WILGER

WILGER SPRAYER & LIQUID FERTILIZER PARTS CATALOG - METRIC -

REVISED JULY 2024

WORLD CLASS SPRAYING COMPONENTS

Spray Tips

COMBO-JET®
Drift Reduction

Tip Wizard

WILGER
TIP WIZARD

Spray Tip Selection Tool

Sprayer Parts

Nozzle Bodies & Plumbing Parts

Flow Indicators

Visual Detection of Plugged Lines

FOR MORE INFORMATION VISIT

WWW.WILGER.NET

Flow Monitoring

Row-by-Row Flowmeter

CERTIFIED QUALITY MANAGEMENT SYSTEM ISO 9001:2015 DESIGN

WILGER PROUDLY MADE IN CANADA & USA

UNITS: METRIC (LITRES/HECTARE)

New & Featured Products 3-6

Spraying Resources & Topics 7-11

Spray Nozzles, Metering & Adapters . 12-32

Wet Boom Nozzle Bodies 33-39

Dry Boom Nozzle Bodies 41-44

Sprayer Plumbing 44-51

Liquid Fertilizer Manifold Parts 52-54

Liquid Fertilizer Monitoring 55-63

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

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

Technical Assistance - Wilger personnel are available to provide technical assistance in the choice or use of products furnished to the buyer and will do so free of charge. Wilger assumes no obligation or liability for any such advice, or any consequences occurring as a result of the application of such advice. The buyer is solely responsible for the selection of the appropriate product(s) and the appropriate application to the intended end use.

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NEW & FEATURED PARTS [Page 1]

WILGER Dual Spray 4+1 [DS41] Nozzle Bodies

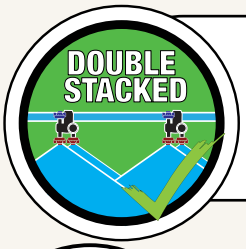
The ultra-compact 'DS41' nozzle body integrates a single by-pass nozzle body (optional for spot spray or Dual PWM) as well as a robust 4-nozzle turret.

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

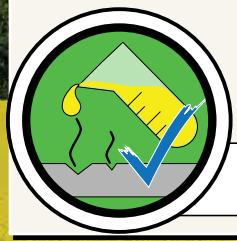
'Left' Version 41900-00

'Right' Version 41901-00

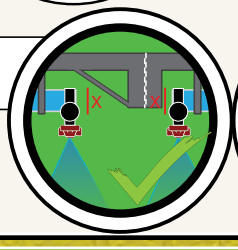
Spring-Lock Turret
Positive Turret Positioning



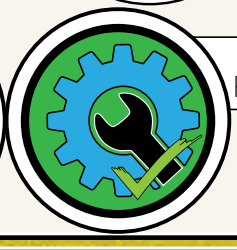
Ability to spray with one or both nozzles independent of eachother.



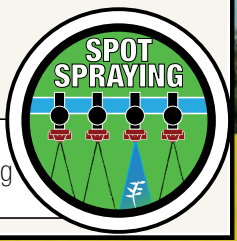
Chemical & Acid Resistant



Super Compact Space Saving



New Robust Design



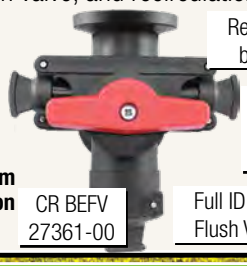
Compact for 10" spot spraying spacing

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

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

Super Compact Boom Ends

Cuts out Boom Contamination



Recirculating boom port

2x Stackable **COMBO-RATE** nozzle body port

CR BEFV 27361-00

Full ID ORS Flush Valve

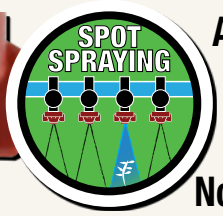
Engineered for Recirculating Spray Systems

Ultra Compact nozzle body elbow

Compact Offset nozzle body elbow

COMBO-JET® DX SPOT SPRAY NOZZLES & 30° Nozzle Adapter

Narrow-angle drift reduction nozzles for spot spraying

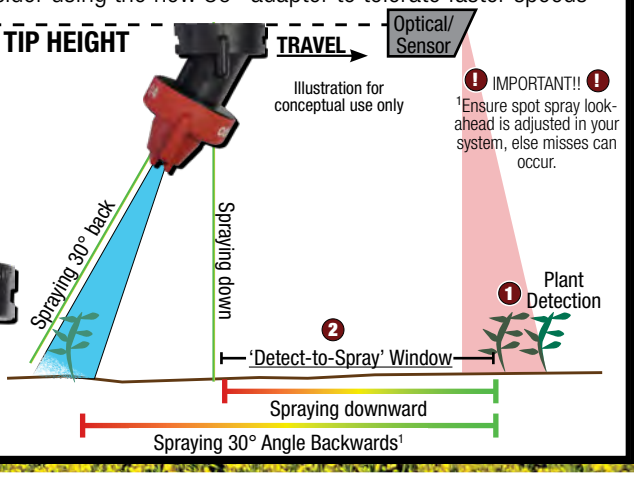


Available in 20° 40° 60° Nozzle Angles

Available in DX sizes -015 to -125

For Optical, Spot and Broadcast spraying on 25cm nozzle spacing

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



NEW **#40219-00 30° Adapter**

For back or front, single nozzle spraying at 30°

NEW & FEATURED PARTS [Page 2]

COMBO-JET® 30/50 Adapter

40442-00

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

-Quarter Turn-

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

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

INSTA-JET insert for COMBO-JET®

40262-00

The Insta-Jet insert snaps into any COMBO-JET[1] nozzle to increase responsivity to PWM nozzle start and stop

What is high-responsivity spraying?

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

[1]Not compatible w/ UR series or with use of select nozzles/adapters

30° Angled Nozzle Adapters

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

Combo-Jet to Combo-Jet 30° Adapter

40219-00

Combo-Jet to Square Lug 30° Adapter

40220-00

COMBO-RATE Manifolds

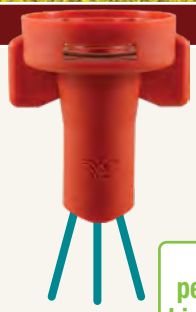
Replacing a yard sprayer manifold?
Building your own yard or ATV sprayer?

41115-03
(w/o barbs & gauge)

Combo-Rate® pre-built 3-Outlet Control Manifold

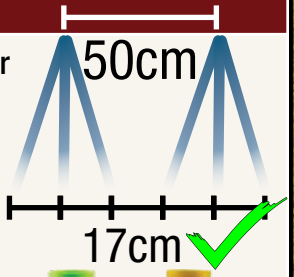
For setups needing:
- Pres. Gauge
- Left/Right Wing(s)
- Spray Gun
- Pressure regulator valve
- Easily Expandable

NEW 3-Hole Fertilizer Streamer (FS3) Nozzles



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

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



Improved performance at higher pressures

Available in sizes for 0.400L/min - 7.5L/min

Use Tip Wizard for Fertilizer Streaming Nozzle Selection

FREE WILGER TIP WIZARD

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

USE IT FREE AT WWW.WILGER.NET

Download on the App Store

GET IT ON Google Play

NEW & FEATURED PARTS [Page 3]

NEW PARTS

COMBO-RATE® Top Turrets & Double-Down

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

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

41836-00
*solenoid not included

High Flow Nozzle Bodies (21/32")

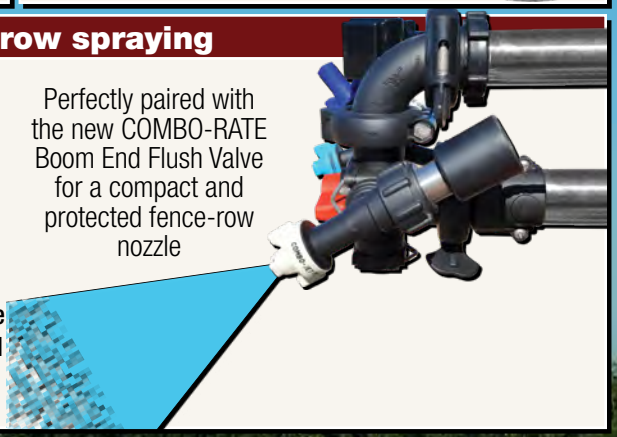
Nozzle bodies for 21/32" high flow inlet holes available in COMBO-JET, COMBO-RATE and new DS41 nozzle body styles.

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

41137-00

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

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

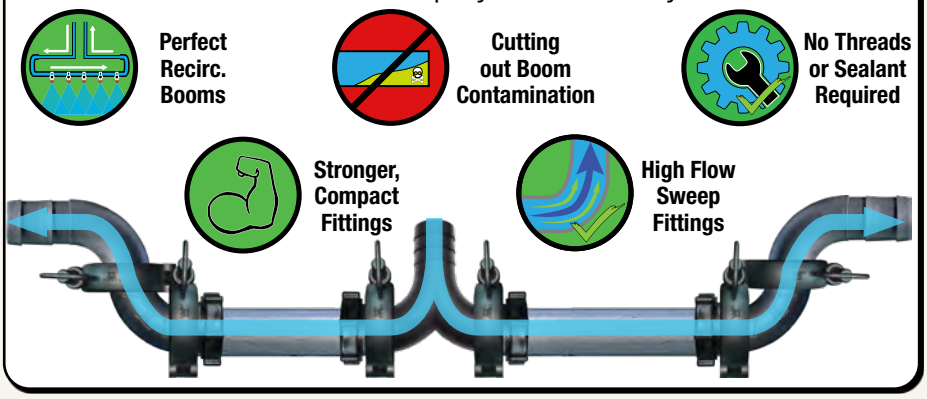


[1]Note on adjust-ability - Some sprayer manufacturers choose to have swivel end bodies permanently glued to position/angle. These swivel end bodies would NOT be adjustable, and removal of glue and re-adjustment would void warranty.

Quick Flange Sprayer Boom Fittings

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

Build a better sprayer boom today!



New O-Ring Seal Fittings, Assemblies & Kits

ORS-M Straight Check Valves
20556-00
0.7bar Manual ON/OFF Check Valve, Straight

20576-00
50 mesh strainer assembly

ORS in-line strainer attaches to any ORS fitting

20509-00
ORS-M to Double 1/4" Push-in-tube splitter

IMPROVED EFM JET DESIGN
[1]Easier removal & insertion
shipping in 2024

20644-00
4 Outlet EFM Manifold Kits w/ Manual ON/OFF Check Valves

New ORS-F Hose Barbs
20547-00
3/4" HB Straight with ORS-F u-clip

3/8" to 1" hose sizes available

20576-02
50 Mesh strainer cartridge

20549-00
ORS to Square Lug Outlet for Liquid Fertilizer Kits

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

NEW PARTS

NEW & FEATURED PARTS [Page 4]

Wilger Electronic Flow Monitoring System ECU200 Release

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

ECU200 Series Kit (#20606-00) includes:

#20606-01 ECU ONLY

Back View: New position for ECU Serial Number
(❗ 9 digit serials now used)

#20606-02
Connects 'Node 1' quad-sensor harnesses A / B / C / D

Connects the battery harness to the ECU

CAN to Power

#20606-03

4x #20585-00

12v battery harness #20603-02

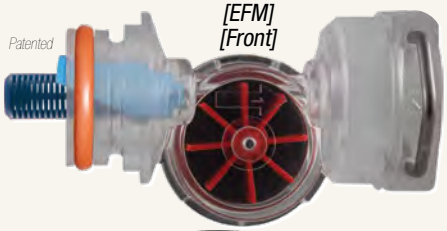
Antenna #20603-03

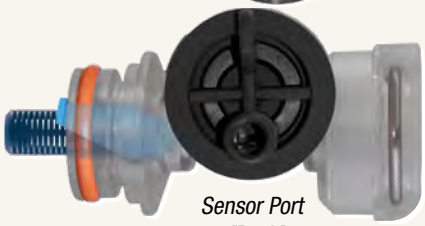
What about other EFM parts?
All parts beyond this kit are shared between ECU100 and ECU200 parts.

Wilger Electronic Row-By-Row Flow Monitoring System

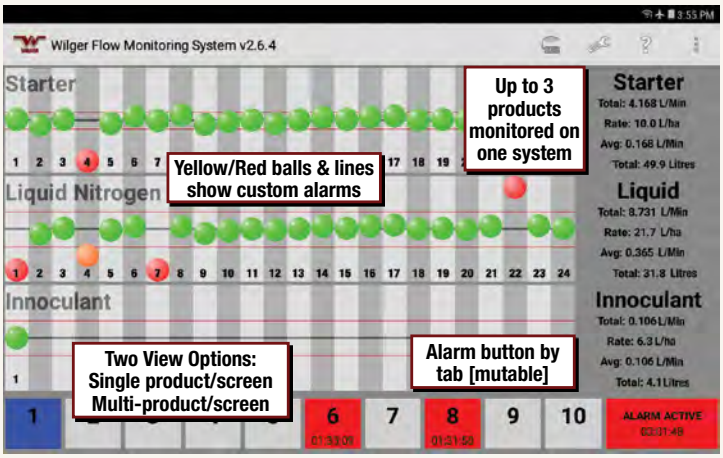
The serviceable flowmeter designed & built specifically for agricultural chemical & liquid applications

Electronic Flowmeter [EFM] [Front]





Sensor Port [Back]

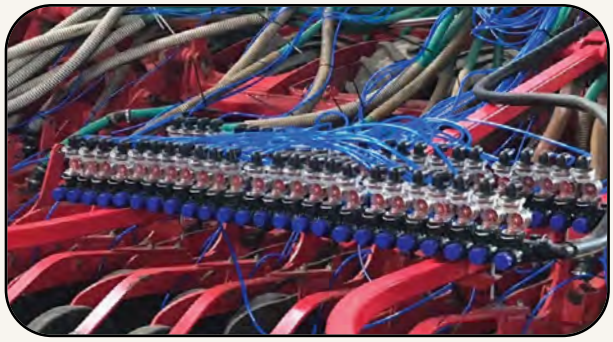


Fittings Swivel 360°

Modular Design for Any Size Equipment

Serviceable Flowmeter for Ag.

High Accuracy Flowmeter



EFM systems can be easily scaled to small or very large systems.

Wilger Product Literature & Tools

WWW.WILGER.NET

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

FREE WILGER TIP WIZARD

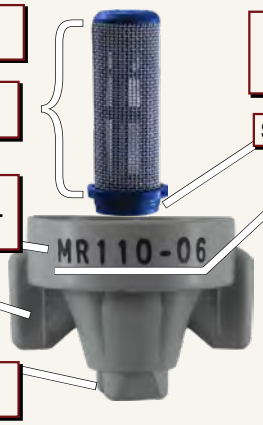
Tip Wizard has new features coming! Double-down spraying, spot spraying and more!

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

WHERE TO BUY WILGER PRODUCT

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

The COMBO-JET® Spray Nozzle Advantage



- 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 (MR110-06 = MR Series, 110° tip, 0.6 US GPM flow rate)
- Best educational spray tip charts & tools provided to select the best spray tips
- Combo-Jet tips use a modern pre-orifice & closed chamber design that produces significantly less drift, creates solid mass droplets, for maximum spray velocity and more meaningful spray.

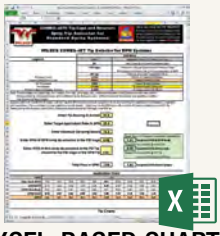
Without needing consistent air induction for drift reduction,
Combo-Jet spray tips set the standard for Pulse Width Modulation (PWM) spraying system nozzles.

*Capstan EVO®, Capstan Pinpoint®, Case AIM Command®, John Deere ExactApply®, IntelliSpray®, Raven Hawkeye®, Agrifac StrictSpray Plus™ are not affiliated or owned by Wilger. They remain property of their respective owner(s).

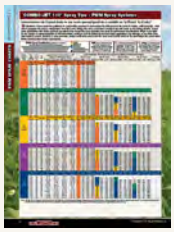
WILGER.NET has the most useful spray tip selection help in the world.

FREE SMARTPHONE APP

TIP WIZARD ONLINE


EXCEL-BASED CHARTS


PRINTED TIP CHARTS


WILGER CATALOG

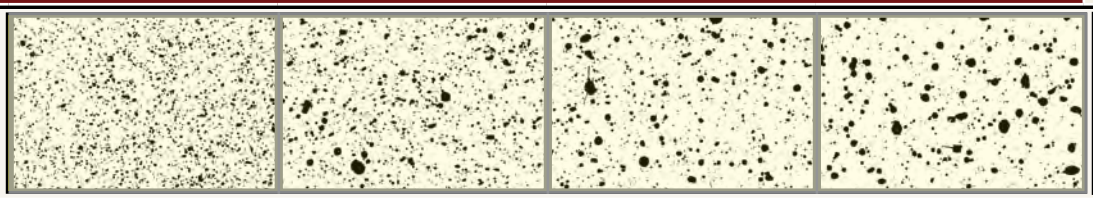
COMBO-JET® ER/SR/MR/DR/UR Spray Tips - *What is the difference?*

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 Reduction
Spray Tip Design	Conventional Flat Fan	Pre-orifice Drift Reduction	Pre-orifice Drift Reduction	Pre-orifice Drift Reduction	Dual Chamber Drift Red.
Spray Quality @40PSI	Medium	Coarse	Extremely Coarse	Extremely Coarse	Ultra-Coarse
Droplet Size[1] @40PSI	Smallest (246µ VMD[1])	Medium (371µ VMD[1])	Large (474µ VMD[1])	Very Large (529µ VMD[1])	Ultra Coarse (633µ VMD[1])
% <141µ[2] % <600µ[3]	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 specialty spray tips, designed for certain chemical applications that require exceptional drift reduction. They are not be to be replaced with other spray 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 maximum pressures, speeds and application information.
Drift Potential	Most likely to drift	Lower drift potential	Major reduction in drift	Very low drift potential	
Coverage	Best	Excellent	Very good	Good	

[1]Based on an XX110-06 nozzle @ 40 psi (2.75 BAR)
[2]Droplets smaller than 141µ are more likely to drift. 141µ is used as a standard for estimating driftable fines.
[3]Droplets smaller than 600µ provide better coverage. Droplets > 600µ consume more spray volume, reducing overall coverage.

More information available at www.wilger.net



Don't Forget the ER & DX series for spot spraying

More on Page 30

Selecting the Correct Spray Quality & Droplet Size

Drift vs. Efficacy

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:
- Water Volume: Minimum 22 L per acre. — *Minimum volume requirement on chemical label*
- Nozzles and Pressure: 30 to 40 psi (210 to 275 kPa) when using conventional flat fan nozzles. — *Reference max pressure for conventional nozzles like ER series. Try avoid conventional (non-drift reduction) spray 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 & coverage.*

Example Spray Quality Chart by Type of Application

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

The above table provides general guidelines regarding droplet size and spray quality used in most spray applications.
It is always required that you carefully read and follow updated chemical manufacturers application label and instructions.
*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 (140L/Ha+) with a single spray nozzle:
Spraying **high volume out of a single tip** can produce droplets that are 'too large" to be effective for coverage, which make for less effective spray application.

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

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

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

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

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

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

A First-timer's look at Tip Wizard

DOWNLOAD TIP WIZARD TODAY! It's FREE!

TIP WIZARD

Download on the App Store | GET IT ON Google Play

TRY IT FREE AT WWW.WILGER.NET

Tip Wizard shows great info like:

- **Adaptable Charts** — Adjusts to alternate units & spacing
- **Boom Pressure**
- **Speed Range**
- **Duty Cycle** (for PWM)
- **Spray Quality** — For matching spray tips to chemical label requirements
- **[Advanced] VMD (in µ)** — Median Droplet Diameter for comparing series of the same tip size
- **% of Volume < 141µ** — For an estimate of driftable fines in ideal conditions
- **% of Volume < 600µ** — For a relative factor of small droplets in ideal conditions

Have More Questions?
Talk to your Wilger dealer, or call
CANADA 1 (833) 242-4121
USA 1 (877) 968-7695

Beginner's Guide to using Tip Wizard

1. **Choose** application units, spray system type, and search function (e.g. Search for tips)
2. **Enter** application rate, spraying speed[1], nozzle spacing, and spray tip angle[2].
   [1]Since PWM systems can modulate flow by changing the spray duration, enter the MAX typical spraying speed.
   [2]Spray 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 in ideal conditions. Using the droplet size (VMD) can allow a more advanced way to filter through series of tips. In the event a target spray quality is NOT possible, widening the spray quality to SEE ALL may be required. (e.g. targeting MEDIUM spray quality with nozzle sizes too large to produce M)

Where to find target spray quality or droplet size?

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

Application Information:
- Water Volume: Minimum 22 L per acre. *(Minimum water requirement on chemical label by law)*
- Nozzles and Pressure: 30 to 40 psi (210 to 275 kPa) when using conventional flat fan nozzles. *(Reference max pressure for conventional nozzles like ER series. 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 & coverage.)*

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 to another. For an example, we might find we typically have windier conditions, so try filter our results to stay around 375µ-400µ for our targeted droplet size.*

4. **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, % of small droplets for coverage), make a selection.

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 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.

   ***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 ~3.5bar (346µ VMD), the spray quality might be comparable to an SR110-06 at ~3.5bar (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

[1]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.

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%[1] 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.

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 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.

3. **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. 3.5-4bar) when spray conditions are ideal, giving a means to reduce pressure to 2-3bar 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 19kph+, 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.

   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 ~3.5bar (346µ VMD), the spray quality might be comparable to an SR110-06 at ~3.5bar (337µ VMD). Bear in mind, VMD is used for educational purposes only, and should not dictate application.

Quick-Start Example: 100 L/Ha @ 16 kph max, on 50cm spacing, with a PWM Spray System, applying SYSTEMIC HERBICIDE (glyphosate)

STEP 1: SIZE THE NOZZLE: 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, we'll focus on the **110-04 size.** (110-05 would also be a good nozzle size, but 110-06 starts getting too large for optimal PWM system use)*
It would apply 100L/Ha, 16kph anywhere between 2.2-4bar, 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 ER110-04 is too fine, the SR fits at only lower pressures, the MR fits well, and the DR/UR being perhaps too coarse. We could also use a VMD of 350-400µ to filter out more.*
Note: The DR & UR 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 MR110-04 as our best tip to maintain a healthy flexibility to reduce spray drift on the go.

STEP 3: DOUBLE CHECK MR110-04 for max flexibility between 'IDEAL SPRAYING MODE' & 'DRIFT REDUCTION MODE'

Ideal Condition Spraying @ 16kph:
@3.5bar: DUTY CYCLE: 81% ✓ Excellent
@3.5bar: COARSE Spray Class
@3.5bar % < 141µ: ~8% ✓ Very Good
@3.5bar % < 600µ: ~92% ✓ Excellent

Drift Sensitive Spraying @ 16kph:
@2.5bar: DUTY CYCLE: 96% ✓ OK
@2.5bar: VERY COARSE Spray Class
@2.5bar % < 141µ: ~6% ✓ Excellent
@2.5bar % < 600µ: ~87% ✓ Excellent

Further considerations: Given the high level of coverage at higher pressures (4bar+), this same nozzle could be used for contact herbicides and fungicides to cover more applications.

Combo-Jet® MR110-04
Part No: 40291-04 Color: Red
Screen No: 50 Mesh (#40250-00)

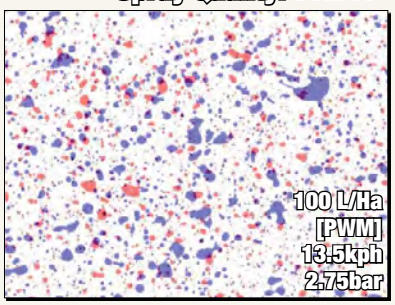
Pres	Speed Range	DC @ 16 km/h	Class	VMD	<141	<600
bar	km/h	%		µ	%	%
1.5	3.2-12.9	>100	XC	469µ	2%	74%
2	3.7-14.9	>100	VC	429µ	4%	82%
2.5	4.2-16.7	96	VC	399µ	6%	87%
3	4.6-18.3	87	C	374µ	7%	90%
3.5	4.9-19.7	81	C	353µ	8%	92%
4	5.3-21.1	76	C	335µ	9%	93%
4.5	5.6-22.4	72	C	319µ	10%	94%
5	5.9-23.6	68	C	304µ	10%	95%
5.5	6.2-24.8	65	C	291µ	11%	95%

Picking Nozzles for Double Nozzle Spraying

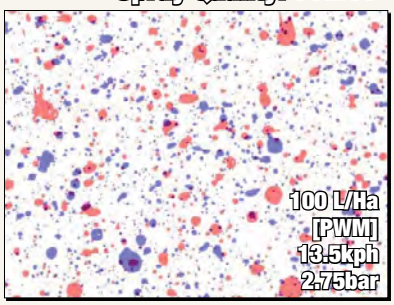
Picking two spray tips isn't much different than a single tip. Since the sprayer has some means of adjust the flow to match a flow rate, simply pick a nozzle size that would supply the full rate, and then split it into parts that would provide the same flow rate. E.g. ***If a 110-10 nozzle size is required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

1. **STEP 1: Size Your Tip** Since the application rate must be consistent, selecting a tip sized to the required rate over the actual sprayer speed range is critical. It is recommended to use Tip Wizard, as it will adjust the chart specifically for any application rate, not just common pairs of rate & speed.
   FOCUS ON: SPEED & PRESSURE for a required APPLICATION RATE
   ***FOR PWM SPRAYERS (DUTY CYCLE):** Since you have more control of your pressure, your sprayer will typically allow for a wider selection of tip size.
   Try to pick a size that allows a duty cycle of 60-80% at your typical sprayer speed, allowing sufficient speed up/down.
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.

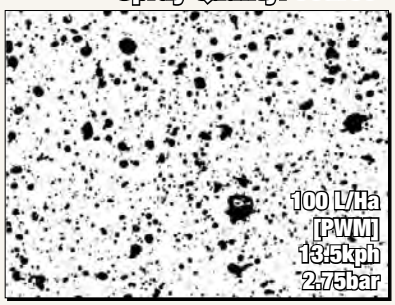
Example: MR110-04 + MR110-02
Spray Quality: Coarse*



Example: 2x SR110-03
Spray Quality: Coarse*



Single Tip Example: SR110-06
Spray Quality: Coarse*



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

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 nozzles.
   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: 220 L/ha Glufosinate (Contact Herbicide), on 50cm spacing, traveling 16 kph, 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)
Either use the TIP WIZARD double-down function, or split the search into two parts that add up to the total application rate required (220L/ha)- e.g. 2x 110L/Ha. There is additional pressure drop through a solenoid, so keep that in mind when selecting nozzles as the spray quality will differ from nozzles operating separately.

