 196	18% 20% 22% 23% 24% 25% 26% 28% 29%	97% 97% 97% 96% 96% 96% 96%	C C M M	330 314 300 288 278 269 253 246	9% 11% 12% 14% 15% 16% 17% 18%	93% 94% 95% 95% 96% 96% 96%	VC C C C C	416 395 377 361 346 321 310	5% 6% 7% 8% 8% 9% 10%	84% 87% 89% 91% 92% 94%	XC XC VC VC VC C	510 488 469 453 438 412 401	3% 4% 4% 5% 5% 6%	69% 73% 76% 78% 80% 83% 84%	UC 621 UC 601 UC 583 UC 567 UC 539 UC 527
	0.53 0.57 Flow	70 80 Boom	21		13 13 plication				5.2 5.6		194 189 10-05	30% (4028	95% 95% 1-05)		239 228 10-05			C MR1	300 282 10-05			DR1	391 372 10-05		85% 87% 86-05)	UC 516 UC 496 UR110-05
110° -05 Nozzles	0.35 0.40 0.43 0.47 0.50 0.53 0.56 0.61 0.64	20 25 30 35 40 45 50 60 65 70	11 12 13 14 15 16 17 18 19 20	8 9 10 11 12 13 13 15 15 16 16	7 8 9 9 10 11 11 12 13 13	5.8 6.5 7 8 8 9 9 10 11	20gpa 5.3 5.9 6.4 6.9 7.4 8 8 9	25gpa 4.2 4.7 5.1 5.6 5.9 6.3 6.6 7	3.5 3.9 4.3 4.6 5.0 5.3 5.5 6.1 6.3	M M M M F F F	248 237 228 220 214 208 203 194 190 187	22% 24% 26% 27% 28% 30% 31% 32%	95% 95% 95% 95% 95% 95% 95% 95% 95%	C C C C C C	377 355 338 322 309 296 275 266 257	7% 8% 10% 11% 12% 13% 15% 16%	89% 91% 93% 93% 94% 95% 96% 96%	XC XC VC VC C C	486 464 445 428 412 386 374 364	3% 4% 5% 5% 6% 7% 7% 7%	72% 75% 78% 80% 82% 85% 86% 87%	XC XC XC XC XC XC XC	530 516 503 492 482 465 458 451	2% 2% 3% 3% 3% 3% 4% 4%	63% 66% 68% 70% 72% 74% 75%	UC 638 UC 621 UC 605 UC 592 UC 570 UC 560 UC 551
	0.71 Flow us gpm 0.42 0.47	80 Boom psi 20 25	10 _{GPA}	17 App 12.5gpa 10 11	14 plication 15gpa 8 9	12 n Spee 18gpa 7 8			7 35gpa 3.6 4.0		180 10-06 VMD 282 270	34% (4028 <141 14% 16%	<600 94% 94%		242 10-06 VMD 444	17% (4028 <141 4%			344 10-06 VMD		88% 01-06) <600		438 10-06 VMD		78% 36-06) <600	UC 536 UR110-06 40292-06
110° -06 Nozzles	0.52 0.56 0.60 0.64 0.67 0.73 0.76 0.79	30 35 40 45 50 60 65 70	15 17 18 19 20 22 23 24	12 13 14 15 16 17 18 19	10 11 12 13 13 15 15	9 10 11 11 12 13	8 9 10 10 11 11 11 12	5.1 5.6 6 6 7 7 8 8	4.4 4.8 5.1 5.4 6 7 7	M M M M M M	261 253 246 240 235 225 221 217	25%	94% 94% 94% 95% 95% 95% 95% 95%	VC C C C C C	416 392 371 353 337 308 296 284	6% 7% 8% 9% 10% 12% 13%	84% 87% 89% 90% 92% 93% 94% 94%	VC VC VC VC	507 490 474 461 448 427 418 409	3% 4% 4% 4% 5% 5% 5%	68% 71% 74% 76% 78% 81% 82% 83%	XC XC XC XC XC XC XC	565 546 529 514 501 478 468 459	2% 2% 2% 3% 3% 3% 3% 3%	57% 61% 64% 66% 68% 71% 72% 74%	UC 652 UC 633 UC 617 UC 603 UC 580 UC 570 UC 560
110° -08	0.85 Flow us gpm 0.57 0.63 0.69 0.75	80 Boom psi 20 25 30 35	15 _{GPA} 11 13 14 15	20 Apj 18gpa 9 10 11 12	17 plication 20gpa 8 9 10		13 d (mph 30gpa 6 6 7		7 40gpa 4.2 4.7 5 6		211 10-08 VMD 327 307 290 276		95% (1-08) (-600) 91% 92% 93% 94%	CLASS		14% (4028 <141 5% 6% 7%		CLASS	394 10-08 VMD 531 506		85% 01-08) <600 53% 57%		442 10-08 VMD 614 590		75% 36-08) <600 40% 44%	UC 544 UR110-08 40292-08 UC 675
Nozzles	0.80 0.85 0.89 0.98 1.02 1.06	40 45 50 60 65 70	16 17 18 19 20 21	13 14 15 16 17 17	12 13 13 15 15 16	10 10 11 12 12 13	8 9 10 10 10	7 7 8 8 9 9	6 6 7 7 8 8	M M F F	264 254 244 228 221 214	23% 24% 25%	95% 95% 95% 96% 96% 97%	XC XC VC C C	408 390 374 346 334 322	7% 8% 9% 10% 10% 11%	74% 77% 79% 82% 83% 84%	XC XC XC XC	483 464 446 416 403 391	5% 6% 6% 7% 7% 7%	61% 64% 67% 70% 72% 73%	UC UC UC UC UC	569 551 534 506 493 482	4% 4% 4% 4% 5% 5%	47% 49% 51% 55% 56% 57%	UC 651 UC 632 UC 614 UC 585 UC 573 UC 562
	1.13 Flow us gpm	80 Boom psi	15 _{GP/}	18gpa	17 olication 20gpa	25 _{GPA}	11 d (mph 30gpa	40gpa	8 50gpa	F ER1 CLASS	202 10-10 VMD	26% (4028 <141	97% 1-10) <600	C SR1 CLASS	302 10-10 VMD	11% (4028 <141	7-10) <600	VC MR1 CLASS	369 10-10 VMD	8% (4029 <141	76% 1-10) <600	DR1 CLASS	461 10-10 VMD	5% (4028 <141	60% 86-10) <600	UC 543 UR110-10 40292-10
110° -10 Nozzles	0.71 0.79 0.87 0.94 1.00 1.06 1.12 1.22 1.27 1.32 1.41	20 25 30 35 40 45 50 60 65 70 80	14 16 17 19 20 21 22 24 25 26 28	12 13 14 15 17 18 18 20 21 22 23	11 12 13 14 15 16 17 18 19 20 21	8 9 10 11 12 13 13 15 15 16 17	8 9 9 10 11 11 12 13 13	5 6 6 7 7 8 8 9 10 10	4 5 5 6 6 6 7 7 7 8 8	C C C C C M M M	246 234	12% 14% 15% 17% 18% 19% 21% 21% 22% 23%	90% 91% 92% 92% 93% 94% 94% 94%	XC XC XC XC C C C	470 445 424 405 388 358 345 333 311	5% 6% 7% 7% 8% 8% 9% 10% 11%	83%	XC XC XC XC XC XC XC	499 478 459 442 413 400 388 367	4% 5% 5% 5% 6% 6% 6% 7% 7%	53% 56% 59% 62% 64% 67% 69% 70% 72%	UC UC UC UC UC UC	609 596 584 574 565 550 543 537 525		59% 57% 55% 53% 51% 48% 47% 46% 43%	UC 682 UC 658 UC 637 UC 620 UC 590 UC 577 UC 566 UC 546
110° -125 Nozzles	Flow us gpm 0.99 1.08 1.17 1.25 1.33 1.40 1.53 1.59 1.65 1.77	Boom psi 25 30 35 40 45 50 60 65 70 80	20gpa 15 16 17 19 20 21 23 24 25 26	Appl 25gPA 12 13 14 15 16 17 18 19 20 21	30gpa 10 11 12 12 13 14 15 16 16		d (mph 40gpa 7 8 9 10 10 11 12 12 13		50gpa 6 6 7 7 8 8 9 10 10		421 400 383 369 357 346 336 319 312	<141 9% 10% 10% 11%	 <600 70% 74% 76% 79% 80% 82% 83% 85% 85% 	UC UC XC XC XC XC XC C C	VMD	(4028) <141 4% 5% 5% 6% 6% 7% 7% 8%		UC UC UC UC UC UC UC	10-125 VMD 647 618 593 571 552 535 506 493 481		34% 39% 43% 47% 49% 52% 55% 57%	UC UC UC UC UC UC		3% 3% 4% 4% 4% 5% 5%	6-125) <600 32% 35% 37% 39% 40% 42% 44% 45% 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!

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w chemic	al labe	l noz	zle re	quire	ments	S.	,	Í		•													•	,	
Nozzle	Flow	Boom	1	pplicat	ion Rat	te in US	S Gallor	ns / Acr	.е		Spra	y Class	ificatio	n, VM	D (Dro	plet Siz	ze in µ)	; %<	41μ (l	Drift %)); %<60	00μ (Sr	nall Dr	oplets)	
Angle &	Rate	Pressure				Nozzle				E	R110	° Ser	ies	S	R110	° Ser	ies	M	R110)° Ser	ies	DF	R110°	° Seri	es
Sizes	USGPM	PSI		@ Sp	rayer S	peed -	Miles /	Hour		CLASS	VMD	<141	<600	CLASS	VMD	<141	<600	CLASS	VMD	<141	<600	CLASS	VMD	<141	<600
	Flow	Boom		App		n Spee				ER1	10-15		1-15)	SR1	10-15		37-15)		10-15		91-15)	DR11			36-15)
	us gpm	psi	25 _{GPA}	30gpa		40 _{GPA}	45gpa	50gpa		CLASS	VMD	<141	<600	CLASS	VMD	<141	<600	CLASS	VMD	<141	<600	CLASS	VMD	<141	<600
	1.19	25	14	12	10	9	8	7	6	XC	416			UC	565	4%	45%								1001
4400	1.30	30	15	13	11	10	9	8	7	XC	398	10%		UC	538	5%	51%	UC	608	4%	40%	UC	659	3%	40%
110°	1.40	35	17	14	12	10	9	8	8	XC	383		74%	UC	515	5%	55%		590	4%	43%	UC	641	4%	43%
-15 Nozzlec	1.50	40	18	15 16	13	11	10	9	8	VC VC	370		76% 77%	UC XC	496	6%	58% 61%		574	4% 5%	45% 47%	UC	624	4%	46%
Nozzles	1.59 1.68	45 50	19 20	17	14	12 12	11	10	9	C	358 348	12% 13%	79%	XC	478 463	6% 6%	64%		560 548	5%	49%	UC	610 597	4%	48% 50%
	1.84	60	22	18	16	14	12	11	10	C	330		81%	XC	436	7%	67%		527	5%	52%	UC	575	4%	53%
	1.91	65	23	19	16	14	13	11	10	C	322	14%	82%	XC	424	7%	69%		517	5%	53%	UC	565	4%	54%
	1.98	70	24	20	17	15	13	12	11	C		15%	82%	XC	413	7%	70%		508	5%	54%	UC	556	4%	55%
	2.12	80	25	21	18	16	14	13	11	Č	302	15%	84%	XC	393	8%	72%	UC	493	5%	56%	ÜC	540	5%	58%
	Flow	Boom				n Spee				ER1					10-20		37-20)				91-20)		010	0 70	0070
	us gpm	psi	30 _{GPA}			45 _{GPA}			60gpa		VMD						<600			<141					
	1.58	25	16	13	12	10	9	9	8	XC	473		60%												
	1.73	30	17	15	13	11	10	9	9	XC	453	8%	64%												
110°	1.87	35	19	16	14	12	11	10	9	XC	437	8%	66%			6%	59%		574	5%	45%				
-20	2.00	40	20	17	15	13	12	11	10	XC	422	9%	68%	XC	479	6%	62%		557	5%	48%				
Nozzles	2.12	45	21	18	16	14	13	11	11	XC	410	9%	70%	XC	463	7%	65%		542	5%	50%				
	2.24	50	22	19	17	15	13	12	11	XC	399	9%	72%	XC	449	7%	67%		529	6%	52%				
	2.45	60	24	21	18	16	15	13	12	XC	379		74%	XC	424	8%	70%		506	6%	55%				
	2.55	65	25	22	19	17	15	14	13	VC	370		75%	XC	413	8%	72%		496	6%	56%				
	2.65	70	26	22	20	17	16	14	13	VC	362	10%		XC	403	8%	73%		487	6%	57%				
	2.83	80	28	24	21	19	17	15	14	C			78%	XC	385	8%	75%	XC	470	7%	59%				
	Flow	Boom psi	35gpa			n Spee		60gpa	70004	CLASS		(4028 <141						-							
	us gpm 1.98	25	17	15	13	50gpa 12	55gpa 11	10	7 UGPA	XC	472	7%	60%	GLASS	VIVID	< 141	<000								
	2.17	30	18	16	14	13	12	11	9	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%	1							
Nozzles	2.65	45	23	20	18	16	14	13	11	XC	410	8%	73%	XC	453	7%	64%								
	2.80	50	24	21	18	17	15	14	12	XC	399	8%	74%	XC	441	7%	66%								
	3.06	60	26	23	20	18	17	15	13	XC	380	8%	77%	XC	419	8%	69%]							
	3.19	65	27	24	21	19	17	16	14	VC	371	8%	78%	XC	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	С	350	8%	81%	XC	384	8%	73%								
	Flow	Boom				n Spee		0		ER1	10-30	(4028	1-30)												
	us gpm		40gpa			70gpa			100gpa			<141													
	2.37	25	18	14	12	10	9	8	7	UC	484	6%	58%												
110°	2.60	30	19 21	15 17	13	11 12	10	9	8	XC	466	6%	61% 63%												
-30	3.00	35 40	22	18	14 15	13	11	9 10	9	XC	451 437	7% 7%	65%	-											
Nozzles	3.18	45	24	19	16	14	12	11	10	XC	425	8%	67%												
NUZZICS	3.35	50	25	20	17	14	12	11	10	XC	415	8%	68%	1											
	3.67	60	27	22	18	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	381	9%	72%												
	4.24	80	32	25	21	18	16	14	13	VC		9%	73%	ĺ											

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!

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ASABE Spray Classification (ASABE 5572.1 Standard)
Spray quality is categorized based on DVO.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 Doppler Particle Analyzer (PDPA); tips sized over 110-06 verified on Malvern. 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.