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

Combi-Jet® ER110-125
Part No: 40281-125 Color: Tea
Screen No: Not Required

Pres	Speed Range	DC @ 16 km/h	Class	VMD	<141	<600
bar	km/h	%		µ	%	%
1.25	3.4-13.5	>100	XC	476µ	6%	56%
1.5	3.7-14.8	>100	XC	460µ	7%	61%
2	4.3-17.1	94	XC	433µ	8%	67%
2.5	4.8-19.1	84	XC	412µ	9%	71%
3	5.2-21.0	76	XC	396µ	10%	74%
3.5	5.7-22.7	71	XC	381µ	10%	77%
4	6.1-24.2	66	VC	369µ	11%	79%
4.5	6.4-25.7	62	VC	358µ	11%	80%
5	6.8-27.1	59	C	348µ	12%	81%

DOUBLE DOWN ADAPTER (#40441-00) with an SR110-06 + SR110-06

Combi-Jet® SR110-06
Part No: 40287-06 Color: Grey
Screen No: Not Required

COMBO

Combi-Jet® SR110-06
Part No: 40287-06 Color: Grey
Screen No: Not Required

Pres	Speed Range	DC @ 16 km/h	Class	VMD	<141	<600	Pres	Speed Range	DC @ 16 km/h	Class	VMD	<141	<600
bar	km/h	%		µ	%	%	bar	km/h	%		µ	%	%
1.5	3.6-14.5	>100	XC	539µ	1%	56%	1.5	3.6-14.5	>100	XC	539µ	1%	56%
2	4.2-16.7	96	XC	494µ	2%	69%	2	4.2-16.7	96	XC	494µ	2%	69%
2.5	4.7-18.7	86	VC	460µ	4%	77%	2.5	4.7-18.7	86	VC	460µ	4%	77%
3	5.1-20.4	78	VC	431µ	5%	82%	3	5.1-20.4	78	VC	431µ	5%	82%
3.5	5.5-22.1	73	VC	407µ	6%	85%	3.5	5.5-22.1	73	VC	407µ	6%	85%
4	5.9-23.6	68	C	387µ	8%	87%	4	5.9-23.6	68	C	387µ	8%	87%
4.5	6.3-25.0	64	C	368µ	9%	89%	4.5	6.3-25.0	64	C	368µ	9%	89%
5	6.6-26.4	61	C	352µ	9%	90%	5	6.6-26.4	61	C	352µ	9%	90%

Example Result:
Double-Down SR110-06 would provide upwards of 9%+ more volume made of small droplets (%<600µ), while nominally decreasing driftable fines (%<141µ) especially at lower pressures.

The spray quality is within the 'coarse' spray quality, just outside MEDIUM spray quality. An ER110-06 series could be replaced for one of the SR110-06 to provide a mix of even finer spray into the dual nozzle setup.

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

STEP 3: Qualify nozzle pair based on spray quality, and pick based on most suitable % driftable fines (ideally <15% <141µ) and % coverage factor (ideally near or greater than 90% <600µ)

COMBO-JET ER80° & ER110° Series Spray Tips

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

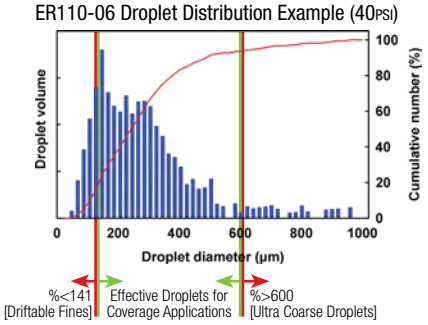
- **Longer Lasting Stainless Tips**
- **Less Plugged Nozzles**
- **Perfect for PWM Sprayers**
- **Consistent Pattern at Lower pres.**
- **Solid Mass Spray Droplets**
- **Acid Resistant Nozzles**

A DETAILED LOOK AT: **ER110-06**

Balance of Drift Control & Coverage

FINE COVERAGE — DRIFT REDUCTION

ER110-06 Droplet Distribution Example (40PSI)



ER series is designed to produce finer spray with a consistent pattern.

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

Pressure (bar)	1.5	1.75	2	2.5	3	3.5	4	4.5	5	5.5	6
ER80-01	F	F	F	F	F	F	F	F	F	F	F
ER80-015	F	F	F	F	F	F	F	F	F	F	F
ER80-02	F	F	F	F	F	F	F	F	F	F	F
ER80-025	M	M	F	F	F	F	F	F	F	F	F
ER80-03	M	M	F	F	F	F	F	F	F	F	F
ER80-04	M	M	M	M	F	F	F	F	F	F	F
ER80-05	C	C	M	M	M	M	M	M	F	F	F
ER80-06	C	C	C	C	C	M	M	M	M	M	M
ER80-08	VC										
ER80-10	XC	XC	XC	C	C	C	M	M	M	F	F
ER80-125		XC	XC	VC	C	C	C	C	C	M	M
ER80-15		XC	XC	XC	C	C	C	M	M	M	M
ER80-20		UC	XC	XC	XC	VC	C	C	C	C	M
ER80-25		UC	XC	XC	XC	VC	C	C	C	C	M
ER80-30		UC	UC	XC	XC	XC	XC	XC	VC	VC	C
ER80-40				XC	XC	XC	XC	XC	XC	VC	VC
ER80-50				XC	XC	XC	XC	XC	XC	VC	VC
ER80-60				XC	XC	XC	XC	XC	XC	VC	VC

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

Pressure (bar)	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
ER110-01	F	F	F	F	F	F	F	F	F	F
ER110-015	F	F	F	F	F	F	F	F	F	F
ER110-02	F	F	F	F	F	F	F	F	F	F
ER110-025	F	F	F	F	F	F	F	F	F	F
ER110-03	F	F	F	F	F	F	F	F	F	F
ER110-04	M	M	M	F	F	F	F	F	F	F
ER110-05	M	M	M	F	F	F	F	F	F	F
ER110-06	C	M	M	M	M	M	F	F	F	F
ER110-08	C	C	M	M	M	M	F	F	F	F
ER110-10	C	C	C	C	M	M	M	M	F	F
ER110-125	XC	XC	XC	VC	C	C	C	C	C	C
ER110-15	XC	XC	XC	VC	C	C	C	C	C	C
ER110-20	UC	XC	XC	XC	XC	XC	VC	VC	C	C
ER110-25	UC	XC	XC	XC	XC	XC	VC	VC	C	C
ER110-30	UC	XC	XC	XC	XC	XC	XC	XC	VC	VC

COMBO-JET® ER Series Specifications

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

Operating Pressure
1.5-7 bar

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

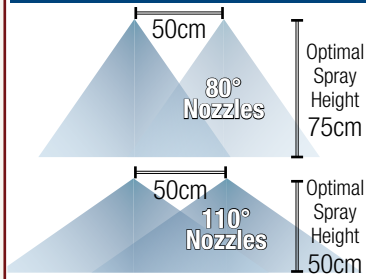
(ASABE S572.1 Standard)
Spray quality is categorized based on Dv0.1 and VMD droplet sizes. Objective testing data (by 3rd party), from spray spectrum recording equipment (without wind tunnel use), has been used to classify spray quality for this chart. Chart shown includes spray quality at tested data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

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

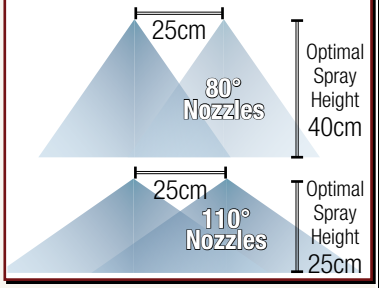
Tips sized up to 110-06 verified on Phase Doppler Particle Analyzer (PDPA); tips sized over 110-06 verified on Malvern.

Optimal Spray Tip Height

50cm Nozzle Spacing



25cm Nozzle Spacing



COMBO-JET SR80° & SR110° Series Spray Tips

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

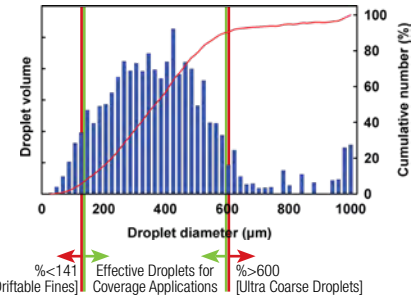
- Longer Lasting Stainless Tips
- Less Plugged Nozzles
- Perfect for PWM Sprayers
- Consistent Pattern at Lower pres.
- Solid Mass Spray Droplets
- Acid Resistant Nozzles

A DETAILED LOOK AT: **SR110-06**

Balance of Drift Control & Coverage

FINE COVERAGE — DRIFT REDUCTION

SR110-06 Droplet Distribution Example (40PSI)



%<141 [Driftable Fines] | Effective Droplets for Coverage Applications | %>600 [Ultra Coarse Droplets]

SR series droplet distribution balances excellent fine spray coverage while reducing driftable fines.

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

Pressure (bar)	1.75	2	2.5	3	3.5	4	4.5	5	5.5	6
SR80-01	M	M	F	F	F	F	F	F	F	F
SR80-015	C	M	M	M	F	F	F	F	F	F
SR80-02	C	M	M	M	F	F	F	F	F	F
SR80-025	C	C	C	M	M	M	M	M	F	F
SR80-03	C	C	C	C	C	M	M	M	M	M
SR80-04	C	C	C	C	C	C	M	M	M	M
SR80-05	VC	C	C	C	C	C	C	C	M	M
SR80-06	VC	VC	VC	C	C	C	C	C	C	C
SR80-08	UC	UC	XC	XC	XC	XC	VC	VC	C	C
SR80-10	UC	UC	UC	XC	XC	XC	XC	XC	VC	VC
SR80-125	UC	UC	UC	XC	XC	XC	XC	XC	VC	VC
SR80-15	UC	UC	UC	UC	UC	XC	XC	XC	XC	XC
SR80-20	UC	UC	UC	UC	UC	XC	XC	XC	XC	XC
SR80-25	UC	UC	UC	XC	XC	XC	XC	XC	XC	XC
SR80-30	-	UC	UC	UC	XC	XC	XC	XC	XC	XC

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

Pressure (bar)	1.75	2	2.5	3	3.5	4	4.5	5	5.5	6
SR110-015	M	M	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	F	F	F	F	F	F
SR110-03	C	C	C	C	M	M	M	M	F	F
SR110-04	C	C	C	C	M	M	M	M	M	M
SR110-05	VC	C	C	C	C	C	M	M	M	M
SR110-06	XC	VC	C	C	C	C	C	C	M	M
SR110-08	UC	XC	XC	XC	VC	C	C	C	C	C
SR110-10	UC	XC	XC	XC	XC	VC	C	C	C	C
SR110-125	UC	UC	XC	XC	XC	XC	VC	C	C	C
SR110-15	UC	UC	UC	UC	XC	XC	XC	XC	XC	XC
SR110-20	UC	UC	UC	XC	XC	XC	XC	XC	XC	VC
SR110-25	UC	UC	UC	XC	XC	XC	XC	XC	XC	VC

COMBO-JET® SR Series Specifications

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

Operating Pressure
1.75-7 bar

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

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

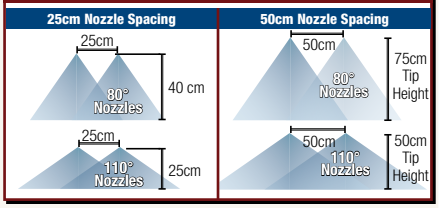
ASABE Spray Classification

(ASABE S572.1 Standard)
Spray quality is categorized based on Dv0.1 and VMD droplet sizes. Objective 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 SR Series
As of January 2021

SR110-05	★★★ 75% 1.0-1.5BAR	☆☆ 50% 1.6-3.0BAR

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

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

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

COMBO-JET MR80° & MR110° Series Spray Tips

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

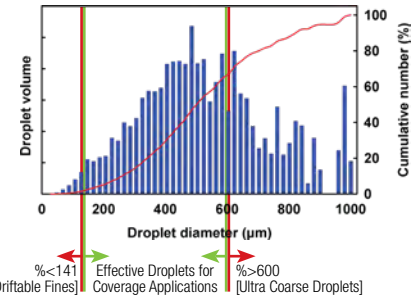
- **Longer Lasting Stainless Tips**
- **Superior Drift Reduction**
- **Perfect for PWM Sprayers**
- **Consistent Pattern at Lower pres.**
- **Solid Mass Spray Droplets**
- **Acid Resistant Nozzles**

A DETAILED LOOK AT: **MR110-06**

Balance of Drift Control & Coverage

FINE COVERAGE — DRIFT REDUCTION

MR110-06 Droplet Distribution Example (40PSI)



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

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

Pressure (bar)	2	2.5	3	3.5	4	4.5	5	5.5	6
MR80-005	M	M	F	F	F	F	F	F	F
MR80-0067	M	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	F	F
MR80-02	C	C	C	C	M	M	M	M	M
MR80-025	VC	VC	C	C	C	C	C	C	C
MR80-03	VC	VC	C	C	C	C	C	C	C
MR80-04	VC	C	C	C	C	C	C	C	C
MR80-05	XC	XC	VC	VC	VC	C	C	C	C
MR80-06	XC	XC	XC	VC	VC	VC	VC	C	C
MR80-08	UC	UC	UC	XC	XC	XC	VC	VC	C
MR80-10	UC	UC	UC	UC	XC	XC	XC	XC	XC
MR80-125	UC	UC	UC	UC	UC	UC	XC	XC	XC
MR80-15	UC	UC	XC	XC	XC	XC	VC	VC	C
MR80-20	UC	UC	UC	UC	XC	XC	XC	XC	XC
MR80-25	UC	UC	UC	UC	UC	UC	UC	UC	XC
MR80-30	UC	UC	UC	UC	UC	UC	UC	UC	XC
MR80-40	-	UC	UC	UC	UC	XC	XC	XC	XC

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

Pressure (bar)	2	2.5	3	3.5	4	4.5	5	5.5	6
MR110-015	C	C	M	M	M	F	F	F	F
MR110-02	C	C	M	M	M	M	F	F	F
MR110-025	C	C	C	C	C	M	M	M	M
MR110-03	VC	C	C	C	C	C	C	C	M
MR110-04	VC	C	C	C	C	C	C	C	M
MR110-05	XC	VC	VC	VC	C	C	C	C	C
MR110-06	XC	XC	XC	VC	VC	VC	VC	C	C
MR110-08	UC	UC	XC	XC	XC	XC	XC	VC	C
MR110-10	UC	UC	XC	XC	XC	XC	XC	VC	C
MR110-125	UC	UC	UC	UC	UC	UC	UC	XC	XC
MR110-15	UC	UC	UC	UC	UC	UC	UC	UC	UC
MR110-20	UC	UC	UC	UC	UC	UC	UC	XC	XC

COMBO-JET® MR Series Specifications

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

Operating Pressure
2-7 bar

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

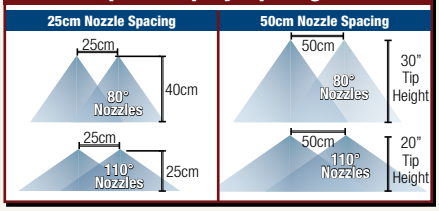
ASABE Spray Classification

(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% 1.0-2.5BAR	★★ 50% 2.6-3.5BAR
MR110-05	★★★★ 90% 1.0-1.5BAR	★★★ 75% 1.6-5.0BAR
MR110-06	★★★★ 90% 1.0-1.5BAR	★★★ 75% 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

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

-005	-0067	-01	-015	-02	-025	-03	-04	-05	-06	-08	-10	-125	-15	-20	-25	-30	-40
40285-005	40285-007	40285-01	40285-015	40285-02	40285-025	40285-03	40285-04	40285-05	40285-06	40285-08	40285-10	40285-125	40285-15	40285-20	40285-25	40285-30	40285-40

COMBO-JET DR80° & DR110° Series Spray Tips

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

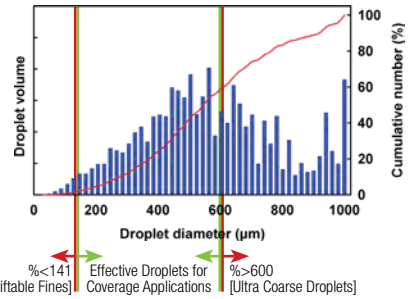
- **Longer Lasting Stainless Tips**
- **Superior Drift Reduction**
- **Perfect for PWM Sprayers**
- **Consistent Pattern at Lower pres.**
- **Solid Mass Spray Droplets**
- **Acid Resistant Nozzles**

A DETAILED LOOK AT: **DR110-06**

Balance of Drift Control & Coverage

FINE COVERAGE — DRIFT REDUCTION

DR110-06 Droplet Distribution Example (40PSI)



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

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

Pressure (bar)	2	2.5	3	3.5	4	4.5	5	5.5	6
DR80-005	C	M	M	F	F	F	F	F	F
DR80-0067	C	C	M	M	M	F	F	F	F
DR80-01	C	C	M	M	M	M	F	F	F
DR80-015	VC	VC	C	C	C	C	C	C	C
DR80-02	XC	VC	VC	VC	C	C	C	C	C
DR80-025	XC	VC	VC	VC	C	C	C	C	C
DR80-03	XC	XC	VC	VC	VC	C	C	C	C
DR80-04	XC	XC	XC	XC	XC	VC	VC	C	C
DR80-05	XC	XC	XC	XC	XC	XC	VC	VC	VC
DR80-06	XC	XC	XC	XC	XC	XC	XC	XC	VC
DR80-08	UC	UC	UC	UC	UC	UC	UC	UC	UC
DR80-10	UC	UC	UC	UC	UC	UC	UC	UC	UC
DR80-125	UC	UC	UC	UC	UC	UC	UC	UC	UC
DR80-15	UC	UC	UC	UC	UC	UC	UC	UC	UC
DR80-20	UC	UC	UC	UC	UC	UC	UC	UC	UC
DR80-25	UC	UC	UC	UC	UC	UC	UC	UC	UC
DR80-30	UC	UC	UC	UC	UC	UC	UC	UC	XC

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

Pressure (bar)	2	2.5	3	3.5	4	4.5	5	5.5	6
DR110-015	C	C	C	C	C	C	M	M	M
DR110-02	VC	VC	C	C	C	C	C	C	C
DR110-025	VC	VC	C	C	C	C	C	C	C
DR110-03	XC	XC	VC	VC	C	C	C	C	C
DR110-04	XC	XC	VC	VC	VC	C	C	C	C
DR110-05	XC	XC	XC	XC	XC	XC	VC	VC	VC
DR110-06	XC	XC	XC	XC	XC	XC	XC	VC	VC
DR110-08	UC	UC	UC	UC	UC	UC	XC	XC	XC
DR110-10	UC	UC	UC	UC	UC	UC	UC	UC	UC
DR110-125	UC	UC	UC	UC	UC	UC	UC	UC	UC
DR110-15	UC	UC	UC	UC	UC	UC	UC	UC	UC

COMBO-JET® DR Series Specifications

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

Operating Pressure
2-7 bar

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

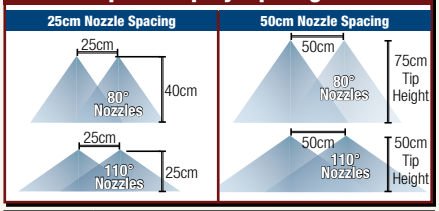
ASABE Spray Classification

(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 DR Series

As of January 2021

DR110-025	★★★ 75% 1.0-2.5BAR	★★ 50% 2.6-3.5BAR
DR110-03	★★★★ 90% 1.0-1.5BAR	★★★ 75% 1.6-2.5BAR / ★★ 50% 2.6-3.5BAR
DR110-04	★★★ 75% 1.0-5.0BAR	
DR110-05	★★★★ 90% 1.0-1.5BAR	★★★ 75% 1.6-5.0BAR
DR110-06	★★★★ 90% 1.0-3.0BAR	★★★ 75% 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

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

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

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

COMBO-JET UR110° Series* Spray Tips

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

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

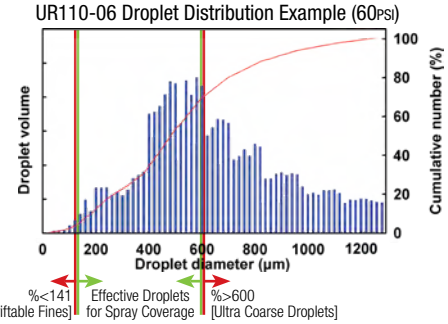
- Approved for Dicamba Mixes
- Ultra Low Spray Drift
- Perfect for PWM Sprayers
- Longer Lasting Stainless Tips
- Solid Mass Spray Droplets
- Acid Resistant Nozzles

A DETAILED LOOK AT: **UR110-06**

Balance of Drift Control & Coverage

FINE COVERAGE — DRIFT REDUCTION

UR110-06 Droplet Distribution Example (60PSI)



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

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

Pressure (bar)	2.5	3	3.5	4	4.5	5	5.5	6
UR110-025	UC	UC	UC	XC	XC	XC	XC	XC
UR110-03	UC	UC	UC	XC	XC	XC	XC	XC
UR110-04	UC	UC	UC	UC	UC	UC	UC	UC
UR110-05	UC	UC	UC	UC	UC	UC	UC	UC
UR110-06	UC	UC	UC	UC	UC	UC	UC	UC
UR110-08	UC	UC	UC	UC	UC	UC	UC	UC
UR110-10	UC	UC	UC	UC	UC	UC	UC	UC

COMBO-JET® UR Series Specifications

Approved for PWM Spray Systems Compatible with all PWM Spray systems/Hz.
Operating Pressure 2.5-7 bar
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

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

UR two-piece pre-orifices must be replaced with a new pair only. Correct orifices must be used for proper performance.

-025	-03	-04	-05	-06	-08	-10
40292-22	40292-23	40292-24	40292-25	40292-26	40292-28	40292-30

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

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)

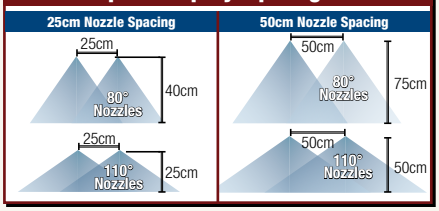
UR Nozzles verified on Malvern.

JKI Ratings for UR Series

As of January 2021

UR110-04		75% 2.0-3.0BAR REF. G-2184
	50% 4.0-6.0BAR REF. G-2184	
UR110-05	90% 2.0BAR REF. G-2185	75% 3.0-6.0BAR REF. G-2185
UR110-06	90% 2.0-3.0BAR REF. G-2189	75% 4.0-6.0BAR REF. G-2189

Optimal Spray Tip Height



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

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

Nozzle Size	100 Mesh	50 Mesh	16/25 Mesh
-01 or smaller	X		
-015	X		
-02	X	X	
-025		X	
-03		X	
-04		X	
-05		X	X
-06		X	X
-08 or larger	Nozzle strainer is generally not required		X