% <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

							tra Coarse (U		Carre	01	Carlina.	1/8/1) (D	lat Cia	. !\.	n/1	44 /D	"; ET U/) '	0/ .00	0/0	an all D		١.
Nozzle	Flow	Boom	Tip		ion Rate - US							i, VIVIL			e in μ);	<u>%<1</u>				υμ (S			_
Angle & Sizes	Rate USGPM	Pressure PSI	PŚI		cing w/ PWN			_		Serie		_		° Series			MR80			_		° Serie	_
OIZUS				@ Sprayer S			Cycle) - Mph					CLASS	VMD	<141									
	Flow	Boom .	Tip psi	Application			6 Duty Cycle															(4028	
	us gpm 0.04	psi 20	20		3gpa	4gpa 0.7-2.6		Class	167	<141 33%						uiass	VIVID	<141	<000	Ulass	VIVID	<141	_<υ
	0.04	25	25	1.3-5.3 1.5-5.9	0.9-3.5 1-3.9	0.7-2.0	0.5-2.1 0.6-2.3	F	157	40%	100% 100%	_				М	261	11%	99%	С	311	6%	10
80	0.04	30	30	1.6-6.4	1.1-4.3	0.8-3.2	0.7-2.6	F	149	46%	100%					M	236	17%	98%	C	276		
-005	0.05	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	16%	10
Nozzles	0.05	40	40	1.9-7.4	1.3-5	0.9-3.7	0.8-3	Ė	137	55%	100%					F	201	26%	96%	M	230		
	0.05	45	45	2-7.9	1.3-5.3	1-3.9	0.8-3.2	F	132	59%	100%					Ė	189	30%	95%	F	213		
	0.06	50	50	2.1-8.3	1.4-5.5	1.1-4.2	0.8-3.3	F	128	63%	100%					F	178	33%		F	200		
	0.06	60	60	2.3-9.1	1.5-6.1	1.1-4.5	0.9-3.6	F	121	68%	100%					F	161	39%	93%	F	178	30%	
	0.06	65	65	2.4-9.5	1.6-6.3	1.2-4.7	1-3.8	F	118	71%	100%					F	154	41%	92%	F	169	33%	
	0.07	70	70	2.5-9.8	1.6-6.5	1.2-4.9	1-3.9	F	116	73%	100%					F	148	44%	91%	F	161	35%	
	0.07	80	80	2.8-11	1.8-7	1.3-5.3	1.1-4.2	F	111	78%						F	138	48%	90%	F	148	38%	10
	Flow	Boom	Tin noi	Application	Speed (mph)	@ 25-100%	6 Duty Cycle	ER8	0-0067	(40270	0-0067)					MR8	0-0067					(40280	00-0
	us gpm	psi	Tip psi	2gpa	3gpa	4gpa	5gpa	Class		<141	<600					Class	VMD	<141	<600	Class	VMD	<141	<6
	0.05	20	20	1.8-7	1.2-4.7	0.9-3.5	0.7-2.8	F	199	21%	100%												
	0.05	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	6%	10
80	0.06	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%	C	308	9%	10
-0067	0.06	35	35	2.3-9.3	1.6-6.2	1.2-4.7	0.9-3.7	E	161	40%	100%					<u>F</u>	195	29%	97%	С	285	11%	
Nozzles	0.07	40	40	2.5-9.9	1.7-6.6	1.3-5	1-4	F	153	45%	100%					F	182	33%	96%	M	267	13%	
	0.07	45	45	2.8-11	1.8-7	1.3-5.3	1.1-4.2	F	147	49%	100%					F	171	37%	95%	M	252	15%	
	0.07	50	50	2.8-11	1.9-7.4	1.4-5.6	1.1-4.4	F	141	52%	100%					F	162	40%	94%	M	239	17%	
	0.08	60 65	60 65	3-12 3.3-13	2-8.1 2.1-8.5	1.5-6.1 1.6-6.3	1.2-4.9 1.3-5.1	E	131 128	58% 61%	100% 100%					F	148 142	46% 49%	93%	M	218 210	20%	
	0.09	70	70	3.3-13	2.1-8.5	1.7-6.6		E	124	63%	100%					F	136	51%	92% 91%	Ę	202	22%	10
	0.09	80	80	3.5-13	2.4-9.4	1.8-7	1.3-5.3 1.4-5.6	F	118	68%	100%	_				F	127	55%		F	189	24%	
	Flow	Boom	00		Speed (mph)				30-01	(4027		SBS	0-01	(4028	8-01)		30-01	(4029		DRS	30-01	(4028	_
	us gpm	psi	Tip psi	2gpa	3gpa	4gpa	5gpa		VMD	<141	<600				<600							<141	
	0.07	20	20	2.8-11	1.8-7	1.3-5.3	1.1-4.2	F	176		100%	Oldoo	VIVID	X171	~000	Oldoo	VIVID	XITI.	~000	Oldoo	VIVID	×171	
	0.08	25	25	3-12	2-7.8	1.5-5.9	1.2-4.7	Ė	165	35%	100%	M	259	29%	97%								\vdash
80	0.09	30	30	3.3-13	2.2-8.6	1.6-6.4	1.3-5.1	F	156	41%	100%	M	234	29%	97%	M	219	23%	97%	С	312	10%	9
-01	0.09	35	35	3.5-14	2.3-9.3	1.7-6.9	1.4-5.6	F	149	45%	100%	F	215	29%	97%	F	204	27%	97%	Č	292	12%	9
Nozzles	0.10	40	40	3.8-15	2.5-9.9	1.9-7.4	1.5-5.9	F	144	49%	100%	F	199	29%		F	192	30%	97%	С	275	14%	96
	0.11	45	45	4-16	2.8-11	2-7.9	1.6-6.3	F	139	53%	100%	F	187	29%	97%	F	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%	F	176	29%	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	29%	98%	F	159	40%	97%	M	230	19%	99
	0.13	65	65	4.8-19	3.3-13	2.4-9.5	1.9-7.6	F	125	64%	100%	F	152	29%	98%	F	153	42%	97%	M	221	20%	
	0.13	70	70	5-20	3.3-13	2.5-9.8	2-7.9	F	122	66%	100%	F	146	29%	98%	F	148	44%	97%	<u>F</u>	214	21%	
	0.14	80	80	5.3-21	3.5-14	2.8-11	2.1-8.4	F	117				135	29%	98%		139	48%	I 070/ I		202	23%	10
	Flow					0.05.4000			0.045	70%	100%	000							97%	P.D.O.			
	uo anm	Room	Tip psi	Application	Speed (mph)	@ 25-100%	6 Duty Cycle	ER8	0-015	(4027	0-015)		0-015	(40288	3-015)		0-015	(4029)	0-015)		0-015		
	us gpm	μδι		oypa	4yµa	@ 25-100% 5gpa	oypa	ER8	0-015 VMD	(4027) <141	0-015) <600		0-015	(40288			0-015	(4029)	0-015)		0-015		
	0.11	20	20	2.5-10	2.5-10	@ 25-100% 5gpa 1.6-6.3	1.3-5.2	ER8	0-015 VMD 200	(4027) <141 21%	0-015) <600 100%	Class	0-015 VMD	(40288 <141	8-015) <600		0-015	(4029)	0-015)		0-015		
80	0.11 0.12	20 25	20 25	2.5-10 3-12	2.5-10 2.2-8.8	@ 25-100% 5gpa 1.6-6.3 1.8-7	1.3-5.2 1.5-5.8	Class F F	0-015 VMD 200 189	(4027) <141 21% 25%	0-015) <600 100% 100%	Class C	0-015 VMD 287	(40288 <141 12%	8-015) <600 94%	Class	0-015 VMD	(4029) <141	0-015) <600	Class	0-015 VMD	<141	<6
80 -015	0.11 0.12 0.13	20 25 30	20 25 30	2.5-10 3-12 3.3-13	2.5-10 2.2-8.8 2.4-9.6	@ 25-100% 5gpa 1.6-6.3 1.8-7 1.9-7.7	1.3-5.2 1.5-5.8 1.6-6.4	Class F F F	0-015 VMD 200 189 180	(4027) <141 21% 25% 29%	0-015) <600 100% 100% 100%	Class C M	0-015 VMD 287 264	(40288 <141 12% 16%	8-015) <600 94% 95%	Class	0-015 VMD 324	(40290 <141 10%	0-015) <600 94%	Class VC	0-015 VMD 419	4%	87
-015	0.11 0.12 0.13 0.14	20 25 30 35	20 25 30 35	2.5-10 3-12 3.3-13 3.5-14	2.5-10 2.2-8.8 2.4-9.6 2.5-10	@ 25-100% 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9	ER8 Class F F F F F	0-015 VMD 200 189 180 173	(4027) <141 21% 25% 29% 32%	0-015) <600 100% 100% 100% 100%	Class C M M	287 264 245	(40288 <141 12% 16% 19%	94% 95% 96%	Class C C	0-015 VMD 324 302	(40290 <141 10% 12%	0-015) <600 94% 95%	VC VC	0-015 VMD 419 398	<141 4% 5%	8 8
-015	0.11 0.12 0.13 0.14 0.15	20 25 30 35 40	20 25 30 35 40	3.5-10 3-12 3.3-13 3.5-14 3.8-15	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11	25-100% 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4	Class F F F F F	0-015 VMD 200 189 180 173 167	(4027) <141 21% 25% 29% 32% 34%	0-015) <600 100% 100% 100% 100% 100%	Class C M M	287 264 245 231	(40288 <141 12% 16% 19% 22%	94% 95% 96%	Class	0-015 VMD 324 302 285	(40290 <141 10% 12% 14%	94% 95% 96%	VC VC C	0-015 VMD 419 398 381	4% 5% 6%	8' 8! 9!
	0.11 0.12 0.13 0.14 0.15 0.16	20 25 30 35 40 45	20 25 30 35 40 45	2.5-10 3-12 3.3-13 3.5-14 3.8-15 4-16	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12	25-100% 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9 2.4-9.4	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4 2-7.8	Class F F F F F F	0-015 VMD 200 189 180 173 167 162	(4027) <141 21% 25% 29% 32% 34% 37%	0-015) <600 100% 100% 100% 100% 100% 100% 100%	Class C M M M	287 264 245 231 219	(40288 <141 12% 16% 19% 22% 24%	94% 95% 96% 97%	Class C C C M	0-015 VMD 324 302 285 270	10% 12% 14% 16%	94% 95% 96% 97%	VC VC C C	0-015 VMD 419 398 381 367	4% 5% 6% 6%	8: 8: 9: 9:
-015	0.11 0.12 0.13 0.14 0.15	20 25 30 35 40	20 25 30 35 40	3.5-10 3-12 3.3-13 3.5-14 3.8-15	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11	25-100% 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4	ER8 Class F F F F F F F F	0-015 VMD 200 189 180 173 167	(4027) <141 21% 25% 29% 32% 34%	0-015) <600 100% 100% 100% 100% 100%	Class C M M M	287 264 245 231	(40288 <141 12% 16% 19% 22%	94% 95% 96% 96% 97%	Class C C C	0-015 VMD 324 302 285	10% 12% 14% 16%	94% 95% 96% 97%	VC VC C	0-015 VMD 419 398 381	4% 5% 6%	8: 8: 9: 9:
-015	0.11 0.12 0.13 0.14 0.15 0.16 0.17	20 25 30 35 40 45 50	20 25 30 35 40 45 50	2.5-10 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-12	25-100% 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9 2.4-9.4 2.5-9.9	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4 2-7.8 2.1-8.3	ER8 Class F F F F F F F F F F	0-015 VMD 200 189 180 173 167 162 158	(4027) <141 21% 25% 29% 32% 34% 37% 39%	0-015) <600 100% 100% 100% 100% 100% 100% 100% 1	Class C M M M	287 264 245 231 219 208	(40288 <141 12% 16% 19% 22% 24% 26%	3-015) <600 94% 95% 96% 96% 97% 97% 97%	Class C C C M M	324 302 285 270 257	10% 12% 14% 16% 17%	94% 95% 96% 97%	VC VC C C	0-015 VMD 419 398 381 367 354	4% 5% 6% 6% 7%	8: 8: 9: 9: 9:
-015	0.11 0.12 0.13 0.14 0.15 0.16 0.17	20 25 30 35 40 45 50	20 25 30 35 40 45 50	2.5-10 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-12 3.5-14	© 25-1009 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9 2.4-9.4 2.5-9.9 2.8-11	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4 2-7.8 2.1-8.3 2.3-9.1	F F F F F F	0-015 VMD 200 189 180 173 167 162 158 151	(4027) <141 21% 25% 29% 32% 34% 37% 39% 42%	0-015) <600 100% 100% 100% 100% 100% 100% 100% 1	Class C M M M	287 264 245 231 219 208 191	(40288 <141 12% 16% 19% 22% 24% 26% 30%	3-015) <600 94% 95% 96% 96% 97% 97% 97%	C C C M M M	0-015 VMD 324 302 285 270 257 237	10% 12% 14% 16% 17% 19% 21% 22%	0-015) <600 94% 95% 96% 97% 97% 98%	VC VC C C C C	0-015 VMD 419 398 381 367 354 333	4% 5% 6% 6% 7% 8%	81 81 91 92 94 94
-015	0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19	20 25 30 35 40 45 50 60	20 25 30 35 40 45 50 59 64	3.5-10 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-12 3.5-14 3.5-14 3.8-15 4-16	© 25-1009 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9 2.4-9.4 2.5-9.9 2.8-11 3-12 3.3-13	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4 2-7.8 2.1-8.3 2.3-9.1 2.4-9.4 2.5-9.8 2.5-10	F F F F F F F	0-015 VMD 200 189 180 173 167 162 158 151 148 145	(4027) <141 21% 25% 29% 32% 34% 37% 39% 42% 44% 45% 48%	0-015) <600 100% 100% 100% 100% 100% 100% 100% 1	Class M M M F F F	287 264 245 231 219 208 191 184 178 168	12% 16% 19% 22% 24% 26% 30% 31% 33% 35%	3-015) <600 94% 95% 96% 96% 97% 97% 97% 97% 98%	C C C M M M M M F	324 302 285 270 257 237 228 221 208	10% 12% 14% 16% 17% 19% 21% 22% 23%	94% 95% 96% 97% 97% 98% 99% 99%	VC VC C C C C C	0-015 VMD 419 398 381 367 354 333 325 317 303	4% 5% 6% 6% 7% 8% 9% 10%	8 8 9 9 9 9 9 9
-015	0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.20 0.21 Flow	20 25 30 35 40 45 50 60 65 70 80	20 25 30 35 40 45 50 59 64 69 79	3.5-10 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 Application	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-5-14 3.5-14 3.8-15 4-16 Speed (mph)	© 25-1009 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9 2.4-9.4 2.5-9.9 2.8-11 2.8-11 2.3-12 3.3-13	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4 2-7.8 2.1-8.3 2.3-9.1 2.4-9.4 2.5-9.8 2.5-10	F F F F F F F F	0-015 VMD 200 189 180 173 167 162 158 151 148 145 140 80-02	(4027) <141 21% 25% 29% 32% 34% 37% 39% 42% 44% 45% (4027)	0-015) <600 100% 100% 100% 100% 100% 100% 100% 1	Class C M M M F F F F SR8	287 264 245 231 219 208 191 184 178 168	12% 16% 19% 22% 24% 26% 30% 31% 35% (4028	3-015) <600 94% 95% 96% 96% 97% 97% 97% 97% 98% 98% 8-02)	C C C M M M M M M F MR8	0-015 VMD 324 302 285 270 257 237 228 221 208 30-02	10% 12% 14% 16% 17% 19% 21% 22% 23% (4029	94% 95% 96% 97% 97% 98% 99% 99%	VC VC C C C C C C	0-015 VMD 419 398 381 367 354 333 325 317 303 30-02	4% 5% 6% 6% 7% 8% 9% 10% (4028	8 8 9 9 9 9 9 9 9
-015	0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.20 0.21 Flow us gpm	20 25 30 35 40 45 50 60 65 70 80 Boom psi	20 25 30 35 40 45 50 59 64 69 79 Tip psi	3.5-10 3.5-14 3.5-14 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 Application 3gpa	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3.5-14 3.5-14 3.8-15 4-16 Speed (mph)	© 25-1009 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9 2.4-9.4 2.5-9.9 2.8-11 2.8-11 3.3-12 3.3-13 © 25-1009 5gpa	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4 2-7.8 2.1-8.3 2.3-9.1 2.4-9.4 2.5-9.8 2.5-10 6 Duty Cycle 6gpa	F F F F F F F Class	0-015 VMD 200 189 180 173 167 162 158 151 148 145 140 80-02	(4027) <141 21% 25% 29% 32% 34% 37% 39% 42% 44% 45% 48% (4027 <141	0-015) <600 100% 100% 100% 100% 100% 100% 100% 1	Class C M M M F F F F SR8	287 264 245 231 219 208 191 184 178 168	12% 16% 19% 22% 24% 26% 30% 31% 35% (4028	3-015) <600 94% 95% 96% 96% 97% 97% 97% 97% 98%	C C C M M M M M M F MR8	0-015 VMD 324 302 285 270 257 237 228 221 208 30-02	10% 12% 14% 16% 17% 19% 21% 22% 23% (4029	94% 95% 96% 97% 97% 98% 99% 99%	VC VC C C C C C C	0-015 VMD 419 398 381 367 354 333 325 317 303 30-02	4% 5% 6% 6% 7% 8% 9% 10% (4028	8 8 9 9 9 9 9 9 9
-015	0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.20 0.21 Flow us gpm 0.14	20 25 30 35 40 45 50 60 65 70 80 Boom psi 20	20 25 30 35 40 45 50 59 64 69 79 Tip psi	3.5-10 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 Application 3gpa 3.5-14	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3.5-14 3.5-14 3.8-15 4-16 Speed (mph) 4gpa 2.5-10	© 25-1009 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9 2.4-9.4 2.5-9.9 2.8-11 3-12 3.3-13 © 25-1009 5gpa 2.1-8.3	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4 2-7.8 2.1-8.3 2.3-9.1 2.4-9.4 2.5-9.8 2.5-10 6 Duty Cycle 6gpa 1.7-6.9	F F F F F F F F	0-015 VMD 200 189 180 173 167 162 158 151 148 145 140 80-02 VMD 185	(4027) <141 21% 25% 29% 32% 34% 37% 39% 42% 44% 45% 48% (4027 <141 28%	0-015) <600 100% 100% 100% 100% 100% 100% 100% 1	Class C M M M F F F Class	287 264 245 231 219 208 191 184 178 168 0-02 VMD	(40288 < 141	3-015) <600 94% 95% 96% 96% 97% 97% 97% 98% 98% 8-02) <600	C C C M M M M M M F MR8	0-015 VMD 324 302 285 270 257 237 228 221 208 30-02	10% 12% 14% 16% 17% 19% 21% 22% 23% (4029	94% 95% 96% 97% 97% 98% 99% 99%	VC VC C C C C C C	0-015 VMD 419 398 381 367 354 333 325 317 303 30-02	4% 5% 6% 6% 7% 8% 9% 10% (4028	8 8 9 9 9 9 9 9 9
-015 Nozzles	0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.20 0.21 Flow us gpm 0.14 0.16	20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25	20 25 30 35 40 45 50 59 64 69 79 Tip psi 20 25	3.5-10 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 Application 3gpa 3.5-14 4-16	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3.5-14 3.5-14 3.8-15 4-16 Speed (mph) 4gpa 2.5-10 3-12	© 25-1009 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9 2.4-9.4 2.5-9.9 2.8-11 3.3-12 3.3-13 © 25-1009 5gpa 2.1-8.3 2.3-9.3	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4 2-7.8 2.1-8.3 2.3-9.1 2.4-9.4 2.5-9.8 2.5-10 6 Duty Cycle 6gpa 1.7-6.9 2-7.8	F F F F F F F Class	0-015 VMD 200 189 180 173 167 162 158 151 148 145 140 80-02 VMD 185 177	(4027) <141 21% 25% 29% 32% 34% 37% 39% 42% 44% 45% 48% (4027) <141 28% 31%	0-015) <600 100% 100% 100% 100% 100% 100% 100% 1	Class C M M M M M F F F F F F Class C C C C C C C C C C C C C C C C C C C	287 264 245 231 219 208 191 184 178 168 00-02 VMD	12% 16% 19% 22% 24% 26% 30% 31% 35% (4028 <141	3-015) <600 94% 95% 96% 96% 97% 97% 97% 97% 98% 8-02) <600	C C C M M M M M F MR8	0-015 VMD 324 302 285 270 257 237 228 221 208 30-02 VMD	10% 12% 14% 16% 17% 21% 22% 23% (4029 <141	94% 95% 96% 97% 98% 98% 99% 99% 0-02) <600	VC VC C C C C C C C C C C C C C C C C C	0-015 VMD 419 398 381 367 354 333 325 317 303 30-02 VMD	4% 5% 6% 6% 7% 8% 8% 9% 10% (4028 <141	83 89 99 99 99 99 90 90 90 90
-015 Nozzles	0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.20 0.21 Flow us gpm 0.14 0.16 0.17	20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30	20 25 30 35 40 45 50 59 64 69 79 Tip psi 20 25 29	3.97 3.12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 5-3-21 Application 30pa 3.5-14 4-16 4.3-17	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-5-14 3.5-14 3.8-15 4-16 Speed (mph) 4gpa 2.5-10 3.3-12 3.3-12	© 25-1009 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9 2.4-9.4 2.5-9.9 2.8-11 2.8-11 3-12 3-3-13 © 25-1009 5gpa 2.1-8.3 2.3-9.3 2.5-10	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4 2-7.8 2.1-8.3 2.3-9.1 2.4-9.4 2.5-9.8 2.5-10 6 Duty Cycle 6gpa 1.7-6.9 2-7.8 2.1-8.5	F F F F F F F Class	0-015 VMD 200 189 180 173 167 162 158 151 145 140 0-02 VMD 185 177	(4027) <141 21% 25% 29% 32% 34% 37% 39% 42% 44% 45% (4027 <141 28% 31% 34%	0-015) <600 100% 100% 100% 100% 100% 100% 100% 1	Class C M M M M F F F F Class C M	287 264 245 231 219 208 191 184 178 168 00-02 VMD	(40288 < 141	3-015) <600 94% 95% 96% 96% 97% 97% 97% 98% 8-02) <600 94% 95%	C C C M M M M M F MR8	324 302 285 270 257 237 228 221 208 30-02 VMD	10% 12% 14% 16% 17% 21% 22% 23% (4029 <141	94% 95% 96% 97% 98% 98% 99% 99% 0-02) <600	VC VC C C C C C C C XC XC	0-015 VMD 419 398 381 367 354 333 325 317 303 30-02 VMD	4% 5% 6% 6% 7% 8% 8% 9% 10% (4028 <141	8: 8: 9: 9: 9: 9: 9: 9: 8: 8:
-015 Nozzles 80 -02	0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.20 0.21 Flow us gpm 0.14 0.16 0.17	20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30	20 25 30 35 40 45 50 59 64 69 79 Tip psi 20 25 29 34	3.5-10 3.3-13 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 Application 3gpa 3.5-14 4-16 4.3-17 4.5-18	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-5-14 3.5-14 3.8-15 4-16 Speed (mph) 4gpa 2.5-10 3.3-12 3.3-13	© 25-1009 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9 2.4-9.4 2.5-9.9 2.8-11 3-12 3.3-13 © 25-1009 5gpa 2.1-8.3 2.3-9.3 2.5-10 2.8-11	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4 2-7.8 2.1-8.3 2.3-9.1 2.4-9.4 2.5-9.8 2.5-10 6 Duty Cycle 6gpa 1.7-6.9 2-7.8 2.1-8.5 2.3-9.2	F F F F F F F Class	0-015 VMD 200 189 180 173 167 162 158 151 148 145 140 30-02 VMD 177 171 166	(4027) <141 21% 25% 29% 32% 34% 37% 39% 42% 44% 45% (4027 <141 28% 31% 34% 36%	0-015) <600 100% 100% 100% 100% 100% 100% 100% 1	Class C M M M M F F F F Class CC M M M M	287 264 245 231 219 208 191 184 178 168 0-02 VMD 275 258 245	(40288 < 141	3-015) <600 94% 95% 96% 96% 97% 97% 97% 98% 98% 8-02) <600 94% 95%	C C C M M M M M F MR8	324 302 285 270 257 237 228 221 208 30-02 VMD	10% 12% 14% 16% 17% 19% 21% 22% (4029 <141 8% 10%	94% 95% 96% 97% 98% 98% 99% 99% 0-02) <600	VC VC C C C C C C C C C C C C C C C C C	0-015 VMD 419 398 381 367 354 333 325 317 303 30-02 VMD 456 437	4% 5% 6% 6% 7% 8% 9% (4028 <141	83 99 99 99 90 90 90 90 80 81 81
-015 Nozzles 80 -02	0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.20 0.21 Flow us gpm 0.14 0.16 0.17	25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30 35 40	20 25 30 35 40 45 50 59 64 69 79 Tip psi 20 25 29 34 39	3.5-10 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 Application 3gpa 3.5-14 4-16 4.3-17 4.5-18 5-20	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-5-14 3.5-14 3.8-15 4-16 Speed (mph) 4gpa 2.5-10 3-12 3.3-13 3.5-14 3.8-15	© 25-1009 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9 2.4-9.4 2.5-9.9 2.8-11 3-12 3.3-13 © 25-1009 5gpa 2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4 2-7.8 2.1-8.3 2.3-9.1 2.4-9.4 2.5-9.8 2.5-10 6 Duty Cycle 6gpa 1.7-6.9 2-7.8 2.1-8.5 2.3-9.2 2.5-9.8	F F F F F F F Class	0-015 VMD 200 189 180 173 167 162 158 151 148 145 140 80-02 VMD 185 177 171 166 162	(4027) <141 21% 25% 29% 32% 34% 37% 39% 42% 44% 45% 48% (4027 <141 28% 31% 34% 36% 38%	0-015) <600 100% 100% 100% 100% 100% 100% 100% 1	Class C M M M M M F F F F SR8 Class C M M M M M	287 264 245 231 219 208 191 184 178 168 0-02 VMD 275 258 245 235	(40288 < 141	3-015) <600 94% 95% 96% 96% 97% 97% 97% 98% 98% 8-02) <600 94% 95% 96%	C C C M M M M M M M F F MR8 Class	0-015 VMD 324 302 285 270 257 237 228 221 208 30-02 VMD 328 312 299	10% 12% 141 16% 17% 19% 21% 22% (4029 <141 8% 10% 11%	94% 95% 96% 97% 97% 98% 99% 0-02) <600 94% 94%	VC VC C C C C C C C C C C C C C C C C C	0-015 VMD 398 381 367 354 333 325 317 VMD 456 437 421	4% 5% 6% 6% 7% 8% 9% 10% (4028 <141	83 91 92 94 94 95 96 97 98 98 88 88 88
-015 Nozzles 80 -02	0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.20 1.4 0.16 0.17 0.14 0.16 0.17 0.19	20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30 35 40	20 25 30 35 40 45 50 59 64 69 79 Tip psi 20 25 29 34 39 44	3.97 3.12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 Application 3gpa 3.5-14 4-16 4.3-17 4.5-18 5-3-21 3gpa 3.5-14	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-5-14 3.5-14 3.8-15 4-16 Speed (mph) 4gpa 2.5-10 3-12 3.3-13 3.5-14 3.8-15 4-16	© 25-1009 5gpa 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9 2.4-9.4 2.5-9.9 2.8-11 3-12 3.3-13 © 25-1009 5gpa 2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4 2-7.8 2.1-8.3 2.3-9.1 2.4-9.4 2.5-9.8 2.5-10 6 Duty Cycle 6gpa 1.7-6.9 2-7.8 2.1-8.5 2.3-9.2 2.1-8.5 2.3-9.2 2.5-9.8 2.5-9.8	F F F F F F F Class	0-015 VMD 200 189 180 173 167 162 158 151 145 140 30-02 VMD 185 177 171 166 162 158	(4027) <141 21% 25% 32% 32% 34% 33% 42% 44% 45% 48% (4027 <141 28% 31% 36% 38% 40%	0-015) <600 100% 100% 100% 100% 100% 100% 100% 1	Class C M M M M M F F F F Class Class C M M M M M M M M M M M M M M M M M M	287 264 245 231 29 208 191 184 178 168 0-02 VMD 275 258 245 235 225	(40286 <141 12% 16% 22% 24% 26% 30% 31% 33% (4028 <141 12% 15% 20% 22%	3-015) <600 94% 95% 96% 96% 97% 97% 97% 98% 8-02) <600 94% 95% 96% 96% 97%	C C C M M M M M M M F F MR8 Class	0-015 VMD 324 302 285 270 257 228 221 208 30-02 VMD 328 312 299 288	10% 12% 141 16% 17% 19% 21% 22% (4029 <141 8% 10% 11%	94% 95% 96% 97% 97% 98% 99% 0-02) <600 94% 94% 94%	VC VC C C C C C C C C C C C C C C C C C	0-015 VMD 398 381 367 354 333 325 317 303 30-02 VMD 456 437 421 408	4% 5% 6% 6% 7% 8% 9% 10% (4028 <141 3% 4% 4%	81 81 91 92 93 94 95 95 95 96 81 81 81 81 81 81 81 81 81 81 81
-015 Nozzles 80 -02	0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.20 0.21 Flow us gpm 0.16 0.17 0.19 0.16 0.17 0.19 0.20 0.21 0.16	20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30 35 40 45 50 65 70 80 45 50 65 70 80 45 50 65 50 65 50 65 50 65 50 65 50 65 50 65 50 65 50 50 50 50 50 50 50 50 50 50 50 50 50	20 25 30 35 40 45 50 59 64 69 79 20 25 29 34 39 44	3.9pa 2.5-10 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 3.5-21 Application 3gpa 3.5-14 4-16 4.3-17 4.5-18 5-20 5.3-21 5.3-21 5.3-21 5.3-21 5.3-21 5.3-21	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-5-14 3.5-14 3.8-15 Speed (mph) 4gpa 2.5-10 3.3-13 3.3-13 3.5-14 3.8-15	© 25-1009 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9 2.4-9.4 2.5-9.9 2.8-11 312 3.3-13 © 25-1009 5gpa 2.1-8.3 2.3-9.3 2.3-9.3 2.3-9.3 2.3-12 3.3-13	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4 2-7.8 2.1-8.3 2.3-9.1 2.4-9.4 2.5-10 6 Duty Cycle 6gpa 1.7-6.9 2-7.8 2.1-8.5 2.3-9.2 2.5-9.8 2.5-9.8 2.5-10 2.8-9.1	F F F F F F F Class	0-015 VMD 200 189 180 173 167 162 158 151 148 145 140 180 177 171 166 166 158 155	(4027) <141 21% 25% 29% 32% 34% 42% 44% 45% (4027) <141 28% 31% 36% 36% 40% 42%	0-015) <600 100% 100% 100% 100% 100% 100% 100% 1	Class C M M M M M F F F F Class Class C M M M M M M M M M M M M M M M M M M	287 264 245 231 219 208 191 184 178 0-02 VMD 275 258 245 225 225 217	(40288 < 141	3-015) <600 94% 95% 96% 96% 97% 97% 98% 8-02) <600 94% 95% 96% 96% 96% 97%	CC	0-015 VMD 324 302 285 270 257 237 228 30-02 VMD 328 312 299 288 279	(4029) <141 10% 12% 144% 16% 17% 19% 22% (4029 <141 8% 10% 11% 12% 13%	0-015) <600 94% 95% 96% 97% 97% 98% 99% 0-02) <600 94% 94% 94% 95%	VC VC C C C C C C C C C C C C C C C C C	0-015 VMD 398 381 367 354 333 325 317 303 30-02 VMD 456 437 421 408 396	4% 5% 6% 6% 7% 8% 8% 9% (4028 <141 3% 4% 5%	83 99 99 99 99 90 90 80 81 81 81 81 81 81
-015 Nozzles	0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.20 0.21 Flow us gpm 0.16 0.17 0.19 0.20 0.21 0.19 0.19 0.20 0.21	20 25 30 35 40 45 50 60 65 70 80 80 80 80 80 20 25 30 40 45 45 40 45 40 45 40 45 40 45 40 45 40 40 40 40 40 40 40 40 40 40 40 40 40	20 25 30 35 40 45 50 64 69 79 20 25 29 34 49 59	2.5-10 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 Application 3gpa 3.5-14 4-16 4.3-17 4.5-18 5-20 5.3-21 5.3-21 5.3-21 5.3-21 5.3-21 5.5-22 6-24	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-5-14 3.5-14 3.8-15 4-16 Speed (mph) 4gpa 2.5-10 3-12 3.3-13 3.5-14 3.8-15 4-16 4-16 4.5-18	© 25-1009 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9 2.4-9.4 2.5-9.9 2.8-11 3-12 3.3-13 0 25-1009 5gpa 2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3.3-13 3.5-14	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4 2-7.8 2.1-8.3 2.3-9.1 2.4-9.4 2.5-9.8 2.5-10 6 Duty Cycle 6 Gppa 1.7-6.9 2-7.8 2.1-8.5 2.3-9.2 2.5-9.8 2.5-9.8 2.5-10 2.3-9.2 2.5-9.8	F F F F F F F Class	0-015 VMD 200 189 180 173 167 162 158 151 148 145 140 180 0-02 VMD 173 167 158 149 177 171 166 162 177 171 166 162 177 171 166 162 177 177 171 166 167 177 177 177 177 177	(4027) <141 21% 25% 25% 32% 34% 37% 39% 42% 44% 45% 48% 44% 31% 34% 36% 38% 40% 44% 44%	0-015) <600 100% 100% 100% 100% 100% 100% 100% 1	Class C M M M M M F F F F Class Class C M M M M M M M M M M M M M M M M M M	287 264 245 231 219 208 191 184 178 0-02 VMD 258 245 258 245 245 258 245 245 225 231 209 208 208 208 208 208 208 208 208 208 208	(40288 < 141	3-015) <600 94% 95% 96% 96% 97% 97% 98% 8-02) <600 94% 95% 96% 95% 96% 96% 97% 98%	Class C C C C M M M M M M M M M M M M M M M M	0-015 VMD 324 302 285 270 257 228 221 208 30-02 VMD 328 312 299 288 279 263	(4029) <141 10% 12% 144% 16% 17% 19% 21% 22% (4029 <141 8% 10% 11% 12% 13% 15%	0-015) <600 94% 95% 96% 97% 98% 99% 99% 0-02) <600 94% 94% 94% 95% 95%	VC VC C C C C C C C C C C C C C C C C C	0-015 VMD 419 398 381 367 354 333 325 317 VMD 456 437 421 408 396 376	4% 5% 6% 6% 7% 8% 9% 10% (4028 <141 3% 4% 5% 5% 6%	87 87 90 92 94 94 95 95 80 86 86 88 88 88
-015 Nozzles 80 -02	0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.20 0.21 Flow us gpm 0.16 0.17 0.19 0.16 0.17 0.19 0.20 0.21 0.16	20 25 30 35 40 45 50 60 65 70 80 Boom psi 20 25 30 35 40 45 50 65 70 80 45 50 65 70 80 45 50 65 50 65 50 65 50 65 50 65 50 65 50 65 50 65 50 50 50 50 50 50 50 50 50 50 50 50 50	20 25 30 35 40 45 50 59 64 69 79 20 25 29 34 39 44	3.9pa 2.5-10 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 3.5-21 Application 3gpa 3.5-14 4-16 4.3-17 4.5-18 5-20 5.3-21 5.3-21 5.3-21 5.3-21 5.3-21 5.3-21	2.5-10 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-5-14 3.5-14 3.8-15 Speed (mph) 4gpa 2.5-10 3.3-13 3.3-13 3.5-14 3.8-15	© 25-1009 5gpa 1.6-6.3 1.8-7 1.9-7.7 2.1-8.3 2.2-8.9 2.4-9.4 2.5-9.9 2.8-11 312 3.3-13 © 25-1009 5gpa 2.1-8.3 2.3-9.3 2.3-9.3 2.3-9.3 2.3-12 3.3-13	1.3-5.2 1.5-5.8 1.6-6.4 1.7-6.9 1.9-7.4 2-7.8 2.1-8.3 2.3-9.1 2.4-9.4 2.5-10 6 Duty Cycle 6gpa 1.7-6.9 2-7.8 2.1-8.5 2.3-9.2 2.5-9.8 2.5-9.8 2.5-10 2.8-9.1	F F F F F F F Class	0-015 VMD 200 189 180 173 167 162 158 151 148 145 140 180 177 171 166 166 162 158 155	(4027) <141 21% 25% 29% 32% 34% 42% 44% 45% (4027) <141 28% 31% 36% 36% 40% 42%	0-015) <600 100% 100% 100% 100% 100% 100% 100% 1	Class C M M M M M F F F F Class Class C M M M M M M M M M M M M M M M M M M	287 264 245 231 219 208 191 184 178 0-02 VMD 275 258 245 225 225 217	(40288 < 141	3-015) <600 94% 95% 96% 96% 97% 97% 97% 8-02) <600 94% 96% 96% 97% 98% 8-02) <600 95% 96% 97% 98% 98%	CC	0-015 VMD 324 302 285 270 257 237 228 30-02 VMD 328 312 299 288 279	10% 12% 141 10% 12% 14% 16% 12% 21% 22% 23% (4029 141 12% 12% 12% 15% 15% 15% 16	0-015) <600 94% 95% 96% 97% 97% 98% 99% 0-02) <600 94% 94% 94% 95%	VC VC C C C C C C C C C C C C C C C C C	0-015 VMD 398 381 367 354 333 325 317 303 30-02 VMD 456 437 421 408 396	4% 5% 6% 6% 7% 8% 8% 9% (4028 <141 3% 4% 5%	87 89 90 91 92 94 95 95

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

September Sept	Nozzle	Flow	Boom	Tin	Applicat	ion Rate - US	Gallons/Acr	e on 20"		Spray	Classifi	cation	, VMD (Dro	plet Siz	e in μ);	%<1	41μ (D	rift %);	%<60)0μ (S	mall D	roplets))
Company Comp				Tip PSI																			
Company Comp	Sizes																						
17 20 10 4.3 77 3.3 13 2.4 10 2.4 10 2.4 10 10 2.4 10 10 2.4 10 10 2.4 10 10 2.4 10 10 2.4 10 10 2.4 10 10 2.4 10 10 2.4 2.4 10 2.4 2.4 10 2.4 10 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4				Tip psi																			
100 120 130 290 15-22 4-18 25-31 22-31 17 270 270 170 170 170 270 170 270		0.17						2.2-8.6	M	234	17% 1	100%											
1025 223 35 34 38-23 43-17 35-14 28-11 202 209 1009 37 201 59 509 100 407 201 59 509 40 405 59 59 40 405 59 59 40 405 40 40 40 40 40 4	00								M							VO.	400	40/	000/	V/0	400	00/	770
No.									F														77%
128 48 44 6.5-26 48-19 4-16 3.3-18 18 189 299 107 19 289 10 300 79 288 10 401 50 50 10 50 5									F														80%
0.30 0.0 0.0 75-30 5.5-22 4.5-18 3.5-15 7.5-28 7.5-28 7		0.26			6.5-26	4.8-19	4-16	3.3-13	F		29% 1	100%	M 260	16%	95%	С	370	7%	86%	VC	420	5%	82%
0.31 0.5 0.5 2.7 2.5 1.5 0.5 2.3 4.5 1.5 4.1 1.5 1.7 3.5 1.0 1.0 1.5									F														83%
0.33 70 88 8-32									F														849 859
Prop. Doc. Prop.									F														86%
O.21 O.21 O.21 O.21 O.21 O.21 O.21 O.22					8.8-35				F	162													87%
O.21 O.21 O.21 O.21 O.21 O.21 O.21 O.22			Boom	Tip psi	Application																		
0.23 25 24 43-17 3.5-14 3-12 2.2-8 M 224 209 99% (C 373 7% 89% (C 477 48 30% (C 445 35) 7 48			poi		тури								CIASS VIVIL	<141	<000	Glass	VIVID	<141	<000	Glass	VIVID	< 141	<00
102 102 103 104 105									_				C 373	7%	88%								
Nozeles									F														71%
0.31 45 43 5.8-22 4.8-19 3.8-15 3-12 F 198 27% 99% C 200 13% 99% C 378 7% 89% T 0 427 5% 78 0.36 00 188 6.8-27 5.3-21 4.5-11 3.1-2 F 198 27% 99% C 200 13% 99% C 378 7% 89% T 0 426 5% 5% 20 0.30 00 188 18.8-27 5.3-21 4.5-11 3.3-13 F 198 13% 99% D 20 19% 99% C 30 19% 99% C 341 99% 19% D 40 10 10 10 10 10 10 10 10 10 10 10 10 10									F														74%
0.33 50 48 6-24 5-20 4-16 3-12 F 193 29% 99% 6 298 14% 92% 6 304 8% 87% 0 466 6% 83 83 83 83 83 83 83 8	NOZZIES								F														78%
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Flow Boom Tip Pay Application Speed (mph) @ 25-10/% Duty Cycle ER80-06 40228-06 MR80-06 40288-06 MR80-06 40288-06 MR80-06 40288-06 MR80-06 40288-06 MR80-06 4.518 3.3-13 2.8-11 2.2-8.8 4.518 3.3-13 2.8-11 2.2-8.8 4.518 3.3-13 2.8-11 2.2-8.8 4.518 3.3-13 2.8-11 2.2-8.8 4.518 3.3-13 2.8-11 2.2-8.8 4.518 3.3-13 2.8-11 2.2-8.8 4.518 3.3-13 2.8-11 2.2-8.8 4.518 3.3-13 2.8-11 2.2-8.8 4.518 3.3-13 2.8-11 2.8-8.8 4.518 3.3-13 2.8-11 2.8-8.8 4.518 3.3-13 2.8-11 2.8-8.8 4.518 3.3-13 2.8-11 2.8-8.8 4.518 3.3-13 2.8-11 2.8-8.8 4.518 3.3-13 2.8-11 2.8-8.8 4.518 3.3-13 2.8-11 2.8-8.8 4.518 3.3-13 2.8-11 2.8-8.8 4.518 3.3-13 2.8-11 2.8-8.8 4.518 3.3-13 2.8-11 2.8-8.8 4.518 3.3-13 2.8-11 2.8-8.8 4.518 3.3-13 2.8-11 2.8-8.8 4.518 3.3-13 2.8-11 2.8-8.8 4.518 3.3-12 4.8-12 4.518 3.3-13 4.8-12 4.5-12 4.5-12 4.5-12 4.5-18 3.3-13 4.8-12 4.5-12 4.5-12 4.5-12 4.5-12 4.5-18 3.3-13 4.8-12 4.5-12 4.5-12 4.5-18 3.3-13 4.8-12 4.5-12 4.5-12 4.5-18 3.3-13 4.8-12 4.5-12 4.5-12 4.5-12 4.5-18 4.5-18 4.5-18 4.5-18 4.5-12 4.5-																							719
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Provided		0.69	60	52	6.8-27	5-20	4.3-17	3.5-14	M	265	23%	90%	C 364	8%	87%	VC	463	4%	74%	XC	535	3%	619
Nozzles 1.79 80 70 7.8-31 6-24 5-20 4-16 M 249 26% 90% C 338 10% 89% VC 433 5% 78% XC 506 3% 66 600 642											23%	90%			87%	VC							639
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Nozzles Us gpm psi III psi 12gpa 15gpa 18gpa 20gpa Class VMD <141 <600 Class VMD <14			_		Application																		
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-08 Nozzles 0.67 35 28 4-16 3.3-13 2.8-11 2.5-9.9 C 326 16% 90% UC 502 7% 57% C 502 7% 65% UC 613 3% 53 53 53 53 53 53 5		Flow					2.3-9.3	2.1-8.3					110-	000	F0::								
Nozzles Nozzles O.71	22	Flow us gpm 0.56	psi 25					23-91					UC 524										
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0.79 50 39 5-20 4-16 3.3-13 3-12 M 287 20% 92% XC 450 9% 66% UC 501 8% 69% UC 565 4% 61	-08	Flow us gpm 0.56 0.62 0.67	25 30 35	24 28	3.8-15 4-16	3.3-13	2.8-11	2.5-9.9						8%	60%	l Ulas		/ -//	65%	l UL-	0.1.5		7.5
0.91 65 51 5.5-22 4.5-18 3.8-15 3.3-13 F 261 24% 94% XC 413 10% 71% XC 467 9% 74% UC 556 5% 62 62 63 6.3-25 5.20 4.3-17 3.8-15 F 254 25% 94% XC 402 11% 73% XC 458 10% 75% UC 548 5% 63 1.01 80 63 6.3-25 5-20 4.3-17 3.8-15 F 242 26% 95% XC 383 11% 75% XC 442 10% 77% UC 534 5% 63 6.3-25 5-20 4.3-17 3.8-15 F 242 26% 95% XC 383 11% 75% XC 442 10% 77% UC 534 5% 63 6.3-25 5-20 4.3-17 3.5-14 3.12 2.8-11 2.2-8.6 XC 450 9% 78% XC 410 40280-10 402290-10	-08	Flow us gpm 0.56 0.62 0.67 0.71	25 30 35 40	24 28 32	3.8-15 4-16 4.5-18	3.3-13 3.5-14	2.8-11 3-12	2.5-9.9 2.8-11	С	311	18%	91% 92%	UC 482 XC 466			UC		7%	67%	UC			
0.94 70 55 5.8-23 4.8-19 4-16 3.5-14 F 254 25% 94% XC 402 11% 73% XC 458 10% 75% UC 548 5% 63 63 63-25 5-20 4.3-17 3.8-15 F 242 26% 95% XC 383 11% 75% XC 442 10% 75% UC 548 5% 63 63 63-25 5-20 4.3-17 3.8-15 F 242 26% 95% XC 383 11% 75% XC 442 10% 75% UC 548 5% 63 63 63-25 63 63 63-25 63 63 63-25 63 63 63 63-25 63 63 63 63-25 63 63 63 63 63 63 63 6	-08	Flow us gpm 0.56 0.62 0.67 0.71 0.75 0.79	psi 25 30 35 40 45 50	24 28 32 36 39	3.8-15 4-16 4.5-18 4.8-19 5-20	3.3-13 3.5-14 3.8-15 4-16	2.8-11 3-12 3-12 3.3-13	2.5-9.9 2.8-11 2.8-11 3-12	M M	311 298 287	18% ! 19% ! 20% !	91% 92% 92%	UC 482 XC 466 XC 450	8% 9%	63% 66%	UC	516 501	7% 8%	67% 69%	UC	599 586	4% 4%	55° 57°
Flow Boom Tip ps Tip p	-08	Flow us gpm 0.56 0.62 0.67 0.71 0.75 0.79	psi 25 30 35 40 45 50 60	24 28 32 36 39 47	3.8-15 4-16 4.5-18 4.8-19 5-20 5.5-22	3.3-13 3.5-14 3.8-15 4-16 4.3-17	2.8-11 3-12 3-12 3.3-13 3.5-14	2.5-9.9 2.8-11 2.8-11 3-12 3.3-13	M M	311 298 287 269	18% ! 19% ! 20% ! 23% !	91% 92% 92% 94%	UC 482 XC 466 XC 450 XC 424	8% 9% 10%	63% 66% 70%	UC UC XC	516 501 477	7% 8% 9%	67% 69% 72%	UC UC UC	599 586 565	4% 4% 4%	55° 57° 61°
Flow Boom Flow Boom Flow Spin Flow Spin	-08	Flow us gpm 0.56 0.62 0.67 0.71 0.75 0.79 0.87 0.91	psi 25 30 35 40 45 50 60 65	24 28 32 36 39 47 51	3.8-15 4-16 4.5-18 4.8-19 5-20 5.5-22 5.5-22	3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18	2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15	2.5-9.9 2.8-11 2.8-11 3-12 3.3-13 3.3-13	M M	311 298 287 269 261	18% ! 19% ! 20% ! 23% ! 24% !	91% 92% 92% 94% 94%	XC 466 XC 450 XC 424 XC 413	8% 9% 10% 10%	63% 66% 70% 71%	UC UC XC XC	516 501 477 467	7% 8% 9% 9%	67% 69% 72% 74%	UC UC UC	599 586 565 556	4% 4% 4% 5%	55° 57° 61° 62°
80	-08	Flow us gpm 0.56 0.62 0.67 0.71 0.75 0.79 0.87 0.91 0.94	psi 25 30 35 40 45 50 60 65 70	24 28 32 36 39 47 51 55	3.8-15 4-16 4.5-18 4.8-19 5-20 5.5-22 5.5-22 5.8-23	3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19	2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16	2.5-9.9 2.8-11 2.8-11 3-12 3.3-13 3.3-13 3.5-14	M M M F	311 298 287 269 261 254	18% ! 19% ! 20% ! 23% ! 24% ! 25% !	91% 92% 92% 94% 94% 94%	XC 482 XC 466 XC 450 XC 424 XC 413 XC 402	8% 9% 10% 10% 11%	63% 66% 70% 71% 73%	UC UC XC XC	516 501 477 467 458	7% 8% 9% 9% 10%	67% 69% 72% 74% 75%	UC UC UC UC	599 586 565 556 548	4% 4% 4% 5% 5%	55° 57° 61° 62° 63°
Nozzies 0.79 35 25 4-16 3.3-13 3-12 2.3-9.3 XC 429 10% 80% UC 538 6% 49%	-08	Flow us gpm 0.56 0.62 0.67 0.71 0.75 0.79 0.87 0.91 0.94 1.01	psi 25 30 35 40 45 50 60 65 70 80	24 28 32 36 39 47 51 55 63	3.8-15 4-16 4.5-18 4.8-19 5-20 5.5-22 5.5-22 5.8-23 6.3-25	3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20	2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17	2.5-9.9 2.8-11 2.8-11 3-12 3.3-13 3.3-13 3.5-14 3.8-15	M M M F F	311 298 287 269 261 254 242 80-10	18% ! 19% ! 20% ! 23% ! 24% ! 25% ! 26% !	91% 92% 92% 94% 94% 94% 95%	XC 466 XC 450 XC 424 XC 413 XC 402 XC 383	8% 9% 10% 10% 11% 11% (4028	63% 66% 70% 71% 73% 75%	UC UC XC XC XC	516 501 477 467 458 442	7% 8% 9% 9% 10%	67% 69% 72% 74% 75% 77%	UC UC UC UC UC	599 586 565 556 548 534	4% 4% 4% 5% 5% 5%	55° 57° 61° 62° 63° 66°
Nozzles 0.84 40 28 4.3-17 3.5-14 3-12 2.5-10 XC 412 11% 81% UC 520 6% 54%	-08 Nozzles	Flow us gpm 0.56 0.62 0.67 0.71 0.75 0.79 0.87 0.91 0.94 1.01 Flow us gpm	psi 25 30 35 40 45 50 60 65 70 80 Boom psi	24 28 32 36 39 47 51 55 63	3.8-15 4-16 4.5-18 4.8-19 5-20 5.5-22 5.5-22 5.8-23 6.3-25 Application 15gpa	3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 Speed (mph) 18gpa	2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 @ 25-100% 20gpa	2.5-9.9 2.8-11 2.8-11 3-12 3.3-13 3.3-13 3.5-14 3.8-15 Duty Cycle 25gpa	M M M F F ER8	311 298 287 269 261 254 242 80-10 VMD	18% ! 19% ! 20% ! 23% ! 24% ! 25% ! 26% ! (40270 <141 <	91% 92% 92% 94% 94% 94% 95% -10) <600	UC 482 XC 466 XC 450 XC 424 XC 413 XC 402 XC 383 SR80-10	8% 9% 10% 10% 11% 11% (4028	63% 66% 70% 71% 73% 75% 8-10)	UC UC XC XC XC XC	516 501 477 467 458 442 80-10	7% 8% 9% 9% 10% 10% (4029	67% 69% 72% 74% 75% 77%	UC UC UC UC UC UC	599 586 565 556 548 534 80-10	4% 4% 5% 5% 5% (4028	55° 57° 61° 62° 63° 66° 0-10
0.89 45 32 4.5-18 3.8-15 3.3-13 2.8-11 VC 398 12% 82% UC 504 7% 57% UC 539 5% 63% UC 605 5% 53 0.94 50 35 4.8-19 4-16 3.5-14 2.8-11 VC 385 13% 83% UC 489 7% 60% UC 527 6% 65% UC 595 5% 58 1.03 60 42 5-20 4.3-17 3.8-15 3-12 C 364 15% 85% XC 464 8% 64% UC 507 6% 68% UC 577 5% 58 1.07 65 46 5.3-21 4.5-18 4-16 3.3-13 C 348 16% 85% XC 442 9% 66% UC 498 7% 69% UC 562 6% 68% 1.11 70 49 5.5-22 4.5-18 4.3-17 3.3-13 C 348 16% 86% XC 442 9% 67% UC 490 7% 70% UC 562 6% 60	-08 Nozzles	Flow us gpm 0.56 0.62 0.67 0.71 0.75 0.79 0.87 0.91 0.94 1.01 Flow us gpm 0.73	psi 25 30 35 40 45 50 60 65 70 80 Boom psi 30	24 28 32 36 39 47 51 55 63 Tip psi	3.8-15 4-16 4.5-18 4.8-19 5-20 5.5-22 5.5-22 5.8-23 6.3-25 Application 15gpa 3.5-14	3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 Speed (mph) 18gpa 3-12	2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 @ 25-100% 20gpa 2.8-11	2.5-9.9 2.8-11 2.8-11 3-12 3.3-13 3.3-13 3.5-14 3.8-15 Duty Cycle 25gpa 2.2-8.6	M M F F F ER& Class	311 298 287 269 261 254 242 80-10 VMD 450	18% ! 19% ! 20% ! 23% ! 24% ! 25% ! 26% ! (40270 <141 < 9% !	91% 92% 92% 94% 94% 94% 95% -10) <600 78%	UC 482 XC 466 XC 450 XC 424 XC 413 XC 402 XC 383 SR80-10 Class VMD	8% 9% 10% 10% 11% 11% (4028 <141	63% 66% 70% 71% 73% 75% 8-10) <600	UC UC XC XC XC XC	516 501 477 467 458 442 80-10	7% 8% 9% 9% 10% 10% (4029	67% 69% 72% 74% 75% 77%	UC UC UC UC UC UC	599 586 565 556 548 534 80-10	4% 4% 5% 5% 5% (4028	55° 57° 61° 62° 63° 66°
0.94 50 35 4.8-19 4-16 3.5-14 2.8-11 VC 385 13% 83% UC 489 7% 60% UC 527 6% 65% UC 595 5% 55 1.03 60 42 5-20 4.3-17 3.8-15 3-12 C 364 15% 85% XC 464 8% 64% UC 507 6% 68% UC 577 5% 58 1.11 70 49 5.5-22 4.5-18 4.3-17 3.3-13 C 38 15% 85% XC 442 9% 69% UC 498 7% 70% UC 562 6% 60	-08 Nozzles 80 -10	Flow us gpm 0.56 0.62 0.67 0.71 0.75 0.87 0.91 0.94 1.01 Flow us gpm 0.73 0.79	psi 25 30 35 40 45 50 60 65 70 80 Boom psi 30 35	24 28 32 36 39 47 51 55 63 Tip psi 21 25	3.8-15 4-16 4.5-18 4.8-19 5-20 5.5-22 5.8-23 6.3-25 Application 15gpa 3.5-14 4-16	3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 Speed (mph) 18gpa 3-12 3.3-13	2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 @ 25-100% 20gpa 2.8-11 3-12	2.5-9.9 2.8-11 2.8-11 3-12 3.3-13 3.3-13 3.5-14 3.8-15 Duty Cycle 25gpa 2.2-8.6 2.3-9.3	M M F F ER8 Class XC	311 298 287 269 261 254 242 80-10 VMD 450 429	18% ! 19% ! 20% ! 23% ! 24% ! 25% ! (40270 <141 < 9% 10% !	91% 92% 92% 94% 94% 95% -10) <600 78% 80%	UC 482 XC 466 XC 450 XC 424 XC 413 XC 402 XC 383 SR80-10 Class VMD	8% 9% 10% 10% 11% 11% (4028 <141	63% 66% 70% 71% 73% 75% 8-10) <600	UC UC XC XC XC XC	516 501 477 467 458 442 80-10	7% 8% 9% 9% 10% 10% (4029	67% 69% 72% 74% 75% 77%	UC UC UC UC UC UC	599 586 565 556 548 534 80-10	4% 4% 5% 5% 5% (4028	55° 57° 61° 62° 63° 66°
1.03 60 42 5-20 4.3-17 3.8-15 3-12 C 364 15% 85% XC 464 8% 64% UC 507 6% 68% UC 577 5% 58 1.07 65 46 5.3-21 4.5-18 4-16 3.3-13 C 356 15% 85% XC 443 8% 66% UC 498 7% 69% UC 569 6% 59 1.11 70 49 5.5-22 4.5-18 4.3-17 3.3-13 C 348 16% 86% XC 442 9% 67% UC 490 7% 70% UC 562 6% 60	-08 Nozzles 80 -10	Flow us gpm 0.56 0.62 0.67 0.71 0.75 0.87 0.91 0.94 1.01 Flow us gpm 0.73 0.79	psi 25 30 35 40 45 50 60 65 70 80 Boom psi 30 35	24 28 32 36 39 47 51 55 63 Tip psi 21 25 28	3.8-15 4-16 4.5-18 4.8-19 5-20 5.5-22 5.5-22 5.8-23 6.3-25 Application 15gpa 3.5-14 4-16 4.3-17	3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 Speed (mph) 18gpa 3-12 3.3-13 3.5-14	2.8-11 3-12 3.12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 @ 25-100% 20gpa 2.8-11 3-12 3-12	2.5-9.9 2.8-11 2.8-11 3-12 3.3-13 3.5-14 3.8-15 Duty Cycle 25gpa 2.2-8.6 2.3-9.3 2.5-10	M M M F F F ERECLASS XC XC XC	311 298 287 269 261 254 242 80-10 VMD 450 429 412	18% 19% 20% 23% 24% 25% 26% 40270 11%	91% 92% 92% 94% 94% 95% -10) <600 78% 80% 81%	UC 482 XC 466 XC 450 XC 424 XC 413 XC 402 XC 383 SR80-10 Class VMD UC 538 UC 520	8% 9% 10% 10% 11% 11% (4028 <141 6%	63% 66% 70% 71% 73% 75% 8-10) <600 49% 54%	UC UC XC XC XC XC Class	516 501 477 467 458 442 80-10 VMD	7% 8% 9% 9% 10% (4029 <141	67% 69% 72% 74% 75% 77% 0-10) <600	UC UC UC UC UC UC Class	599 586 565 556 548 534 80-10 VMD	4% 4% 5% 5% 5% (4028 <141	55° 57° 61° 62° 63° 66° 0-10
1.11 70 49 5.5-22 4.5-18 4.3-17 3.3-13 C 348 16% 86% XC 442 9% 67% UC 490 7% 70% UC 562 6% 60	-08 Nozzles 80 -10	Flow us gpm 0.56 0.62 0.67 0.71 0.75 0.79 0.87 0.91 1.01 Flow us gpm 0.73 0.79 0.84	psi 25 30 35 40 45 50 60 65 70 80 Boom psi 30 35 40	24 28 32 36 39 47 51 55 63 Tip psi 21 25 28 32	3.8-15 4-16 4.5-18 4.8-19 5-20 5.5-22 5.5-22 5.8-23 6.3-25 Application 15gpa 3.5-14 4-16 4.3-17 4.5-18	3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 Speed (mph) 18gpa 3-12 3.3-13 3.5-14 3.8-15	2.8-11 3-12 3.12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 @ 25-100% 20gpa 2.8-11 3-12 3-12 3.3-13	2.5-9.9 2.8-11 2.8-11 3-12 3.3-13 3.3-13 3.5-14 3.8-15 5 Duty Cycle 25gpa 2.2-8.6 2.3-9.3 2.5-10 2.8-11	M M M F F F ERS XC XC XC VC	311 298 287 269 261 254 242 80-10 VMD 450 429 412 398	18% 19% 20% 23% 24% 25% 26% (40270 411 9% 10% 11% 12%	91% 92% 92% 94% 94% 94% 95% 1-10) <600 78% 80% 81% 82%	UC 482 XC 466 XC 450 XC 424 XC 413 XC 402 XC 383 SR80-10 UC 538 UC 520 UC 504	8% 9% 10% 11% 11% (4028 <141 6% 6% 7%	63% 66% 70% 71% 73% 75% 8-10) <600 49% 54% 57%	UC UC XC XC XC XC Class	516 501 477 467 458 442 30-10 VMD	7% 8% 9% 10% 10% (4029 <141	67% 69% 72% 74% 75% 77% 0-10) <600	UC UC UC UC UC UC UC UC	599 586 565 556 548 534 80-10 VMD	4% 4% 5% 5% 5% (4028 <141	55° 57° 61° 62° 63° 66° 0-10 <60°
	-08 Nozzles 80 -10	Flow us gpm 0.56 0.62 0.67 0.71 0.75 0.79 0.87 0.91 0.73 0.79 0.84 0.89 0.94 1.03	psi 25 30 35 40 45 50 60 65 70 80 Boom psi 30 35 40	24 28 32 36 39 47 51 55 63 Tip psi 21 25 28 32 35	3.8-15 4-16 4.5-18 4.8-19 5-20 5.5-22 5.5-22 5.8-23 6.3-25 Application 15gpa 3.5-14 4-16 4.3-17 4.5-18 4.8-19	3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 Speed (mph) 18gpa 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17	2.8-11 3-12 3-13 3.5-14 3.8-15 4-16 4.3-17 205-100% 20gpa 2.8-11 3-12 3-12 3.5-14 3.8-15	2.5-9.9 2.8-11 2.8-11 3-12 3.3-13 3.3-13 3.5-14 3.8-15 Duty Cycle 25gpa 2.2-8.6 2.3-9.3 2.5-10 2.8-11 2.8-11 3-12	M M M F F F ER8 Class XC XC VC VC C C	311 298 287 269 261 254 242 80-10 VMD 450 429 412 398 385 364	18% 19% 20% 23% 24% 25% 26% 40270 11% 12% 13% 15%	91% 92% 92% 94% 94% 95% -10) <600 78% 80% 81% 82% 83% 85%	UC 482 XC 466 XC 450 XC 424 XC 413 XC 402 XC 383 SR80-10 Class VMD UC 538 UC 504 UC 489 XC 464	8% 9% 10% 10% 11% (4028 <141 6% 6% 7% 7% 8%	63% 66% 70% 71% 73% 8-10) <600 49% 54% 57% 60% 64%	UC UC XC XC XC Class UC UC UC	516 501 477 467 458 442 30-10 VMD 539 527 507	7% 8% 9% 10% 10% (4029 <141 5% 6% 6%	67% 69% 72% 74% 75% 77% 0-10) <600 63% 65% 68%	UC UC UC UC UC Class	599 586 565 556 548 534 80-10 VMD 605 595	4% 4% 5% 5% 5% (4028 <141 5% 5% 5%	55° 61° 62° 63° 66° 0-10 <60° 53° 55° 58°
	-08 Nozzles 80 -10	Flow us gpm 0.56 0.62 0.67 0.71 0.75 0.79 0.84 0.89 0.94 1.03 1.07	psi 25 30 35 40 45 50 60 65 60 65	24 28 32 36 39 47 51 55 63 Tip psi 21 25 28 32 35 42	3.8-15 4-16 4.5-18 4.8-19 5-20 5.5-22 5.5-22 5.8-23 6.3-25 Application 15ppa 3.5-14 4-16 4.3-17 4.5-18 4.8-19 5.5-20 5.5-20 5.5-20 5.5-20	3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.8-19 5-20 Speed (mph) 18gpa 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18	2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 2.25-100% 2.0gpa 2.8-11 3-12 3-12 3-12 3-13 3.5-14 3.8-15 4-16	2.5-9.9 2.8-11 2.8-11 3-12 3.3-13 3.3-13 3.5-14 3.8-15 Duty Cycle 25qpa 2.2-8.6 2.3-9.3 2.5-10 2.8-11 2.8-11 3-12 3.3-13	M M M F F F F ER8 XC XC XC VC C C C	311 298 287 269 261 254 242 80-10 VMD 450 429 412 398 385 364 356	18% 19% 20% 23% 24% 25% 26% 40270 11% 12% 13% 15% 15% 15%	91% 92% 92% 94% 94% 95% -10) <600 78% 81% 82% 83% 85%	UC 482 XC 466 XC 450 XC 424 XC 413 XC 402 XC 383 XC 402 XC 383 VMD UC 538 UC 520 UC 504 UC 489 XC 464 XC 453	8% 9% 10% 10% 11% (4028 <141 6% 6% 7% 7% 8% 8%	63% 66% 70% 71% 73% 75% 8-10) <600 49% 54% 57% 60% 64% 66%	UC UC XC XC XC XC Class UC UC UC	516 501 477 467 458 442 30-10 VMD 539 527 507 498	7% 8% 9% 9% 10% 10% (4029 <141 5% 6% 6% 7%	67% 69% 72% 74% 75% 77% 60-10) <600 63% 65% 68% 69%	UC UC UC UC UC UC Class	599 586 565 556 548 534 30-10 VMD 605 595 577 569	4% 4% 5% 5% 5% (4028 <141 5% 5% 5% 6%	55% 57% 61% 62% 66% 0-10 <600 53% 55% 55% 59%