[UR]Strainers not compatible with UR series due to stacked pre-orifice

Stainless Steel Strainers

Snap-in Stainless Steel Mesh Strainer for **Chemical Spraying**

40250-00 40251-00

Slotted Strainers

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

40249-00 40248-00

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

COMBO-JET 80° Spray Tips - Standard Sprayer Systems

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

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

Nozzle Size & Angle	Flow Rate L/min	Boom BAR	Application Rate in Litres/Hectare on 50cm Nozzle Spacing @ Sprayer Speed in km/h				Spray Classification; VMD (Droplet Size in µ); %<141µ (Drift %); %<600µ (Small Droplets)													
							ER80° Series				SR80° Series				MR80° Series				DR80° Series			
	Flow L/min	Boom BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 20L/Ha	30L/Ha	40L/Ha	50L/Ha	ER80-005 Class	VMD	<141	<600	#40270-005 Class	VMD	<141	<600	SR80-005 Class	VMD	<141	<600	#40288-005 Class	VMD	<141	<600
80 -005 Nozzles	0.140	**1.50**	8.4	5.6	4.2	3.4	F	163	36%	100%										
	0.151	**1.75**	9.0	6.0	4.5	3.6	F	156	41%	100%					M	258	16%	100%	C	308	17%	100%
	0.161	**2.00**	10	6.4	4.8	3.9	F	150	45%	100%					M	240	16%	100%	C	282	12%	100%
	0.180	**2.50**	11	7.2	5.4	4.3	F	141	52%	100%					F	212	23%	100%	M	245	17%	100%
	0.197	**3.00**	12	7.9	5.9	4.7	F	133	58%	100%					F	192	28%	100%	M	218	22%	100%
	0.213	**3.50**	13	8.5	6.4	5.1	F	127	63%	100%					F	177	33%	100%	F	198	26%	100%
	0.228	**4.00**	14	9.1	6.8	5.5	F	122	67%	100%					F	164	38%	100%	F	181	30%	100%
	0.242	**4.50**	15	10	7.3	5.8	F	118	71%	100%					F	154	41%	100%	F	168	33%	100%
	0.255	**5.00**	15	10	7.6	6.1	F	115	74%	100%					F	145	45%	100%	F	157	36%	100%
	0.267	**5.50**	16	11	8.0	6.4	VF	112	77%	100%					F	138	48%	100%	F	148	38%	100%
	0.279	**6.00**	17	11	8.4	6.7	VF	109	80%	100%					F	131	51%	100%	F	140	41%	100%
	Flow L/min	Boom BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 20L/Ha	30L/Ha	40L/Ha	50L/Ha	ER80-0067 Class	VMD	<141	<600	#40270-0067 Class	VMD	<141	<600	SR80-0067 Class	VMD	<141	<600	#40288-0067 Class	VMD	<141	<600
80 -0067 Nozzles	0.187	**1.50**	11	7.5	5.6	4.5	F	193	24%	100%										
	0.202	**1.75**	12	8.1	6.1	4.8	F	182	29%	100%					M	230	18%	100%	C	334	13%	100%
	0.216	**2.00**	13	8.6	6.5	5.2	F	173	34%	100%					F	214	23%	100%	C	313	11%	100%
	0.241	**2.50**	14	10	7.2	5.8	F	159	41%	100%					F	191	30%	100%	C	280	12%	100%
	0.265	**3.00**	16	11	7.9	6.3	F	148	47%	100%					F	174	36%	100%	M	256	15%	100%
	0.286	**3.50**	17	11	8.6	6.9	F	140	53%	100%					F	161	41%	100%	M	237	17%	100%
	0.305	**4.00**	18	12	9.2	7.3	F	133	57%	100%					F	150	45%	100%	M	222	19%	100%
	0.324	**4.50**	19	13	10	7.8	F	127	61%	100%					F	141	49%	100%	F	209	21%	100%
	0.341	**5.00**	20	14	10	8.2	F	122	64%	100%					F	134	52%	100%	F	199	23%	100%
	0.358	**5.50**	21	14	11	8.6	F	118	68%	100%					F	127	55%	100%	F	190	24%	100%
	0.374	**6.00**	22	15	11	9.0	F	114	71%	100%					F	122	58%	100%	F	182	26%	100%
	Flow L/min	Boom BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 20L/Ha	30L/Ha	40L/Ha	50L/Ha	ER80-01 Class	VMD	<141	<600	#40270-01 Class	VMD	<141	<600	SR80-01 Class	VMD	<141	<600	#40288-01 Class	VMD	<141	<600
80 -01 Nozzles	0.279	**1.50**	17	11	8.4	6.7	F	171	31%	100%	C	279	11%	97%								
	0.302	**1.75**	18	12	9.0	7.2	F	164	36%	100%	M	256	15%	97%								
	0.322	**2.00**	19	13	10	7.7	F	158	40%	100%	M	238	19%	97%	M	222	22%	97%	C	316	9%	94%
	0.360	**2.50**	22	14	11	8.6	F	148	46%	100%	F	210	26%	97%	F	200	28%	97%	C	286	12%	95%
	0.395	**3.00**	24	16	12	10	F	140	52%	100%	F	190	32%	97%	F	184	32%	97%	M	264	15%	97%
	0.426	**3.50**	26	17	13	10	F	134	57%	100%	F	174	36%	98%	F	172	36%	97%	M	247	17%	98%
	0.456	**4.00**	27	18	14	11	F	129	61%	100%	F	162	40%	98%	F	161	40%	97%	M	233	19%	99%
	0.484	**4.50**	29	19	15	12	F	124	64%	100%	F	151	44%	98%	F	153	43%	97%	M	221	20%	100%
	0.510	**5.00**	31	20	15	12	F	121	67%	100%	F	143	47%	98%	F	146	45%	97%	F	211	22%	100%
	0.535	**5.50**	32	21	16	13	F	117	70%	100%	F	135	50%	98%	F	139	48%	97%	F	202	23%	100%
	0.558	**6.00**	34	22	17	13	F	115	73%	100%	F	129	53%	98%	F	134	50%	96%	F	194	24%	100%
	Flow L/min	Boom BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 35L/Ha	50L/Ha	60L/Ha	75L/Ha	ER80-015 Class	VMD	<141	<600	#40270-015 Class	VMD	<141	<600	SR80-015 Class	VMD	<141	<600	#40288-015 Class	VMD	<141	<600
80 -015 Nozzles	0.419	**1.50**	14	10	8.4	6.7	F	195	22%	100%										
	0.452	**1.75**	16	11	9.0	7.2	F	187	25%	100%	C	284	13%	94%								
	0.484	**2.00**	17	12	10	7.7	F	181	28%	100%	M	267	16%	95%	C	328	10%	94%	VC	422	4%	86%
	0.541	**2.50**	19	13	11	8.6	F	171	32%	100%	M	240	20%	96%	C	296	13%	96%	VC	392	5%	89%
	0.592	**3.00**	20	14	12	10	F	163	36%	100%	M	221	24%	96%	C	273	15%	97%	C	369	6%	91%
	0.640	**3.50**	22	15	13	10	F	157	39%	100%	F	206	27%	97%	M	254	17%	98%	C	351	7%	92%
	0.684	**4.00**	23	16	14	11	F	152	42%	100%	F	194	29%	97%	M	239	19%	98%	C	336	8%	93%
	0.725	**4.50**	25	17	15	12	F	147	44%	100%	F	183	32%	98%	M	227	21%	98%	C	323	8%	94%
	0.765	**5.00**	26	18	15	12	F	144	46%	100%	F	175	34%	98%	M	216	22%	99%	C	312	9%	95%
	0.802	**5.50**	27	19	16	13	F	140	48%	100%	F	167	36%	98%	F	207	23%	99%	C	303	10%	95%
	0.838	**6.00**	29	20	17	13	F	137	50%	100%	F	160	37%	98%	F	199	25%	99%	C	294	10%	96%
	Flow L/min	Boom BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 40L/Ha	50L/Ha	60L/Ha	70L/Ha	ER80-02 Class	VMD	<141	<600	#40270-02 Class	VMD	<141	<600	SR80-02 Class	VMD	<141	<600	#40288-02 Class	VMD	<141	<600
80 -02 Nozzles	0.558	**1.50**	17	13	11	10	F	181	29%	100%										
	0.603	**1.75**	18	14	12	10	F	176	32%	100%	C	272	13%	94%								
	0.645	**2.00**	19	15	13	11	F	172	34%	100%	M	260	15%	95%	C	329	8%	94%	XC	459	3%	80%
	0.721	**2.50**	22	17	14	12	F	164	37%	100%	M	241	19%	96%	C	307	10%	94%	VC	431	4%	83%
	0.790	**3.00**	24	19	16	14	F	159	40%	100%	M	227	22%	97%	C	290	12%	94%	VC	410	5%	85%
	0.853	**3.50**	26	20	17	15	F	154	42%	100%	F	215	24%	97%	C	276	14%	95%	VC	392	5%	87%
	0.912	**4.00**	27	22	18	16	F	150	44%	100%	F	206	27%	97%	M	265	15%	95%	C	378	6%	88%
	0.967	**4.50**	29	23	19	17	F	147	46%	100%	F	198	29%	98%	M	255	17%	95%	C	366	6%	89%
	1.019	**5.00**	31	24	20	17	F	144	47%	100%	F	191	30%	98%	M	247	18%	95%	C	355	7%	90%
	1.069	**5.50**	32	26	21	18	F	142	49%	100%	F	185	32%	98%	M	239	19%	95%	C	346	7%	91%
	1.117	**6.00**	34	27	22	19	F	139	50%	100%	F	179	33%	98%	M	233	20%	96%	C	338	8%	91%
	Flow L/min	Boom BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 50L/Ha	60L/Ha	70L/Ha	80L/Ha	ER80-025 Class	VMD	<141	<600	#40270-025 Class	VMD	<141	<600	SR80-025 Class	VMD	<141	<600	#40288-025 Class	VMD	<141	<600
80 -025 Nozzles	0.698	**1.50**	17	14	12	10	M	227	18%	100%										
	0.754	**1.75**	18	15	13	11	M	218	21%	100%	C	314	9%	91%								
	0.806	**2.00**	19	16	14	12	F	211	23%	100%	C	299	11%	92%	VC	430	4%	80%	XC	463	3%	77%
	0.901	**2.50**	22	18	15	14	F	199	26%	100%	C	277	14%	94%	VC	396	6%	83%	VC	440	4%	80%
	0.987	**3.00**	24	20	17	15	F	189	29%	100%	M	260	16%	95%	C	371	7%	86%	VC	421	5%	82%
	1.066	**3.50**	26	21	18	16	F	182	32%	100%	M	247	18%	95%	C	351	8%	87%	VC	406	5%	83%
	1.140	**4.00**	27	23	20	17	F	175	34%	100%	M	236	20%	96%	C	334	9%	88%	C	394	6%	84%
	1.209	**4.50**	29	24	21	18	F	170	36%	100%	M	226	21%	96%	C	320	10%	89%	C	383	6%	85%
	1.274	**5.00**	31	25	22	19	F	165	37%	100%	M	218	23%	97%	C	308	10%	90%	C	373	7%	86%
	1.336	**5.50**	32	27	23	20	F	161	39%	99%	F	211	24%	97%	C	298	11%	91%	C	365	7%	87%
	1.396	**6.00**	34	28	24	21	F	158	40%	99%	F	205	25%	97%	C	289	12%	91%	C	358	8%	88%

NOTE: [1]SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. [2]Shown application information is based on water @ 26.5°C 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

80° Nozzle Charts - Broadcast Spraying

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

ASABE Spray Classification *(ASABE S572.1 Standard)*
Spray quality is categorized based on 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 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.

80-03 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-03		#40270-03		SR80-03		#40288-03		MR80-03		#40290-03		DR80-03		#40280-03	
L/min	BAR	60L/Ha	75L/Ha	100L/Ha	120L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
0.838	**1.50**	17	13	10	8.4	M	229	18%	99%												
0.905	**1.75**	18	14	11	9.0	M	221	20%	99%	C	366	7%	88%								
0.967	**2.00**	19	15	12	9.7	F	215	22%	99%	C	349	9%	89%	VC	437	4%	80%	XC	485	3%	71%
1.081	**2.50**	22	17	13	11	F	205	25%	99%	C	321	11%	90%	VC	404	6%	84%	XC	458	4%	75%
1.184	**3.00**	24	19	14	12	F	197	27%	99%	C	300	13%	91%	C	378	7%	86%	VC	437	5%	78%
1.279	**3.50**	26	20	15	13	F	191	29%	99%	C	283	15%	92%	C	358	8%	88%	VC	420	5%	80%
1.368	**4.00**	27	22	16	14	F	186	31%	99%	M	269	16%	93%	C	341	9%	89%	VC	406	6%	82%
1.451	**4.50**	29	23	17	15	F	181	33%	99%	M	258	18%	93%	C	327	10%	90%	C	394	6%	84%
1.529	**5.00**	31	24	18	15	F	177	34%	99%	M	248	19%	93%	C	315	10%	91%	C	384	7%	85%
1.604	**5.50**	32	26	19	16	F	174	35%	99%	M	239	20%	94%	C	304	11%	92%	C	374	7%	86%
1.675	**6.00**	34	27	20	17	F	170	36%	99%	M	232	21%	94%	C	295	12%	92%	C	366	8%	87%

80-04 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-04		#40270-04		SR80-04		#40288-04		MR80-04		#40290-04		DR80-04		#40280-04	
L/min	BAR	75L/Ha	100L/Ha	125L/Ha	150L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
1.12	**1.50**	18	13	11	8.9	M	246	17%	99%												
1.21	**1.75**	19	14	12	9.6	M	238	19%	99%	C	368	5%	86%								
1.29	**2.00**	21	15	12	10	M	232	20%	99%	C	352	7%	87%	VC	424	5%	80%	XC	547	2%	61%
1.44	**2.50**	23	17	14	12	M	221	23%	99%	C	327	9%	88%	C	397	7%	83%	XC	519	3%	66%
1.58	**3.00**	25	19	15	13	F	212	25%	99%	C	306	11%	90%	C	376	8%	85%	XC	497	3%	70%
1.71	**3.50**	27	20	16	14	F	205	26%	99%	C	289	12%	91%	C	359	9%	86%	XC	479	4%	72%
1.82	**4.00**	29	22	18	15	F	200	28%	99%	C	274	13%	91%	C	345	10%	87%	XC	463	4%	75%
1.93	**4.50**	31	23	19	15	F	195	29%	99%	M	260	14%	92%	C	333	11%	88%	VC	451	5%	76%
2.04	**5.00**	33	24	20	16	F	190	30%	99%	M	248	15%	93%	C	322	11%	89%	VC	439	5%	78%
2.14	**5.50**	34	26	21	17	F	187	31%	99%	M	238	16%	93%	C	313	12%	90%	C	429	5%	79%
2.23	**6.00**	36	27	21	18	F	183	32%	99%	M	228	17%	93%	C	305	13%	91%	C	421	5%	80%

80-05 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-05		#40270-05		SR80-05		#40288-05		MR80-05		#40290-05		DR80-05		#40280-05	
L/min	BAR	100L/Ha	125L/Ha	150L/Ha	175L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
1.40	**1.50**	17	13	11	9.6	C	290	12%	95%												
1.51	**1.75**	18	14	12	10	C	279	14%	95%	VC	409	5%	81%								
1.61	**2.00**	19	15	13	11	M	269	16%	95%	C	391	7%	82%	XC	508	3%	67%	XC	579	2%	55%
1.80	**2.50**	22	17	14	12	M	254	19%	95%	C	362	9%	85%	XC	478	4%	71%	XC	550	2%	60%
1.97	**3.00**	24	19	16	14	M	243	21%	95%	C	338	11%	86%	VC	455	5%	75%	XC	528	3%	64%
2.13	**3.50**	26	20	17	15	M	234	23%	95%	C	318	12%	88%	VC	436	5%	77%	XC	510	3%	67%
2.28	**4.00**	27	22	18	16	M	226	24%	95%	C	300	13%	89%	VC	421	6%	79%	XC	495	3%	69%
2.42	**4.50**	29	23	19	17	M	219	26%	95%	C	285	14%	89%	C	407	6%	81%	XC	482	4%	71%
2.55	**5.00**	31	24	20	17	F	214	27%	95%	C	271	15%	90%	C	396	7%	82%	VC	471	4%	73%
2.67	**5.50**	32	26	21	18	F	208	28%	95%	M	259	16%	91%	C	386	7%	83%	VC	461	4%	74%
2.79	**6.00**	34	27	22	19	F	204	29%	95%	M	247	17%	91%	C	376	7%	84%	VC	452	4%	75%

80-06 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-06		#40270-06		SR80-06		#40288-06		MR80-06		#40290-06		DR80-06		#40280-06	
L/min	BAR	125L/Ha	150L/Ha	175L/Ha	200L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
1.68	**1.50**	16	13	11	10	C	316	13%	92%												
1.81	**1.75**	17	14	12	11	C	307	15%	91%	VC	438	4%	78%								
1.93	**2.00**	19	15	13	12	C	298	16%	91%	VC	423	5%	80%	XC	530	2%	63%	XC	600	1%	51%
2.16	**2.50**	21	17	15	13	C	285	19%	91%	VC	400	6%	83%	XC	504	3%	68%	XC	575	2%	55%
2.37	**3.00**	23	19	16	14	C	275	21%	91%	C	381	7%	85%	XC	483	4%	71%	XC	555	2%	58%
2.56	**3.50**	25	20	18	15	M	266	22%	90%	C	367	8%	86%	VC	466	4%	74%	XC	538	2%	61%
2.74	**4.00**	26	22	19	16	M	259	24%	90%	C	354	9%	88%	VC	452	5%	76%	XC	524	3%	63%
2.90	**4.50**	28	23	20	17	M	253	25%	90%	C	344	9%	89%	VC	440	5%	77%	XC	512	3%	65%
3.06	**5.00**	29	24	21	18	M	247	26%	90%	C	334	10%	89%	VC	429	5%	79%	XC	502	3%	66%
3.21	**5.50**	31	26	22	19	M	243	27%	90%	C	326	10%	90%	C	420	6%	80%	XC	492	3%	68%
3.35	**6.00**	32	27	23	20	M	238	28%	89%	C	319	11%	91%	C	411	6%	81%	VC	484	4%	69%

80-08 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-08		#40270-08		SR80-08		#40288-08		MR80-08		#40290-08		DR80-08		#40280-08	
L/min	BAR	150L/Ha	200L/Ha	250L/Ha	300L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
2.23	**1.50**	18	13	11	8.9	VC	356	13%	87%												
2.41	**1.75**	19	14	12	9.6	C	336	15%	89%	UC	514	7%	54%								
2.58	**2.00**	21	15	12	10	C	321	17%	90%	UC	495	7%	58%	UC	545	6%	63%	UC	623	3%	51%
2.88	**2.50**	23	17	14	12	M	296	19%	92%	XC	463	9%	64%	UC	513	7%	67%	UC	596	4%	56%
3.16	**3.00**	25	19	15	13	M	277	22%	93%	XC	437	10%	68%	UC	488	8%	71%	UC	575	4%	59%
3.41	**3.50**	27	20	16	14	F	262	24%	94%	XC	414	10%	71%	XC	468	9%	73%	UC	557	5%	62%
3.65	**4.00**	29	22	18	15	F	250	25%	95%	XC	395	11%	73%	XC	452	10%	75%	UC	543	5%	64%
3.87	**4.50**	31	23	19	15	F	239	27%	95%	VC	378	12%	75%	XC	438	11%	77%	UC	530	5%	66%
4.08	**5.00**	33	24	20	16	F	231	28%	96%	VC	363	12%	77%	VC	426	11%	79%	UC	519	6%	68%
4.28	**5.50**	34	26	21	17	F	223	29%	96%	C	350	13%	78%	VC	415	12%	80%	UC	509	6%	69%
4.47	**6.00**	36	27	21	18	F	216	30%	96%	C	337	13%	80%	C	405	12%	81%	UC	500	6%	70%

80-10 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-10		#40270-10		SR80-10		#40288-10		MR80-10		#40290-10		DR80-10		#40280-10	
L/min	BAR	200L/Ha	250L/Ha	300L/Ha	350L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
2.79	**1.50**	17	13	11	9.6	XC	446	9%	79%												
3.02	**1.75**	18	14	12	10	XC	426	11%	80%	UC	535	6%	50%								
3.22	**2.00**	19	15	13	11	XC	409	12%	81%	UC	516	6%	54%	UC	550	5%	62%	UC	615	4%	52%
3.60	**2.50**	22	17	14	12	C	382	13%	83%	UC	485	7%	60%	UC	524	6%	66%	UC	592	5%	56%
3.95	**3.00**	24	19	16	14	C	361	15%	85%	XC	460	8%	65%	UC	504	6%	68%	UC	574	5%	58%
4.26	**3.50**	26	20	17	15	C	345	16%	86%	XC	439	9%	68%	UC	487	7%	70%	UC	560	6%	61%
4.56	**4.00**	27	22	18	16	M	331	17%	87%	XC	420	9%	70%	XC	473	7%	72%	UC	547	6%	63%
4.84	**4.50**	29	23	19	17	M	319	18%	88%	XC	404	10%	72%	XC	461	8%	73%	UC	536	7%	64%
5.10	**5.00**	31	24	20	17	M	309	19%	88%	XC	389	10%	74%	XC	451	8%	75%	UC	527	7%	65%
5.35	**5.50**	32	26	21	18	F	300	20%	89%	VC	376	11%	76%	XC	441	9%	76%	UC	519	7%	67%
5.58	**6.00**	34	27	22	19	F	293	21%	89%	VC	364	11%	77%	XC	433	9%	77%	UC	511	7%	68%

NOTE: [1]SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. [2]Shown application information is based on water @ 26.5°C 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

80 -125 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-125		#40270-125		SR80-125		#40288-125		MR80-125		#40290-125		DR80-125		#40280-125	
L/min	BAR	250L/Ha	300L/Ha	350L/Ha	400L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
3.77	**1.75**	18	15	13	11	XC	431	10%	79%	UC	529	6%	51%								
4.03	**2.00**	19	16	14	12	XC	416	11%	80%	UC	513	7%	54%	UC	588	5%	55%	UC	628	4%	49%
4.51	**2.50**	22	18	15	14	VC	393	12%	82%	UC	486	8%	59%	UC	566	6%	59%	UC	605	4%	53%
4.94	**3.00**	24	20	17	15	C	375	13%	84%	XC	464	8%	62%	UC	548	7%	61%	UC	587	5%	55%
5.33	**3.50**	26	21	18	16	C	360	14%	85%	XC	446	9%	65%	UC	534	7%	63%	UC	572	5%	57%
5.70	**4.00**	27	23	20	17	C	348	15%	86%	XC	429	10%	67%	UC	522	8%	65%	UC	560	6%	59%
6.04	**4.50**	29	24	21	18	C	337	16%	87%	XC	415	10%	69%	UC	511	8%	67%	UC	549	6%	61%
6.37	**5.00**	31	25	22	19	C	328	16%	88%	XC	403	11%	71%	XC	502	8%	68%	UC	539	6%	62%
6.68	**5.50**	32	27	23	20	M	320	17%	88%	VC	391	11%	72%	XC	493	9%	69%	UC	531	6%	63%
6.98	**6.00**	34	28	24	21	M	313	17%	89%	VC	381	12%	73%	XC	486	9%	70%	UC	523	7%	64%

80 -15 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-15		#40270-15		SR80-15		#40288-15		MR80-15		#40290-15		DR80-15		#40280-15	
L/min	BAR	300L/Ha	400L/Ha	450L/Ha	500L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
4.52	**1.75**	18	14	12	11	XC	432	9%	78%	UC	574	5%	44%								
4.84	**2.00**	19	15	13	12	XC	416	10%	79%	UC	558	6%	47%	UC	517	7%	66%	UC	641	3%	47%
5.41	**2.50**	22	16	14	13	XC	390	12%	80%	UC	531	6%	51%	UC	491	8%	69%	UC	616	3%	51%
5.92	**3.00**	24	18	16	14	C	370	13%	81%	UC	509	6%	55%	XC	471	9%	71%	UC	596	3%	54%
6.40	**3.50**	26	19	17	15	C	354	14%	82%	UC	491	7%	58%	XC	455	10%	73%	UC	580	4%	57%
6.84	**4.00**	27	21	18	16	C	340	15%	83%	XC	475	7%	60%	XC	441	10%	75%	UC	566	4%	59%
7.25	**4.50**	29	22	19	17	M	329	16%	84%	XC	460	7%	62%	XC	429	11%	76%	UC	554	4%	61%
7.65	**5.00**	31	23	20	18	M	319	17%	84%	XC	448	8%	64%	VC	419	11%	77%	UC	544	5%	62%
8.02	**5.50**	32	24	21	19	M	310	18%	85%	XC	436	8%	65%	VC	410	12%	78%	UC	534	5%	63%
8.38	**6.00**	34	25	22	20	M	302	18%	85%	XC	426	8%	67%	C	402	12%	79%	UC	526	5%	64%

80 -20 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-20		#40270-20		SR80-20		#40288-20		MR80-20		#40290-20		DR80-20		#40280-20	
L/min	BAR	400L/Ha	500L/Ha	600L/Ha	700L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
6.03	**1.75**	18	14	12	10	UC	481	8%	71%												
6.45	**2.00**	19	15	13	11	XC	464	9%	73%	UC	555	5%	47%								
7.21	**2.50**	22	17	14	12	XC	438	10%	75%	UC	527	6%	52%	UC	537	6%	62%	UC	601	3%	54%
7.90	**3.00**	24	19	16	14	XC	418	11%	77%	UC	504	6%	56%	UC	512	6%	65%	UC	575	4%	58%
8.53	**3.50**	26	20	17	15	VC	402	12%	79%	UC	485	7%	59%	UC	492	7%	68%	UC	554	4%	61%
9.12	**4.00**	27	22	18	16	C	388	13%	80%	XC	468	7%	61%	XC	476	8%	70%	UC	537	5%	63%
9.67	**4.50**	29	23	19	17	C	376	13%	81%	XC	453	7%	63%	XC	461	8%	72%	UC	522	5%	65%
10.19	**5.00**	31	24	20	17	C	366	14%	82%	XC	440	7%	65%	XC	449	8%	73%	UC	509	5%	67%
10.69	**5.50**	32	26	21	18	C	357	15%	83%	XC	428	8%	66%	XC	438	9%	74%	UC	498	5%	68%
11.17	**6.00**	34	27	22	19	M	349	15%	84%	XC	417	8%	67%	XC	428	9%	75%	UC	488	6%	69%

80 -25 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-25		#40270-25		SR80-25		#40288-25		MR80-25		#40290-25		DR80-25		#40280-25	
L/min	BAR	500L/Ha	600L/Ha	700L/Ha	800L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
7.54	**1.75**	18	15	13	11	UC	483	9%	71%												
8.06	**2.00**	19	16	14	12	XC	466	9%	72%	UC	515	5%	53%								
9.01	**2.50**	22	18	15	14	XC	439	11%	74%	UC	490	6%	57%	UC	579	4%	58%	UC	630	3%	50%
9.87	**3.00**	24	20	17	15	XC	418	12%	76%	XC	470	7%	60%	UC	556	5%	61%	UC	605	3%	54%
10.66	**3.50**	26	21	18	16	VC	401	13%	77%	XC	453	7%	62%	UC	537	5%	63%	UC	585	3%	57%
11.40	**4.00**	27	23	20	17	C	387	13%	78%	XC	438	7%	64%	UC	521	5%	65%	UC	567	4%	59%
12.09	**4.50**	29	24	21	18	C	374	14%	79%	XC	425	8%	66%	UC	508	6%	67%	UC	553	4%	61%
12.74	**5.00**	31	25	22	19	C	364	15%	80%	XC	413	8%	67%	UC	496	6%	68%	UC	540	4%	63%
13.36	**5.50**	32	27	23	20	C	355	15%	81%	XC	402	8%	68%	UC	486	6%	69%	UC	528	4%	64%
13.96	**6.00**	34	28	24	21	M	347	16%	81%	XC	393	8%	69%	XC	477	6%	70%	UC	518	4%	66%

80 -30 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-30		#40270-30		SR80-30		#40288-30		MR80-30		#40290-30		DR80-30		#40280-30	
L/min	BAR	600L/Ha	700L/Ha	800L/Ha	900L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
9.05	**1.75**	18	16	14	12	UC	504	5%	67%												
9.67	**2.00**	19	17	15	13	UC	485	6%	69%	UC	513	5%	53%								
10.81	**2.50**	22	19	16	14	XC	456	7%	71%	UC	485	5%	57%	UC	567	4%	59%	UC	616	2%	52%
11.84	**3.00**	24	20	18	16	XC	434	8%	73%	XC	464	6%	60%	UC	546	5%	62%	UC	581	3%	56%
12.79	**3.50**	26	22	19	17	XC	416	8%	75%	XC	447	6%	62%	UC	528	5%	64%	UC	553	3%	60%
13.68	**4.00**	27	23	21	18	XC	401	9%	76%	XC	433	6%	64%	UC	514	5%	66%	UC	530	3%	62%
14.51	**4.50**	29	25	22	19	XC	388	10%	77%	XC	421	7%	66%	UC	501	5%	68%	UC	511	3%	65%
15.29	**5.00**	31	26	23	20	VC	377	10%	78%	XC	410	7%	67%	UC	490	6%	69%	UC	494	4%	67%
16.04	**5.50**	32	27	24	21	VC	367	11%	79%	XC	401	7%	69%	UC	480	6%	71%	UC	479	4%	68%
16.75	**6.00**	34	29	25	22	C	358	11%	80%	XC	392	7%	70%	XC	471	6%	72%	XC	466	4%	70%

80 -40 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-40		#40270-40		SR80-40		#40288-40		MR80-40		#40290-40	
L/min	BAR	800L/Ha	1000L/Ha	1250L/Ha	1500L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
14.42	2.50	22	17	14	12	XC	456	8%	71%	XC	477	5%	59%	UC	536	4%	61%
15.79	3.00	24	19	15	13	XC	434	8%	73%	XC	459	5%	61%	UC	514	5%	64%
17.06	3.50	26	20	16	14	XC	416	9%	75%	XC	444	6%	63%	UC	496	5%	66%
18.24	4.00	27	22	18	15	XC	402	10%	76%	XC	431	6%	65%	UC	481	5%	68%
19.34	4.50	29	23	19	15	XC	389	10%	77%	XC	420	6%	67%	XC	468	6%	69%
20.39	5.00	31	24	20	16	XC	378	11%	78%	XC	411	6%	68%	XC	456	6%	71%
21.38	5.50	32	26	21	17	VC	369	11%	79%	XC	402	7%	69%	XC	446	6%	72%
22.33	6.00	34	27	21	18	VC	360	12%	80%	XC	395	7%	70%	XC	437	6%	73%

80 -50 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-50		#40270-50	
L/min	BAR	1000L/Ha	1500L/Ha	1750L/Ha	2000L/Ha	Class	VMD	<141	<600
18.02	2.50	22	14	12	11	XC	462	7%	70%
19.74	3.00	24	16	14	12	XC	440	8%	72%
21.32	3.50	26	17	15	13	XC	423	8%	74%
22.79	4.00	27	18	16	14	XC	408	9%	75%
24.18	4.50	29	19	17	15	XC	396	9%	76%
25.48	5.00	31	20	17	15	XC	385	9%	77%
26.73	5.50	32	21	18	16	VC	376	10%	78%
27.92	6.00	34	22	19	17	VC	367	10%	79%

80 -60 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-60		#40270-60	
L/min	BAR	1500L/Ha	2000L/Ha	2500L/Ha	3000L/Ha	Class	VMD	<141	<600
21.62	2.50	17	13	10	9	XC	455	8%	69%
23.69	3.00	19	14	11	10	XC	436	9%	71%
25.59	3.50	20	15	12	10	XC	421	9%	72%
27.35	4.00	22	16	13	11	XC	408	10%	74%
29.01	4.50	23	17	14	12	XC	397	10%	75%
30.58	5.00	24	18	15	12	XC	388	11%	76%
32.07	5.50	26	19	15	13	VC	379	11%	77%
33.50	6.00	27	20	16	13	VC	372	12%	79%

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 S572.1 Standard)*
Spray quality is categorized based on Dv0.1 and VMD droplet sizes. Objective testing data (by 3rd party), from spray spectrum recording equipment (without wind tunnel use), has been used to classify spray quality for this chart. Extra data (e.g. VMD, etc.) can vary between testing equipment and method, and is provided as an educational resource only.
Tips sized up to 110-06 verified on Phase 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.