NOTE: ¹SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. ²Shown 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.

ASABE Spray Classification (ASABE 55/2.1 Stanuary)

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.

Extremely Coarse (XC)

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

Fine (F)

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

-																								
	Nozzle	Flow	Boom	Tip		Application Rate - US Gallons/Acre on 20' Spacing w/ PWM Sprayer System					Classi		n, VMI				$\overline{}$				0μ (S			
	Angle &		Pressure	PSI	Spa	cing w/ PWN	1 Sprayer Sys	stem		ER80°	° Serie:	S		SR80°	° Series	S		MR80	° Serie	S		DR80°	Series	3
	Sizes	USGPM	PSI		@ Sprayer	r Speed (25-1	100% Duty C	vcle) - Mph	CLASS	VMD	<141	<600	CLASS	VMD	<141	<600	CLASS	VMD	<141	<600	CLASS	VMD	<141	<600
П		Flow	Boom	Tip psi	Application	Speed (mph)	@ 25-100%	Duty Cycle	ER8	0-125	(4027)	0-125)	SR80	0-125	(4028	8-125)	MR8	0-125	(4029)	0-125)	DR8	0-125	(40280)-125)
ш		us qpm	psi	rip psi	15qpa	18gpa	20gpa	25gpa		VMD					<141									<600
	80	0.91	35	21	4.5-18	3.8-15	3.5-14	2.8-11	XC	451	9%	77%												
	-125	0.97	40	24	4.8-19	4-16	3.5-14	3-12	XC	436	10%	78%	UC	535	6%	50%								
1	Nozzles	1.03	45	27	5-20	4.3-17	3.8-15	3-12	XC	423	11%	80%	UC	520	6%	53%								
		1.09	50	30	5.5-22	4.5-18	4-16	3.3-13	XC	412	11%	81%	UC	508	7%	55%	UC	584	5%	56%	UC	623	4%	50%
\		1.19	60	36	6-24	5-20	4.5-18	3.5-14	VC	393	12%	83%	UC	486	8%	59%	UC	566	6%	59%	UC	605	4%	53%
ı		1.24	65	39	6.3-25	5-20	4.5-18	3.8-15	VC	385	13%	83%	XC	476	8%	61%	UC	558	6%	60%	UC	597	5%	54%
		1.29	70	42	6.3-25	5.3-21	4.8-19	3.8-15	С	377	13%	84%	XC	467	8%	62%	UC	551	6%	61%	UC	589	5%	55%
		1.38	80	48	6.8-27	5.8-23	5-20	4-16	С	364	14%	85%	XC	451	9%	64%	UC	538	7%	63%	UC	577	5%	57%
		Flow	Boom	T:	Application	Speed (mph)	@ 25-100%	Duty Cycle	ER8	0-15	(4027	(0-15)	SR8	0-15	(4028	8-15)	MR8	30-15	(4029	0-15)	DR8	0-15	(4028	0-15)
- 1		us gpm	psi	Tip psi	18gpa	20gpa	25gpa	30gpa	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
	80	1.01	35	18	4.3-17	3.8-15	3-12	2.5-10	XC	477	6%	75%												
	-15	1.08	40	21	4.5-18	4-16	3.3-13	2.8-11	XC	459	7%	76%												
	Nozzles	1.14	45	23	4.8-19	4.3-17	3.5-14	2.8-11	XC	444	8%	77%	UC	584	5%	41%								
		1.20	50	26	5-20	4.5-18	3.5-14	3-12	XC	430	9%	78%	UC	572	5%	44%								
1		1.32	60	31	5.5-22	5-20	4-16	3.3-13	XC	408	10%	79%	UC	550	6%	48%	UC	509	7%	67%	UC	634	3%	49%
V I		1.37	65	34	5.8-23	5-20	4-16	3.5-14	XC	399	11%	80%	UC	540	6%	50%	UC	500	8%	68%	UC	625	3%	50%
М		1.43	70	36	6-24	5.3-21	4.3-17	3.5-14	XC	390	12%	80%	UC	531	6%	51%	UC	491	8%	69%	UC	616	3%	51%
		1.52	80	41	6.3-25	5.8-23	4.5-18	3.8-15	VC	375	13%	81%	UC	515	6%	54%	XC	476	9%	71%	UC	602	3%	54%
		Flow	Boom	T::	Application	Speed (mph)	@ 25-100%	Duty Cycle	ER8	0-20	(4027	(0-20)	SR8	0-20	(4028	8-20)	MR8	30-20	(4029	0-20)	DR8	0-20	(4028	0-20)
		us gpm	psi	Tip psi	25gpa	30gpa	35gpa	40gpa	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
	80	1.30	45	17	6.5-26	4.8-19	3.3-13	2.4-9.6	UC	534	5%	64%												
2	-20	1.37	50	19	6.8-27	5-20	3.5-14	2.5-10	UC	520	6%	66%												
ш	Nozzles	1.50	60	23	7.5-30	5.5-22	3.8-15	2.8-11	UC	496	7%	69%	UC	587	5%	41%								
		1.56	65	24	7.8-31	5.8-23	3.8-15	3-12	UC	486	8%	70%	UC	577	5%	43%								
		1.62	70	26	8-32	6-24	4-16	3-12	XC	477	8%	71%	UC	568	5%	45%	UC	583	4%	56%	UC	648	3%	47%
ě		1.73	80	30	8.5-34	6.5-26	4.3-17	3.3-13	XC	460	9%	73%	UC	551	5%	48%	UC	564	5%	58%	UC	628	3%	50%
•																								

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)
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. wMD, etc.) can vary between testing equipment and method, and is provided as an educational resource only. Fine (F)

VMD (Volume Median Diameter) The median droplet (in μ) 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 % <600µ (% of Small Droplets) % of volume which is made up of 'small' droplets, useful for coverage. As % of useful droplets lowers,

between Tips sized up to	testing equi 110-06 verifie	ipment and d on Phase D	d method, Doppler Part	and is provided	as an educationa); tips sized over 11	al resource only.		emely Coarse Coarse (UC	e (XC))			droplets up of dro						served s _i ubstantia				seful drop overage i	s reduce	
Nozzle	Flow	Boom	Tin	Application	n Rate - US	Gallons/A	cre on 20"			y Classi	fication								%<6	600µ (S	mall D	roplets)	
Angle & Sizes	Rate USGPM	Pressure PSI	Tip PSI		ing w/ PWM				0° Seri		0	SR110				MR110				DR110			UR S	
01203	Flow	Boom	T::		er Speed MPH on Speed (m			CLASS VMD ER110-01		81-01)	CLASS	VIVID	<141	<6000	ULASS	VIVID	<141	<6000	ULASS	VIVID	<141	<6000	CLASS	VIVID
	us gpm	psi	Tip psi	2gpa	3gpa	4gpa	5gpa	CLASS VMD	<141	<600														
	0.07	20 25	20 25	2.8-11 3-12	1.8-7 2-7.8	1.3-5.3 1.5-5.9	1.1-4.2 1.2-4.7	F 149	45%	100% 100%														
110	0.09	30	30	3.3-13	2.2-8.6	1.6-6.4	1.3-5.1	F 140	51%	100%														
-01 Nozzles	0.09 0.10	35 40	35 40	3.5-14 3.8-15	2.3-9.3 2.5-9.9	1.7-6.9 1.9-7.4	1.4-5.6 1.5-5.9	F 136 F 133	53%	100% 100%														
14022163	0.10	45	45	4-16	2.8-11	2-7.9	1.6-6.3	F 131		100%														
	0.11	50	50	4.3-17	2.8-11	2.1-8.3	1.7-6.6	F 128 F 124		100% 100%														
	0.12 0.13	60 65	60 65	4.5-18 4.8-19	3-12 3.3-13	2.3-9.1 2.4-9.5	1.8-7.3 1.9-7.6	F 123		100%														
	0.13	70	70	5-20	3.3-13	2.5-9.8	2-7.9 2.1-8.4	F 121		100%														
	0.14 Flow	Boom nsi	80 Tip.poi	5.3-21 Application	3.5-14 on Speed (m	2.8-11 ph) @ 25-		F 118 ER110-015		100%	SR11	0-015	(4028	7-015)	MR1	10-015	(4029	1-015)	DR11	0-015	(4028	6-015)		
	do gpiii	ро.		ogpu	4gpa	5gpa	6gpa	CLASS VMD	<141	<600														
	0.11	25	20 25	2.5-10 3-12	2.5-10 2.2-8.8	1.6-6.3 1.8-7	1.3-5.2 1.5-5.8	F 153	40%		M	225	21%	98%										
110	0.13	30	30	3.3-13	2.4-9.6	1.9-7.7	1.6-6.4	F 145	47%	100%	F	215	24%	98%		323	11%	94%	C	368	7%	92%		
-015 Nozzles	0.14 0.15	35 40	35 40	3.5-14 3.8-15	2.5-10 2.8-11	2.1-8.3 2.2-8.9	1.7-6.9 1.9-7.4	F 142 F 139	49% 51%		F_	207 199	26% 28%	98% 98%	C C	298 279	14% 16%	96% 97%		346 329	8% 10%	93%		
11022103	0.16	45	45	4-16	3-12	2.4-9.4	2-7.8	F 137	53%	100%	F	193	30%	98%	M	262	18%	98%	С	315	11%	95%		
	0.17 0.18	50 60	50 59	4.3-17 4.5-18	3-12 3.5-14	2.5-9.9 2.8-11	2.1-8.3	F 135 F 131	55% 58%		F	187 177	32% 34%	98% 98%	M	248 226	20%	98% 99%	C C	302 282	12% 14%	95% 96%		
	0.19	65	64	4.8-19	3.5-14	2.8-11	2.4-9.4	F 129	59%	100%	F	173	36%	98%	F	217	24%	99%	С	273	15%	96%		
	0.20	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 128 F 125	61% 63%		F	169 161	37% 39%	98% 98%	F	209 195	25% 27%	99% 100%	M	265 252	15% 17%	97% 97%		
	Flow	Boom			n Speed (m	ph) @ 25-1	00% D.C.	ER110-02	(402	81-02)		10-02	(4028	7-02)	MR1	10-02	(4029	1-02)	DR1	10-02	(4028	6-02)		
	us gpm 0.14	psi 20	Tip psi 20	3gpa	4gpa 2.5-10	5gpa	6gpa	CLASS VMD F 173	<141 32%		CLASS	VMD	<141	<600	CLASS	VMD	<141	<600	CLASS	VMD	<141	<600		
	0.14	25	25	3.5-14 4-16	3-12	2.1-8.3 2.3-9.3	1.7-6.9 2-7.8	F 166	36%		M	227	21%	99%										
110	0.17	30	29	4.3-17	3.3-13	2.5-10	2.1-8.5	F 160	39%	100%		219	23%	99%	C	317	11%	95%	VC	433	5%	82%		
-02 Nozzles	0.19	35 40	34 39	4.5-18 5-20	3.5-14 3.8-15	2.8-11 3-12	2.3-9.2 2.5-9.8	F 155	42% 45%		F	212	24% 26%	99% 99%		297 281	13% 15%	96% 97%		412 394	6% 6%	85% 87%		
11022.00	0.21	45	44	5.3-21	4-16	3-12	2.5-10	F 147	47%	100%	Ē	201	27%	99%	M	267	17%	97%	С	378	7%	88%		
	0.22 0.24	50 60	49 59	5.5-22 6-24	4-16 4.5-18	3.3-13 3.5-14	2.8-11 3-12	F 144 F 138	49% 52%		F	196 188	29% 31%	99% 99%	M	256 237	18% 21%	97% 98%		364 339	8% 9%	90%		
	0.25	65	64	6.3-25	4.8-19	3.8-15	3.3-13	F 136	54%	100%	F	184	32%	99%	M	229	22%	98%	С	328	10%	92%		
	0.26 0.28	70 80	69 79	6.5-26 7-28	4.8-19 5.3-21	4-16 4.3-17	3.3-13 3.5-14	F 133	55%	100% 100%	F	181 175	33%	99% 99%	M F	222 210	23% 25%	98% 99%		318 299	10% 11%	93%		
	Flow	Room	Tip psi	Application				ER110-025		31-025)	SR11												UR110	0-025
	us gpm	μδι		3ypa	4gpa	5gpa	6gpa	CLASS VMD	<141		CLASS	VMD	<141	<600	CLASS	VMD	<141	<600	CLASS	VMD	<141	<600	40292	2-025
	0.17	25	19 24	4.3-17 4.8-19	3.3-13 3.5-14	2.5-10 3-12	2.2-8.6 2.4-9.7	F 194 F 190	28%		M	244	18%	98%										
110	0.21	30	29	5.3-21	4-16	3.3-13	2.8-11	F 187	29%	100%	M	236	20%	98%		353	8%	90%		437	5%	79%	Ш	EC.4
-025 Nozzles	0.23	35 40	34 39	5.8-23 6-24	4.3-17 4.5-18	3.5-14 3.8-15	2.8-11 3-12	F 184 F 181	29% 30%			228 222	21% 23%	98% 98%	C C	337 322	10% 11%	92% 93%	VC VC	418 401	6% 6%	83% 86%	UC	564 541
	0.26	45	44	6.5-26	4.8-19	4-16	3.3-13	F 179	30%	100%		216	24%	98%	C	310	12%	94%	С	386	7%	88%	UC	522
	0.28	50 60	49 58	6.8-27 7.5-30	5-20 5.5-22	4-16 4.5-18	3.5-14 3.8-15	F 177 F 173	30%		F	211	25% 27%	98% 98%	C	299 280	13% 15%	95% 96%		373 350	8% 9%	89% 91%	UC XC	504 474
	0.31	65	63	7.8-31	5.8-23	4.8-19	4-16	F 172	31%	100%	F	199	28%	98%	С	271	16%	96%	С	340	9%	92%	XC	561
	0.33	70 80	68 78	8-32 8.8-35	6-24 6.5-26	4.8-19 5.3-21	4-16 4.3-17	F 170 F 168		100%	F	195 189	29% 30%	98% 98%	M	263 249	16% 18%	96% 97%	C	331 314	10%	93%	XC	448 426
	Flow	Boom	Tin nei	Applicatio	n Speed (m	ph) @ 25-1	100% D.C.	ER110-03	(402	81-03)		10-03	(4028	7-03)	MR1	10-03	(4029	1-03)	DR1	10-03	(4028	6-03)	UR11	0-03
	us gpm 0.21	psi 20		4ypa	5gpa	6.0gpa 2.5-10	8gpa 1.9-7.7	CLASS VMD			CLASS	VMD	<141	<600	CLASS	VMD	<141	<600	CLASS	VMD	<141	<600	4029	2-03
	0.21	25	19 24	3.8-15 4.3-17	3-12 3.5-14	3-12	2.2-8.6	F 199 F 191	26% 29%		С	319	9%	94%										
110	0.26	30	29	4.8-19	3.8-15	3.3-13	2.4-9.5	F 185	31%	99%	С	303	11%	95%	VC	399	6%	86%		484	3%	73%	LIC	610
-03 Nozzles	0.28	35 40	34 39	5-20 5.5-22	4-16 4.3-17	3.5-14 3.8-15	2.5-10 2.8-11	F 179 F 175	33%		C	290 279	13% 15%	95% 96%		380 364	7% 8%	88% 90%		464 447	4% 5%	77% 79%	UC	612 589
	0.31	45	43	5.8-23	4.8-19	3.8-15	3-12	F 170	36%	98%	M	269	16%	96%	С	350	9%	91%	VC	432	5%	82%	UC	570
	0.33	50 60	48 58	6-24 6.8-27	5-20 5.3-21	4-16 4.5-18	3-12 3.3-13	F 167	37%		M	260 244	17% 19%	97% 97%	C	337 315	10% 11%	93% 94%		419 396	6% 6%	83% 86%	UC	552 521
	0.38	65	63	7-28	5.5-22	4.8-19	3.5-14	F 157	40%	97%	M	237	20%	97%	С	306	12%	95%	С	385	7%	87%	UC	507
	0.39	70 80	68 77	7.3-29 7.8-31	5.8-23 6.3-25	4.8-19 5.3-21	3.5-14 3.8-15	F 155 F 150	41%	97% 97%	M F	231	21% 22%	98% 98%		297 281	13% 14%	95% 96%		376 359	7% 8%	88% 89%		495 472
	0.42	UU	11	1.0-31	0.5-25	J.J-Z I	J.0-10	100	14270	3/70		220	4470	3070	U	201	1470	3070	U	ააუ	U70	UJ70	Λ0	412

NOTE: 1SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. 2Shown 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

	COM	во	ΙΞΤ	110	° Spra	y Tips	- PWN	I Spra	y S	yste	ms															
	Comp	rehei	nsive	rat	e & sp	eed ch	arts for	any no	zzle	e sp												-		-		
	Nozzle Angle &	Flow Rate	Boom Pressure	Tip PSI			S Gallons/Ad A Sprayer S			ER110	Spray Serie°		ificatio		D (Drop o° Serie				<u>41μ (D</u>)° Serie	rift %); es			mall D o Serie		UR s	series
ı	Sizes	USGPM Flow	PSI Boom				100% Duty Cy			VMD 10-04		<600 1-04)		VMD 10-04		<600 7-04)				<600 1-04)		VMD 10-04	<141			VMD 10-04
	110 -04 Nozzles	0.27 0.31 0.34 0.36 0.39 0.41 0.43 0.47 0.49 0.51	psi 20 25 30 35 40 45 50 60 65 70 80	19 23 28 33 37 42 47 56 61 66 75	4gpa 5-20 5.8-23 6.3-25 6.8-27 7.3-29 7.5-30 8-32 8.8-35 9.3-37 9.5-38	5gpa 4-16 4.5-18 5-20 5.5-22 5.8-23 6-24 6.5-26 7-28 7.3-29 7.5-30 8.3-33	7.5gpa 2.8-11 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.8-19 5-20 5-20 5.5-22	10gpa 2-8.1 2.3-9.1 2.5-10 2.8-11 3-12 3.3-13 3.5-14 3.8-15 3.8-15 4-16	CLASS M M M M M F F F	VMD 243 235 228 222 217 213 209 202 199 196 191	<141 18% 20% 21% 23% 24% 25% 26% 27% 28% 29% 30%		CLASS C C C C M M M	330 314 300 288 278 269 253 246 239 228		93% 94%				83% 86% 88% 90% 91% 93% 94% 95%	XC XC		3% 3% 4% 4% 5% 6% 6% 6%			621 601 583 567 539 527 516 496
	110 -05 Nozzles	Flow us gpm 0.34 0.38 0.41 0.45 0.50 0.53 0.58 0.61 0.63	Boom psi 20 25 30 35 40 45 50 60 65 70 80	Tip psi 18 23 27 32 36 41 45 54 59 63 72	6gpa 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	8gpa 3-12 3.5-14 3.8-15 4.3-17 4.5-18 4.8-19 5-5-22 5.8-23 5.8-23 6.3-25	nph) @ 25-1 10gpa 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	12gpa 2.1-8.3 2.3-9.3 2.5-10 2.8-11 3-12 3-12 3.5-14 3.8-15 4-16 4.3-17	M M M M F F F F F F F F	0-05 VMD 253 242 233 225 219 213 208 199 195 191 185	2141 17% 19% 21% 23% 25% 26% 27% 29% 30% 31% 32%	1-05) <600 95% 95% 95% 95% 95% 95% 95% 95% 95% 95%	CLASS C C C C C C M M M	377 355 338 322 309 296 275 266 257 242	7% 8% 10% 11% 12% 13% 15% 16% 16%	89% 91% 93% 93% 94% 95% 96% 96% 96%	XC XC VC VC C C C	501 478 459 442 427 400 389 378 359	3% 4% 4% 5% 5% 6% 6% 7% 7%	69% 73% 76% 78% 80% 83% 84% 85% 87%	XC XC XC XC XC XC XC XC XC	539 525 513 502 492 475 467 460 448	2% 2% 3% 3% 3% 3% 3% 4%	61% 64% 66% 68% 70% 73% 74% 75% 77%	UC UC UC UC UC UC UC	638 621 605 592 570 560 551
	110 -06 Nozzles	Flow us gpm 0.44 0.48 0.52 0.56 0.59 0.63 0.69 0.71 0.74 0.79 Flow	Boom psi 25 30 35 40 45 50 60 65 70 80 Boom	70 Tip psi 22 26 30 35 39 43 52 57 61 70	7.5gpa 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	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 6-24	nph) @ 25-1 12gpa 2.8-11 3.3-12 3.3-13 3.5-14 3.8-15 4.3-17 4.5-18 5-20 nph) @ 25-1	15gpa 2.2-8.8 2.4-9.6 2.5-10 2.8-11 3-12 3-12 3.5-14 3.5-14 3.8-15 4-16	CLASS C M M M M M M M F	VMD 278 268 260 253 247 242 233 228 225 218	(4028 <141 15% 16% 18% 20% 21% 23% 23% 24% 25% (4028	1-06) <600 94% 94% 94% 94% 95% 95% 95% 95% 95%	VC VC C C C C C C	444 416 392 371 353 337 308 296 284 264	(4028 <141 4% 6% 7% 8% 9% 10% 12% 13% 14% (4028	<600 80% 84% 87% 89% 90% 92% 93% 94% 94% 95%	XC X	10-06 VMD 545 524 506 490 477 465 443 434 426 410	(4029 <141 2% 3% 3% 4% 4% 5% 5% 5% (4029	58% 64% 68% 71% 74% 76% 79% 80% 81% 83%	XC XC XC XC XC XC XC XC XC XC	10-06 VMD 605 583 563 547 532 519 496 486 476 460 10-08	(4028 <141 1% 2% 2% 2% 2% 3% 3% 3% 3% (4028	<600 49% 54% 58% 61% 63% 65% 69% 70% 71% 73%	4029 UC UC UC UC UC UC UC UC UC UC	10-06 92-06 701 674 652 633 617 603 580 570 560 544 10-08
	110 -08 Nozzles	0.56 0.62 0.67 0.71 0.75 0.79 0.87 0.91 0.94 1.01	psi 25 30 35 40 45 50 60 65 70 80 Boom	7 Tip psi 20 24 28 32 36 39 47 51 55 63	12gpa 3.5-14 3.8-15 4-16 4.5-18 4.8-19 5-20 5.5-22 5.5-22 5.5-22 5.8-23 6.3-25	15gpa 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	18gpa 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	20gpa 2.1-8.3 2.3-9.1 2.5-9.9 2.8-11 3-12 3.3-13 3.3-13 3.5-14 3.8-15	CLASS C C C C M M M M F ER1	VMD 328 312 298 286 275 266 249 242 235 223	<141 14% 15% 17% 18% 19% 20% 21% 22% 23% 24% (4028	<600 90% 92% 93% 93% 94% 95% 95% 96% 96%	XC XC XC XC C C C			<600 67% 71% 74% 77% 79% 82% 83% 84% 86% 7-10)		545 522 503 486 455 442 430 408		50% 54% 58% 61% 65% 67% 69% 71%		627 606 588 571 543 530 519 498	3% 3% 3% 3% 4% 4% 4% 4% 4%		UC UC UC UC UC UC UC	651 632 614 585 573 562 543
7	110 -10 Nozzles	us gpm 0.73 0.79 0.84 0.89 0.94 1.03 1.07 1.11 1.19	98i 30 35 40 45 50 60 65 70 80	21 25 28 32 35 42 46 49 56	15gpa 3.5-14 4-16 4.3-17 4.5-18 4.8-19 5-20 5.3-21 5.5-22 6-24	18gpa 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 4.5-18 5-20	20gpa 2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16 4.3-17 4.5-18 nph) @ 25-1	25gpa 2.2-8.6 2.3-9.3 2.5-10 2.8-11 2.8-11 3-12 3.3-13 3.5-14	VC C C C C C C C C C M	357 343 330 319 310 293 285 278 266	11% 12% 13% 15% 16% 17% 18% 19% 20%	89% 90% 91% 91% 92% 92% 93%	XC XC XC XC XC C C C	VMD 470 445 424 405 388 358 345 333 311	7% 7% 8% 8% 9% 10% 10%	81% 83%	UC UC UC UC UC UC XC XC	VMD 579 554 533 514 497 468 456 444 423 0-125	<141 3% 4% 4% 4% 5% 5% 5% 6% 6%	48% 51% 54% 57% 61% 62% 64% 66%	UC UC UC UC UC UC UC	VMD 639 625 614 604 595 580 573 566 555	5% 5% 5% 5% 5% 5% 5% 5% 5%	 600 63% 61% 59% 58% 56% 54% 53% 51% 49% 3-125 		711 682 658 637 620 590 577 566 546
	110 -125 Nozzles	us gpm 0.84 0.91 0.97 1.03 1.09 1.19 1.24 1.29 1.38	psi 30 35 40 45 50 60 65 70 80	18 21 24 27 30 36 39 42 48	15gpa 4.3-17 4.5-18 4.8-19 5-20 5.5-22 6-24 6.3-25 6.3-25 6.8-27	18gpa 3.5-14 3.8-15 4-16 4.3-17 4.5-18 5-20 5-20 5.3-21 5.8-23	20gpa 3.3-13 3.5-14 3.5-14 3.8-15 4-16 4.5-18 4.5-18 4.8-19 5-20	25gpa 2.5-10 2.8-11 3-12 3-12 3.3-13 3.5-14 3.8-15 4-16	XC XC XC XC XC XC XC XC C XC XC XC XC XC	VMD 447 430 416 403 392 383	<141	<60064%68%71%73%75%77%79%80%81%	XC XC XC XC C C	445 423 403 386	5% 6% 6% 7% 7% 8% 8% (4028	66% 70% 72% 74% 78% 79% 80%	UC UC UC UC UC	633 616 587 574 562	4% 4% 4% 4% 5%	37% 40% 44% 46% 48%	UC UC UC UC UC	658 646 626 618 609	3% 3% 4% 4%	33% 35% 37% 39% 40%		
	110 -15 Nozzles	1.01 1.08 1.14 1.20 1.32 1.37 1.43 1.52 Flow	95i 35 40 45 50 60 65 70 80	Tip psi 18 21 23 26 31 34 36 41 Tip psi	18gpa 4.3-17 4.5-18 4.8-19 5-20 5.5-22 5.8-23 6-24 6.3-25 Applicatio	20gpa 3.8-15 4-16 4.3-17 4.5-18 5-20 5-20 5.3-21 5.8-23 on Speed (n	25gpa 3-12 3.3-13 3.5-14 3.5-14 4-16 4-16 4.3-17 4.5-18 nph) @ 25-1	30gpa 2.5-10 2.8-11 2.8-11 3-12 3.3-13 3.5-14 3.5-14 3.8-15	XC X	VMD 447 434 423 413 395 387 380 367	9% 9% 10% 11% 11% 11% (4028	<600 62% 65% 67% 69% 72% 73% 74% 76% 1-20)	XC XC XC XC XC XC XC XC	478 463 436 424 413 393 10-20	6% 6% 7% 7% 7% 8% (4028	61% 64% 67% 69% 70% 72% 7-20)	UC UC UC UC UC MR1	604 595 586 570 10-20	4% 4% 4% 5% (4029	41% 42% 44% 46% 1-20)	UC	655 646 637 620	3% 4% 4%			
	110 -20 Nozzles	1.37 1.50 1.56 1.62 1.73	50 60 65 70 80	19 23 24 26 30	25gpa 6.8-27 7.5-30 7.8-31 8-32 8.5-34	30gpa 5-20 5.5-22 5.8-23 6-24 6.5-26	35gpa 3.5-14 3.8-15 3.8-15 4-16 4.3-17	40gpa 2.5-10 2.8-11 3-12 3-12 3.3-13	UC UC XC XC XC	504 484 476 468 453	<141 6% 7% 7% 7% 8%	54% 58% 60% 61% 64%	XC			73% 75%	UC		4%	40% 42%						

COMBO-JET® Narrow-Angle Nozzles for Specialty/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.

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 mode of actions.

Spray on Green

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

Examples include:

- Spraying herbicides to clear out established weeds before planting.
- Spraying Fungicide in-crop to any plants in field, skipping bare ground.
- Use more expensive 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.

Examples include:

- Spraying weeds ONLY with herbicide, avoiding planted crop.
- Spraying crop with fungicide, ignoring weeds or non-target plants.

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 at application time and development of the computing power and learning mechanisms are continually under development.

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

A new series of DX drift reduction, narrow angle nozzles.

Noz Angl	e &	nate	Boom Pressure	Application Rate in US Gallons / Acre on 20" Nozzle Spacing			
Siz	es	USGPM	PSI	@ Sprayer Speed - Miles / Hour	20° Nozzles	40° Nozzles	60° Nozzles

For smaller sizes of nozzles in narrow-angle varieties, please contact Wilger. As spot-spraying systems continue to develop,

Wilger ex	xpects to l	have a v	ariety o	of nozzle	s devel	oped in	turn to s	support	the new	improvements	to maximize ef	fectiveness.
	Flow	Boom				n Spee				Drift	Drift	Drift
	us gpm	psi	8 _{GPA}					25gpa		REDUCTION	REDUCTION	REDUCTION
-04	0.35	30	14	10	8	6.9	5.1	4.1	3.4	DX20-04	DX40-04	DX60-04
Nozzles	0.40	40	16	12	10	7.9	5.9	4.8	4.0	Part#	Part#	Part#
	0.45	50	18	13	11	9	6.6	5.3	4.4	FINE SPRAY	FINE SPRAY	FINE SPRAY
	0.49	60	19	15	12	10	7.3	5.8	4.8	ER20-04	ER40-04	ER60-04
	0.53	70	21	16	13	10	8	6.3	5.2	Part#	Part#	Part#
	Flow	Boom	40			n Spee			00	DRIFT	DRIFT	DRIFT
٥٦	us gpm	psi		12.5gpa			20gpa		30gpa	REDUCTION	REDUCTION	REDUCTION
-05	0.43	30	13 15	10	9		6.4	5.1 5.9	4.3 5.0	DX20-05 Part#	DX40-05 Part#	DX60-05 Part#
Nozzles	0.56	40 50	17	13	11	9	7.4	6.6	5.5	FINE SPRAY	FINE SPRAY	FINE SPRAY
	0.50	60	18	15	12	10	9	7	6.1	ER20-05	ER40-05	ER60-05
	0.66	70	20	16	13	11	10	8	6.5	PART#	PART#	PART#
	Flow	Boom	20			n Spee			0.5	DRIFT	DRIFT	DRIFT
	us gpm	Dooiii	10cps	12.5gPA				30 _{GPA}	35gpa	REDUCTION	REDUCTION	REDUCTION
-06	0.52	30	15	12	10	9	8	5.1	4.4	DX20-06	DX40-06	DX60-06
Nozzles	0.60	40	18	14	12	10	9	6	5.1	PART#	PART#	PART#
14022100	0.67	50	20	16	13	11	10	7	6	FINE SPRAY	FINE SPRAY	FINE SPRAY
	0.73	60	22	17	15	12	11	7	6	ER20-06	ER40-06	ER60-06
	0.79	70	24	19	16	13	12	8	7	Part#	Part#	Part#
	Flow	Boom		App	licatio	n Spee	d (mph) @		Drift	Drift	Drift
	us gpm	psi	15gpa	18gpa	20 _{GPA}	25 _{GPA}	30gpa	35gpa	40 _{GPA}	REDUCTION	REDUCTION	REDUCTION
-08	0.69	30	14	11	10	8	7	6	5	DX20-08	DX40-08	DX60-08
Nozzles	0.80	40	16	13	12	10	8	7	6	Part#	Part#	Part#
	0.89	50	18	15	13	11	9	8	7	FINE SPRAY	FINE SPRAY	FINE SPRAY
	0.98	60	19	16	15	12	10	8	7	ER20-08	ER40-08	ER60-08
	1.06	70	21	17	16	13	10	9	8	Part#	Part#	Part#
	Flow	Boom				n Spee					Drift	Drift
	us gpm	psi	15 _{GPA}	18gpa	20 _{GPA}	25 _{GPA}		40 _{GPA}	50gpa	REDUCTION	REDUCTION	REDUCTION
10	0.87	30	17	14	13	10	9	6	5	DX20-10	DX40-10	DX60-10
Nozzles	1.00	40	20	17	15	12	10	7	6	Part#	Part#	Part#
	1.12	50	22	18	17	13	11	8	7	FINE SPRAY	FINE SPRAY	FINE SPRAY
	1.22	60 70	24 26	20	18 20	15 16	12	9	7 8	ER20-10 Part#	ER40-10 Part#	ER60-10 Part#
	1.32		20						Ö			
	Flow us gpm	Boom psi	20gpa			Spee) @ 45gpa	50cp	DRIFT REDUCTION	DRIFT REDUCTION	DRIFT REDUCTION
-125	1.08	30	16	13	11	9	40GPA	43GPA	6	DX20-125	DX40-125	DX60-125
Nozzles	1.25	40	19	15	12	11	9	8	7	DAZU-125 Part#	DX40-125 Part#	PART#
NUZZIES	1.40	50	21	17	14	12	10	9	8	FINE SPRAY	FINE SPRAY	FINE SPRAY
	1.53	60	23	18	15	13	11	10	9	ER20-125	ER40-125	ER60-125
	1.65	70	25	20	16	14	12	11	10	PART#	PART#	PART#
	1.00	10	20		10	14	14		10	I ANI#	IANIT	TANT

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.

What is the **DX series** of spray tip?

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

Since optical/spot sprayers are commonly sharing a maximum speed and narrow spacing, it is easier to consolidate what Wilger finds as a good middle ground to offer a single drift reduction nozzle.