Nozzle Size & Angle	Flow Rate L/min	Boom BAR	Application Rate in Litres/Hectare on 50cm Nozzle Spacing @ Sprayer Speed in km/h				Spray Classification; VMD (Droplet Size in µ); %<141µ (Drift %); %<600µ (Small Droplets)																	
							ER110° Series				SR110° Series				MR110° Series				DR110° Series				UR Series	
							Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD
	Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER110-01		#40281-01															
	L/min	BAR	20L/Ha	30L/Ha	40L/Ha	50L/Ha	Class	VMD	<141	<600														
	0.279	**1.50**	17	11	8.4	6.7	F	147	46%	100%														
	0.302	**1.75**	18	12	9.0	7.2	F	143	48%	100%														
110	0.322	**2.00**	19	13	10	7.7	F	140	51%	100%														
-01	0.360	**2.50**	22	14	11	8.6	F	135	54%	100%														
Nozzles	0.395	**3.00**	24	16	12	9.5	F	131	57%	100%														
	0.426	**3.50**	26	17	13	10	F	128	60%	100%														
	0.456	**4.00**	27	18	14	11	F	125	62%	100%														
	0.484	**4.50**	29	19	15	12	F	122	64%	100%														
	0.510	**5.00**	31	20	15	12	F	120	65%	100%														
	0.535	**5.50**	32	21	16	13	F	118	67%	100%														
	0.558	**6.00**	34	22	17	13	F	116	68%	100%														
	Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER110-015		#40281-015		SR110-015		#40287-015		MR110-015		#40291-015		DR110-015		#40286-015			
	L/min	BAR	35L/Ha	50L/Ha	60L/Ha	75L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600		
	0.419	**1.50**	14	10	8.4	6.7	F	151	42%	100%														
	0.452	**1.75**	16	11	9.0	7.2	F	148	44%	100%														
110	0.484	**2.00**	17	12	10	7.7	F	145	46%	100%	F	217	23%	98%	M	327	11%	94%	C	371	7%	91%		
-015	0.541	**2.50**	19	13	11	8.6	F	141	50%	100%	F	205	27%	98%	M	291	14%	97%	C	340	9%	93%		
Nozzles	0.592	**3.00**	20	14	12	9.5	F	137	53%	100%	F	195	30%	98%	M	266	17%	98%	M	318	11%	94%		
	0.640	**3.50**	22	15	13	10	F	134	55%	100%	F	186	32%	98%	M	245	20%	99%	M	299	12%	95%		
	0.684	**4.00**	23	16	14	11	F	132	58%	100%	F	179	34%	98%	F	229	22%	99%	M	284	13%	96%		
	0.725	**4.50**	25	17	15	12	F	129	60%	100%	F	173	36%	98%	F	215	24%	99%	M	272	15%	96%		
	0.765	**5.00**	26	18	15	12	F	127	61%	100%	F	167	37%	98%	F	204	26%	99%	M	261	16%	97%		
	0.802	**5.50**	27	19	16	13	F	125	63%	100%	F	162	39%	98%	F	194	28%	100%	M	252	17%	97%		
	0.838	**6.00**	29	20	17	13	F	124	64%	100%	F	157	40%	98%	F	186	29%	100%	M	243	17%	97%		
	Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER110-02		#40281-02		SR110-02		#40287-02		MR110-02		#40291-02		DR110-02		#40286-02			
	L/min	BAR	40L/Ha	50L/Ha	60L/Ha	70L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600		
	0.558	**1.50**	17	13	11	9.6	F	170	33%	100%														
	0.603	**1.75**	18	14	12	10	F	165	36%	100%														
110	0.645	**2.00**	19	15	13	11	F	161	39%	100%	F	220	22%	99%	M	320	11%	95%	VC	436	4%	82%		
-02	0.721	**2.50**	22	17	14	12	F	154	43%	100%	F	210	25%	99%	M	291	14%	96%	VC	405	6%	86%		
Nozzles	0.790	**3.00**	24	19	16	14	F	148	46%	100%	F	202	27%	99%	M	269	17%	97%	C	380	7%	88%		
	0.853	**3.50**	26	20	17	15	F	143	49%	100%	F	195	29%	99%	M	252	19%	98%	C	359	8%	90%		
	0.912	**4.00**	27	22	18	16	F	139	52%	100%	F	189	30%	99%	M	238	21%	98%	C	341	9%	91%		
	0.967	**4.50**	29	23	19	17	F	135	54%	100%	F	184	32%	99%	F	227	22%	98%	M	325	10%	92%		
	1.019	**5.00**	31	24	20	17	F	132	56%	100%	F	179	33%	99%	F	217	24%	98%	M	310	10%	93%		
	1.069	**5.50**	32	26	21	18	F	129	58%	100%	F	175	34%	99%	F	208	25%	99%	M	297	11%	94%		
	1.117	**6.00**	34	27	22	19	F	126	59%	100%	F	171	35%	99%	F	201	26%	99%	M	286	12%	94%		
	Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER110-025		#40281-025		SR110-025		#40287-025		MR110-025		#40291-025		DR110-025		#40286-025		UR110-025	
	L/min	BAR	50L/Ha	60L/Ha	70L/Ha	80L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD
	0.698	**1.50**	17	14	12	10	F	192	29%	100%													#40292-025	
	0.754	**1.75**	18	15	13	11	F	189	29%	100%	M	244	18%	98%										
110	0.806	**2.00**	19	16	14	12	F	187	29%	100%	M	237	19%	98%	C	354	8%	90%	VC	438	5%	79%		
-025	0.901	**2.50**	22	18	15	14	F	182	30%	100%	F	227	22%	98%	M	330	10%	92%	VC	410	6%	84%	UC	557
Nozzles	0.987	**3.00**	24	20	17	15	F	179	30%	100%	F	218	24%	98%	M	311	12%	94%	C	387	7%	87%	UC	527
	1.066	**3.50**	26	21	18	16	F	176	30%	100%	F	211	25%	98%	M	295	14%	95%	C	368	8%	90%	UC	502
	1.140	**4.00**	27	23	20	17	F	174	31%	100%	F	204	27%	98%	M	281	15%	96%	C	351	9%	91%	UC	480
	1.209	**4.50**	29	24	21	18	F	171	31%	100%	F	199	28%	98%	M	268	16%	96%	M	337	9%	92%	XC	460
	1.274	**5.00**	31	25	22	19	F	169	31%	100%	F	194	29%	98%	M	257	17%	97%	M	323	10%	93%	XC	443
	1.336	**5.50**	32	27	23	20	F	167	31%	100%	F	189	30%	98%	M	247	18%	97%	M	311	11%	94%	XC	427
	1.396	**6.00**	34	28	24	21	F	166	31%	100%	F	185	31%	98%	M	238	19%	97%	M	301	11%	95%	VC	412
	Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER110-03		#40281-03		SR110-03		#40287-03		MR110-03		#40291-03		DR110-03		#40286-03		UR110-03	
	L/min	BAR	60L/Ha	75L/Ha	100L/Ha	120L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD
	0.838	**1.50**	17	13	10	8.4	F	195	28%	100%													#40292-03	
	0.905	**1.75**	18	14	11	9.0	F	189	29%	100%	M	318	10%	94%										
110	0.967	**2.00**	19	15	12	10	F	185	31%	100%	M	306	11%	95%	C	399	6%	86%	VC	484	3%	73%		
-03	1.081	**2.50**	22	17	13	11	F	177	34%	100%	M	287	14%	96%	C	371	8%	89%	VC	455	4%	78%	UC	606
Nozzles	1.184	**3.00**	24	19	14	12	F	170	36%	100%	M	272	16%	96%	C	350	9%	91%	VC	432	5%	82%	UC	575
	1.279	**3.50**	26	20	15	13	F	165	37%	100%	M	258	17%	97%	M	331	10%	93%	VC	412	6%	84%	UC	549
	1.368	**4.00**	27	22	16	14	F	160	39%	100%	M	247	19%	97%	M	315	11%	94%	C	395	6%	86%	UC	527
	1.451	**4.50**	29	23	17	15	F	156	40%	100%	M	237	20%	97%	M	301	12%	95%	C	380	7%	88%	UC	507
	1.529	**5.00**	31	24	18	15	F	152	42%	100%	F	228	21%	98%	M	288	13%	96%	C	367	7%	89%	UC	489
	1.604	**5.50**	32	26	19	16	F	149	43%	100%	F	220	22%	98%	M	276	14%	96%	C	355	8%	90%	XC	473
	1.675	**6.00**	34	27	20	17	F	146	44%	100%	F	212	23%	98%	M	266	14%	96%	C	344	8%	91%	XC	458

NOTE: [1]SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. [2]Shown application information is based on water @ 26.5°C in a controlled environment and should not be considered actual. Information is provided for comparison to other Combo-Jet® spray tips, for educational purposes only. Repeat testing results can vary.

COMBO-JET 110° Spray Tips - Standard Sprayer Systems

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

ASABE Spray Classification *(ASABE S572.1 Standard)*
Spray quality is categorized based on Dv0.1 and VMD droplet sizes.
Objective testing data (by 3rd party), from spray spectrum recording equipment (without wind 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.

110 -04 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER110-04				#40281-04				SR110-04				#40287-04				MR110-04				#40291-04				DR110-04				#40286-04				UR110-04	
L/min	BAR	75L/Ha	100L/Ha	125L/Ha	150L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD
1.117	**1.50**	18	13	11	8.9	M	237	19%	100%																														#40292-04
1.206	**1.75**	19	14	12	9.6	M	231	20%	100%	M	328	10%	93%																										
1.289	**2.00**	21	15	12	10	M	227	22%	100%	M	317	11%	94%	VC	421	5%	84%	XC	514	3%	68%																		
1.442	**2.50**	23	17	14	12	M	218	23%	100%	M	297	13%	95%	C	390	6%	88%	VC	483	4%	73%	XC	514	3%	68%	UC	616												
1.579	**3.00**	25	19	15	13	F	211	25%	100%	M	281	14%	95%	C	365	7%	90%	VC	458	4%	77%	XC	514	3%	68%	UC	588												
1.706	**3.50**	27	20	16	14	F	206	26%	100%	M	267	16%	96%	C	344	8%	92%	VC	436	5%	80%	XC	514	3%	68%	UC	565												
1.824	**4.00**	29	22	18	15	F	201	28%	100%	M	256	17%	96%	M	326	9%	94%	VC	417	6%	82%	XC	514	3%	68%	UC	545												
1.934	**4.50**	31	23	19	15	F	196	29%	100%	M	245	18%	97%	M	310	10%	94%	C	400	6%	84%	XC	514	3%	68%	UC	526												
2.039	**5.00**	33	24	20	16	F	192	29%	100%	M	236	19%	97%	M	296	11%	95%	C	386	6%	85%	XC	514	3%	68%	UC	511												
2.138	**5.50**	34	26	21	17	F	189	30%	100%	F	228	20%	97%	M	282	11%	96%	C	372	7%	87%	XC	514	3%	68%	UC	496												
2.233	**6.00**	36	27	21	18	F	186	31%	100%	F	220	21%	97%	M	271	12%	96%	C	360	7%	87%	XC	514	3%	68%	UC	483												

110 -05 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER110-05				#40281-05				SR110-05				#40287-05				MR110-05				#40291-05				DR110-05				#40286-05				UR110-05	
L/min	BAR	100L/Ha	125L/Ha	150L/Ha	175L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD
1.40	**1.50**	17	13	11	9.6	M	244	19%	95%																														#40292-05
1.51	**1.75**	18	14	12	10	M	236	21%	95%	C	375	7%	89%																										
1.61	**2.00**	19	15	13	11	M	230	22%	95%	C	359	8%	91%	VC	491	3%	71%	XC	533	2%	62%																		
1.80	**2.50**	22	17	14	12	M	219	25%	95%	M	333	10%	93%	VC	459	4%	76%	XC	512	3%	66%	UC	633																
1.97	**3.00**	24	19	16	14	F	210	27%	95%	M	312	12%	94%	VC	432	5%	80%	VC	495	3%	69%	UC	610																
2.13	**3.50**	26	20	17	15	F	202	28%	95%	M	294	13%	95%	VC	410	6%	82%	VC	481	3%	72%	UC	590																
2.28	**4.00**	27	22	18	16	F	196	30%	95%	M	279	14%	96%	C	391	6%	84%	VC	469	3%	74%	UC	574																
2.42	**4.50**	29	23	19	17	F	190	31%	95%	M	265	16%	96%	C	374	7%	86%	VC	457	4%	75%	UC	560																
2.55	**5.00**	31	24	20	17	F	185	32%	95%	M	253	17%	97%	C	359	7%	87%	VC	448	4%	77%	UC	547																
2.67	**5.50**	32	26	21	18	F	180	33%	95%	M	242	17%	97%	C	345	8%	88%	VC	439	4%	78%	UC	536																
2.79	**6.00**	34	27	22	19	F	176	34%	95%	F	232	18%	97%	M	332	8%	89%	VC	431	4%	79%	UC	527																

110 -06 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER110-06				#40281-06				SR110-06				#40287-06				MR110-06				#40291-06				DR110-06				#40286-06				UR110-06	
L/min	BAR	125L/Ha	150L/Ha	175L/Ha	200L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD
1.68	**1.50**	16	13	11	10	C	278	15%	94%																														#40292-06
1.81	**1.75**	17	14	12	11	M	270	16%	94%	VC	442	5%	80%																										
1.93	**2.00**	19	15	13	12	M	263	17%	94%	VC	421	6%	83%	XC	511	3%	67%	XC	569	2%	56%																		
2.16	**2.50**	21	17	15	13	M	251	19%	94%	C	386	8%	87%	VC	485	4%	72%	XC	541	2%	62%	UC	647																
2.37	**3.00**	23	19	16	14	M	242	21%	95%	C	358	9%	90%	VC	464	4%	76%	XC	518	3%	65%	UC	622																
2.56	**3.50**	25	20	18	15	M	234	22%	95%	M	334	10%	92%	VC	447	4%	78%	VC	499	3%	68%	UC	601																
2.74	**4.00**	26	22	19	16	M	227	24%	95%	M	314	12%	93%	VC	431	5%	80%	VC	482	3%	71%	UC	584																
2.90	**4.50**	28	23	20	17	F	221	25%	95%	M	295	13%	94%	VC	418	5%	82%	VC	468	3%	72%	UC	569																
3.06	**5.00**	29	24	21	18	F	216	26%	95%	M	279	14%	95%	VC	405	5%	84%	VC	454	4%	74%	UC	556																
3.21	**5.50**	31	26	22	19	F	211	27%	95%	M	264	14%	95%	C	394	6%	85%	VC	442	4%	75%	UC	545																
3.35	**6.00**	32	27	23	20	F	206	27%	95%	M	251	15%	96%	C	384	6%	86%	VC	432	4%	77%	UC	534																

110 -08 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER110-08				#40281-08				SR110-08				#40287-08				MR110-08				#40291-08				DR110-08				#40286-08				UR110-08	
L/min	BAR	150L/Ha	200L/Ha	250L/Ha	300L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD
2.23	**1.50**	18	13	11	8.9	C	319	15%	91%																														#40292-08
2.41	**1.75**	19	14	12	9.6	C	305	16%	92%	VC	478	5%	61%																										
2.58	**2.00**	21	15	12	10	C	293	17%	93%	VC	458	6%	66%	XC	537	4%	52%	XC	620	3%	40%																		
2.88	**2.50**	23	17	14	12	M	273	19%	94%	VC	423	7%	72%	VC	499	5%	58%	XC	585	3%	45%	UC	668																
3.16	**3.00**	25	19	15	13	M	257	21%	95%	C	396	8%	76%	VC	470	5%	63%	XC	556	4%	49%	UC	637																
3.41	**3.50**	27	20	16	14	M	243	22%	95%	C	372	9%	79%	VC	444	6%	67%	XC	532	4%	52%	UC	612																
3.65	**4.00**	29	22	18	15	M	231	23%	96%	C	351	10%	81%	VC	422	6%	70%	XC	511	4%	54%	UC	591																
3.87	**4.50**	31	23	19	15	F	220	24%	96%	M	333	10%	83%	C	402	7%	72%	VC	493	5%	56%	UC	573																
4.08	**5.00**	33	24	20	16	F	211	25%	97%	M	317	11%	85%	C	385	7%	74%	VC	476	5%	58%	UC	557																
4.28	**5.50**	34	26	21	17	F	202	26%	97%	M	302	11%	86%	C	369	8%	76%	VC	461	5%	60%	UC	543																
4.47	**6.00**	36	27	21	18	F	194	27%	97%	M	289	12%	87%	C	355	8%	77%	VC	448	5%	61%	UC	531																

110 -10 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER110-10				#40281-10				SR110-10				#40287-10				MR110-10				#40291-10				DR110-10				#40286-10				UR110-10	
L/min	BAR	200L/Ha	250L/Ha	300L/Ha	350L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD
2.79	**1.50**	17	13	11	9.6	C	354	11%	89%																														#40292-10
3.02	**1.75**	18	14	12	10	C	340	12%	89%	VC	497	5%	57%																										
3.22	**2.00**	19	15	13	11	C	328	14%	90%	VC	476	6%	61%	XC	529	4%	52%	XC	612	5%	59%																		
3.60	**2.50**	22	17	14	12	C	307	16%	91%	VC	439	7%	68%	VC	493	5%	57%	XC	593	5%	56%	UC	675																
3.95	**3.00**	24	19	16	14	C	290	17%	92%	VC	410	8%	72%	VC	464	5%	61%	XC	577	5%	53%	UC	643																
4.26	**3.50**	26	20	17	15	M	276	19%	93%	C	385	9%	76%	VC	439	6%	64%	XC	564	6%	51%	UC	617																
4.56	**4.00**	27	22	18	16	M	264	20%	93%	C	363	9%	78%	VC	418	6%	67%	XC	553	6%	49%	UC	595																
4.84	**4.50**	29	23	19	17	M	253	21%	94%	C	344	10%	80%	C	400	6%	69%	XC	543	6%	47%	UC	577																
5.10	**5.00**	31	24	20	17	M	243	22%	94%	M	327	10%	82%	C	383	7%	71%	XC	534	6%	45%	UC	561																
5.35	**5.50**	32	26	21	18	F	234	23%	94%	M	312	11%	83%	C	368	7%	72%	XC	526	6%	43%	UC	546																
5.58	**6.00**	34	27	22	19	F	226	24%	95%	M	298	11%	84%	C	354	7%	73%	XC	518	6%	42%	UC	534																

110 -125 Nozzles

Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER110-125				#40281-125				SR110-125				#40287-125				MR110-125				#40291-125				DR110-125			
L/min	BAR	250L/Ha	300L/Ha	350L/Ha	400L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
3.77	**1.75**	18	15	13	11	XC	413	9%	71%																								
4.03	**2.00**	19	16	14	12	XC	399	10%	74%	VC	499	4%	57%																				
4.51	**2.50**	22	18	15	14	XC	387	10%	76%	VC	476	5%	61%	XC	623	4%	38%	XC	651	3%	34%												
4.94	**3.00**	24	20	17	15	VC	366	11%	79%	VC	439	6%	67%	XC	587	4%	44%	XC	626	4%	37%												
5.33	**3.50**	26	21	18	16	C	349	12%	81%	VC	409	6%	71%	XC	558	5%	49%	XC	607	4%	40%												
5.70	**4.00**	27	23	20	17	C	335	12%	83%	C	383	7%	75%	XC	533	5%	52%	XC	590	4%	42%												
6.04	**4.50**	29	24	21	18	C	323	13%	84%	C	361	7%	77%	XC	511	5%	55%	XC	575	5%	44%												
6.37	**5.00**	31	25	22	19	C	312	13%	86%	C	341	8%	79%	VC	492	5%	57%	XC	562	5%	45%												
6.68	**5.50**	32	27	23	20	C	302	14%	86%	M	323	8%	81%	VC	475	6%	59%	XC	551	5%	47%												
6.98	**6.00**	34	28	24	21	C	293	14%	87%	M	307	8%	82%	VC	460	6%	61%	XC	541	5%	48%												

COMBO-JET 110° Spray Tips - Standard Sprayer Systems

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

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

	Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER110-15		#40281-15		SR110-15		#40287-15		MR110-15		#40291-15		DR110-15		#40286-15	
	L/min	BAR	300L/Ha	400L/Ha	450L/Ha	500L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
	4.52	**1.75**	18	14	12	11	XC	414	10%	69%												
	4.84	**2.00**	19	15	13	12	XC	401	10%	71%	XC	543	5%	50%								
110 -15 Nozzles	5.41	**2.50**	22	16	14	13	XC	379	11%	74%	XC	510	5%	56%	XC	586	4%	44%	XC	636	4%	44%
	5.92	**3.00**	24	18	16	14	VC	361	12%	77%	VC	483	6%	60%	XC	564	5%	47%	XC	614	4%	47%
	6.40	**3.50**	26	19	17	15	C	346	13%	79%	VC	460	6%	64%	XC	546	5%	49%	XC	595	4%	50%
	6.84	**4.00**	27	21	18	16	C	333	14%	80%	VC	441	7%	67%	XC	530	5%	51%	XC	579	4%	52%
	7.25	**4.50**	29	22	19	17	C	322	14%	82%	VC	423	7%	69%	XC	517	5%	53%	XC	565	4%	54%
	7.65	**5.00**	31	23	20	18	C	311	15%	83%	VC	407	7%	71%	XC	504	5%	54%	XC	552	4%	56%
	8.02	**5.50**	32	24	21	19	C	302	15%	84%	C	393	8%	72%	VC	493	5%	56%	XC	540	5%	57%
	8.38	**6.00**	34	25	22	20	C	294	16%	84%	C	380	8%	74%	VC	483	5%	57%	XC	530	5%	59%

	Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER110-20		#40281-20		SR110-20		#40287-20		MR110-20		#40291-20	
	L/min	BAR	400L/Ha	500L/Ha	600L/Ha	700L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
	6.03	**1.75**	18	14	12	10	XC	471	7%	61%								
	6.45	**2.00**	19	15	13	11	XC	457	8%	63%	XC	522	6%	54%				
110 -20 Nozzles	7.21	**2.50**	22	17	14	12	XC	433	8%	67%	VC	492	6%	60%	XC	569	5%	46%
	7.90	**3.00**	24	19	16	14	XC	413	9%	70%	VC	467	7%	64%	XC	547	5%	49%
	8.53	**3.50**	26	20	17	15	XC	397	9%	72%	VC	446	7%	67%	XC	527	6%	52%
	9.12	**4.00**	27	22	18	16	XC	383	10%	74%	VC	428	8%	70%	XC	511	6%	54%
	9.67	**4.50**	29	23	19	17	VC	370	10%	75%	VC	412	8%	72%	VC	496	6%	56%
	10.19	**5.00**	31	24	20	17	VC	359	10%	76%	C	398	8%	74%	VC	483	6%	57%
	10.69	**5.50**	32	26	21	18	C	348	11%	78%	C	385	8%	75%	VC	471	7%	59%
	11.17	**6.00**	34	27	22	19	C	339	11%	79%	C	373	9%	77%	VC	460	7%	60%

	Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER110-25		#40281-25		SR110-25		#40287-25	
	L/min	BAR	500L/Ha	600L/Ha	700L/Ha	800L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600
	7.54	**1.75**	18	15	13	11	XC	470	7%	61%				
	8.06	**2.00**	19	16	14	12	XC	456	7%	64%				
110 -25 Nozzles	9.01	**2.50**	22	18	15	14	XC	433	7%	69%	VC	480	6%	60%
	9.87	**3.00**	24	20	17	15	XC	414	8%	72%	VC	458	7%	64%
	10.66	**3.50**	26	21	18	16	XC	397	8%	75%	VC	439	7%	66%
	11.40	**4.00**	27	23	20	17	XC	383	8%	77%	VC	423	8%	68%
	12.09	**4.50**	29	24	21	18	VC	371	8%	78%	VC	408	8%	70%
	12.74	**5.00**	31	25	22	19	VC	360	8%	80%	C	396	8%	72%
	13.36	**5.50**	32	27	23	20	C	350	8%	81%	C	384	8%	73%
	13.96	**6.00**	34	28	24	21	C	341	9%	82%	C	373	9%	74%

	Flow	Boom	Sprayer Speed (L/Ha on 50cm spacing) @				ER110-30		#40281-30	
	L/min	BAR	600L/Ha	700L/Ha	800L/Ha	900L/Ha	Class	VMD	<141	<600
	9.05	**1.75**	18	16	14	12	UC	483	6%	59%
	9.67	**2.00**	19	17	15	13	XC	469	6%	61%
110 -30 Nozzles	10.81	**2.50**	22	19	16	14	XC	447	7%	64%
	11.84	**3.00**	24	20	18	16	XC	429	7%	66%
	12.79	**3.50**	26	22	19	17	XC	413	8%	68%
	13.68	**4.00**	27	23	21	18	XC	400	8%	70%
	14.51	**4.50**	29	25	22	19	XC	388	9%	71%
	15.29	**5.00**	31	26	23	20	XC	377	9%	72%
	16.04	**5.50**	32	27	24	21	VC	368	9%	73%
	16.75	**6.00**	34	29	25	22	VC	359	10%	74%

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

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

Stay tuned for further LERAP nozzle testing for more nozzles.

LERAP RATING	Nozzle	Pressure Range
******** **90%** Drift Reduction	DR110-03	1.0 - 1.5 BAR
	DR110-05	1.0 - 1.5 BAR
	DR110-06	1.0 - 3.0 BAR
	MR110-05	1.0 - 1.5 BAR
	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
******* **75%** Drift Reduction	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
	DR110-06	3.1 - 5.0 BAR
	MR110-04	1.0 - 2.5 BAR
	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	1.6 - 3.0 BAR

For the updated list on COMBO-JET 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 80° 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 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.