That being said, if you have a significant need for a coarser option than the DX nozzle, by all means contact Wilger and we would likely have something that might be made available to you.

Other uses for narrow-angle nozzles

Narrow angle spray nozzles are also key in improving some non-standard broadcast field spraying.

Narrower angle nozzles can be used in applications that specifically target certain parts of the plant where application to the rest of the plant is waste.

There are also cropping applications that might be continually cropping into **high stubble**, where traditional wide angle nozzles will result in significant spray catch and run-off in the stubble.

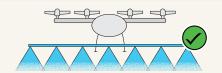
It is important to recognize narrow angle nozzles are not to be used strictly as replacements for nozzles that are intended for your sprayer (e.g. 80° or 110°). They are only an option to further isolate and target a spray target to achieve better spray efficiency and minimize chemical waste.

Are they still PWM-compatible?

Absolutely

The narrow angles use the same drift reduction design that is completely compatible with optical spray systems that are typically driven by PWM solenoids. The consistent thickness of the narrow angles make the key choices for optical spot sprayers for both compatibility and performance.

Are DX nozzles used on Drone Sprayers?



UAV sprayer applicators are able to use DX nozzles for targeted spray applications, but often due to boom constraints or UAV sprayer outfitting, wider angle nozzles like the MR110° nozzles might be used. In specialty circumstances that require a narrow full pattern spray can take advantage of the DX series of narrow-angle nozzles.

DX nozzles can be used on UAV sprayers, but they would likely be specialty applications or on sprayers that require very narrow spacing.

Contact WILGER offices for smaller sizes of DX nozzles for Drone applications.

LERAP Drift Reduction Star Rating for COMBO-JET 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. Stay tuned for further LERAP nozzle testing for more nozzles.

LERAP RATING	Nozzle	Pressure Range
	DR110-03	1.0 - 1.5 BAR
****	DR110-05	1.0 - 1.5 BAR
90%	DR110-06	1.0 - 3.0 BAR
Drift Reduction	MR110-05	1.0 - 1.5 BAR
Diff ficulation	MR110-06	1.0 - 1.5 BAR

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)

LERAP RATING	Nozzle	Pressure Range
	DR110-025	1.0 - 2.5 BAR
	DR110-03	1.6 - 3.0 BAR
	DR110-04	1.0 - 5.0 BAR
***	DR110-05	1.6 - 5.0 BAR
75%	DR110-06	3.1 - 5.0 BAR
Drift Reduction	MR110-04	1.0 - 2.5 BAR
Dint nouncion	MR110-05	1.6 - 5.0 BAR
	MR110-06	1.6 - 5.0 BAR
	SR110-05	1.0 - 1.5 BAR

LERAP RATING	Nozzle	Pressure Range
** 50% Drift Reduction	DR110-025	2.6 - 3.5 BAR
	DR110-03	3.1 - 5.0 BAR
	MR110-04	2.6 - 3.5 BAR
	SR110-05	16-30 BAR

For the updated list on COMBO-JET nozzles, visit <u>www.wilger.net/LERAP</u>

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_® 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) and vice versa. All adapters self-align cap to common nozzle offset.

Square Lug to COMBO-JET



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

COMBO-JET to Square Luq



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

HARDI to COMBO-JET



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

AGRIFAC to COMBO-JET



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

Square Lug to DOUBLE-DOWN



40206-00 Converts Square Lug Outlet (e.g. Teejet/Hypro) to COMBO-JET Double-Down Outlets -TWISTLOCK-

JACTO to COMBO-JET



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

HARDI Tip Slot

HARDI

brand

spray tips

Radialock Slotted Caps (Compatible with COMBO-JET outlets)

Wilger manufacturers a variety of caps for accepting flanged spray tips onto any Combo-Jet or Combo-Rate nozzle outlets. These caps require a spray tip gasket to seal, which is sold separately.

1/2" round

spray tips

Gasket for Slotted Caps



Flanged Tips & Radialock slotted caps Order 40160-V0 for viton gasket



Available in colors: Grey (-09), Orange (-08), Brown (-07), Blue (-06), Black (-05), Yellow (-04), Green (-03), Will (-02), Red (-01)

1/2" Round Slot 7/16" Wide Slot



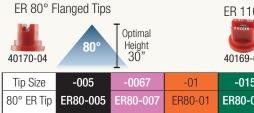
HARDI

Available in colors*: Black (-05), Yellow (-04), Green (-03), Willia (£02), Red (-01) *Check factory availability of non-black colors.

Conventional Flat Fan Flanged Spray Tips (3/8" slot)

40271-05

Wilger manufacturers a variety of sizes of flanged stainless steel spray tips inserted permanently into a flanged spray tip assembly. These would correspond to Combo-Jet ER series of spray nozzle, as they are a conventional flat fan tip.







Stainless Steel Insert Color-coded to flow rate & stamped for easy identification

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 charts, spray quality, and more information on flanged spray tips, reference the 80° and 110° spray nozzle charts.

COMBO-JET_® 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



40272-B5

Caps unused Combo-Jet nozzle body outlets

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

Double Nozzle Spraying Adapters

Be sure to read the 'Tip Selection Guide for Double Nozzle Spraying

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

PWM-Ready Double Nozzle Spraying

Just add the two nozzle sizes together for your PWM nozzle flow?

For example: MR110-04 + \$\text{SR110-06} = 110-10 *PWM solenoid pressure drop would be based on -10 size

Threaded Outlet Adapters



Threaded adapter caps can be used for any application that would require a threaded fitting.

Th	readed Outlet Ca	ps
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

Y Splitter [60° Forward/Back]



Spray forward and backward for high volume and fungicide spray applications.

40440-00		
Y Splitter Ca	p (60° forward, 60	0° backward)
Cap ONLY	w/ FKM O-ring	w/ viton O-ring
40440-01	40440-00	40440-V0
	•	•

Double-Down Adapter



Splitter used to spray with two nozzles to make more effective spray quality

10	111 00	
Doub	ole-Down Adapter	Сар
Cap ONLY	w/ FKM O-ring	w/ viton O-ring
40441-01	40441-00	40441-V0

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 Connect/Push-in-tube 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.

2-Hole & 3-Hole Streamer Caps



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





3-hole streamer caps are used to stream liquid fertilizer for ~6.67" coverage



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

COMBO-JET Cap O-rings



40261-00

Stainless

Steel for

Chemical

Spraying

Mesh Size Slotted Strainer

40250-00

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

COMBO-JET Snap-in Strainers

Combo-jet strainers snap into the metering orifice

or seal adapter for a 'one-piece'-handling cap

40251-00 40249-00

Strainers



Adapter for non-metering caps Seal adapter is used to keep o-ring in place if metering orifice is NOT used

Slotted

Plastic

Strainer

Fertilizer

Stainless Mesh

40248-00

Color

'-B5' Assembly Breakdown - For non-metering apps 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.

Hose Drop & Extension Caps

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

Part #

Length

Combo-Jet	2"	40210-00	
to Combo-Jet	5"	40211-00	
O - male - 1 - 1	16"	22026-00	
Combo-Jet Cap to	24"	22036-00	
1/4" NPT-M	36"	22038-00	
1/4 INF I-IVI	48"	22048-00	
22026-00	2" Cc	5.2 2210-00 mbo-Jet Cap ixtension	40211-00 5" Combo-Jet Cap Extension

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

22021-00

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. 0-ring seal (40260-00 or 40260-V0)
- 4. [Optional] Slotted Strainer







Deflector Plate 3-hole fertilizer streamer nozzle improves stream consistency at higher pressures for improved application.

Next page for info.



COMBO-JET_® Metering Orifices & Fertilizer Streamer Caps

COMBO-JET Fertilizer Streamer Caps

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



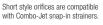
١	- opaoning to minimize roar barris					
	Operating Pressure	10-60 PSI				
	O-rings	FKM (viton avail.)				
	Material	Glass-reinforced Polypropylene				



COMBO-JET_® 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.



~6.7"				400.0			400.0			4=0.0			000.0			L 00" C		
Combo-Jet treamer Nozzle	Metering Orifice	Pres.	Flow Rate		utlet Sp tion Rate	-		utlet Sp tion Rate	s (GPA) @		utlet Sp			utlet Spation Rate			utlet Sp	
Size	Size	(PSI)	(us gpm)	4.5 мрн	5.0 мрн	6.5 мрн		5.0 мрн		4.5 мрн	5.0 мрн	6.5 мрн	7.5 мрн	10 мрн	15 мрн		5.0 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
Using	-005	20 25	0.04	4.6 5.2	4.2	3.2	3.9 4.3	3.5	2.7 3.0	3.1 3.5	2.8 3.1	2.1	1.6 1.7	1.2	0.8	1.5	1.4	1
Tip Wizard	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
makes	Orifice	35	0.05	6.1	5.5	4.2	5.1	4.6	3.5	4.1	3.7	2.8	2	1.5	1	2.0	1.8	1
selecting metering	40285-005	40	0.05	6.6	5.9	4.5	5.5	4.9	3.8	4.4	3.9	3.0	2.1	1.6	1	2.2	2.0	1
orifices &		45	0.05	7.0	6.3	4.8	5.8	5.2	4.0	4.6	4.2	3.2	2.2	1.6	1.1	2.3	2.1	1
reamer caps		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	L
easy!	-0067	20 25	0.05	6.3 7.0	5.6 6.3	4.3 4.8	5.2 5.8	4.7 5.2	3.6 4.0	4.2 4.7	3.8 4.2	2.9 3.2	2.1	1.6 1.7	1.1	2.1	1.9 2.1	-
	COMBO-JET Metering	30	0.05	7.7	6.9	5.3	6.4	5.7	4.4	5.1	4.6	3.5	2.5	1.7	1.2	2.6	2.1	۲.
WILGER	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
NEGEN	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
* *		45	0.07	9.4	8.4	6.5	7.8	7.0	5.4	6.3	5.6	4.3	3	2.2	1.5	3.1	2.8	2
IP WIZARD		15	0.06	8.1	7.3	5.6	6.8	6.1	4.7	5.4	4.9	3.7	2.8	2.1	1.4	2.7	2.4	1
TRY IT FREE AT	-01	20	0.07	9.4	8.4	6.5	7.8	7.0	5.4	6.3	5.6	4.3	3.1	2.4	1.6	3.1	2.8	2
Download on the	COMBO-JET Metering	25 30	0.08	10 11	9.4	7.3 8	8.7 10	7.9 8.6	6.0 6.6	7.0 7.7	6.3 6.9	4.8 5.3	3.4	2.6 2.8	1.7 1.9	3.5	3.1	2
App Store	Orifice	35	0.09	12	11	9	10	9.3	7.2	8.3	7.4	5.7	4	3	2	4.1	3.4	2
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	(
		45	0.11	14	13	10	12	11	8.1	9.4	8.4	6.5	4.4	3.3	2.2	4.7	4.2	(
		15	0.09	12	11	8.4	10	9.1	7.0	8.1	7.3	5.6	4.2	3.2	2.1	4.0	3.6	2
	-015	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
	COMBO-JET	25 30	0.12	16 17	14 15	11 12	13 14	12 13	9.0	10 11	9.4	7.2 7.9	5.1 5.6	3.9 4.2	2.6	5.2 5.7	4.7 5.1	2
W	Metering Orifice	35	0.13	19	17	13	15	14	11	12	11	8.6	5.9	4.2	3	6.2	5.6	
	40285-015	40	0.15	20	18	14	17	15	11	13	12	9.1	6.3	4.7	3.2	6.6	5.9	_
40443-015		45	0.16	21	19	15	18	16	12	14	13	10	6.6	5	3.3	7.0	6.3	1
		15	0.12	16	15	11	13	12	9.3	11	10	7.4	5.6	4.2	2.8	5.4	4.8	3
	-02	20	0.14	19	17	13	16	14	11	12	11	8.6	6.2	4.7	3.1	6.2	5.6	
1 1	COMBO-JET	25 30	0.16	21 23	19 21	14 16	17 19	16 17	12 13	14 15	12 14	10 11	6.8 7.4	5.1 5.5	3.4	6.9 7.6	6.2 6.8	
W	Metering Orifice	35	0.17	25	22	17	21	18	14	16	15	11	7.4	5.9	4	8.2	7.4	
	40285-02	40	0.20	26	24	18	22	20	15	18	16	12	8.4	6.3	4.2	8.8	7.9	1
40443-02		45	0.21	28	25	19	23	21	16	19	17	13	8.8	6.6	4.4	9.3	8.4	6
		15	0.15	20	18	14	17	15	12	13	12	9.3	7	5.2	3.5	6.7	6.1	4
	-025	20	0.18	23	21	16	19	17	13	16	14	11	7.8	5.9	3.9	7.8	7.0	5
	COMBO-JET	25	0.20	26	23	18	22	20	15	17	16	12	8.6	6.4	4.3	8.7	7.8	6
W	Metering Orifice	30 35	0.22	29 31	26 28	20 21	24 26	21 23	16 18	19 21	17 18	13 14	9.2 9.9	6.9 7.4	4.6 4.9	10	8.6 9.2	1 7
	40285-025	40	0.25	33	30	23	27	25	19	22	20	15	10	7.4	5.2	11	10	1 /
40443-025		45	0.26	35	31	24	29	26	20	23	21	16	11	8.3	5.5	12	10	1
		15	0.18	24	22	17	20	18	14	16	15	11	8.4	6.3	4.2	8.1	7.3	Ę
	-03	20	0.21	28	25	19	23	21	16	19	17	13	9.4	7	4.7	9.3	8.4	6
	COMBO-JET	25	0.24	31	28	22	26	23	18	21	19	14	10	7.7	5.1	10	9.4	7
W.	Metering Orifice	30 35	0.26	34 37	31	24 26	29 31	26 28	20	23 25	21 22	16 17	11 12	8.3 8.9	5.6 5.9	11	10	1 8
	40285-03	40	0.28	40	36	27	33	30	23	26	24	18	13	9.5	6.3	13	12	9
40443-03		45	0.32	42	38	29	35	32	24	28	25	19	13	10	6.6	14	13	
		15	0.24	32	29	22	27	24	19	22	19	15	11	8.4	5.6	11	10	7
	-04	20	0.28	37	34	26	31	28	22	25	22	17	13	9.4	6.3	12	11	8
	COMBO-JET	25	0.32	42	38	29	35	31	24	28	25	19	14	10	6.9	14	13	
500	Metering Orifice	30	0.35	46	41	32	38	34	26	30	27	21	15	11	7.4	15	14	
	40285-04	35 40	0.37	49 53	44	34 37	41	37 40	28 30	33 35	30 32	23 24	16 17	12 13	7.9 8.4	16 18	15 16	-
40443-04		45	0.40	56	50	39	47	42	32	37	34	26	18	13	8.8	19	17	╁
		15	0.42	40	36	28	34	30	23	27	24	19	12	9.1	6.1	13	12	(
	-05	20	0.35	47	42	32	39	35	27	31	28	22	14	11	7	16	14	
	-US COMBO-JET	25	0.40	52	47	36	43	39	30	35	31	24	16	12	7.8	17	16	
576	Metering	30	0.43	57	51	40	48	43	33	38	34	26	17	13	8.6	19	17	<u> </u>
diki	Orifice 40285-05	35	0.47	62	56	43	51	46	36	41	37	28	19	14	9.3	21	19	L
		40	0.50	66	59	46	55	49	38	44	40	30	20	15	9.9	22	20	1 1

COMBO-JET_® Metering Orifices (cont'd)

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

[WATER] 8.34 lbs/gal Specific Gravity 1.0 Conversion Factor: 1.00 [28-0-0] 10.67 lbs/gal Specific Gravity 1.28 [10-34-0] 11.65 lbs/gal Specific Gravity 1.28 Conversion Factor: 1.18

Required F	low Rate x C	Conversio	n Factor =	Flow Ra	te adjust	ed for de	nsity			Gravity 1. Factor:				evity 1.28 actor: 1.1		Specific (onversion		
	Metering	Pres.	Flow		utlet Sp	_		utlet Sp	_	i	utlet Sp	-		utlet Sp	_	i	utlet Sp	_
	Orifice Size	(PSI)	Rate (us gpm)	Applicat 4.5 мрн	ion Rate 5.0 мрн	6.5 MPH	Applicat 4.5 MPH	ion Rate 5.0 мрн	6.5 MPH		tion Rates 5.0 мрн	6.5 MPH	Applicat 7.5 мрн	tion Rate: 10 мрн	15 MPH	Applicat 4.5 мрн	tion Rate: 5.0 мрн	
		15	0.37	49	44	34	40	36	28	32	29	22	15	11	7.3	16	15	11
	-06	20	0.42	56	50	39	47	42	32	37	34	26	17	13	8.4	19	17	13
	COMBO-JET Metering	25 30	0.47 0.52	63 69	56 62	43 48	52 57	47 51	36 40	42 46	38 41	29 32	19 21	14 15	9.4	21 23	19 21	14 16
**	Orifice 40285-06	35	0.56	74	67	51	62	56	43	49	44	34	22	17	11	25	22	17
40443-06	10200 00	40 45	0.60 0.64	79 84	71 76	55 58	66 70	59 63	46 48	53 56	48 50	37 39	24 25	18 19	12 13	26 28	24 25	18 19
	-08	15	0.49	65	58	45	54	49	37	43	39	30	19	15	9.7	22	19	15
	COMBO-JET [Short	20	0.57	75	67	52	62	56	43	50	45	34	22	17	11	25	22	17
4 1	Orifice] 40285-08s	25 30	0.63	84 91	75 82	58 63	70 76	63 69	48 53	56 61	50 55	39 42	25 27	19 21	13 14	28 30	25 27	19 21
W	[Long Orifice]	35	0.75	99	89	68	82	74	57	66	59	46	30	22	15	33	30	23
40443-08	Orifice] 40285-08	40 45	0.80 0.85	106 112	95 101	73 78	88 93	79 84	61 65	70 75	63 67	49 52	32 34	24 25	16 17	35 37	32 34	24 26
	-10	15	0.62	81	73	56	68	61	47	54	49	37	24	18	12	27	24	19
	COMBO-JET [Short	20	0.71	94	84	65	78	70	54	63	56	43	28	21	14	31	28	22
	Orifice] 40285-10s	25 30	0.79 0.87	105 115	94 103	73 80	87 96	79 86	60 66	70 77	63 69	48 53	31 34	24 26	16 17	35 38	31 34	24 27
W	[Long	35	0.94	124	112	86	103	93	72	83	74	57	37	28	19	41	37	29
40443-10	Orifice] 40285-10	40 45	1.00	133 141	119 127	92 97	111 117	99 105	77 81	88 94	80 84	61 65	40 42	30 32	20 21	44 47	40 42	31 32
	-125	15	0.76	101	91	70	84	76	58	67	60	47	30	23	15	34	30	23
	COMBO-JET [Short	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
	Orifice] 40285-125s	30	1.08	143	128	99	119	107	82	95	86	66	43	32	21	48	43	33
- XX	[Long	35	1.17	154	139	107	128	115	89	103	92	71	46	35	23	51	46	36
40443-125	Orifice] 40285-125	40 45	1.25 1.32	165 175	148 157	114 121	137 145	123 131	95 101	110 116	99 105	76 81	49 52	37 39	25 26	55 58	49 52	38 40
		15	0.92	121	109	84	101	91	70	81	73	56	36	27	18	40	36	28
	-15	20 25	1.06 1.19	140 157	126 141	97 108	117 131	105 117	81 90	93 104	84 94	65 72	42 47	32 35	21 23	47 52	42 47	32 36
526	COMBO-JET [Long Orifice] 40285-15	30	1.30	172	154	119	143	129	99	114	103	79	51	39	26	57	51	40
324		35 40	1.40 1.50	185 198	167 178	128 137	154 165	139 149	107 114	124 132	111 119	86 91	56 59	42 45	28 30	62 66	56 59	43 46
40443-15		45	1.59	210	189	145	175	158	121	140	126	97	63	47	32	70	63	48
		15	1.22	161	145	112	135	121	93	108	97	75	48	36	24	54	48	37
	-20 COMBO-JET	20 25	1.41 1.58	186 208	168 188	129 144	155 174	140 156	108 120	124 139	112 125	86 96	56 63	42 47	28 31	62 69	56 63	43 48
	[Long Orifice]	30	1.73	228	206	158	190	171	132	152	137	105	69	51	34	76	69	53
ets.Ai	40285-20	35 40	1.87 2.00	247 264	222 237	171 183	206 220	185 198	142 152	164 176	148 158	114 122	74 79	55 59	37 40	82 88	74 79	57 61
40443-20		45	2.12	280	252	194	233	210	161	186	168	129	84	63	42	93	84	65
		15 20	1.53 1.77	202 233	182 210	140 162	168 194	152 175	117 135	135 156	121 140	93 108	61 70	45 53	30 35	67 78	61 70	47 54
	-25 COMBO-JET	25	1.98	261	235	181	217	196	151	174	157	120	78	59	39	87	78	60
	[Long Orifice]	30	2.17	286	257	198	238	214	165	191	171	132	86	64	43	95	86	66
	40285-25	35 40	2.34	309 330	278 297	214 228	257 275	232 247	178 190	206 220	185 198	142 152	93 99	69 74	46 49	103 110	93 99	71 76
40443-25		45	2.65	350	315	242	292	263	202	233	210	162	105	79	53	117	105	81
	-00	15 20	2.12	243 280	218 252	168 194	202	182 210	140 162	162 187	146 168	112 129	73 84	55 63	36 42	93	73 84	56 65
	-30 COMBO-JET	25	2.37	313	282	217	261	235	181	209	188	145	94	70	47	104	94	72
	[Long Orifice]	30 35	2.60	343 371	309 334	238 257	286 309	257 278	198 214	229 247	206 222	158 171	103	77 83	51 56	114 124	103 111	79 86
	40285-30	40	3.00	396	357	274	330	297	229	264	238	183	119	89	59	132	119	91
		45 15	3.18 2.45	420 323	378 291	291 224	350 269	315 242	242 186	280 215	252 194	194 149	126 97	95 73	63 48	140 108	126 97	97 75
	-40	20	2.43	373	336	258	311	280	215	249	224	172	112	84	56	124	112	86
	COMBO-JET	25	3.16	417	375	289	347	313	241	278	250	192	125	94	63	139	125	96
	[Long Orifice]	30 35	3.46 3.74	457 493	411 444	316 342	381 411	343 370	263 285	304 329	274 296	211 228	137 148	103 111	69 74	152 164	137 148	105 114
	40285-40	40	4.00	527	475	365	439	396	304	352	316	243	158	119	79	176	158	122
		45 15	4.24 3.06	559 405	503 364	387 280	466 337	420 303	323 233	373 270	336 243	258 187	168 121	126 91	84 61	186 135	168 121	129 93
	-50	20	3.54	467	420	323	389	350	269	311	280	216	140	105	70	156	140	108
	COMBO-JET	25 30	3.96	522 572	470 515	362 396	435 477	392 429	301 330	348	313 343	241 264	157 172	118	78 86	174	157	121
	[Long Orifice]	35	4.33 4.68	618	515 556	428	515	463	356	381 412	371	285	185	129 139	86 93	191 206	172 185	132 143
	40285-50	40	5.00	661	595	457	550	495	381	440	396	305	198	149	99	220	198	152
		45	5.31	701	631	485	584	525	404	467	420	323	210	158	105	234	210	162

COMBO-JET Nozzle Bodies

Hinged Clamp for easy installation

wikstop" Raised Inlet Available

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



The COMBO-JETO Adventage

KWIKSTOP™ raised inlet option available to reduce nozzle run-on

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	Outlets	Style	Part#
3/4" (0.84" OD)	1 CJ	Check Valve	40611-00
1"		Check Valve	40621-00
(1.315" OD)	1 CJ	Manual On/Off	40621-MS
(1.313 00)		No Module	40621-NM





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	Outlets	Style	Part#
3/4" (0.84" OD)	2 CJ	Check Valve	40612-00
1"		Check Valve	40622-00
(1.315" OD)	2 CJ	Manual On/Off	40622-MS
		No Module	40622-NM





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

High/Low PSI Check Valves

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







4 PSI [BLUE]

-00 [Standard]

15 PSI -P15 [RED]

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.

Boom Pipe	Outlets	Style	Part#
3/4" (0.84" OD)	2 CJ	Check Valve	40612-00
1"		Check Valve	40622-00
1" (1.315" OD)	2 CJ	Manual On/Off	40622-MS
		No Module	40622-NM





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#
1" (1.315" OD)	1 CJ	Check Valve	40631-00
	2 CJ	Check Valve	40632-00
	3 CJ	Check Valve	40633-00



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

Operating Pressure	10*-125PSI
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)

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
(0.84" OD)		No Check	40140-00
		Check Valve	40661-00
1"	1 Carraga I	Manual On/Off	40661-MS
(1.315" OD)	1 Square Lug	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" (0.84" 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° OD)		No Module	40662-NM





High/Low PSI Check Valves

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





15 PSI

[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.

		0	
Boom Pipe	Outlets	Style	Part#
3/4" (0.84" OD)	3 Square Lug	Check Valve	40653-00
4.11		Check Valve	40663-00
	3 Square Lug	Manual On/Off	40663-MS
(1.315 OD)		No Module	40663-NM
	3/4"	3/4" (0.84" OD) 3 Square Lug	3/4" (0.84" OD) 3 Square Lug Check Valve 1" Check Valve 1 Square Lug Manual On/Off Manual On/Off





Nozzle Body Specifications

Operating Pressure	10*-125PSI
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
(1.313 00)	3 Sauaro Lua	KWIKSTOD	40673-00





Swivel Body Replacement Parts - For ALL TYPES Swivel Bodies

O-ring Repair Kit, CJ Nozzle Bodies, FKM (6 Bodies) O-ring Repair Kit, CJ Nozzle Bodies, VITON® (6 Bodies) 40166-05

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)

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

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 6x Diaphragms #40155-07 #40155-12 le either a pair of #20455-04 & #40155-07, or #40155-23. Both serve the same function.



Requires pressure pad o-ring to be removed

20455-04 40155-07 *Also requires 20455-04 pressure pad o-ring

Square Lug Nozzle Body Accessories - Only for Square Lug Nozzle Body Outlets (Teejet, Hypro, etc)



Caps Square Lug

nozzle outlets



flanged spray tips

Threaded Cap



45° 1/4" NPT-F thread

Flanged Strainers [50 Mesh] [100 Mesh]

40150-00 40151-00 Stainless Steel Strainers for Square Lug Outlets

Cap Gaskets

Sq. Lug Cap Gasket

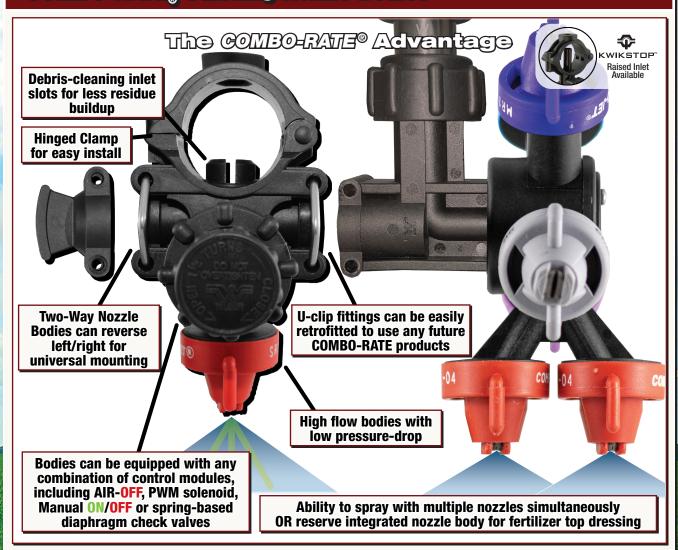
Gaskets are required to seal all Square Lug Caps

40160-00 [FKM] 40160-V0 [viton]





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









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.



41475-00 ONE-WAY 1" Boom Pipe

Boom \$ 1/2" P (0.84" (







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

One-Way Stacking Saddles Two-Way Stacking Saddle

Size	Inlet Size	Part#
Pipe OD)	3/8" inlet	41471-00
	3/8" inlet	41475-00
pe OD)	9/16" inlet	41477-00
OD)	21/32" inlet	41479-00

COMBO-RATE_® 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/L **FF** Check Valves

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

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



Nozzle Body Specifications					
Operating Pressure	10*-125PSI				

Operating Pressure	10*-125PSI
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.)
Materials	SS (screws) Glass-Reinforced Polypropylene (body)

¹⁰PSI minimum with 10PSI check valve

Nozzle Bodies with 5/16" Bolt Mount Upper Clamp Sch40 Pipe Module Description & Part# Stacking Boom Size Inlet Size Outside Dia Check Manual Air-Off **PWM** Direction Diameter ON/OFF Valve Operated (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 3/8" Inlet One-Way 41431-00 41433-00 41435-00 41437-00 1 315' 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 nozzles spraying can be an effective way to improve coverage in high volume applications to make a more meaningful mix of droplets.









			Nozzle Bo	dies with 5/16"	Bolt Mount Upp	per Clamp	
	Sch40 Pipe		Ot I do -		Module Desci	ription & Part#	
Boom Size	Outside Diameter	Inlet Size	Stacking Direction	Dia. Check Valve	Manual ON/OFF	Air-Off Operated	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"	4" 4.045"	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*-125PSI
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)

^{* 10}PSI minimum with 10PSI check valve

Combo-Rate Body & Turret Replacement Parts

40200-02 O-ring, CR Inter-body, #206, FKM

20455-07 O-ring, 3/8" Nozzle Body Inlet Stem. #110. FKM 40200-02 O-ring, 9/16" Nozzle Body Inlet Stem, #206, FKM 41361-02 O-ring, 21/32" Nozzle Body Inlet Stem, #115, FKM

20460-04 U-clip, 304SS

41502-10

41331-03 Screw, HiLo, SS, CRII Body Hinge Clamp Screw (for 2016+ newer)

Adapter, CR Plug [Covers unused Combo-Rate port] 41502-04 CR Turret Outlet Arm, Combo-Jet Outlet

41502-13 CR Turret Outlet Arm, Double-Down Combo-Jet Outlet

CR Turret Outlet Arm. Square Lug Outlet 41502-05 CR Turret Outlet Arm, Plug

40155-23 Diaphragm, Molded, FKM (Replaces #40155-07 + 20455-04)

CRII Nozzle Body O-ring Repair Kit, FKM (6 Bodies) 41100-15 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)



41285-00

20460-04



Turret Arm Plug

41502-05

Combo-Jet® Outlet Arm











#41502-V6

Double-Down Outlet Arm



41502-13*



COMBO-RATE® II Body Repair Kits* (For up to 6 bodies): 6x Diaphragms

6x Pressure Pad O-rings #20455-04 6x Inter-body O-rings

2x Diaphragm

10x Turret Outlet O-rings #20455-07 4x Turret Core O-rings #41502-06 2x Diaphragm #40155-07 #40155-12 #41502-04 #41502-05 #41502-09 Standard Kit include viton Kit incl.

#40155-07 #40155-12 *Benair kits may include a pair(s) of #40155-07 and #20455-04, or a single #40155-23. Both serve the same purpose. Ensure to remo pressure pad o-ring if #40155-23 is being used.



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 male port for further expansion.



	COMBO-RATE Thru Body							
	[Connects to any Combo-Rate female ports]							
Dia.Check Manual Air-Off F								
	Valve	ON/OFF	Operated	(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 PV							
Valve ON/OFF Operated (w/o nu							
	41101-00	41111-00	41126-00	41136-00			

CR Swivel End Bodies

End bodies that can be adjusted (via interior screw) in 15° increments for fence-row & crop adapted spraying applications.



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

Combo-Rate Stacking Body Specification

Operating Pressure 0-ring Seals Materials Flow Rate 10*-125PSI FKM (viton avail.) Glass-reinforced Polypropylene 2.1 us gpm (end & thru), 1.6 us gpm (swivel body)

COMBO-RATE Turrets

The COMECLATE STREET STREET

Common U-clip connections for all Combo-Rate parts

Each turret arm is o-ring sealed to keep out dust & debris

Module threads are compatible with most PWM spray systems

RAVEN

Top Turret

Front Turret

Side Turret







-04 CO 04 CO



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

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

COMBO-RATE_® Stacking Component Examples









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 w 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 nozzle body 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 & 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/Hypro Threaded PWM Solenoid Side-Turret Core Replacement kit for Arag Threaded PWM Solenoid



Reversing Orientation

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

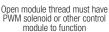


COMBO-RATE Top Turrets

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 & 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







Double-Down Turrets

Double nozzles from a single turret outlet. Great for double-down PWM spraying. **PWM APPROVED** 41836-00 1 Double-Down **Top Turret** w/ solenoid & nozzles (solenoid sold sep.)

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 Double-Down Spray Tip Spray Tip Spraying

Increased distance to target due to forward/backward angles dramatically reduces entry speed and penetration into a canopy

CANOPY HEIGHT

for Teejet Bodies

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 Wilger Bodies







Spray Velocity Slows Closer to Crop Canopy

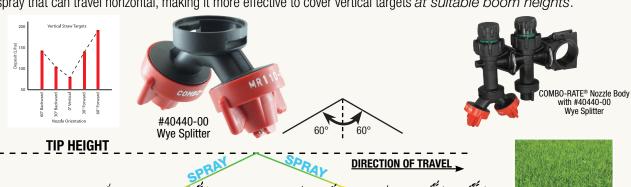
Picking Nozzles for Double-Down Spraying?

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

Dry Boom Nozzle Bodies & Accessories

Compact Nozzle Bodies

Compact Bodies have many uses, as inline 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.





Adapts a threaded port to a Combo-Jet outlet

1/4" Push-in Tube Bodies 40502-NM



40502-00 40502-P4 40502-NM Adapts a 1/4" O.D. tube inlet to a Combo-Jet outlet

Threaded Inlet Bodies 40501-P4 40501-00 4PSI Check Valve [Blue] mount 10PSI Check 4PSI Check No Module 1/8" NPT-F | 40500-00 | 40500-P4 | 40500-NM 1/4" NPT-F 40501-00 40501-P4 40501-NM

Adapts a female thread inlet to 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.







Square Lug Square-Mount Bodies



3/8" NPT-M Hose Shank Adapters







	Fitting	One-Way	Two-Way	Three-Way
	3/8"HB x 3/8" NPT-M	40301-00	40302-00	-
	1/2"HB x 3/8" NPT-M	40306-00	40307-00	-
	3/4"HB x 3/8" NPT-M	40311-00	40312-00	40313-00
٠,				

Combo-Jet Outlet Swivel Turret Adapters

Turret Adapters intended for slow movement activities without risk of being struck



Swivel Outlets Dual Turret Triple Turret Combo-Jet Outlet 40470-00 40471-00



Swivel Outlets Dual Turret Triple Turret Square Lug Outlet 40472-00 40473-00

High Mount Dry Boom Nozzle Bodies with Hose Shank Feed

High Mount Flange

Flange Mount bodies mount right above the nozzle outlet with a round hole with notches cut for orientation



Inlet(s)	One-Way	Two-Way
3/8" Hose Barb	40460-00	40461-00
1/2" Hose Barb	40462-00	40463-00
3/8" HB x 1/4" NPT-M	-	40464-00

5/8" Square Mount Nozzle Bodies

5/8" Square Mount nozzle bodies attach to a clamp with a 5/8" square mount



Inlet(s)	One-Way	Two-Way
3/8" Hose Barb	40450-00	40451-00
1/2" Hose Barb	40452-00	40453-00
3/8" HB x 1/4" NPT-M	-	40454-00

Sq Mt w/o check



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

lose Drop & Extension Caps

nose brop & c	xtension	caps			
Outlet	Length	Part #	1	100	
Combo-Jet	2"	40210-00	1 1	1	7
to Combo-Jet	5"	40211-00	۳ ا		_
Combo-Jet	16"	22026-00	1	11.00	
	24"	22036-00	1	- 16	
Cap to 1/4" NPT-M	36"	22038-00] [ш	
1/4 INF 1-101	48"	22048-00]		ö
240210-00 2" Combo-Jet Cap 2:25" Extension	5.	5.25* 40211-00 Control-let Cap Extension	16"		22026-00

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		

Crop Adapted Spraying

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





 $40237\hbox{-}03.... \hbox{Diaphragm Manual Shut-off Assembly, Replacement (for adjustable swivel bodies only)}\\$

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
ı	3///" HB	40370-00	40371-00	40372-00

40155-21 Module Retainer, Replacement 40199-00 Lock Nut, 11/16" Thread 0

40155-2



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

40155-21

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

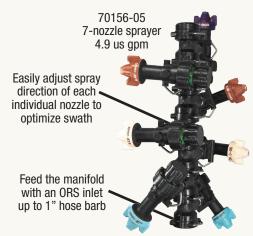
40155-21 Module Retainer, Replacement



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#
0 Namela Bassalasa	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		ndard ount 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"	NI/A	10330 66	40342-66			

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 Combo-Rate u-clip port





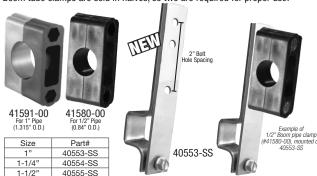


Two-Hole Bolt-Mount Clamps for Sq. Tube



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.



Nozzle Body Accessories & Replacement Parts

Combo-Rate Control Modules & Nuts

Wilder 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 pre



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 (FKM)

control modules have a groove for a pres-sure pad o-ring or all-in-one diaphragm

The bottom of the



Two-piece diaphragm & pressure pad o-ring



40155-12

20455-04 20455-V4 (viton)

Pressure pad O-Ring

Either rubber diaphragm can be typically used, but ensure to replace diaphragm in proper orientation and remove pressure pad o-ring if 401555-23 diaphragm is used.

O-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	O-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
ree	5/16" x 5/16" x 1/4" O.D.	20457-00
Reducer	3/8" x 1/4" O.D.	20456-00

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.



Commontion	Pressure	Manual On/Off	1/4" NPT-F for	
Connection	Regulating Valve	Check Valve	Pressure Gauge	
Thru Body	41130-00	41110-00	-	
End Body	41131-00	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-Clin connections are compatible with all Combo-Rate Fittings and Nozzle Bodies

Corribo Onp corriccions are compatible					
Connection	Outlet	Part #			
Combo-Clip	Plug	41285-00			
Male	1/4" NPT-F	41275-00			
iviale	3/8" NPT-F	41276-00			
	1/4" NPT-F	41251-00			
Combo-Clip	1/4" NPT-M	41252-00			
Female	3/8" NPT-M	41253-00			
	90° CC-M	41250-00			
Combo-Clip Female w/	1/4" NPT-F	41255-00			
3/4" Sq Mount	3/8" NPT-F	41256-00			

3/4" Sq. Mount

Nozzle Body Clamps

41261-SS

41262-SS

41263-SS

Square Tube

1-1/4

1-1/2







41285-00





Combo-Clip Adapters can be used to convert a traditional dry boom sprayer to use cutting edge COMBO-RATE turrets & fittings

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

Regulating & Manual On/Off Manifold Valves

Pressure Regulating Valves Open or close to regulate now much flow is bypassed back to tank to regulate pressure. Lock washer is used to hold position







41130-00 41131-00

41110-00 Ensure to visit the NOZZLES section of the catalog for the full listing of Combo-Jet Caps

Wilger 1/2" & 1" Stainless Steel Tube - For QN100 & QF100 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 the light weight design minimizes weight in the field. 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

Section in

1" Stainless Steel Tubing Shares 1" sch40 pipe

outside diameter (1.315" OD.) with larger 1.25" inside diameter



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 firm requirement for sprayer tube length, shipping costs are less expensive for tubes that are less than 11' (132") 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

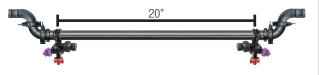
With many different sprayer boom designs, it is important to identify key differences that will determine what length and configuration of boom tube that is required.

Simplify the process by starting from the narrowest tube possible, with additional length included onto the ends as required for configuration or fittings.

The below examples are styles of 'ends' of tubes that are commonly needed. Outlet spacing for the examples is 20", but the same concept applies for any outlet spacing.

Standard Tube Ends (2")

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



COMBO-RATE Boom End Flush Valve Ends (18")

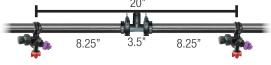
The CR BEFV replaces the last nozzle body, and from the end of tube. requires 2" to the nozzle body center, so an 18" end length is required.



Remember the number of outlet holes on the tube would be 1 less for each Combo-Rate boom end flush valve used.

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



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



Robust & **Positive** Seals



Stronger Compact **Fittings**



No Threads or Sealant Required



Remove Deadspots for Boom Hygiene

Retrofitting & Flange Compatibility

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

CAN BE OUTFITTED FOR:

1" sch40 Pipe (1.315" 0D)

Any 1" Flanged Fittings

Wilger Stainless Tubing





Compact & Robust Sweep Fittings

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





Building a SST Sprayer Boom for Quick-Flange (QF100)

When planning to build a sprayer boom with Wilger's Stainless Steel Tube, follow these steps to break down the process and engineer the best performing sprayer boom possible.

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 the 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	I	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 outlet	10 outlet + 10	O outlet joined	10 outlet	10 outlet + 10	O outlet joined	11 outlet
STEP 3 Specialty Boom End Considerations	11 outlet -2 (CR BEFV) 9 outlet tube	10 outlet -1 (CR BEFV) 9 outlet tube + joint	10 outlet -1 (CR BEFV) 9 outlet tube + joint	10 outlet -2 (CR BEFV) 8 outlet tube	10 outlet -1 (CR BEFV) 9 outlet tube + joint	10 outlet -1 (CR BEFV) 9 outlet tube + joint	11 outlet -2 (CR BEFV) 9 outlet tube
STEP 4 Tube/End Lengths to Order	9 outlet tube with 18" End (CR BEFV) & 18" End (CR BEFV)	18" End (CR BEFV)	9 outlet tube with 10" End (joint) & 18" End (CR BEFV)	8 outlet tube with 18" End (CR BEFV) & 18" End (CR BEFV)	18" End (CR BEFV)	9 outlet tube with 10" End (joint) & 18" End (CR BEFV)	9 outlet tube with 18" End (CR BEFV) & 18" End (CR BEFV)

Quick-Flange Fittings & Tubing for Sprayers

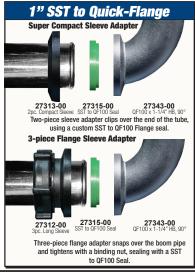
NEW Product Release: Quick Flange Boom Fittings & Accessories

A new product line of engineered sprayer boom fittings to outfit the next generation of sprayers is now here! With emphasis on cutting out contamination, integrating recirculation functions, and generally improving the ability to build a better boom. Wilger is committed to developing and producing high quality liquid application components that are used in setting best practices in an ever-changing environment.

Adapting Quick-Flange Fittings to 1" PIPE, 1" QN SST, or Case TWS Booms

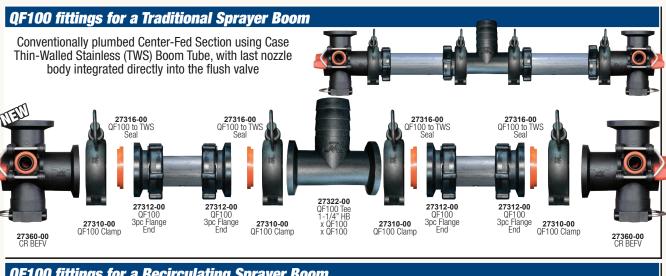
QF100 Fittings can be seamlessly retrofitted or adapted to any 1" Pipe, QN SST, or TWS Booms to a 1" Flange Fitting.

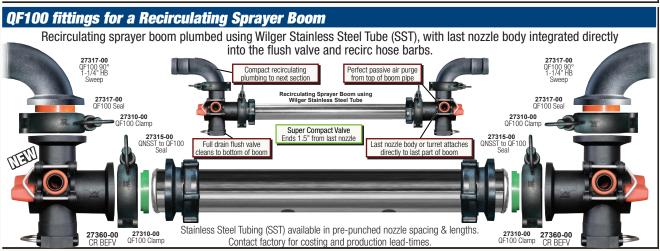






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Quick-Flange Fittings & Fluid Supply System

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
Castle Nut & Bolt	27311-00
_	1



lass-reinforced Polypropylene Clamp & Stainless Steel Hardware



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

27331-00

1" HB Straight

QF100 Adapters & Cover Caps

Auxiliary fittings and caps for adapting Quick-Flange fittings to other threaded boom fittings & existing plumbing.



27343-00 1-1/4" HR

Elbow, 90°

QF100 to Quick Nut (QN100) Thread



QF100 to Case TWS Male Thread



27353-00 QF100 Cap

27341-00

1-1/4" HB Straight

27351-00 27352-00

Size/Style	Description	Part#
Threaded	QF100 x QN100 Male Thread	27351-00
Adapter	QF100 x TWS Male Thread	27352-00
Plug Cap	QF100 Plug Cap	27353-00

Example: Adapting to Threaded Boom End Flush Valves





Tube & Pipe End Adapter Seals & Kits

Adapters & seals to convert different styles of tube & pipe to a common flanged end.