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

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

Nozzle Size & Angle	Flow Rate L/min	Boom BAR	Tip BAR	Application Rate in Litres/Hectare on 50cm Nozzle Spacing @ Sprayer Speed in km/h				Spray Classification; VMD (Droplet Size in µ); %<141µ (Drift %); %<600µ (Small Droplets)															
								ER80° Series				SR80° Series				MR80° Series				DR80° Series			
	Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 20L/Ha	30L/Ha	40L/Ha	50L/Ha	ER80-005		#40270-005		SR80-005		#40288-005		MR80-005		#40290-005		DR80-005		#40280-005	
								Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
80 -005 Nozzles	0.140	**1.50**	1.50	2.1-8.4	1.4-5.6	1.1-4.2	0.9-3.4	F	163	36%	100%												
	0.151	**1.75**	1.75	2.3-9	1.5-6	1.1-4.5	0.9-3.6	F	156	41%	100%												
	0.161	**2.00**	2.00	2.4-9.7	1.6-6.4	1.2-4.8	1-3.9	F	150	45%	100%					M	240	16%	100%	C	282	10%	100%
	0.180	**2.50**	2.50	2.8-11	1.8-7.2	1.4-5.4	1.1-4.3	F	141	52%	100%					F	212	23%	100%	M	245	17%	100%
	0.197	**3.00**	3.00	3-12	2-7.9	1.5-5.9	1.2-4.7	F	133	58%	100%					F	192	28%	100%	M	218	22%	100%
	0.213	**3.50**	3.50	3.3-13	2.1-8.5	1.6-6.4	1.3-5.1	F	127	63%	100%					F	177	33%	100%	F	198	26%	100%
	0.228	**4.00**	4.00	3.5-14	2.3-9.1	1.7-6.8	1.4-5.5	F	122	67%	100%					F	164	38%	100%	F	181	30%	100%
	0.242	**4.50**	4.50	3.8-15	2.4-9.7	1.8-7.3	1.5-5.8	F	118	71%	100%					F	154	41%	100%	F	168	33%	100%
	0.255	**5.00**	5.00	3.8-15	2.5-10	1.9-7.6	1.5-6.1	F	115	74%	100%					F	145	45%	100%	F	157	36%	100%
	0.267	**5.50**	5.50	4-16	2.8-11	2-8	1.6-6.4	F	112	77%	100%					F	138	48%	100%	F	148	38%	100%
	0.279	**6.00**	6.00	4.3-17	2.8-11	2.1-8.4	1.7-6.7	F	109	80%	100%					F	131	51%	100%	F	140	41%	100%
	Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 20L/Ha	30L/Ha	40L/Ha	50L/Ha	ER80-0067		#40270-0067		SR80-0067		#40288-0067		MR80-0067		#40290-0067		DR80-0067		#40280-0067	
								Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
80 -0067 Nozzles	0.187	**1.50**	1.50	2.8-11	1.9-7.5	1.4-5.6	1.1-4.5	F	193	24%	100%												
	0.202	**1.75**	1.75	3-12	2-8.1	1.5-6.1	1.2-4.8	F	182	29%	100%												
	0.216	**2.00**	2.00	3.3-13	2.2-8.6	1.6-6.5	1.3-5.2	F	173	34%	100%					F	214	23%	100%	C	313	8%	100%
	0.241	**2.50**	2.50	3.5-14	2.4-9.7	1.8-7.2	1.5-5.8	F	159	41%	100%					F	191	30%	100%	C	280	12%	100%
	0.265	**3.00**	3.00	4-16	2.8-11	2-7.9	1.6-6.3	F	148	47%	100%					F	174	36%	100%	M	256	15%	100%
	0.286	**3.50**	3.50	4.3-17	2.8-11	2.2-8.6	1.7-6.9	F	140	53%	100%					F	161	41%	100%	M	237	17%	100%
	0.305	**4.00**	4.00	4.5-18	3-12	2.3-9.2	1.8-7.3	F	133	57%	100%					F	150	45%	100%	M	222	19%	100%
	0.324	**4.50**	4.50	4.8-19	3.3-13	2.4-9.7	2-7.8	F	127	61%	100%					F	141	49%	100%	F	209	21%	100%
	0.341	**5.00**	5.00	5-20	3.5-14	2.5-10	2.1-8.2	F	122	64%	100%					F	134	52%	100%	F	199	23%	100%
	0.358	**5.50**	5.50	5.3-21	3.5-14	2.8-11	2.2-8.6	F	118	68%	100%					F	127	55%	100%	F	190	24%	100%
	0.374	**6.00**	6.00	5.5-22	3.8-15	2.8-11	2.3-9	F	114	71%	100%					F	122	58%	100%	F	182	26%	100%
	Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 20L/Ha	30L/Ha	40L/Ha	50L/Ha	ER80-01		#40270-01		SR80-01		#40288-01		MR80-01		#40290-01		DR80-01		#40280-01	
								Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
80 -01 Nozzles	0.279	**1.50**	1.49	4.3-17	2.8-11	2.1-8.4	1.7-6.7	F	171	31%	100%												
	0.301	**1.75**	1.74	4.5-18	3-12	2.3-9	1.8-7.2	F	164	36%	100%												
	0.322	**2.00**	1.99	4.8-19	3.3-13	2.4-9.7	1.9-7.7	F	158	40%	100%	M	238	19%	97%								
	0.360	**2.50**	2.49	5.5-22	3.5-14	2.8-11	2.2-8.6	F	148	46%	100%	F	210	26%	97%	F	201	27%	97%	C	287	12%	95%
	0.394	**3.00**	2.99	6-24	4-16	3-12	2.4-9.5	F	140	52%	100%	F	190	32%	97%	F	184	32%	97%	M	265	15%	97%
	0.426	**3.50**	3.49	6.5-26	4.3-17	3.3-13	2.5-10	F	134	56%	100%	F	174	36%	98%	F	172	36%	97%	M	247	17%	98%
	0.455	**4.00**	3.98	6.8-27	4.5-18	3.5-14	2.8-11	F	129	60%	100%	F	162	40%	98%	F	162	39%	97%	M	233	19%	99%
	0.483	**4.50**	4.48	7.3-29	4.8-19	3.5-14	3-12	F	125	64%	100%	F	152	44%	98%	F	153	42%	97%	M	221	20%	100%
	0.509	**5.00**	4.98	7.8-31	5-20	3.8-15	3-12	F	121	67%	100%	F	143	47%	98%	F	146	45%	97%	F	211	22%	100%
	0.534	**5.50**	5.48	8-32	5.3-21	4-16	3.3-13	F	118	70%	100%	F	136	50%	98%	F	140	48%	97%	F	202	23%	100%
	0.557	**6.00**	5.98	8.3-33	5.5-22	4.3-17	3.3-13	F	115	73%	100%	F	129	52%	98%	F	134	50%	96%	F	195	24%	100%
	Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 35L/Ha	50L/Ha	60L/Ha	75L/Ha	ER80-015		#40270-015		SR80-015		#40288-015		MR80-015		#40290-015		DR80-015		#40280-015	
								Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
80 -015 Nozzles	0.417	**1.50**	1.49	3.5-14	2.5-10	2.1-8.3	1.7-6.7	F	195	22%	100%												
	0.450	**1.75**	1.73	3.8-15	2.8-11	2.3-9	1.8-7.2	F	188	25%	100%												
	0.481	**2.00**	1.98	4.3-17	3-12	2.4-9.6	1.9-7.7	F	182	28%	100%	M	268	15%	95%	C	329	10%	94%	VC	424	4%	86%
	0.538	**2.50**	2.48	4.5-18	3.3-13	2.8-11	2.2-8.6	F	172	32%	100%	M	241	20%	96%	C	298	13%	96%	VC	394	5%	89%
	0.590	**3.00**	2.97	5-20	3.5-14	3-12	2.4-9.4	F	164	36%	100%	M	222	23%	96%	C	274	15%	97%	C	371	6%	91%
	0.637	**3.50**	3.47	5.5-22	3.8-15	3.3-13	2.5-10	F	158	39%	100%	F	207	26%	97%	M	255	17%	97%	C	352	7%	92%
	0.681	**4.00**	3.96	5.8-23	4-16	3.5-14	2.8-11	F	152	42%	100%	F	194	29%	97%	M	240	19%	98%	C	337	8%	93%
	0.722	**4.50**	4.46	6.3-25	4.3-17	3.5-14	3-12	F	148	44%	100%	F	184	31%	97%	M	228	21%	98%	C	324	8%	94%
	0.761	**5.00**	4.96	6.5-26	4.5-18	3.8-15	3-12	F	144	46%	100%	F	175	34%	98%	M	217	22%	99%	C	313	9%	95%
	0.798	**5.50**	5.45	6.8-27	4.8-19	4-16	3.3-13	F	140	48%	100%	F	168	35%	98%	F	208	23%	99%	C	303	10%	95%
	0.834	**6.00**	5.95	7.3-29	5-20	4.3-17	3.3-13	F	137	50%	100%	F	161	37%	98%	F	200	24%	99%	C	295	10%	96%
	Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 40L/Ha	50L/Ha	60L/Ha	70L/Ha	ER80-02		#40270-02		SR80-02		#40288-02		MR80-02		#40290-02		DR80-02		#40280-02	
								Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
80 -02 Nozzles	0.554	**1.50**	1.47	4.3-17	3.3-13	2.8-11	2.4-9.5	F	182	29%	100%												
	0.598	**1.75**	1.72	4.5-18	3.5-14	3-12	2.5-10	F	177	31%	100%	C	274	13%	94%								
	0.639	**2.00**	1.97	4.8-19	3.8-15	3.3-13	2.8-11	F	172	33%	100%	M	261	15%	95%	C	331	8%	93%	XC	461	3%	80%
	0.715	**2.50**	2.46	5.3-21	4.3-17	3.5-14	3-12	F	165	37%	100%	M	242	19%	96%	C	309	10%	94%	VC	433	4%	83%
	0.783	**3.00**	2.95	5.8-23	4.8-19	4-16	3.3-13	F	159	39%	100%	M	228	22%	97%	C	291	12%	94%	VC	412	5%	85%
	0.846	**3.50**	3.44	6.3-25	5-20	4.3-17	3.5-14	F	155	42%	100%	M	216	24%	97%	C	277	14%	95%	VC	394	5%	87%
	0.904	**4.00**	3.93	6.8-27	5.5-22	4.5-18	3.8-15	F	151	44%	100%	F	207	26%	97%	M	266	15%	95%	C	380	6%	88%
	0.959	**4.50**	4.42	7.3-29	5.8-23	4.8-19	4-16	F	148	46%	100%	F	199	28%	98%	M	256	16%	95%	C	368	6%	89%
	1.011	**5.00**	4.92	7.5-30	6-24	5-20	4.3-17	F	145	47%	100%	F	192	30%	98%	M	248	18%	95%	C	357	7%	90%
	1.060	**5.50**	5.41	8-32	6.3-25	5.3-21	4.5-18	F	142	49%	100%	F	186	32%	98%	M	241	19%	95%	C	348	7%	90%
	1.107	**6.00**	5.90	8.3-33	6.8-27	5.5-22	4.8-19	F	140	50%	100%	F	180	33%	98%	M	234	19%	95%	C	339	8%	91%

NOTE: [1]SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. [2]Shown application information is based on water @ 26.5°C in a controlled environment and should not be considered actual. Information is provided for comparison to other Combo-Jet® spray tips, for educational purposes only. Repeat testing results can vary.

COMBO-JET 80° Spray Tips - PWM Spray Systems

ASABE Spray Classification *(ASABE S572.1 Standard)*
Spray quality is categorized based on Dv0.1 and VMD droplet sizes. Objective testing data (by 3rd party), from spray spectrum recording equipment (without wind 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.

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

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

80° PWM Nozzle Charts - Broadcast

80 -025 Nozzles

Flow	Boom	Tip	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-025		#40270-025		SR80-025		#40288-025		MR80-025		#40290-025		DR80-025		#40280-025	
L/min	BAR	BAR	50L/Ha	60L/Ha	70L/Ha	80L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
0.689	**1.50**	1.46	4.3-17	3.5-14	3-12	2.5-10	M	229	18%	100%												
0.744	**1.75**	1.71	4.5-18	3.8-15	3.3-13	2.8-11	M	220	20%	100%												
0.796	**2.00**	1.95	4.8-19	4-16	3.5-14	3-12	F	212	23%	100%	C	302	11%	92%								
0.890	**2.50**	2.44	5.3-21	4.5-18	3.8-15	3.3-13	F	200	26%	100%	C	280	14%	94%	VC	400	6%	83%	VC	442	4%	79%
0.974	**3.00**	2.92	5.8-23	4.8-19	4.3-17	3.8-15	F	191	29%	100%	M	263	16%	95%	C	374	7%	85%	VC	424	5%	81%
1.053	**3.50**	3.41	6.3-25	5.3-21	4.5-18	4-16	F	183	31%	100%	M	249	18%	95%	C	354	8%	87%	VC	409	5%	83%
1.125	**4.00**	3.90	6.8-27	5.8-23	4.8-19	4.3-17	F	177	33%	100%	M	238	20%	96%	C	337	9%	88%	VC	396	6%	84%
1.193	**4.50**	4.39	7.3-29	6-24	5-20	4.5-18	F	171	35%	100%	M	228	21%	96%	C	323	10%	89%	C	385	6%	85%
1.258	**5.00**	4.87	7.5-30	6.3-25	5.5-22	4.8-19	F	167	37%	100%	M	220	22%	97%	C	311	10%	90%	C	376	7%	86%
1.319	**5.50**	5.36	8-32	6.5-26	5.8-23	5-20	F	162	38%	99%	F	213	24%	97%	C	301	11%	91%	C	367	7%	87%
1.378	**6.00**	5.85	8.3-33	7-28	6-24	5.3-21	F	159	40%	99%	F	207	25%	97%	C	291	11%	91%	C	360	8%	87%

80 -03 Nozzles

Flow	Boom	Tip	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-03		#40270-03		SR80-03		#40288-03		MR80-03		#40290-03		DR80-03		#40280-03	
L/min	BAR	BAR	60L/Ha	75L/Ha	100L/Ha	120L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
0.822	**1.50**	1.45	4-16	3.3-13	2.5-9.9	2.1-8.2	M	231	18%	99%												
0.888	**1.75**	1.69	4.5-18	3.5-14	2.8-11	2.2-8.9	M	223	20%	99%												
0.950	**2.00**	1.93	4.8-19	3.8-15	2.8-11	2.4-9.5	M	217	22%	99%	C	353	9%	89%								
1.062	**2.50**	2.41	5.3-21	4.3-17	3.3-13	2.8-11	F	207	25%	99%	C	325	11%	90%	VC	409	6%	83%	XC	462	4%	75%
1.163	**3.00**	2.89	5.8-23	4.8-19	3.5-14	3-12	F	199	27%	99%	C	304	13%	91%	C	383	7%	86%	VC	441	4%	78%
1.256	**3.50**	3.38	6.3-25	5-20	3.8-15	3.3-13	F	193	29%	99%	C	287	15%	92%	C	362	8%	87%	VC	424	5%	80%
1.343	**4.00**	3.86	6.8-27	5.3-21	4-16	3.3-13	F	187	31%	99%	C	273	16%	92%	C	346	9%	89%	VC	410	6%	82%
1.424	**4.50**	4.34	7-28	5.8-23	4.3-17	3.5-14	F	183	32%	99%	M	261	17%	93%	C	331	10%	90%	C	398	6%	83%
1.502	**5.00**	4.82	7.5-30	6-24	4.5-18	3.8-15	F	179	34%	99%	M	251	18%	93%	C	319	10%	91%	C	387	7%	84%
1.575	**5.50**	5.30	7.8-31	6.3-25	4.8-19	4-16	F	175	35%	99%	M	243	19%	94%	C	308	11%	91%	C	378	7%	85%
1.645	**6.00**	5.79	8.3-33	6.5-26	5-20	4-16	F	172	36%	99%	M	235	20%	94%	C	299	11%	92%	C	370	8%	86%

80 -04 Nozzles

Flow	Boom	Tip	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-04		#40270-04		SR80-04		#40288-04		MR80-04		#40290-04		DR80-04		#40280-04	
L/min	BAR	BAR	75L/Ha	100L/Ha	125L/Ha	150L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
1.08	**1.50**	1.41	4.3-17	3.3-13	2.5-10	2.2-8.6	M	250	17%	99%												
1.17	**1.75**	1.64	4.8-19	3.5-14	2.8-11	2.3-9.3	M	242	18%	99%												
1.25	**2.00**	1.87	5-20	3.8-15	3-12	2.5-10	M	235	20%	99%	C	360	6%	86%								
1.40	**2.50**	2.34	5.5-22	4.3-17	3.3-13	2.8-11	M	224	22%	99%	C	334	8%	88%	VC	405	6%	82%	XC	527	2%	65%
1.53	**3.00**	2.81	6-24	4.5-18	3.8-15	3-12	F	215	24%	99%	C	314	10%	89%	C	383	7%	84%	XC	504	3%	68%
1.65	**3.50**	3.28	6.5-26	5-20	4-16	3.3-13	F	208	25%	99%	C	296	11%	90%	C	366	8%	86%	XC	486	4%	71%
1.77	**4.00**	3.75	7-28	5.3-21	4.3-17	3.5-14	F	202	27%	99%	C	281	13%	91%	C	351	9%	87%	XC	471	4%	74%
1.87	**4.50**	4.22	7.5-30	5.5-22	4.5-18	3.8-15	F	197	28%	99%	M	268	14%	92%	C	339	10%	88%	XC	458	4%	75%
1.97	**5.00**	4.69	8-32	6-24	4.8-19	4-16	F	193	29%	99%	M	256	15%	92%	C	329	11%	89%	VC	446	5%	77%
2.07	**5.50**	5.15	8.3-33	6.3-25	5-20	4.3-17	F	189	30%	99%	M	245	16%	93%	C	319	12%	90%	VC	436	5%	78%
2.16	**6.00**	5.62	8.8-35	6.5-26	5.3-21	4.3-17	F	186	31%	99%	M	235	17%	93%	C	311	12%	90%	C	427	5%	79%

80 -05 Nozzles

Flow	Boom	Tip	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-05		#40270-05		SR80-05		#40288-05		MR80-05		#40290-05		DR80-05		#40280-05	
L/min	BAR	BAR	100L/Ha	125L/Ha	150L/Ha	175L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
1.33	**1.50**	1.36	4-16	3.3-13	2.8-11	2.3-9.1	C	297	11%	95%												
1.43	**1.75**	1.59	4.3-17	3.5-14	2.8-11	2.5-9.8	C	286	13%	95%												
1.53	**2.00**	1.81	4.5-18	3.8-15	3-12	2.8-11	C	276	15%	95%	VC	404	6%	81%								
1.72	**2.50**	2.26	5.3-21	4-16	3.5-14	3-12	M	261	17%	95%	C	375	8%	84%	XC	491	3%	70%	XC	563	2%	58%
1.88	**3.00**	2.72	5.8-23	4.5-18	3.8-15	3.3-13	M	249	20%	95%	C	351	10%	85%	VC	467	4%	73%	XC	540	2%	62%
2.03	**3.50**	3.17	6-24	4.8-19	4-16	3.5-14	M	240	21%	95%	C	331	11%	87%	VC	448	5%	76%	XC	522	3%	65%
2.17	**4.00**	3.62	6.5-26	5.3-21	4.3-17	3.8-15	M	232	23%	95%	C	313	12%	88%	VC	432	5%	78%	XC	506	3%	67%
2.30	**4.50**	4.08	7-28	5.5-22	4.5-18	4-16	M	225	24%	95%	C	298	14%	89%	VC	418	6%	79%	XC	493	3%	70%
2.43	**5.00**	4.53	7.3-29	5.8-23	4.8-19	4.3-17	M	219	26%	95%	C	284	15%	89%	C	407	6%	81%	XC	482	4%	71%
2.54	**5.50**	4.98	7.8-31	6-24	5-20	4.3-17	F	214	27%	95%	C	272	15%	90%	C	396	7%	82%	VC	471	4%	73%
2.66	**6.00**	5.43	8-32	6.5-26	5.3-21	4.5-18	F	209	28%	95%	M	260	16%	91%	C	387	7%	83%	VC	462	4%	74%

80 -06 Nozzles

Flow	Boom	Tip	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-06		#40270-06		SR80-06		#40288-06		MR80-06		#40290-06		DR80-06		#40280-06	
L/min	BAR	BAR	125L/Ha	150L/Ha	175L/Ha	200L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
1.69	**1.75**	1.52	4-16	3.3-13	3-12	2.5-10	C	316	13%	92%												
1.80	**2.00**	1.74	4.3-17	3.5-14	3-12	2.8-11	C	307	15%	91%	VC	439	4%	78%								
2.02	**2.50**	2.17	4.8-19	4-16	3.5-14	3-12	C	293	17%	91%	VC	414	5%	81%	XC	520	3%	65%	XC	591	2%	52%
2.21	**3.00**	2.61	5.3-21	4.5-18	3.8-15	3.3-13	C	283	19%	91%	C	395	6%	83%	XC	499	3%	69%	XC	570	2%	56%
2.39	**3.50**	3.04	5.8-23	4.8-19	4-16	3.5-14	C	274	21%	91%	C	380	7%	85%	XC	481	4%	71%	XC	553	2%	59%
2.55	**4.00**	3.48	6-24	5-20	4.3-17	3.8-15	M	266	22%	90%	C	367	8%	86%	VC	467	4%	74%	XC	539	2%	61%
2.71	**4.50**	3.91	6.5-26	5.5-22	4.8-19	4-16	M	260	23%	90%	C	356	9%	87%	VC	454	5%	75%	XC	526	3%	63%
2.85	**5.00**	4.35	6.8-27	5.8-23	5-20	4.3-17	M	254	25%	90%	C	347	9%	88%	VC	443	5%	77%	XC	516	3%	64%
2.99	**5.50**	4.78	7.3-29	6-24	5.3-21	4.5-18	M	250	26%	90%	C	338	10%	89%	VC	433	5%	78%	XC	506	3%	66%
3.12	**6.00**	5.22	7.5-30	6.3-25	5.3-21	4.8-19	M	245	27%	90%	C	331	10%	90%	VC	425	6%	79%	XC	498	3%	67%

80 -08 Nozzles

Flow	Boom	Tip	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-08		#40270-08		SR80-08		#40288-08		MR80-08		#40290-08		DR80-08		#40280-08	
L/min	BAR	BAR	150L/Ha	200L/Ha	250L/Ha	300L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
2.14	**1.75**	1.38	4.3-17	3.3-13	2.5-10	2.2-8.6	VC	366	12%	86%												
2.29	**2.00**	1.58	4.5-18	3.5-14	2.8-11	2.3-9.2	C	349	14%	88%	UC	529	6%	51%								
2.56	**2.50**	1.97	5.3-21	3.8-15	3-12	2.5-10	C	322	16%	90%	UC	497	7%	58%								
2.81	**3.00**	2.37	5.5-22	4.3-17	3.3-13	2.8-11	M	302	19%	91%	XC	470	8%	62%	UC	520	7%	66%	UC	603	3%	55%
3.03	**3.50**	2.76	6-24	4.5-18	3.8-15	3-12	M	285	21%	93%	XC	448	9%	66%	UC	499	8%	69%	UC	584	4%	58%
3.24	**4.00**	3.16	6.5-26	4.8-19	4-16	3.3-13	M	272	22%	93%	XC	429	10%	69%	UC	482	9%	72%	UC	569	4%	60%
3.44	**4.50**	3.55	7-28	5.3-21	4.3-17	3.5-14	F	261	24%	94%	XC	412	10%	71%	XC	467	9%	74%	UC	556	5%	62%
3.62	**5.00**	3.95	7.3-29	5.5-22	4.3-17	3.5-14	F	251	25%	95%	XC	397	11%	73%	XC	454	10%	75%	UC	544	5%	64%
3.80	**5.50**	4.34	7.5-30	5.8-23	4.5-18	3.8-15	F	243	26%	95%	XC	383	11%	75%	XC	442	10%	77%	UC	534	5%	66%
3.97	**6.00**	4.74	8-32	6-24	4.8-19	4-16	F	235	27%	95%	VC	371	12%	76%	XC	432	11%	78%	UC	525	6%	67%

NOTE: [1]SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. [2]Shown application information is based on water @ 26.5°C 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

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.

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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.

	Flow	Boom	Tip	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-10		#40270-10		SR80-10		#40288-10		MR80-10		#40290-10		DR80-10		#40280-10	
	L/min	BAR	BAR	200L/Ha	250L/Ha	300L/Ha	350L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
80 -10 Nozzles	2.71	**2.00**	1.41	4-16	3.3-13	2.8-11	2.3-9.3	XC	455	9%	78%												
	3.03	**2.50**	1.77	4.5-18	3.8-15	3-12	2.5-10	XC	425	11%	80%	UC	534	6%	51%								
	3.32	**3.00**	2.12	5-20	4-16	3.3-13	2.8-11	XC	402	12%	82%	UC	508	7%	56%								
	3.58	**3.50**	2.47	5.5-22	4.3-17	3.5-14	3-12	VC	383	13%	83%	UC	487	7%	60%	UC	525	6%	65%	UC	593	5%	55%
	3.83	**4.00**	2.82	5.8-23	4.5-18	3.8-15	3.3-13	C	368	14%	84%	XC	468	8%	63%	UC	510	6%	67%	UC	580	5%	57%
	4.06	**4.50**	3.18	6-24	5-20	4-16	3.5-14	C	355	15%	85%	XC	452	8%	66%	UC	497	7%	69%	UC	569	6%	59%
	4.28	**5.00**	3.53	6.5-26	5.3-21	4.3-17	3.8-15	C	344	16%	86%	XC	437	9%	68%	UC	486	7%	70%	UC	559	6%	61%
	4.49	**5.50**	3.88	6.8-27	5.5-22	4.5-18	3.8-15	M	334	17%	87%	XC	424	9%	70%	XC	476	7%	72%	UC	550	6%	62%
	4.69	**6.00**	4.24	7-28	5.8-23	4.8-19	4-16	M	325	18%	87%	XC	412	10%	71%	XC	467	8%	73%	UC	542	6%	63%
	Flow	Boom	Tip	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-125		#40270-125		SR80-125		#40288-125		MR80-125		#40290-125		DR80-125		#40280-125	
	L/min	BAR	BAR	250L/Ha	300L/Ha	350L/Ha	400L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
80 -125 Nozzles	3.14	**2.00**	1.21	3.8-15	3.3-13	2.8-11	2.4-9.4	XC	474	8%	74%												
	3.51	**2.50**	1.52	4.3-17	3.5-14	3-12	2.8-11	XC	447	10%	77%												
	3.84	**3.00**	1.82	4.5-18	3.8-15	3.3-13	3-12	XC	427	11%	79%	UC	525	6%	52%								
	4.15	**3.50**	2.12	5-20	4.3-17	3.5-14	3-12	XC	410	11%	81%	UC	506	7%	56%								
	4.44	**4.00**	2.42	5.3-21	4.5-18	3.8-15	3.3-13	VC	396	12%	82%	UC	490	8%	58%	UC	569	6%	58%	UC	608	4%	52%
	4.71	**4.50**	2.73	5.8-23	4.8-19	4-16	3.5-14	VC	384	13%	83%	XC	476	8%	61%	UC	557	6%	60%	UC	596	5%	54%
	4.96	**5.00**	3.03	6-24	5-20	4.3-17	3.8-15	C	374	13%	84%	XC	463	9%	63%	UC	547	7%	62%	UC	586	5%	55%
	5.20	**5.50**	3.33	6.3-25	5.3-21	4.5-18	4-16	C	365	14%	85%	XC	451	9%	64%	UC	538	7%	63%	UC	577	5%	57%
	5.43	**6.00**	3.64	6.5-26	5.5-22	4.8-19	4-16	C	357	14%	86%	XC	441	9%	66%	UC	530	7%	64%	UC	569	5%	58%
	Flow	Boom	Tip	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-15		#40270-15		SR80-15		#40288-15		MR80-15		#40290-15		DR80-15		#40280-15	
	L/min	BAR	BAR	300L/Ha	400L/Ha	450L/Ha	500L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
80 -15 Nozzles	3.88	**2.50**	1.29	4-16	3-12	2.5-10	2.3-9.3	XC	473	7%	76%												
	4.26	**3.00**	1.55	4.3-17	3.3-13	2.8-11	2.5-10	XC	448	8%	77%												
	4.60	**3.50**	1.81	4.5-18	3.5-14	3-12	2.8-11	XC	428	9%	78%	UC	570	5%	44%								
	4.91	**4.00**	2.07	5-20	3.8-15	3.3-13	3-12	XC	412	10%	79%	UC	554	6%	47%								
	5.21	**4.50**	2.32	5.3-21	4-16	3.5-14	3.3-13	XC	398	11%	80%	UC	540	6%	50%	UC	499	8%	68%	UC	624	3%	50%
	5.49	**5.00**	2.58	5.5-22	4-16	3.8-15	3.3-13	VC	386	12%	81%	UC	527	6%	52%	UC	487	8%	69%	UC	612	3%	52%
	5.76	**5.50**	2.84	5.8-23	4.3-17	3.8-15	3.5-14	VC	376	13%	81%	UC	516	6%	54%	XC	477	9%	71%	UC	602	3%	54%
	6.02	**6.00**	3.10	6-24	4.5-18	4-16	3.5-14	C	366	13%	82%	UC	505	7%	56%	XC	467	9%	72%	UC	593	4%	55%
	Flow	Boom	Tip	Sprayer Speed (L/Ha on 50cm spacing) @				ER80-20		#40270-20		SR80-20		#40288-20		MR80-20		#40290-20		DR80-20		#40280-20	
	L/min	BAR	BAR	400L/Ha	500L/Ha	600L/Ha	700L/Ha	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600	Class	VMD	<141	<600
80 -20 Nozzles	5.22	**3.50**	1.31	4-16	3.3-13	2.5-10	2.3-9	UC	518	6%	66%												
	5.59	**4.00**	1.50	4.3-17	3.3-13	2.8-11	2.4-9.6	UC	500	7%	68%												
	5.92	**4.50**	1.69	4.5-18	3.5-14	3-12	2.5-10	UC	485	8%	70%	UC	577	5%	43%								
	6.24	**5.00**	1.88	4.8-19	3.8-15	3-12	2.8-11	XC	472	8%	72%	UC	563	5%	46%								
	6.55	**5.50**	2.06	5-20	4-16	3.3-13	2.8-11	XC	461	9%	73%	UC	551	5%	48%								
	6.84	**6.00**	2.25	5.3-21	4-16	3.5-14	3-12	XC	450	9%	74%	UC	540	6%	50%	UC	552	5%	60%	UC	616	3%	52%

NOTE: [1]SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. [2]Shown application information is based on water @ 26.5°C in a controlled environment and should not be considered actual. Information is provided for comparison to other Combo-Jet® spray tips, for educational purposes only. Repeat testing results can vary.

COMBO-JET 110° Spray Tips - PWM Spray Systems

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

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

ASABE Spray Classification *(ASABE S572.1 Standard)*
Spray quality is categorized based on Dv0.1 and VMD droplet sizes. Objective testing data (by 3rd party), from spray spectrum recording equipment (without wind tunnel use), has been used to classify spray quality for this chart. Extra data (e.g. VMD, etc.) can vary between testing equipment and method, and is provided as an educational resource only.
Tips sized up to 110-06 verified on Phase 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.

110° PWM Nozzle Charts - Broadcast

Nozzle Size & Angle	Flow Rate L/min	Boom BAR	Tip psi	Application Rate in Litres/Hectare on 50cm Nozzle Spacing @ Sprayer Speed in km/h				Spray Classification: VMD (Droplet Size in µ); %<141µ (Drift %); %<600µ (Small Droplets)																	
								ER110° Series				SR110° Series				MR110° Series				DR110° Series				UR Series	
	Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 20L/Ha	30L/Ha	40L/Ha	50L/Ha	ER110-01 Class	VMD	<141	<600	#40281-01 Class	VMD	<141	<600										
110 -01 Nozzles	0.279	**1.50**	**1.49**	4.3-17	2.8-11	2.1-8.4	1.7-6.7	F	147	46%	100%														
	0.301	**1.75**	**1.74**	4.5-18	3-12	2.3-9	1.8-7.2	F	143	48%	100%														
	0.322	**2.00**	**1.99**	4.8-19	3.3-13	2.4-9.7	1.9-7.7	F	140	50%	100%														
	0.360	**2.50**	**2.49**	5.5-22	3.5-14	2.8-11	2.2-8.6	F	135	54%	100%														
	0.394	**3.00**	**2.99**	6-24	4-16	3-12	2.4-9.5	F	131	57%	100%														
	0.426	**3.50**	**3.49**	6.5-26	4.3-17	3.3-13	2.5-10	F	128	59%	100%														
	0.455	**4.00**	**3.98**	6.8-27	4.5-18	3.5-14	2.8-11	F	125	62%	100%														
	0.483	**4.50**	**4.48**	7.3-29	4.8-19	3.5-14	3-12	F	122	63%	100%														
	0.509	**5.00**	**4.98**	7.8-31	5-20	3.8-15	3-12	F	120	65%	100%														
	0.534	**5.50**	**5.48**	8-32	5.3-21	4-16	3.3-13	F	118	67%	100%														
	0.557	**6.00**	**5.98**	8.3-33	5.5-22	4.3-17	3.3-13	F	116	68%	100%														
110 -015 Nozzles	Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 35L/Ha	50L/Ha	60L/Ha	75L/Ha	ER110-015 Class	VMD	<141	<600	#40281-015 Class	VMD	<141	<600	SR110-015 Class	VMD	<141	<600	#40287-015 Class	VMD	<141	<600	MR110-015 Class	VMD	<141	<600
	0.417	**1.50**	**1.49**	3.5-14	4.3-17	2.1-8.3	1.7-6.7	F	151	42%	100%														
	0.450	**1.75**	**1.73**	3.8-15	2.8-11	2.3-9	1.8-7.2	F	148	44%	100%					M	225	21%	98%						
	0.481	**2.00**	**1.98**	4.3-17	3-12	2.4-9.6	1.9-7.7	F	145	46%	100%					M	218	23%	98%	C	323	11%	94%	C	368	7%	92%
	0.538	**2.50**	**2.48**	4.5-18	3.3-13	2.8-11	2.2-8.6	F	141	50%	100%					F	205	27%	98%	C	298	14%	96%	C	346	8%	93%
	0.590	**3.00**	**2.97**	5-20	3.5-14	3-12	2.4-9.4	F	137	53%	100%					F	195	29%	98%	C	279	16%	97%	C	329	10%	94%
	0.637	**3.50**	**3.47**	5.5-22	3.8-15	3.3-13	2.5-10	F	134	55%	100%					F	187	32%	98%	M	262	18%	98%	C	315	11%	95%
	0.681	**4.00**	**3.96**	5.8-23	4-16	3.5-14	2.8-11	F	132	57%	100%					F	180	34%	98%	M	248	20%	98%	C	302	12%	95%
	0.722	**4.50**	**4.46**	6.3-25	4.3-17	3.5-14	3-12	F	129	59%	100%					F	173	36%	98%	M	226	23%	99%	C	282	14%	96%
	0.761	**5.00**	**4.96**	6.5-26	4.5-18	3.8-15	3-12	F	127	61%	100%					F	167	37%	98%	F	217	24%	99%	C	273	15%	96%
	0.798	**5.50**	**5.45**	6.8-27	4.8-19	4-16	3.3-13	F	125	63%	100%					F	162	39%	98%	F	209	25%	99%	M	265	15%	97%
	0.834	**6.00**	**5.95**	7.3-29	5-20	4.3-17	3.3-13	F	124	64%	100%					F	157	40%	98%	F	195	27%	100%	M	252	17%	97%
110 -02 Nozzles	Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 40L/Ha	50L/Ha	60L/Ha	70L/Ha	ER110-02 Class	VMD	<141	<600	#40281-02 Class	VMD	<141	<600	SR110-02 Class	VMD	<141	<600	#40287-02 Class	VMD	<141	<600	MR110-02 Class	VMD	<141	<600
	0.554	**1.50**	**1.47**	4.3-17	3.3-13	2.8-11	2.4-9.5	F	171	33%	100%														
	0.598	**1.75**	**1.72**	4.5-18	3.5-14	3-12	2.5-10	F	166	36%	100%														
	0.639	**2.00**	**1.97**	4.8-19	3.8-15	3.3-13	2.8-11	F	161	39%	100%					M	221	22%	99%	C	317	11%	95%	VC	433	5%	82%
	0.715	**2.50**	**2.46**	5.3-21	4.3-17	3.5-14	3-12	F	154	43%	100%					F	211	25%	99%	C	297	13%	96%	VC	412	6%	85%
	0.783	**3.00**	**2.95**	5.8-23	4.8-19	4-16	3.3-13	F	148	46%	100%					F	203	27%	99%	C	281	15%	97%	VC	394	6%	87%
	0.846	**3.50**	**3.44**	6.3-25	5-20	4.3-17	3.5-14	F	144	49%	100%					F	196	29%	99%	M	267	17%	97%	C	378	7%	88%
	0.904	**4.00**	**3.93**	6.8-27	5.5-22	4.5-18	3.8-15	F	139	52%	100%					F	190	30%	99%	M	256	18%	97%	C	364	8%	90%
	0.959	**4.50**	**4.42**	7.3-29	5.8-23	4.8-19	4-16	F	136	54%	100%					F	185	32%	99%	M	237	21%	98%	C	339	9%	91%
	1.011	**5.00**	**4.92**	7.5-30	6-24	5-20	4.3-17	F	132	56%	100%					F	180	33%	99%	M	229	22%	98%	C	328	10%	92%
	1.060	**5.50**	**5.41**	8-32	6.3-25	5.3-21	4.5-18	F	129	57%	100%					F	176	34%	99%	M	222	23%	98%	C	318	10%	93%
	1.107	**6.00**	**5.90**	8.3-33	6.8-27	5.5-22	4.8-19	F	126	59%	100%					F	172	35%	99%	F	210	25%	99%	C	299	11%	94%
110 -025 Nozzles	Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 50L/Ha	60L/Ha	70L/Ha	80L/Ha	ER110-025 Class	VMD	<141	<600	#40281-025 Class	VMD	<141	<600	SR110-025 Class	VMD	<141	<600	#40287-025 Class	VMD	<141	<600	MR110-025 Class	VMD	<141	<600
	0.689	**1.50**	**1.46**	4.3-17	3.5-14	3-12	2.5-10	F	193	28%	100%														
	0.744	**1.75**	**1.71**	4.5-18	3.8-15	3.3-13	2.8-11	F	190	29%	100%														
	0.796	**2.00**	**1.95**	4.8-19	4-16	3.5-14	3-12	F	187	29%	100%					M	239	19%	98%	C	353	8%	90%	VC	437	5%	79%
	0.890	**2.50**	**2.44**	5.3-21	4.5-18	3.8-15	3.3-13	F	183	30%	100%					M	228	21%	98%	C	337	10%	92%	VC	418	6%	83%
	0.974	**3.00**	**2.92**	5.8-23	4.8-19	4.3-17	3.8-15	F	179	30%	100%					M	219	23%	98%	C	322	11%	93%	VC	401	6%	86%
	1.053	**3.50**	**3.41**	6.3-25	5.3-21	4.5-18	4-16	F	177	30%	100%					F	212	25%	98%	C	310	12%	94%	C	386	7%	88%
	1.125	**4.00**	**3.90**	6.8-27	5.8-23	4.8-19	4.3-17	F	174	31%	100%					F	205	26%	98%	C	299	13%	95%	C	373	8%	89%
	1.193	**4.50**	**4.39**	7.3-29	6-24	5-20	4.5-18	F	172	31%	100%					F	200	28%	98%	C	280	15%	96%	C	350	9%	91%
	1.258	**5.00**	**4.87**	7.5-30	6.3-25	5.5-22	4.8-19	F	170	31%	100%					F	195	29%	98%	C	271	16%	96%	C	340	9%	92%
	1.319	**5.50**	**5.36**	8-32	6.5-26	5.8-23	5-20	F	168	31%	100%					F	190	30%	98%	M	263	16%	96%	C	331	10%	93%
	1.378	**6.00**	**5.85**	8.3-33	7-28	6-24	5.3-21	F	166	31%	100%					F	186	31%	98%	M	249	18%	97%	C	314	10%	94%
110 -03 Nozzles	Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 60L/Ha	75L/Ha	100L/Ha	120L/Ha	ER110-03 Class	VMD	<141	<600	#40281-03 Class	VMD	<141	<600	SR110-03 Class	VMD	<141	<600	#40287-03 Class	VMD	<141	<600	MR110-03 Class	VMD	<141	<600
	0.822	**1.50**	**1.45**	4-16	3.3-13	2.5-9.9	2.1-8.2	F	196	27%	99%														
	0.888	**1.75**	**1.69**	4.5-18	3.5-14	2.8-11	2.2-8.9	F	191	29%	99%	C	321	9%	94%										
	0.950	**2.00**	**1.93**	4.8-19	3.8-15	2.8-11	2.4-9.5	F	186	30%	99%	C	309	11%	94%	VC	403	6%	85%	XC	488	3%	72%				
	1.062	**2.50**	**2.41**	5.3-21	4.3-17	3.3-13	2.8-11	F	178	33%	98%	C	290	13%	95%	C	376	8%	89%	XC	460	4%	77%	UC	612		
	1.163	**3.00**	**2.89**	5.8-23	4.8-19	3.5-14	3-12	F	172	35%	98%	C	275	15%	96%	C	354	9%	91%	VC	437	5%	81%	UC	581		
	1.256	**3.50**	**3.38**	6.3-25	5-20	3.8-15	3.3-13	F	166	37%	98%	M	262	17%	97%	C	335	10%	93%	VC	417	6%	84%	UC	555		
	1.343	**4.00**	**3.86**	6.8-27	5.3-21	4-16	3.3-13	F	161	39%	97%	M	250	18%	97%	C	319	11%	94%	VC	400	6%	86%	UC	533		
	1.424	**4.50**	**4.34**	7-28	5.8-23	4.3-17	3.5-14	F	157	40%	97%	M	240	20%	97%	C	305	12%	95%	C	385	7%	87%	UC	513		
	1.502	**5.00**	**4.82**	7.5-30	6-24	4.5-18	3.8-15	F	153	41%	97%	M	231	21%	98%	C	292	13%	95%	C	372	7%	88%	UC	495		
	1.575	**5.50**	**5.30**	7.8-31	6.3-25	4.8-19	4-16	F	150	42%	97%	M	223	22%	98%	C	281	14%	96%	C	359	8%	89%	XC	479		
	1.645	**6.00**	**5.79**	8.3-33	6.5-26	5-20	4-16	F	147	43%	96%	F	215	23%	98%	M	270	14%	96%	C	348	8%	90%	XC	464		

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

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

NOTE: [1]SR, MR, DR, UR spray tips include pre-orifice(s). Pre-orifices are not interchangeable between different spray tips of different series. [2]Shown application information is based on water @ 26.5°C in a controlled environment and should not be considered actual. Information is provided for comparison to other Combo-Jet® spray tips, for educational purposes only. Repeat testing results can vary.

COMBO-JET 110° Spray Tips - PWM Spray Systems

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

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

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

110 -04 Nozzles

Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 75L/Ha	100L/Ha	125L/Ha	150L/Ha	ER110-04 Class	VMD	#40281-04 <141	<600	SR110-04 Class	VMD	#40287-04 <141	<600	MR110-04 Class	VMD	#40291-04 <141	<600	DR110-04 Class	VMD	#40286-04 <141	<600	UR110-04 Class	VMD
1.168	**1.75**	**1.64**	4.8-19	3.5-14	2.8-11	2.3-9.3	M	234	20%	97%													#40292-04	
1.248	**2.00**	**1.87**	5-20	3.8-15	3-12	2.5-10	M	229	21%	97%	C	322	10%	93%	VC	429	4%	82%	XC	524	3%	66%	UC	660
1.396	**2.50**	**2.34**	5.5-22	4.3-17	3.3-13	2.8-11	M	221	23%	97%	C	303	12%	94%	VC	399	6%	87%	XC	492	4%	72%	UC	626
1.529	**3.00**	**2.81**	6-24	4.5-18	3.8-15	3-12	F	214	24%	96%	C	287	14%	95%	C	374	7%	90%	VC	467	4%	76%	UC	598
1.651	**3.50**	**3.28**	6.5-26	5-20	4-16	3.3-13	F	208	26%	96%	C	273	15%	96%	C	353	8%	92%	VC	445	5%	79%	UC	575
1.765	**4.00**	**3.75**	7-28	5.3-21	4.3-17	3.5-14	F	203	27%	96%	M	262	17%	96%	C	335	9%	93%	VC	426	5%	81%	UC	554
1.872	**4.50**	**4.22**	7.5-30	5.5-22	4.5-18	3.8-15	F	199	28%	96%	M	251	18%	97%	C	319	10%	94%	VC	410	6%	83%	UC	536
1.974	**5.00**	**4.69**	8-32	6-24	4.8-19	4-16	F	195	29%	96%	M	242	19%	97%	C	304	10%	95%	C	395	6%	85%	UC	520
2.070	**5.50**	**5.15**	8.3-33	6.3-25	5-20	4.3-17	F	191	30%	95%	M	234	19%	97%	C	291	11%	95%	C	381	7%	86%	UC	506
2.162	**6.00**	**5.62**	8.8-35	6.5-26	5.3-21	4.3-17	F	188	30%	95%	M	226	20%	97%	C	280	11%	96%	C	369	7%	87%	UC	493

110 -05 Nozzles

Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 100L/Ha	125L/Ha	150L/Ha	175L/Ha	ER110-05 Class	VMD	#40281-05 <141	<600	SR110-05 Class	VMD	#40287-05 <141	<600	MR110-05 Class	VMD	#40291-05 <141	<600	DR110-05 Class	VMD	#40286-05 <141	<600	UR110-05 Class	VMD
1.43	**1.75**	**1.59**	4.3-17	3.5-14	2.8-11	2.5-9.8	M	241	19%	95%													#40292-05	
1.53	**2.00**	**1.81**	4.5-18	3.8-15	3-12	2.8-11	M	234	21%	95%	C	371	7%	90%										
1.72	**2.50**	**2.26**	5.3-21	4-16	3.5-14	3-12	M	224	23%	95%	C	345	9%	92%	XC	473	4%	74%	XC	522	2%	65%		
1.88	**3.00**	**2.72**	5.8-23	4.5-18	3.8-15	3.3-13	F	215	26%	95%	C	324	11%	93%	VC	447	5%	78%	XC	505	3%	68%	UC	622
2.03	**3.50**	**3.17**	6-24	4.8-19	4-16	3.5-14	F	207	27%	95%	C	306	12%	94%	VC	424	5%	81%	XC	490	3%	70%	UC	603
2.17	**4.00**	**3.62**	6.5-26	5.3-21	4.3-17	3.8-15	F	201	29%	95%	C	291	14%	95%	VC	405	6%	83%	XC	478	3%	72%	UC	586
2.30	**4.50**	**4.08**	7-28	5.5-22	4.5-18	4-16	F	195	30%	95%	C	277	15%	96%	C	388	7%	84%	XC	467	3%	74%	UC	571
2.43	**5.00**	**4.53**	7.3-29	5.8-23	4.8-19	4.3-17	F	190	31%	95%	M	265	16%	96%	C	373	7%	86%	VC	457	4%	75%	UC	559
2.54	**5.50**	**4.98**	7.8-31	6-24	5-20	4.3-17	F	185	32%	95%	M	254	17%	97%	C	359	7%	87%	VC	448	4%	77%	UC	548
2.66	**6.00**	**5.43**	8-32	6.5-26	5.3-21	4.5-18	F	181	33%	95%	M	244	17%	97%	C	346	8%	88%	VC	440	4%	78%	UC	538

110 -06 Nozzles

Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 125L/Ha	150L/Ha	175L/Ha	200L/Ha	ER110-06 Class	VMD	#40281-06 <141	<600	SR110-06 Class	VMD	#40287-06 <141	<600	MR110-06 Class	VMD	#40291-06 <141	<600	DR110-06 Class	VMD	#40286-06 <141	<600	UR110-06 Class	VMD
1.69	**1.75**	**1.52**	4-16	3.3-13	3-12	2.5-10	C	277	15%	94%													#40292-06	
1.80	**2.00**	**1.74**	4.3-17	3.5-14	3-12	2.8-11	M	270	16%	94%	VC	443	4%	80%										
2.02	**2.50**	**2.17**	4.8-19	4-16	3.5-14	3-12	M	258	18%	94%	VC	408	6%	85%	XC	502	3%	69%	XC	559	2%	58%		
2.21	**3.00**	**2.61**	5.3-21	4.5-18	3.8-15	3.3-13	M	249	20%	94%	C	380	8%	88%	XC	481	4%	73%	XC	536	2%	63%	UC	641
2.39	**3.50**	**3.04**	5.8-23	4.8-19	4-16	3.5-14	M	241	21%	95%	C	356	9%	90%	VC	463	4%	76%	XC	517	3%	66%	UC	620
2.55	**4.00**	**3.48**	6-24	5-20	4.3-17	3.8-15	M	234	22%	95%	C	335	10%	92%	VC	447	4%	78%	XC	500	3%	68%	UC	602
2.71	**4.50**	**3.91**	6.5-26	5.5-22	4.8-19	4-16	M	228	23%	95%	C	317	11%	93%	VC	434	5%	80%	XC	485	3%	70%	UC	587
2.85	**5.00**	**4.35**	6.8-27	5.8-23	5-20	4.3-17	M	223	24%	95%	C	301	12%	94%	VC	422	5%	82%	XC	472	3%	72%	UC	573
2.99	**5.50**	**4.78**	7.3-29	6-24	5.3-21	4.5-18	F	218	25%	95%	C	286	13%	94%	VC	411	5%	83%	XC	460	3%	73%	UC	562
3.12	**6.00**	**5.22**	7.5-30	6.3-25	5.3-21	4.8-19	F	213	26%	95%	C	272	14%	95%	C	400	5%	84%	VC	449	4%	75%	UC	551

110 -08 Nozzles

Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 150L/Ha	200L/Ha	250L/Ha	300L/Ha	ER110-08 Class	VMD	#40281-08 <141	<600	SR110-08 Class	VMD	#40287-08 <141	<600	MR110-08 Class	VMD	#40291-08 <141	<600	DR110-08 Class	VMD	#40286-08 <141	<600	UR110-08 Class	VMD
2.14	**1.75**	**1.38**	4.3-17	3.3-13	2.5-10	2.2-8.6	C	327	14%	91%													#40292-08	
2.29	**2.00**	**1.58**	4.5-18	3.5-14	2.8-11	2.3-9.2	C	315	15%	92%	UC	494	4%	58%										
2.56	**2.50**	**1.97**	5.3-21	3.8-15	3-12	2.5-10	C	295	17%	93%	XC	460	6%	65%	UC	539	4%	51%	UC	622	3%	39%		
2.81	**3.00**	**2.37**	5.5-22	4.3-17	3.3-13	2.8-11	C	278	19%	94%	XC	432	7%	70%	UC	509	5%	57%	UC	593	3%	44%	UC	678
3.03	**3.50**	**2.76**	6-24	4.5-18	3.8-15	3-12	M	264	20%	95%	XC	408	7%	74%	UC	483	5%	61%	UC	569	4%	47%	UC	651
3.24	**4.00**	**3.16**	6.5-26	4.8-19	4-16	3.3-13	M	252	21%	95%	XC	388	8%	77%	XC	461	6%	65%	UC	548	4%	50%	UC	628
3.44	**4.50**	**3.55**	7-28	5.3-21	4.3-17	3.5-14	M	241	22%	96%	VC	369	9%	79%	XC	441	6%	67%	UC	530	4%	52%	UC	609
3.62	**5.00**	**3.95**	7.3-29	5.5-22	4.3-17	3.5-14	M	232	23%	96%	C	353	9%	81%	XC	424	6%	69%	UC	513	4%	54%	UC	593
3.80	**5.50**	**4.34**	7.5-30	5.8-23	4.5-18	3.8-15	F	223	24%	96%	C	339	10%	83%	XC	408	7%	71%	UC	498	4%	56%	UC	578
3.97	**6.00**	**4.74**	8-32	6-24	4.8-19	4-16	F	215	25%	96%	C	325	11%	84%	XC	394	7%	73%	UC	485	5%	57%	UC	565

110 -10 Nozzles

Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 200L/Ha	250L/Ha	300L/Ha	350L/Ha	ER110-10 Class	VMD	#40281-10 <141	<600	SR110-10 Class	VMD	#40287-10 <141	<600	MR110-10 Class	VMD	#40291-10 <141	<600	DR110-10 Class	VMD	#40286-10 <141	<600	UR110-10 Class	VMD
2.71	**2.00**	**1.41**	4-16	3.3-13	2.8-11	2.3-9.3	VC	360	10%	88%													#40292-10	
3.03	**2.50**	**1.77**	4.5-18	3.8-15	3-12	2.5-10	C	339	12%	90%	UC	496	5%	57%										
3.32	**3.00**	**2.12**	5-20	4-16	3.3-13	2.8-11	C	322	14%	91%	XC	467	6%	63%	UC	520	4%	53%	UC	607	5%	58%		
3.58	**3.50**	**2.47**	5.5-22	4.3-17	3.5-14	3-12	C	308	16%	91%	XC	442	7%	67%	UC	495	5%	57%	UC	594	5%	56%	UC	678
3.83	**4.00**	**2.82**	5.8-23	4.5-18	3.8-15	3.3-13	C	296	17%	92%	XC	420	8%	71%	XC	474	5%	60%	UC	582	5%	54%	UC	654
4.06	**4.50**	**3.18**	6-24	5-20	4-16	3.5-14	C	285	18%	92%	XC	401	8%	74%	XC	455	5%	62%	UC	572	5%	52%	UC	633
4.28	**5.00**	**3.53**	6.5-26	5.3-21	4.3-17	3.8-15	M	275	19%	93%	XC	384	9%	76%	XC	438	6%	65%	UC	563	6%	51%	UC	616
4.49	**5.50**	**3.88**	6.8-27	5.5-22	4.5-18	3.8-15	M	266	20%	93%	VC	368	9%	78%	XC	423	6%	66%	UC	555	6%	49%	UC	600
4.69	**6.00**	**4.24**	7-28	5.8-23	4.8-19	4-16	M	258	21%	94%	C	354	9%	79%	XC	409	6%	68%	UC	548	6%	48%	UC	586