Boom End Type	Adapter Kit
Wilger SST rolled end OR Case TWS flared end	[3pc] 27312-00 [2pc] 27313-00
Cut pipe end	27381-00
Through pipe end	27382-00

Flange End Seals



27315-00 27316-00 27317-00			
Tube to Flange Seals	Part#		
SST Tube x Flange	27315-00		
TWS Tube x Flange	27316-00		
Flange y Flange	27317-00		

Tube to Tube Seals

For tube end to tube end joints



27319-00 Tube to Tube Seals Part# 27318-00 Wilger SST to SST Case TWS to TWS 27319-00 **3pc End Adapter**



2pc End Adapter

27313-00

non-mobile

applications

Wilger SST uses flared taper gasket

27315-00

Case TWS uses stepped gasket



Cut Pipe End Adapter Kit

27381-00 For any 1.315" OD pipe/tube



Wilger SST 2 halves secure over SST



Through Pipe Adapter Kit

27382-00 For any 1.315" OD pipe/tube Kit seals holes, and mates to CR BEFV



NEW COMBO-RATE Boom End Flush Valve (CR BEFV)

The Better Boom End Nozzle Body & Valve

Saves Space from last nozzle body



nozzle to fit in any boom frame

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

Use with COMBO-RATE turrets Compatible with all COMBO-RATE stacking nozzle bodies and turrets

No Threads or Sealants No potential for leaking threads

Compatible with any 1" Flange Parts Full retrofit-ability and future-proofing

Valve version	Part#
Recirc Model w/ plugs	27361-00
Non-Recirc model w/ plugs	27362-00
Non-recirc w/ butterfly nut	27362-WN

QF100 Tee Fittings

Sweep Tees

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

	-
Sweep Tee Fittings	Part#
QF100 x QF100 x QF100	27371-00
QF100 x QF100 x 1-1/4" HB	27372-00
QF100 x QF100 x 1" HB	27373-00

Regular Tees

Compact tees for flat bottom drainage.

QF100 x QF100 x QF100	27321-00
QF100 x QF100 x 1-1/4" HB	27322-00
QF100 x QF100 x 1" HB	27323-00





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

25160-02

25161-01

25160-03

25171-00

QN100 Flared End

Quick-Nut (QN100) Joint to Hose Barb

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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



25172-00 Sweep Tee

25160-02 25160-03



Sweep Tee to Hose Barb

Straight Barb

25160-01



Long Handle



QN100 Connectors & Components





For QN100 Connections

25160-02

25160-03

Female QN

QN100 Tee Fittings

Compact & lightweight sweep tees for any sprayer boom configuration.

Description	Part#
QN100 Flare x QN100M x QN100M	27311-00
1" Hose x QN100M x QN100M	27311-00
1-1/4" Hose x QN100M x QN100M	27311-00



25169-00

25172-00

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

Easy to use boom end fittings and connectors to adapt

1" Wilger Stainless Steel Tubing (SST) to QN100 fittings.

Description

Replacement

Component

1" NPT-F x QN100M Bushing Adapters 25137-00 Boom Tube Half Clamp, for 1" SST (1.31" OD) 41591-00 Clamps Half Clamp, for 1-1/4" Tube 41590-00 BEFV Cover Cap 25175-10 BEFV Seal Repair Kit (2 valves) Parts BEFV Handle, Long 25175-13 BEFV Handle, Short



25170-00 [2-piece female thread adapter] #25170-01 [Female Thread] #25170-02 [Lock Sleeve]

25175-10



25171-00 Split-ring



2x 41591-00



Long Handle



QN100 to 1" Bushing



QN100 Hose Barb Fittings

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

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



QN100 & 1" NPT Boom End Flush Valves

Compact valve for full-drain flushing of booms.

Type	Description	Part#
QN100	QN100 BEFV, Short Handle	25175-V0
QNTOO	QN100 BEFV, Long Handle	25175-LV0
1" NPT-F	1" NPT BEFV, Short Handle	25176-V0
	1" NPT BEFV, Long Handle	25176-LV0





25175-03

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

Sweep Tee to Stainless Tube (SST)

41580-00 25130-00 25129-00 25131-00 25120-03 25120-02 25120-02



QN50 Connectors & Components

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

172 Winger Starringer Stoot Tubing (SST) to Give Intinger		
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



25129-00

25130-00



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





Case Thin Wall Stainless (TWS) Tube Fittings

41400-03

25160-04

41403-00

Easy to use boom end fittings and connectors to adapt to 1" Case Thin walled stainless steel sprayer booms.

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Component	Description	Part#
TWS Male Tube	Male End Adapter, Left Thread	41400-04
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	41400-01
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
Thusadad	1" NPT-F x TWS-M Bushing	41403-00
Threaded Adapters	1" NPT-F x TWS-M Bushing kit w/ o-ring	41403-v0
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
	REEV Handle Short	25175-03

25175-03

Compact Handle



25175-10 3-piece Adapter TWS Male Thread #41400-04 [Left] #41400-05 [Right] #41400-02 [Binding Nut]

TWS Flush Valves

Compact & Robust Full Drain Flush Valve



Adapting a TWS Flush Valve to 1" NPT-M End

A bushing kit can adapt to any 1" NPT-M pipe end

41403-v0 41402-V0

41400-00

Hose Barb Fittings for TWS

TWS Connectors are compatible with QN100 Hose Barb Fittings & Accessories

QIVIO	1001100	
Size/Style	Description	Part#
Plug	QN100 x Plug Cap	25163-01
Adapters	QN100 x 3/4" NPT-F Thread	25164-01
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

0 25160-01 25160-04 41400-03

TWS to QN100 Coupler



Couples ON100 Female TWS-M and QN100M 41401-01 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

ORS to ORS Check Valves

Diaphragm check valves with an ORS-F outlet for in-line outlet control to minimize dripping



Dia. Check Valve

[10_{PSi}] Manual On/Off 20551-00

[4Psi] Manual On/Off 20551-P4 Air-Off Operated





20555-00

20556-00

20556-P4

inline strainer



10 PSI



10 PSI Diaphragm Check Valve, 90°

20550-00

ORS to COMBO-JET Check Valves

Diaphragm check valves with a Combo-Jet outlet for spray tip or cap metering or spraying



& Adapters



		_
Check Valve Style	90° Outlet	(
Dia. Check Valve	20560-00	l
[10 _{PSI}] Manual On/Off	20561-00	
[4psi] Manual On/Off	20561-P4	
Air-Off Operated	20562-00	
PWM/no-check	20563-00	
•		_



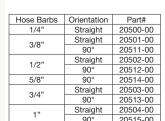
ORS Hose Barb Inlets/Outlets

20550-00

20552-00 For PWM/no-check 20553-00 20558-00

*4PSI check valves available: chance '-00' to '-P4'. For ultra-low flow (<0.)

O-ring seal hose barb inlets and outlets that connect to hose on the inside diameter. Compatible with all ORS metering orifices for metering flow.







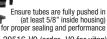


ORS Push-in-Tube Outlets

O-ring seal guick-connect outlets that seal around the outside diameter of a tube.

Compatible with all ORS metering orifices for metering flow.





20310-v0 (01del -v0 loi vitoli)		
Tube O.D.	Orientation	Part#
1/4"	Straight	20506-00
1/4	90°	20516-00
5/16"	Straight	20508-00
5/16	90°	20528-00
3/8"	Straight	20507-00
	ano	20517-00





1/4" 90°

ORS End Caps & Adapters

O-ring seal end caps are used on any ORS male ports, commonly used on flow indicators, manifolds, or even other outlets to make coupler assemblies.

Style & Size		Part#
End Cap		20521-00
Push-in Tube	1/4"	20540-00
	5/16"	20541-00
(seals on 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 Outlet Adapters & Plugs

O-ring seal outlets with female threads, plugs and more. Compatible with all ORS metering orifices for metering flow.









Orientation Part# Type 20519-00 Straight 1/4" NPT-F 20518-00 ORS x Sq Lug Straight 20549-00 ORS Plug Straight

OBS x Square Lug adapter adapts to any square lug nozzle cap (e.g. Teejet/Hypro/

O-ring Seal (ORS) Manifolds & Tees

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 O-ring makes assembly easy.

ORS Inline Strainer

Inline strainer with removable 50-mesh cartridge can be reversed for universal flow direction.





Replacement Strainer 20576-02

Strainer Assembly [50 Mesh]

Description	Part#
ORS Strainer Assembly [50 Mesh]	20576-00
Replacement Strainer [50 Mesh]	20576-02
2" ORS Spacer Assy [no strainer]	20576-05



ORS Tees & Other Fittings

Description

90° ORS Elbow [M x F]

ORS Tee w/ 1/4" NPT-F [M x M x F w/ 1/4" NPT-F]

3/8" x Blind ORS Tee [Blind F x M x 3/8" NPT-F]

3/8" NPT-F x ORS Tee [F x M x 1/8" NPT-F]

2-Outlet ORS-F Splitter [FxFxM]

1" NPT-F x ORS Tee [M x M x 1" NPT]

A variety of fittings for splitting manifolds, ORS-F outlets or other auxiliary functions.



[Port is blocked]





20527-00

Part#

20520-00

20526-00

20523-00

20524-00

20527-00 20525-00

1/4" NPT-F Port can be drilled out for pressure gauge installation



20576-00

, , ,	
Description	Part#
ORS Strainer Assembly [50 Mesh]	20576-00
Replacement Strainer [50 Mesh]	20576-02
2" ORS Spacer Assy [no strainer]	20576-05

20576-05

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









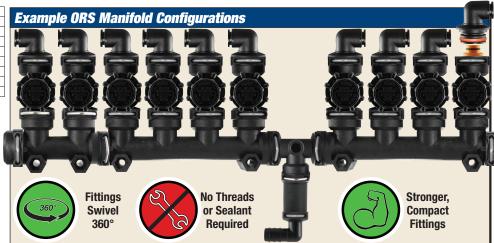
20571-00

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 Manifold	Body only	20573-01
4-Outlet Manifold	FKM	20574-00
4-Outlet Manifold	Body only	20574-01



O-ring Seal (ORS) Metering Orifices

Precision metering orifices for metering liquid fertilizer or chemical made of chemically resistant and rustproof material. The easier to handle orifices seal positively into any O-ring seal (ORS-M) fitting port, and cannot be inserted backwards ensuring proper fit and seal.

Available in precision molded color-coded sizes (more consistent) or custom drilled sized orifices (black).

Color-Coded Molded **Orifices**

ORS Orifice Part#



Custom Drilled Orifices (replace XXX with hole size)



Blank Plug (no holes)





Color-coded size makes identifying orifices easy

21500-V01

Metering Orifice type, seal &

Custom Drilled ORS Orifices FKM O-ring VITON O-ring 21XXX-V0

Color Coded Molded ORS Orifices 15 to 007 size 21500-VXXX

21XXX-00 **01** to **20** size

21000-00 Blank Orifice or Plug VITON O-ring FKM O-ring 21000-00

Download Tip Wizard Todav! App Store



Use the FREE Tip Wizard app to select your metering orifice. Simply input rate, speed & spacing, and get the best orifice for the job. Available at www.WILGER.NET



O-ring Seal (ORS) Metering Orifice Charts

Tip Wizard makes metering orifice selection easy!

ORS metering orifices have a sized hole that determines the flow rate. Flow rate is determined based on the pressure and density of the liquid being applied. To determine a required flow rate, you must first know the required application rate, speed and spacing.

Available on App Store



TIP WIZARD

Calculating Required Flow Rate for Metering Orifice Selection

To determine the flow rate (or application rate), use the following equations & density conversion chart:

 $GPA = 5940 \times GPM (per outlet)$

mph x W

specific gravity/weight of liquid EASY-TO-USE ORS orifice and ball selector calculator available @ www, WLGER.NET

Solution Weight (lbs/ us gallon)	Specific Gravity	Conversion Factor (conv)
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	ns/minu	ute)		Orifice		Flo	w Rate	US gallo	ons/mini	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-V08	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Replacement Parts for ORS & Flow Indicator Fittings

Replacement components for ORS Fittings/Kits

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 FKM O-rings for 20460-03 ORS fittings VITON 20460-15 O-rings for FKM 40225-04 metering orifice VITON









20460-11*

*Manifold Kits include: Ball Retainer (#20460-02), O-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

Type	Part#
302 SS	40550-SS
302 SS	40551-SS
302 SS	40552-SS
	302 SS 302 SS



Wilger Visual Ball Flow Indicators

The Flow Incleator Adventage

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 Flow Indication Overlay Colors 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)







	Model	Kit lype*	Part#
	Ultra Low Flow	Bulk Kit	20475-BULK
1		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)

Stackable ORS-M port can be capped off

Flow Indicator & ORS Specifications*

Max Operating Pressure: 100psi / 7BAR Max Metered Flow Rate: Up to 8.0 us apm Max Operating Pressure: 185°F / 85°C O-ring Seals: FKM (standard) / Viton U-clip/Metal Fittings: Stainless Steel (302) ORS Fittings: Glass-reinforced Polypropyler Flow Columns: 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

STANDARD FLOW COLUMNS

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 suspends too high, using the next heavier ball below can cover changes in application rates or speeds.

Red Celcon Ball Lower Rate/Speed 🗸 Red Glass Ball Higher Rate/Speed



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 Indicat	ow Ranges*	
	rait#	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	0.01-0.04 us gpm	0.05-0.12 us gpm	0.07-0.25 us gpm
Red Celcon Ball*	20460-07	0.02-0.06 us gpm	0.06-0.16 us gpm	0.10-0.35 us gpm
White Celcon Ball*	20460-18	0.02-0.06 us gpm	0.06-0.16 us gpm	0.10-0.35 us gpm
Pink Celcon Ball*	20460-14	0.02-0.06 us gpm	0.06-0.16 us gpm	0.10-0.35 us gpm
Red Glass Ball	20460-06	0.06-0.13 us gpm	0.12-0.26 us gpm	0.21-0.72 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 more 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 🕙 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 inline 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

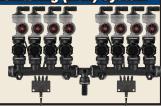
installed on flow indicators

Wilger's row-by-row flowmeter uses the same ORS parts and manifolds, and can be simply added inline 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 200 rows), for flow rates of 0.04-1.53 us gpm flow.







Wilger Electronic Flow Monitoring System

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See Any Application with Row-by-Row Accuracy

The Wilger electronic flowmeter (EFM) is a service-able flowmeter designed & built specifically for agricultural chemical & liquid applications.



Fittings Swivel 360°



Crystal Clear Flowmeter



Superior Chemical Resistance



Serviceable Flowmeter for Aq.



High Accuracy Flowmeter



Patented Flowmeter Canadian Patent No. 2987646 AUS Patent No. 2017376849 U.S. Patent No.10,845,228

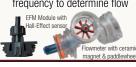
Crystal Clear Flowmeters Enables easy system troubleshooting & verification

troubleshooting & verification Monitors Huge Flow Range

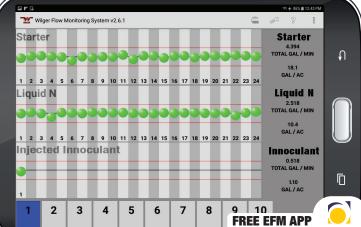
Accurately measures flow rates of 0.04-1.53 us gpm per row

How It Works

High Resolution Hall-Effect Sensor & Ceramic Magnet combo provide accurate pulse frequency to determine flow







The Electronic Flow Monitoring system (powered by Agtron) requires an Android Tablet 8.0 or later

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 AlarmsCustomize 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

ual & Horr Stick Surfa

Easy RetrofitEasily 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

POWERED BY



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.

AGTRON

Compact ECU for Demo Units & Planters up 16 Rows



Wilger is introducing a compact flow monitoring system ECU, that acts as a standard ECU with built-in 16 channel node.

For an even easier setup for in-store demonstration or as fully functional 16-row planter EFM systems.

Available now in limited quantities. **Book yours today!**

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.



20580-06 Body Assembly EFM BODY ASSY [no jets, wire side showing]

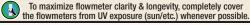


Product	Description	Part#
Electronic	Flowmeter Kit	20580-0
Flowmeter Body	Body Assembly (no jets)	20580-06
[0.04-1.53 us gpm]	Body Only	20580-01
Davida a successi da ta	Green (up to 0.12 us GPM)	20581-01
Replacement Jets (with 50 mesh snap-in strainer)	Red (0.1 - 0.31 us gpm)	20581-03
	Blue (0.18 to 0.98 us GPM)	20581-05
Shap-in Strainer)	Black (0.6 to 1.53 us gpm)	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

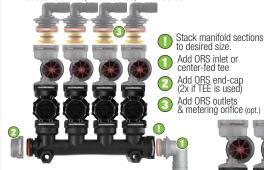




Electronic Flowmeter Manifolds

Pre-assembled manifolds in 1-4 Outlets with a flowmeter and check valve. Simply stack manifolds, then add inlet/outlets, caps and sensor cables.

20644-00 Four Outlet EFM Manifold Kit w/ Check Valve Kit includes 20574-00, 4x 20580-00, 4x 20556-00



Manifold Outlets	Check Valve*	Part#
1 EFM Outlet	Straight	20641-00
i Erivi Outlet	90°	20631-00
2 EFM Outlet	Straight	20642-00
2 EFIVI Outlet	90°	20632-00
3 EFM Outlet	Straight	20643-00
3 EFIVI Outlet	90°	20633-00
4 EFM Outlet	Straight	20644-00
4 Erivi Outlet	90°	20634-00



[Included]

[1 set per EFM]

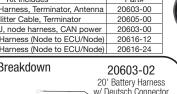
*4PSI check valves available: change '-00' to '-P4'. For ultra-low flow (<0.01 us gpm), 4PSI may be required.

Base Electronic Kits for EFM Systems

Electronic Control Units (ECU) and other components that are used for all product node types.

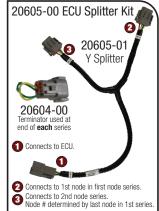
ECUs are used to monitor up to 196 outlets, across up to 3 products.

ECU Base Kit ECU, 20' 12v Harness, Terminator, Antenna 20603- ECU Splitter Kit ECU Splitter Cable, Terminator 20605-	
ECU Splitter Kit ECU Splitter Cable, Terminator 20605-	
	00
Compact ECU Kit Compact ECU, node harness, CAN power 20603-	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









20625-00 Compact ECU Kit for Demo units & up to 16 row planters Compact ECLI can be wired to Tablet or WIFI



16 Channel (16CH) Product Node Kits & Components

16CH Product nodes provide communication between sensors and ECU.

Tool 1 Todact hodes provide communication between sensors and Eo						
	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 Cap unused A/B/C/D with 16CH node #20612-00

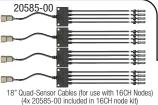


Cap all 'last node' #20604-00

Unused Sensor Cap unused #20585-01

















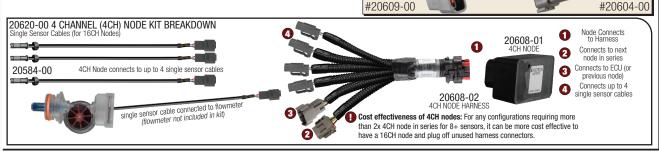
Wilger Electronic Flow Monitoring System Components

4 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





Electronic Flow Monitoring System: Auxiliary Component Parts

20580-02

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

EFM, Body Only, TPX 20580-01

EFM, Module c/w O-ring (no sensor) 20580-02

20580-08 EFM, Impeller Assembly (20580-08 + 20580-10) 20580-10 EFM, Impeller Magnet, Ceramic

20580-11 EFM, Impeller Axle Pin

EFM, O-Ring, #119, VITON® (for EFM module) 20580-13

20583-00 EFM Sensor Cable, Single w/o Connector

20585-01 EFM sensor rubber cover (for unused sensor cables)

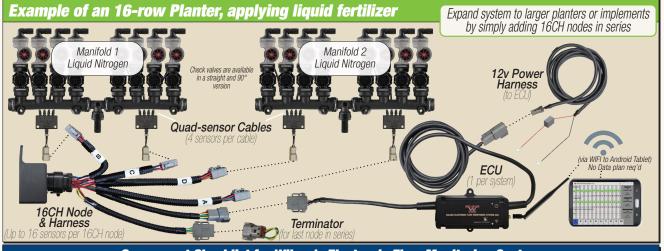
20583-00*



20580-06

20580-08





Component Checklist for Wilger's Electronic Flow Monitoring System

- As equipment & implements vary greatly, this is a simplified approach assuming the implement is fairly standard and evenly spread, with the manifold centrally located. In many cases, it is more cost effective to move manifolds, from the wings of the implement, to the center
- 1 Order 1 ECU assembly per system. (#20603-00)
- Add the # of outlets (including multiples for monitoring multiple products). 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 also be effective for 'extra' outlets in systems as needed, but 16CH node kits are typically more cost effective.
- 3 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 Order manifolds & plumbing components (& end caps) suited for the implement size
- [Optional if metering orifice req'd] Order orifice (Page 17) for each outlet, ensure proper metering orifice size for each product/rate. Use Tip Wizard online @ www.wilger.net or the free app, to ensure proper sizing.

For more information, start the conversation on building your EFM system with your Wilger dealer, and for more pictures/information, visit our website at:



EFM System Checklist

- 1x ECU KIT per system 1x 16CH Node Kit per 16 outlets
- 1x Flowmeter (EFM) per outlet
- 1x ORS Manifold Outlet per outlet
- 1x ORS Check Valve per outlet
- 1x Inlet Feed or Tee per manifold 1x End Cap per manifold (2x if Tee'd)
- Extension harnesses if req'd 1x Android 8.0 Tablet or newer

For a simpler start to customizing an 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 &

Simple as that.



EFM VIDEO TUTORIALS - Setting up EFM App on Android Tablet

Make sure to take advantage of video tutorials on initial setup and planning of EFM system app on your Android Tablet. Videos on YOUTUBE, or accessible from www.WILGER.NET







Wilger makes spray tips for applicators who care about how they spray.



Wilger makes nozzle bodies & components that address and support best practices being developed in the crop protection industry.



Wilger makes flow monitoring & metering components that are critical to maintaining effective and consistent application.

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Catalog Corrections (revised Jan 26, 2022)

From time to time, errors or omissions are found in the printed catalog, and to ensure as accurate information as possible, corrections will be posted as frequently as possible on the digital version of the catalog, with references to the changes here:

PAGE 25: 110° Spray Tip charts for PWM Sprayers

On this page, there were typos for a number of flow rates and speeds (based on flow rate) for the nozzles sized 110-08 to 110-15. For catalogs sent with revision date of December 2021, a sticker was placed over the chart for those that were caught before distribution. If you have a catalog with December 2021 revision date WITHOUT a sticker on page 25, please advise info@wilger.net and one will be provided.

PAGE 34: Two-Way COMBO-RATE II nozzle bodies

The part numbers for the 3/8" KWIKSTOP nozzle body, 9/16" inlet nozzle body, and 21/32" inlet nozzle body were listed incorrectly. Note: the 9/16" inlet series follows the 4144X-00 part series, 21/32" follows 4146X-00, and 3/8" KWIKSTOP follows 4145X-00