110 -125 Nozzles

Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 250L/Ha	300L/Ha	350L/Ha	400L/Ha	ER110-125 Class	VMD	#40281-125 <141	<600	SR110-125 Class	VMD	#40287-125 <141	<600	MR110-125 Class	VMD	#40291-125 <141	<600	DR110-125 Class	VMD	#40286-125 <141	<600
3.51	**2.50**	**1.52**	4.3-17	3.5-14	3-12	2.8-11	XC	433	8%	67%												
3.84	**3.00**	**1.82**	4.5-18	3.8-15	3.3-13	3-12	XC	412	9%	71%	UC	523	4%	52%								
4.15	**3.50**	**2.12**	5-20	4.3-17	3.5-14	3-12	XC	395	10%	74%	UC	492	4%	58%	UC	638	4%	36%	UC	661	3%	33%
4.44	**4.00**	**2.42**	5.3-21	4.5-18	3.8-15	3.3-13	XC	381	10%	77%	XC	467	5%	63%	UC	614	4%	40%	UC	645	3%	35%
4.71	**4.50**	**2.73**	5.8-23	4.8-19	4-16	3.5-14	VC	369	11%	79%	XC	444	5%	66%	UC	592	4%	44%	UC	630	4%	37%
4.96	**5.00**	**3.03**	6-24	5-20	4.3-17	3.8-15	VC	358	11%	80%	XC	425	6%	69%	UC	573	4%	46%	UC	617	4%	39%
5.20	**5.50**	**3.33**	6.3-25	5.3-21	4.5-18	4-16	C	348	12%	81%	XC	407	6%	72%	UC	556	5%	49%	UC	606	4%	40%
5.43	**6.00**	**3.64**	6.5-26	5.5-22	4.8-19	4-16	C	339	12%	83%	XC	391	7%	74%	UC	541	5%	51%	UC	595	4%	41%

110 -15 Nozzles

Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 300L/Ha	400L/Ha	450L/Ha	500L/Ha	ER110-15 Class	VMD	#40281-15 <141	<600	SR110-15 Class	VMD	#40287-15 <141	<600	MR110-15 Class	VMD	#40291-15 <141	<600	DR110-15 Class	VMD	#40286-15 <141	<600
3.88	**2.50**	**1.29**	4-16	3-12	2.5-10	2.3-9.3	XC	444	8%	63%												
4.26	**3.00**	**1.55**	4.3-17	3.3-13	2.8-11	2.5-10	XC	426	9%	66%												
4.60	**3.50**	**1.81**	4.5-18	3.5-14	3-12	2.8-11	XC	411	10%	69%	UC	558	4%	46%								
4.91	**4.00**	**2.07**	5-20	3.8-15	3.3-13	3-12	XC	398	10%	71%	UC	539	5%	51%	UC	608	4%	40%				
5.21	**4.50**	**2.32**	5.3-21	4-16	3.5-14	3.3-13	XC	386	11%	73%	UC	521	5%	54%	UC	594	4%	42%	UC	645	4%	42%
5.49	**5.00**	**2.58**	5.5-22	4-16	3.8-15	3.3-13	XC	376	12%	75%	UC	505	5%	57%	UC	582	4%	44%	UC	632	4%	44%
5.76	**5.50**	**2.84**	5.8-23	4.3-17	3.8-15	3.5-14	VC	367	12%	76%	UC	491	6%	59%	UC	571	5%	46%	UC	621	4%	46%
6.02	**6.00**	**3.10**	6-24	4.5-18	4-16	3.5-14	VC	358	12%	77%	XC	478	6%	61%	UC	560	5%	47%	UC	610	4%	48%

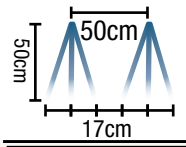
110 -20 Nozzles

Flow L/min	Boom BAR	Tip BAR	Sprayer Speed (L/Ha on 50cm spacing) @ 400L/Ha	500L/Ha	600L/Ha	700L/Ha	ER110-20 Class	VMD	#40281-20 <141	<600	SR110-20 Class	VMD	#40287-20 <141	<600	MR110-20 Class	VMD	#40291-20 <141	<600
5.22	**3.50**	**1.31**	4-16	3.3-13	2.5-10	2.3-9	UC	502	6%	55%								
5.59	**4.00**	**1.50**	4.3-17	3.3-13	2.8-11	2.4-9.6	UC	488	7%	57%								
5.92	**4.50**	**1.69**	4.5-18	3.5-14	3-12	2.5-10	XC	475	7%	60%	UC	545	5%	48%				
6.24	**5.00**	**1.88**	4.8-19	3.8-15	3-12	2.8-11	XC	464	8%	62%	UC	531	5%	52%				
6.55	**5.50**	**2.06**	5-20	4-16	3.3-13	2.8-11	XC	454	8%	64%	UC	518	6%	54%	UC	594	4%	42%
6.84	**6.00**	**2.25**	5.3-21	4-16	3.5-14	3-12	XC	444	8%	65%	UC	506	6%	57%	UC	583	5%	44%

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.



Operating Pressure	0.8bar - 4bar
O-rings	FKM (viton avail.)
Material	Glass-reinforced Polypropylene

Cap Includes:
Metering Orifice
Slide-in Diffuser Plate
3-Hole Streamer Cap

COMBO-JET® Metering Orifices

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

40249-00
50 Mesh Strainer

Available in -08 size & up

Short style orifices are compatible with Combo-Jet snap-in strainers.

40285-04 40285-15

*Some metering orifices have long stems, as they do not require strainers

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.

40292-27

Combo-Jet Streamer Nozzle Size	Metering Orifice Size	Pres. (BAR)	Flow Rate L/min	20cm Outlet Spacing Application Rates (L/HA) @			25cm Outlet Spacing Application Rates (L/HA) @			30cm Outlet Spacing Application Rates (L/HA) @			38cm Outlet Spacing Application Rates (L/HA) @			50cm Outlet Spacing Application Rates (L/HA) @		
				8 kph	10kph	12kph	8 kph	10kph	12kph	8 kph	10kph	12kph	8 kph	10kph	12kph	8 kph	10kph	12kph
Use Tip Wizard to select metering orifices & streamers! WILGER TIP WIZARD TRY IT FREE AT WWW.WILGER.NET Download on the App Store GET IT ON Google Play	-005 COMBO-JET Metering Orifice 40285-005	1.00	0.114	43L	34L	28L	34L	27L	23L	28L	23L	19L	22L	18L	15L	17L	14L	11L
		1.50	0.140	52L	42L	35L	42L	34L	28L	35L	28L	23L	28L	22L	18L	21L	17L	14L
		1.75	0.151	57L	45L	38L	45L	36L	30L	38L	30L	25L	30L	24L	20L	23L	18L	15L
		2.00	0.161	60L	48L	40L	48L	39L	32L	40L	32L	27L	32L	25L	21L	24L	19L	16L
		2.50	0.180	68L	54L	45L	54L	43L	36L	45L	36L	30L	36L	28L	24L	27L	22L	18L
		3.00	0.197	74L	59L	49L	59L	47L	39L	49L	39L	33L	39L	31L	26L	30L	24L	20L
	-0067 COMBO-JET Metering Orifice 40285-007	1.00	0.153	57L	46L	38L	46L	37L	31L	38L	31L	25L	30L	24L	20L	23L	18L	15L
		1.50	0.187	70L	56L	47L	56L	45L	37L	47L	37L	31L	37L	30L	25L	28L	22L	19L
		1.75	0.202	76L	61L	51L	61L	48L	40L	51L	40L	34L	40L	32L	27L	30L	24L	20L
		2.00	0.216	81L	65L	54L	65L	52L	43L	54L	43L	36L	43L	34L	28L	32L	26L	22L
		2.50	0.241	91L	72L	60L	72L	58L	48L	60L	48L	40L	48L	38L	32L	36L	29L	24L
		3.00	0.265	99L	79L	66L	79L	63L	53L	66L	53L	44L	52L	42L	35L	40L	32L	26L
	-01 COMBO-JET Metering Orifice 40285-01	1.00	0.228	85L	68L	57L	68L	55L	46L	57L	46L	38L	45L	36L	30L	34L	27L	23L
		1.50	0.279	105L	84L	70L	84L	67L	56L	70L	56L	47L	55L	44L	37L	42L	34L	28L
		1.75	0.302	113L	90L	75L	90L	72L	60L	75L	60L	50L	60L	48L	40L	45L	36L	30L
		2.00	0.322	121L	97L	81L	97L	77L	64L	81L	64L	54L	64L	51L	42L	48L	39L	32L
		2.50	0.360	135L	108L	90L	108L	86L	72L	90L	72L	60L	71L	57L	47L	54L	43L	36L
		3.00	0.395	148L	118L	99L	118L	95L	79L	99L	79L	66L	78L	62L	52L	59L	47L	39L
 40443-015	-015 COMBO-JET Metering Orifice 40285-015	1.00	0.342	128L	103L	85L	103L	82L	68L	85L	68L	57L	67L	54L	45L	51L	41L	34L
		1.50	0.419	157L	126L	105L	126L	101L	84L	105L	84L	70L	83L	66L	55L	63L	50L	42L
		1.75	0.452	170L	136L	113L	136L	109L	90L	113L	90L	75L	89L	71L	60L	68L	54L	45L
		2.00	0.484	181L	145L	121L	145L	116L	97L	121L	97L	81L	95L	76L	64L	73L	58L	48L
		2.50	0.541	203L	162L	135L	162L	130L	108L	135L	108L	90L	107L	85L	71L	81L	65L	54L
		3.00	0.592	222L	178L	148L	178L	142L	118L	148L	118L	99L	117L	94L	78L	89L	71L	59L
 40443-02	-02 COMBO-JET Metering Orifice 40285-02	1.00	0.456	171L	137L	114L	137L	109L	91L	114L	91L	76L	90L	72L	60L	68L	55L	46L
		1.50	0.558	209L	168L	140L	168L	134L	112L	140L	112L	93L	110L	88L	73L	84L	67L	56L
		1.75	0.603	226L	181L	151L	181L	145L	121L	151L	121L	101L	119L	95L	79L	90L	72L	60L
		2.00	0.645	242L	193L	161L	193L	155L	129L	161L	129L	107L	127L	102L	85L	97L	77L	64L
		2.50	0.721	270L	216L	180L	216L	173L	144L	180L	144L	120L	142L	114L	95L	108L	86L	72L
		3.00	0.790	296L	237L	197L	237L	190L	158L	197L	158L	132L	156L	125L	104L	118L	95L	79L
 40443-025	-025 COMBO-JET Metering Orifice 40285-025	1.00	0.570	214L	171L	142L	171L	137L	114L	142L	114L	95L	112L	90L	75L	85L	68L	57L
		1.50	0.698	262L	209L	174L	209L	168L	140L	174L	140L	116L	138L	110L	92L	105L	84L	70L
		1.75	0.754	283L	226L	188L	226L	181L	151L	188L	151L	126L	149L	119L	99L	113L	90L	75L
		2.00	0.806	302L	242L	201L	242L	193L	161L	201L	161L	134L	159L	127L	106L	121L	97L	81L
		2.50	0.901	338L	270L	225L	270L	216L	180L	225L	180L	150L	178L	142L	119L	135L	108L	90L
		3.00	0.987	370L	296L	247L	296L	237L	197L	247L	197L	165L	195L	156L	130L	148L	118L	99L
 40443-03	-03 COMBO-JET Metering Orifice 40285-03	1.00	0.684	256L	205L	171L	205L	164L	137L	171L	137L	114L	135L	108L	90L	103L	82L	68L
		1.50	0.838	314L	251L	209L	251L	201L	168L	209L	168L	140L	165L	132L	110L	126L	101L	84L
		1.75	0.905	339L	271L	226L	271L	217L	181L	226L	181L	151L	179L	143L	119L	136L	109L	90L
		2.00	0.967	363L	290L	242L	290L	232L	193L	242L	193L	161L	191L	153L	127L	145L	116L	97L
		2.50	1.081	405L	324L	270L	324L	259L	216L	270L	216L	180L	213L	171L	142L	162L	130L	108L
		3.00	1.184	444L	355L	296L	355L	284L	237L	296L	237L	197L	234L	187L	156L	178L	142L	118L
 40443-04	-04 COMBO-JET Metering Orifice 40285-04	1.00	0.91	342L	274L	228L	274L	219L	182L	228L	182L	152L	180L	144L	120L	137L	109L	91L
		1.50	1.12	419L	335L	279L	335L	268L	223L	279L	223L	186L	220L	176L	147L	168L	134L	112L
		1.75	1.21	452L	362L	302L	362L	289L	241L	302L	241L	201L	238L	190L	159L	181L	145L	121L
		2.00	1.29	484L	387L	322L	387L	309L	258L	322L	258L	215L	254L	204L	170L	193L	155L	129L
		2.50	1.44	541L	432L	360L	432L	346L	288L	360L	288L	240L	285L	228L	190L	216L	173L	144L
		3.00	1.58	592L	474L	395L	474L	379L	316L	395L	316L	263L	312L	249L	208L	237L	190L	158L
 40443-05	-05 COMBO-JET Metering Orifice 40285-05	1.00	1.14	427L	342L	285L	342L	274L	228L	285L	228L	190L	225L	180L	150L	171L	137L	114L
		1.50	1.40	523L	419L	349L	419L	335L	279L	349L	279L	233L	275L	220L	184L	209L	168L	140L
		1.75	1.51	565L	452L	377L	452L	362L	302L	377L	302L	251L	298L	238L	198L	226L	181L	151L
		2.00	1.61	604L	484L	403L	484L	387L	322L	403L	322L	269L	318L	254L	212L	242L	193L	161L
		2.50	1.80	676L	541L	451L	541L	432L	360L	451L	360L	300L	356L	285L	237L	270L	216L	180L
		3.00	1.97	740L	592L	494L	592L	474L	395L	494L	395L	329L	390L	312L	260L	296L	237L	197L
 40443-06	-06 COMBO-JET Metering Orifice 40285-06	1.00	1.37	513L	410L	342L	410L	328L	274L	342L	274L	228L	270L	216L	180L	205L	164L	137L
		1.50	1.68	628L	503L	419L	503L	402L	335L	419L	335L	279L	331L	264L	220L	251L	201L	168L
		1.75	1.81	678L	543L	452L	543L	434L	362L	452L	362L	302L	357L	286L	238L	271L	217L	181L
		2.00	1.93	725L	580L	484L	580L	464L	387L	484L	387L	322L	382L	305L	254L	290L	232L	193L
		2.50	2.16	811L	649L	541L	649L	519L	432L	541L	432L	360L	427L	341L	285L	324L	259L	216L
		3.00	2.37	888L	711L	592L	711L	569L	474L	592L	474L	395L	468L	374L	312L	355L	284L	237L

Spending too much time unclogging fertilizer nozzles?
Use COMBO-JET snap-in slotted strainers to provide an extra layer of protection from plugging.

40249-00 50 Mesh

40248-00 25 Mesh

COMBO-JET® Metering Orifices & Fertilizer Streamer Caps

Common Liquid Weight, Specific Gravity, and Conversion Factor for Flow Rate: Required Flow Rate x Conversion Factor = Flow Rate adjusted for density	[WATER] 8.34 lbs/gal Specific Gravity 1.0 Conversion Factor: 1.00	[28-0-0] 10.67 lbs/gal Specific Gravity 1.28 Conversion Factor: 1.13	[10-34-0] 11.65 lbs/gal Specific Gravity 1.28 Conversion Factor: 1.18

Combo-Jet Streamer Nozzle Size	Metering Orifice Size	Pres. (BAR)	Flow Rate L/min	20cm Outlet Spacing Application Rates (L/HA) @			25cm Outlet Spacing Application Rates (L/HA) @			30cm Outlet Spacing Application Rates (L/HA) @			38cm Outlet Spacing Application Rates (L/HA) @			50cm Outlet Spacing Application Rates (L/HA) @		
				8 kph	10kph	12kph	8 kph	10kph	12kph	8 kph	10kph	12kph	8 kph	10kph	12kph	8 kph	10kph	12kph
 40443-08	 Short* -08 COMBO-JET [Short] 40285-08s [Long] 40285-08	1.00	1.82	684L	547L	456L	547L	438L	365L	456L	365L	304L	360L	288L	240L	274L	219L	182L
		1.50	2.23	838L	670L	558L	670L	536L	447L	558L	447L	372L	441L	353L	294L	335L	268L	223L
		1.75	2.41	905L	724L	603L	724L	579L	482L	603L	482L	402L	476L	381L	317L	362L	289L	241L
		2.00	2.58	967L	774L	645L	774L	619L	516L	645L	516L	430L	509L	407L	339L	387L	309L	258L
		2.50	2.88	1081L	865L	721L	865L	692L	577L	721L	577L	481L	569L	455L	379L	432L	346L	288L
		3.00	3.16	1184L	948L	790L	948L	758L	632L	790L	632L	526L	623L	499L	416L	474L	379L	316L
 40443-10	 Short* -10 COMBO-JET [Short] 40285-10s [Long] 40285-10	1.00	2.28	855L	684L	570L	684L	547L	456L	570L	456L	380L	450L	360L	300L	342L	274L	228L
		1.50	2.79	1047L	838L	698L	838L	670L	558L	698L	558L	465L	551L	441L	367L	419L	335L	279L
		1.75	3.02	1131L	905L	754L	905L	724L	603L	754L	603L	503L	595L	476L	397L	452L	362L	302L
		2.00	3.22	1209L	967L	806L	967L	774L	645L	806L	645L	537L	636L	509L	424L	484L	387L	322L
		2.50	3.60	1352L	1081L	901L	1081L	865L	721L	901L	721L	601L	711L	569L	474L	541L	432L	360L
		3.00	3.95	1481L	1184L	987L	1184L	948L	790L	987L	790L	658L	779L	623L	519L	592L	474L	395L
 40443-125	 Short* -125 COMBO-JET [Short] 40285-125s [Long] 40285-125	1.00	2.85	1068L	855L	712L	855L	684L	570L	712L	570L	475L	562L	450L	375L	427L	342L	285L
		1.50	3.49	1309L	1047L	872L	1047L	838L	698L	872L	698L	582L	689L	551L	459L	523L	419L	349L
		1.75	3.77	1413L	1131L	942L	1131L	905L	754L	942L	754L	628L	744L	595L	496L	565L	452L	377L
		2.00	4.03	1511L	1209L	1007L	1209L	967L	806L	1007L	806L	672L	795L	636L	530L	604L	484L	403L
		2.50	4.51	1689L	1352L	1126L	1352L	1081L	901L	1126L	901L	751L	889L	711L	593L	676L	541L	451L
		3.00	4.94	1851L	1481L	1234L	1481L	1184L	987L	1234L	987L	823L	974L	779L	649L	740L	592L	494L
 40443-15	 -15 COMBO-JET [Long] 40285-15	1.00	3.42	1282L	1026L	855L	1026L	821L	684L	855L	684L	570L	675L	540L	450L	513L	410L	342L
		1.50	4.19	1570L	1256L	1047L	1256L	1005L	838L	1047L	838L	698L	826L	661L	551L	628L	503L	419L
		1.75	4.52	1696L	1357L	1131L	1357L	1086L	905L	1131L	905L	754L	893L	714L	595L	678L	543L	452L
		2.00	4.84	1813L	1451L	1209L	1451L	1160L	967L	1209L	967L	806L	954L	763L	636L	725L	580L	484L
		2.50	5.41	2027L	1622L	1352L	1622L	1297L	1081L	1352L	1081L	901L	1067L	854L	711L	811L	649L	541L
		3.00	5.92	2221L	1777L	1481L	1777L	1421L	1184L	1481L	1184L	987L	1169L	935L	779L	888L	711L	592L
 40443-20	 -20 COMBO-JET [Long] 40285-20	1.00	4.56	1710L	1368L	1140L	1368L	1094L	912L	1140L	912L	760L	900L	720L	600L	684L	547L	456L
		1.50	5.58	2094L	1675L	1396L	1675L	1340L	1117L	1396L	1117L	931L	1102L	882L	735L	838L	670L	558L
		1.75	6.03	2262L	1809L	1508L	1809L	1447L	1206L	1508L	1206L	1005L	1190L	952L	794L	905L	724L	603L
		2.00	6.45	2418L	1934L	1612L	1934L	1547L	1289L	1612L	1289L	1075L	1272L	1018L	848L	967L	774L	645L
		2.50	7.21	2703L	2162L	1802L	2162L	1730L	1442L	1802L	1442L	1201L	1423L	1138L	948L	1081L	865L	721L
		3.00	7.90	2961L	2369L	1974L	2369L	1895L	1579L	1974L	1579L	1316L	1558L	1247L	1039L	1184L	948L	790L
	 -25 COMBO-JET [Long] 40285-25	1.00	5.70	2137L	1710L	1425L	1710L	1368L	1140L	1425L	1140L	950L	1125L	900L	750L	855L	684L	570L
		1.50	6.98	2617L	2094L	1745L	2094L	1675L	1396L	1745L	1396L	1163L	1377L	1102L	918L	1047L	838L	698L
		1.75	7.54	2827L	2262L	1885L	2262L	1809L	1508L	1885L	1508L	1256L	1488L	1190L	992L	1131L	905L	754L
		2.00	8.06	3022L	2418L	2015L	2418L	1934L	1612L	2015L	1612L	1343L	1591L	1272L	1060L	1209L	967L	806L
		2.50	9.01	3379L	2703L	2253L	2703L	2162L	1802L	2253L	1802L	1502L	1778L	1423L	1186L	1352L	1081L	901L
		3.00	9.87	3701L	2961L	2468L	2961L	2369L	1974L	2468L	1974L	1645L	1948L	1558L	1299L	1481L	1184L	987L
	 -30 COMBO-JET [Long] 40285-30	1.00	6.84	2564L	2051L	1710L	2051L	1641L	1368L	1710L	1368L	1140L	1350L	1080L	900L	1026L	821L	684L
		1.50	8.38	3141L	2513L	2094L	2513L	2010L	1675L	2094L	1675L	1396L	1653L	1322L	1102L	1256L	1005L	838L
		1.75	9.05	3392L	2714L	2262L	2714L	2171L	1809L	2262L	1809L	1508L	1785L	1428L	1190L	1357L	1086L	905L
		2.00	9.67	3627L	2901L	2418L	2901L	2321L	1934L	2418L	1934L	1612L	1909L	1527L	1272L	1451L	1160L	967L
		2.50	10.81	4055L	3244L	2703L	3244L	2595L	2162L	2703L	2162L	1802L	2134L	1707L	1423L	1622L	1297L	1081L
		3.00	11.84	4442L	3553L	2961L	3553L	2843L	2369L	2961L	2369L	1974L	2338L	1870L	1558L	1777L	1421L	1184L
	 -40 COMBO-JET [Long] 40285-40	1.00	9.12	3419L	2735L	2279L	2735L	2188L	1824L	2279L	1824L	1520L	1800L	1440L	1200L	1368L	1094L	912L
		1.50	11.17	4188L	3350L	2792L	3350L	2680L	2233L	2792L	2233L	1861L	2204L	1763L	1469L	1675L	1340L	1117L
		1.75	12.06	4523L	3618L	3015L	3618L	2895L	2412L	3015L	2412L	2010L	2381L	1904L	1587L	1809L	1447L	1206L
		2.00	12.89	4835L	3868L	3224L	3868L	3095L	2579L	3224L	2579L	2149L	2545L	2036L	1697L	1934L	1547L	1289L
		2.50	14.42	5406L	4325L	3604L	4325L	3460L	2883L	3604L	2883L	2403L	2845L	2276L	1897L	2162L	1730L	1442L
		3.00	15.79	5922L	4738L	3948L	4738L	3790L	3158L	3948L	3158L	2632L	3117L	2494L	2078L	2369L	1895L	1579L
	 -50 COMBO-JET [Long] 40285-50	1.00	11.40	4274L	3419L	2849L	3419L	2735L	2279L	2849L	2279L	1900L	2249L	1800L	1500L	1710L	1368L	1140L
		1.50	13.96	5234L	4188L	3490L	4188L	3350L	2792L	3490L	2792L	2326L	2755L	2204L	1837L	2094L	1675L	1396L
		1.75	15.08	5654L	4523L	3769L	4523L	3618L	3015L	3769L	3015L	2513L	2976L	2381L	1984L	2262L	1809L	1508L
		2.00	16.12	6044L	4835L	4029L	4835L	3868L	3224L	4029L	3224L	2686L	3181L	2545L	2121L	2418L	1934L	1612L
		2.50	18.02	6758L	5406L	4505L	5406L	4325L	3604L	4505L	3604L	3003L	3557L	2845L	2371L	2703L	2162L	1802L
		3.00	19.74	7403L	5922L	4935L	5922L	4738L	3948L	4935L	3948L	3290L	3896L	3117L	2597L	2961L	2369L	1974L

*Short and long pre-orifices are intended to be used as replacement. If a long pre-orifice is used in a spray nozzle, replace it with the same length pre-orifice.

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

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

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

The DX (drift redux) & ER (fine spray) narrow angle spray nozzles.
For smaller nozzle sizes and angles, contact Wilger.

Nozzle Size	Flow Rate L/min	Boom BAR	Tip BAR	Application Rate in Litres/Hectare on 10cm Nozzle Spacing with PWM @ Speed Range in kph (25-100% D/C)				20° Nozzles	40° Nozzles	60° Nozzles
-015	Flow L/min	Boom BAR	Tip BAR	Speed Range (25-100% Duty cycle) @ 75L/Ha	100L/Ha	125L/Ha	150L/Ha	20° Drift Reduction DX20-015 #42220-015	40° Drift Reduction DX40-015 #42240-015	60° Drift Reduction DX60-015 #42260-015
	0.48	2.0	1.98	3.8-15	3-12	2.3-9.2	1.9-7.7			
	0.54	2.5	2.48	4.3-17	3.3-13	2.5-10	2.2-8.6			
	0.59	3.0	2.97	4.8-19	3.5-14	2.8-11	2.4-9.4	20° Fine Spray ER20-015 #42120-015	40° Fine Spray ER40-015 #42140-015	60° Fine Spray ER60-015 #42160-015
	0.68	4.0	3.96	5.5-22	4-16	3.3-13	2.8-11			
	0.76	5.0	4.96	6-24	4.5-18	3.8-15	3-12			
-02	Flow L/min	Boom BAR	Tip BAR	Speed Range (25-100% Duty cycle) @ 100L/Ha	125L/Ha	150L/Ha	175L/Ha	20° Drift Reduction DX20-02 #42220-02	40° Drift Reduction DX40-02 #42240-02	60° Drift Reduction DX60-02 #42260-02
	0.64	2.0	1.97	3.8-15	3-12	2.5-10	2.2-8.8			
	0.71	2.5	2.46	4.3-17	3.5-14	2.8-11	2.5-9.8			
	0.78	3.0	2.95	4.8-19	3.8-15	3.3-13	2.8-11	20° Fine Spray ER20-02 #42120-02	40° Fine Spray ER40-02 #42140-02	60° Fine Spray ER60-02 #42160-02
	0.90	4.0	3.93	5.5-22	4.3-17	3.5-14	3-12			
	1.01	5.0	4.92	6-24	4.8-19	4-16	3.5-14			
-025	Flow L/min	Boom BAR	Tip BAR	Speed Range (25-100% Duty cycle) @ 125L/Ha	150L/Ha	175L/Ha	200L/Ha	20° Drift Reduction DX20-025 #42220-025	40° Drift Reduction DX40-025 #42240-025	60° Drift Reduction DX60-025 #42260-025
	0.80	2.0	1.95	3.8-15	3.3-13	2.8-11	2.4-9.5			
	0.89	2.5	2.44	4.3-17	3.5-14	3-12	2.8-11			
	0.97	3.0	2.92	4.8-19	4-16	3.3-13	3-12	20° Fine Spray ER20-025 #42120-025	40° Fine Spray ER40-025 #42140-025	60° Fine Spray ER60-025 #42160-025
	1.13	4.0	3.90	5.5-22	4.5-18	3.8-15	3.5-14			
	1.26	5.0	4.87	6-24	5-20	4.3-17	3.8-15			
-03	Flow L/min	Boom BAR	Tip BAR	Speed Range (25-100% Duty cycle) @ 125L/Ha	150L/Ha	175L/Ha	200L/Ha	20° Drift Reduction DX20-03 #42220-03	40° Drift Reduction DX40-03 #42240-03	60° Drift Reduction DX60-03 #42260-03
	0.95	2.0	1.93	4.5-18	3.8-15	3.3-13	2.8-11			
	1.06	2.5	2.41	5-20	4.3-17	3.8-15	3.3-13			
	1.16	3.0	2.89	5.5-22	4.8-19	4-16	3.5-14	20° Fine Spray ER20-03 #42120-03	40° Fine Spray ER40-03 #42140-03	60° Fine Spray ER60-03 #42160-03
	1.34	4.0	3.86	6.5-26	5.3-21	4.5-18	4-16			
	1.50	5.0	4.82	7.3-29	6-24	5.3-21	4.5-18			
-04	Flow L/min	Boom BAR	Tip BAR	Speed Range (25-100% Duty cycle) @ 150L/Ha	200L/Ha	250L/Ha	275L/Ha	20° Drift Reduction DX20-04 #42220-04	40° Drift Reduction DX40-04 #42240-04	60° Drift Reduction DX60-04 #42260-04
	1.25	2.0	1.87	5-20	3.8-15	3-12	2.8-11			
	1.40	2.5	2.34	5.5-22	4.3-17	3.3-13	3-12			
	1.53	3.0	2.81	6-24	4.5-18	3.8-15	3.3-13	20° Fine Spray ER20-04 #42120-04	40° Fine Spray ER40-04 #42140-04	60° Fine Spray ER60-04 #42160-04
	1.77	4.0	3.75	7-28	5.3-21	4.3-17	3.8-15			
	1.97	5.0	4.69	8-32	6-24	4.8-19	4.3-17			
-05	Flow L/min	Boom BAR	Tip BAR	Speed Range (25-100% Duty cycle) @ 175L/Ha	200L/Ha	250L/Ha	300L/Ha	20° Drift Reduction DX20-05 #42220-05	40° Drift Reduction DX40-05 #42240-05	60° Drift Reduction DX60-05 #42260-05
	1.53	2.0	1.81	5.3-21	4.5-18	3.8-15	3-12			
	1.72	2.5	2.26	6-24	5.3-21	4-16	3.5-14			
	1.88	3.0	2.72	6.5-26	5.8-23	4.5-18	3.8-15	20° Fine Spray ER20-05 #42120-05	40° Fine Spray ER40-05 #42140-05	60° Fine Spray ER60-05 #42160-05
	2.17	4.0	3.62	7.5-30	6.5-26	5.3-21	4.3-17			
	2.43	5.0	4.53	8.3-33	7.3-29	5.8-23	4.8-19			
-06	Flow L/min	Boom BAR	Tip BAR	Speed Range (25-100% Duty cycle) @ 200L/Ha	250L/Ha	300L/Ha	350L/Ha	20° Drift Reduction DX20-06 #42220-06	40° Drift Reduction DX40-06 #42240-06	60° Drift Reduction DX60-06 #42260-06
	1.80	2.0	1.74	5.5-22	4.3-17	3.5-14	3-12			
	2.02	2.5	2.17	6-24	4.8-19	4-16	3.5-14			
	2.21	3.0	2.61	6.8-27	5.3-21	4.5-18	3.8-15	20° Fine Spray ER20-06 #42120-06	40° Fine Spray ER40-06 #42140-06	60° Fine Spray ER60-06 #42160-06
	2.55	4.0	3.48	7.8-31	6-24	5-20	4.3-17			
	2.85	5.0	4.35	8.5-34	6.8-27	5.8-23	5-20			
-08	Flow L/min	Boom BAR	Tip BAR	Speed Range (25-100% Duty cycle) @ 300L/Ha	350L/Ha	400L/Ha	450L/Ha	20° Drift Reduction DX20-08 #42220-08	40° Drift Reduction DX40-08 #42240-08	60° Drift Reduction DX60-08 #42260-08
	2.29	2.0	1.58	4.5-18	4-16	3.5-14	3-12			
	2.56	2.5	1.97	5.3-21	4.5-18	3.8-15	3.5-14			
	2.81	3.0	2.37	5.5-22	4.8-19	4.3-17	3.8-15	20° Fine Spray ER20-08 #42120-08	40° Fine Spray ER40-08 #42140-08	60° Fine Spray ER60-08 #42160-08
	3.24	4.0	3.16	6.5-26	5.5-22	4.8-19	4.3-17			
	3.62	5.0	3.95	7.3-29	6.3-25	5.5-22	4.8-19			
-10	Flow L/min	Boom BAR	Tip BAR	Speed Range (25-100% Duty cycle) @ 400L/Ha	450L/Ha	500L/Ha	600L/Ha	20° Drift Reduction DX20-10 #42220-10	40° Drift Reduction DX40-10 #42240-10	60° Drift Reduction DX60-10 #42260-10
	2.71	2.0	1.41	4-16	3.5-14	3.3-13	2.8-11			
	3.03	2.5	1.77	4.5-18	4-16	3.8-15	3-12			
	3.32	3.0	2.12	5-20	4.5-18	4-16	3.3-13	20° Fine Spray ER20-10 #42120-10	40° Fine Spray ER40-10 #42140-10	60° Fine Spray ER60-10 #42160-10
	3.83	4.0	2.82	5.8-23	5-20	4.5-18	3.8-15			
	4.28	5.0	3.53	6.5-26	5.8-23	5.3-21	4.3-17			
-125	Flow L/min	Boom BAR	Tip BAR	Speed Range (25-100% Duty cycle) @ 500L/Ha	600L/Ha	700L/Ha	800L/Ha	20° Drift Reduction DX20-125 #42220-125	40° Drift Reduction DX40-125 #42240-125	60° Drift Reduction DX60-125 #42260-125
	3.14	2.0	1.21	3.8-15	3.3-13	2.8-11	2.4-9.4			
	3.51	2.5	1.52	4.3-17	3.5-14	3-12	2.8-11			
	3.84	3.0	1.82	4.5-18	3.8-15	3.3-13	3-12	20° Fine Spray ER20-125 #42120-125	40° Fine Spray ER40-125 #42140-125	60° Fine Spray ER60-125 #42160-125
	4.44	4.0	2.42	5.3-21	4.5-18	3.8-15	3.3-13			
	4.96	5.0	3.03	6-24	5-20	4.3-17	3.8-15			

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.

Spot **&** Broadcast spraying with the same nozzles? Consider ***COMBO-JET***® 80° Nozzles
Using 80° drift reduction nozzles can be an effective way to use broadcast (with overlap) and spot spray mode with the same nozzles.

What is optical spot spraying?

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

Spray on Green

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

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

Green on Green

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

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

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

What is the DX series spray nozzle?

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

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

Are they still PWM-spray system compatible? Absolutely! PWM APPROVED

Speed up spray nozzle responsivity with *INSTA-JET*

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

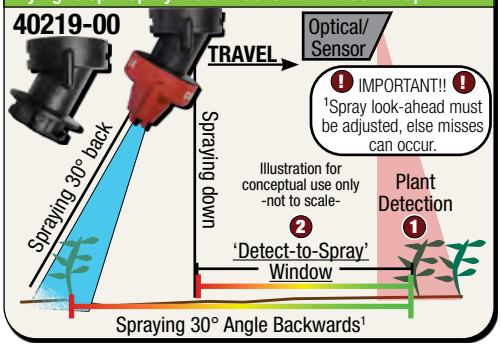
The Insta-jet insert helps improve responsiveness of your nozzle by significantly reducing the amount of cavity space within a nozzle body outlet, such that there is less cavity space to charge between pulses. This means faster ON and OFF time of the nozzle's spray, leaving for more time being optimally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

40262-00
INSTA-JET snap-in insert

The INSTA-JET insert snaps into any COMBO-JET nozzle[1] to handle as one piece.

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

Trying to spot spray faster? Consider the 30° Adapter.



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), provide new functions, or a mix thereof. All adapters self-align cap to common nozzle offset angle.

COMBO-JET 50/30 Adapter

NEW

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

COMBO-JET 30/30 Y-Adapter

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

30° COMBO-JET to COMBO-JET

NEW

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

COMBO-JET DOUBLE-DOWN

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

Square Lug to COMBO-JET®

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

Square Lug to DOUBLE-DOWN

NEW

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

COMBO-JET to Square Lug

NEW DESIGN

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

30° COMBO-JET to Square Lug

NEW

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

JACTO to COMBO-JET

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

AGRIFAC to COMBO-JET

NEW

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

AGRIFAC to DOUBLE-DOWN

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

AGRIFAC to 30/30 Y-Adapter

NEW

*"AG" molded into the cap designates for Agrifac outlet only

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

Y-Adapter or 'Double-Down' mode?

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

Read the 'Tip Guide for Double Nozzle Spraying'

PWM-Ready Double Nozzle Spraying

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

For example: MR110-04 + SR110-06 = 110-10 size

*PWM solenoid pressure drop would be based on combined size (e.g. -10)

HARDI to COMBO-JET

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

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

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

Gasket for Slotted Caps

40160-00
Rubber Gasket for Radialock slotted caps
40160-V0 for Viton

3/8" Slot[1]

40269-05
For 3/8" Teejet/Hypro spray tips[1]

1/2" Round Slot[1]

40271-05
For 1/2" round spray tips[1]

7/16" Wide Slot[2]

40276-05
For larger Teejet/Hypro spray tips[2]

HARDI Tip Slot[2]

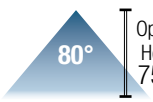
40275-05
For HARDI spray tips[2]

[1]May be available in colors: Grey (-09), Orange (-08), Brown (-07), Blue (-06), Black (-05), Yellow (-04), Green (-03), White (-02), Red (-01)

[2]May be available in colors*: Black (-05), Yellow (-04), Green (-03), White (-02), Red (-01) *Check factory availability of non-black colors.

ER Stainless spray tips with 3/8" capsules

40170-04



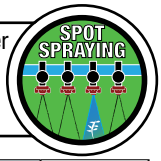
Optimal Height 75cm

40169-04

Optimal Height 50cm

Use with #40269-05 + #40160-00 gasket

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



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

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

COMBO-JET® Caps, Adapters & Strainers

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

Plug Caps

Caps unused Combo-Jet nozzle body outlets

40272-B5

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

Hose Barb Caps

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

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

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

COMBO-JET Cap O-rings

40260-00
FKM

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

40260-V0
viton

40261-00

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

COMBO-JET Snap-in Strainers

Combo-jet strainers snap into a metering orifice or cap for an assembly that handles as 'one-piece'

40250-00 40251-00 40249-00 40248-00

Mesh Size	Slotted Strainer	Stainless Mesh	Color
100 mesh	-	#40251-00	Green
	use 100 mesh for -02 nozzles or smaller		
50 mesh	40249-00	#40250-00	Blue
	use 50 mesh for -025 or larger nozzles		
25 mesh	40248-00	-	Yellow
16 mesh	40247-00	-	Gray

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.

Threaded Outlet Adapters

Combo-Jet Cap with NPT-F threaded port

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

'-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.

New Hose Drop & Extension Caps

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

Outlet	Length	Part #
Combo-Jet to Combo-Jet	5cm	40210-00
	12cm	40211-00
Combo-Jet Cap to 1/4" NPT-M	40cm	22026-00
	60cm	22036-00
	91cm	22038-00
	122cm	22048-00

40210-00
2" Combo-Jet Cap Extension

40211-00
5" Combo-Jet Cap Extension

22021-00

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

Fertilizer Streamer Caps

3-hole Fertilizer Streamer Caps [Molded]

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

Color-coded, Single part number ordering

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

2-hole Streamer Caps [Drilled]

2-hole streamer caps are used to stream liquid fertilizer for ~25cm coverage

3-hole Streamer Caps [Drilled]

3-hole streamer caps are used to stream liquid fertilizer for ~17cm coverage

Drilled Fertilizer Streamer Caps [CAP ONLY]			
Cap Size	Flow Range	2-Hole Cap	3-Hole Cap
Small	0.19 - 1.51 L/min	40432-047	40433-047
Medium	0.76 - 3.78 L/min	40432-086	40433-067
Large	1.9 - 11.4 L/min	40432-104	40433-104

Ordering [Drilled] Streamer Caps

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

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

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

Plug Cap

40197-05
Square Lug nozzle outlet plug cap

3/8" Slot Cap

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

Threaded Cap

40164-00
45° 1/4" NPT-F thread

Flanged Strainers

40150-00 40158-00 40151-00
Stainless Steel Strainers for Square-Lug Caps & Nozzles

Cap Gaskets

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

Gaskets are required to seal all Square Lug Caps

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

The DS41 Advantage

Ultra-compact turret arms & narrow nozzle body

Designed for dual solenoid use for spot spraying

SPOT SPRAYING

BRAND NEW NOZZLE BODY DESIGN

NEW

Spring-Lock Turret Positive Turret Positioning

Polypropylene and stainless components resist acid and harsh chemicals

DOUBLE STACKED

Ability to spray with one or both nozzles independent of each-other.

Robust design with easy maintenance

21/32" HIGH FLOW Nozzle Inlet

Both 3/8" & 21/32" High flow inlet sizes are available

PWM-controlled solenoid on either or both nozzle position.

PWM

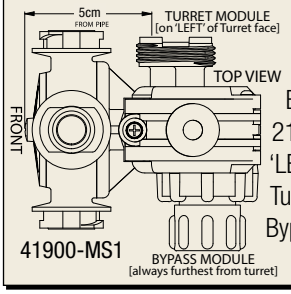
Dual Spray 4+1 [DS41] Nozzle Bodies

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

Boom Pipe/Tube Size	Nozzle Outlet Configuration	Inlet Hole Size	DS41 Nozzle Bodies with 5/16" Bolt Mount Upper Clamp			
			Turret Control Module Position[1]	Module Configuration & Assembly Part#		
				-00 MSO on BOTH Bypass & Turret	-MS1 MSO on Bypass No Module on Turret	-NM No modules on Bypass & Turret
1" (1.315" OD)	4 CJ (Turret) + 1 CJ (Bypass)	3/8" Inlet	LEFT	41902-00	41902-MS1	41902-NM
			RIGHT	41903-00	41903-MS1	41903-NM
		High Flow 21/32" Inlet	LEFT	41900-00	41900-MS1	41900-NM
			RIGHT	41901-00	41901-MS1	41901-NM
	4 SqLug (Turret) + 1 CJ (Bypass)	3/8" Inlet	LEFT	41912-00	41912-MS1	41912-NM
			RIGHT	41913-00	41913-MS1	41913-NM
		High Flow 21/32" Inlet	LEFT	41910-00	41910-MS1	41910-NM
			RIGHT	41911-00	41911-MS1	41911-NM

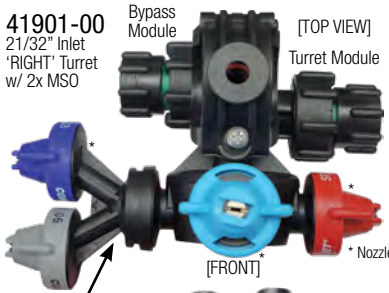
[1]DS41 LEFT & RIGHT bodies are dictated by position of turret module relative to the front faceplate. For ease of ordering, recommended to order 50% LEFT & RIGHT for sprayer retrofits. Bypass' module is always opposite the turret's module.

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



Example:
21/32" Inlet
'LEFT' Turret
Turret: PWM
Bypass: MSO

41901-00
21/32" Inlet
'RIGHT' Turret
w/ 2x MSO



41900-MS1
21/32" Inlet
'LEFT' Turret
w/ 1x MSO
on bypass

41910-MS1
21/32" Inlet
'LEFT' Turret 'MS1'
4 Square Lug Turret
+ 1 COMBO-JET bypass

Use the DS41 with new QF100 elbows for even more compact configurations

NEW 30/50 Adapter for angled spraying with the DS41

Given the DS41 is ultra compact, the 30/50 was designed to spin on the turret with the 30° angle forward[1].

50° Backward | 30° Forward

40442-00
Perfect for cereal fungicide application

[1]When using the 50° nozzle angle forward, removal of the adapter will be required due to the compact nature of the DS41.

COMBO-JET® Nozzle Bodies

The COMBO-JET® Advantage

- **Hinged Clamp for easy installation**
- **Compact body sits directly under the boom. Perfect for tight boom frames & heavy PWM solenoids**
- **Nozzle Bodies can swap right/left orientation to avoid sprayer boom frame**
- **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**

KWIKSTOP™ Raised Inlet Available

Single Outlet COMBO-JET® Nozzle Bodies

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

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

40621-00
Single

40611-P15
Single Outlet w/ 1.0bar check valve (red) and hose barb cap

Commonly used in liquid fertilizer metering manifolds mounted on plumbed pipe

Dual Outlet COMBO-JET® Swivel Bodies

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

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

40622-00
Dual Swivel Combo-Jet

40622-NM
Dual Swivel w/o Check Valve

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

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

40623-00
Triple Swivel Combo-Jet

40628-NM
High Flow **21/32" Inlet**
Triple Swivel w/o Check Valve

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

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

40631-00
Single w/ KWIKSTOP Raised inlet

Smooth Clamp Bodies

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

Old-style smooth clamp

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

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

KWIKSTOP™ is a trademark, owned by BRANDT INDUSTRIES LTD.

High/Low PSI Check Valves

Replace part # ending '-00' to order 0.27bar or 1bar check valves

0.27 bar '-P4' [BLUE]	0.7 bar '-00' [Standard]	1 bar '-P15' [RED]

Nozzle Body Specifications

Operating Pressure	0.7*-7 bar
Single Outlet Flow Rate	8 L/min @0.34bar pressure drop 11.7 L/min @0.68bar pressure drop
Dual Swivel Flow Rate	6.4 L/min @0.34bar pressure drop 10.2 L/min @0.68bar pressure drop
Triple Swivel Flow Rate	6 L/min @0.34bar pressure drop 9.8 L/min @0.68bar 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" (1.05" OD)	1 Square Lug	Check Valve	40651-00
		No Check	40140-00
1" (1.315" OD)	1 Square Lug	Check Valve	40661-00
		Manual On/Off	40661-MS
		No Module	40661-NM
		No Check	40141-00

40661-00
Single

Commonly used in liquid fertilizer metering manifolds mounted on plumbed pipe

40141-00
No Check Valve Sq. Lug

Dual Outlet Square Lug Nozzle Bodies

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

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

40662-00
Dual Swivel Sq. Lug

40662-NM
Dual Swivel Sq. Lug

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

Triple Outlet Square Lug Nozzle Bodies

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

Boom Pipe	Outlets	Style	Part#
3/4" (1.05" OD)	3 Square Lug	Check Valve	40653-00
1" (1.315" OD)	3 Square Lug	Check Valve	40663-00
		Manual On/Off	40663-MS
		No Module	40663-NM

40663-00
Triple Swivel Combo-Jet

40663-NM
Triple Swivel w/o Check Valve

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

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" (1.315" OD)	1 Square Lug	KWIKSTOP	40671-00
	2 Square Lug	KWIKSTOP	40672-00
	3 Square Lug	KWIKSTOP	40673-00

40671-00
Single w/ KWIKSTOP Raised inlet

40672-00
Dual Swivel w/ KWIKSTOP Raised Inlet

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

KWIKSTOP™ is a trademark, owned by BRANDT INDUSTRIES LTD.

High/Low PSI Check Valves

Replace part # ending '-00' to order 0.27bar or 1bar check valves

0.27 bar '-P4' [BLUE]

0.7 bar '-00' [Standard]

1 bar '-P15' [RED]

Nozzle Body Specifications

Operating Pressure	0.7*-7 bar
Single Outlet Flow Rate	8 L/min @0.34bar pressure drop 11.7 L/min @0.68bar pressure drop
Dual Swivel Flow Rate	6.4 L/min @0.34bar pressure drop 10.2 L/min @0.68bar pressure drop
Triple Swivel Flow Rate	6 L/min @0.34bar pressure drop 9.8 L/min @0.68bar pressure drop
O-ring Seals	FKM (viton avail.)
Materials	SS (screws) Polypropylene (body) Celcon (lower swivel)

Swivel Body Replacement Parts - For ALL TYPES Swivel Bodies

40166-04	O-ring Repair Kit, CJ Nozzle Bodies, FKM (6 Bodies)
40166-05	O-ring Repair Kit, CJ Nozzle Bodies, VITON® (6 Bodies)
40193-02	SCREW, Hi-Lo, #10 x 3/4" SS [for Hinged Swivel Bodies]
40155-23	Molded Diaphragm, FKM (replaces 40155-07 + 20455-04)
20455-07	O-ring, 3/8" inlet seal, #110, FKM, Duro 70
20455-04	O-ring, Pressure Pad, Replacement (pairs with 40155-07)
40155-07	Diaphragm Rubber Seal, EPDM (use w/ #20455-04)
40155-12	Diaphragm Rubber Seal, VITON® (use w/ #20455-04)

3/8" Nozzle body inlet o-ring

20455-07

Hi-Lo screw for Swivel Bodies

40193-02

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

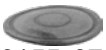
	BUNA-N Kit incl.	viton Kit incl.
6x Pressure Pad O-rings	#20455-04	#20455-V4
24x Inner-body O-rings	#40155-09	#40155-13
6x Diaphragms	#40155-07	#40155-12

*Kits will include either a pair of #20455-04 & #40155-07, or #40155-23. Both serve the same function.

NEW

40155-23
Requires pressure pad o-ring to be removed

20455-04



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

PRODUCT UPGRADE: Diaphragms

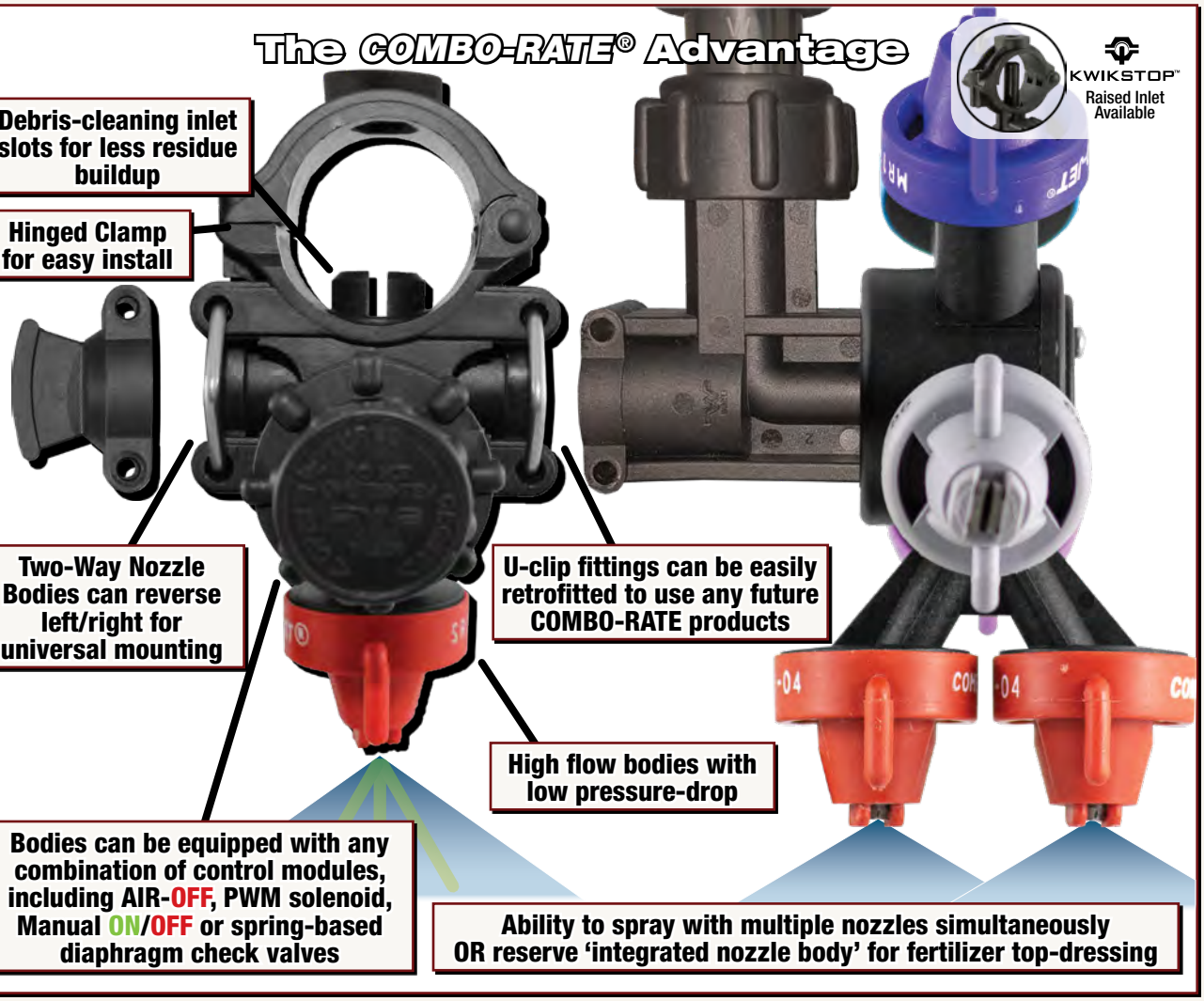
A molded, single-piece diaphragm is replacing the two-piece diaphragm rubber + pressure pad o-ring.

***For replacing old-style parts, ENSURE pressure pad o-ring is removed from check valve module**, and the new diaphragm groove fits where the pressure-pad o-ring was.*

Replaced by Single-Piece Molded Diaphragm #40155-23

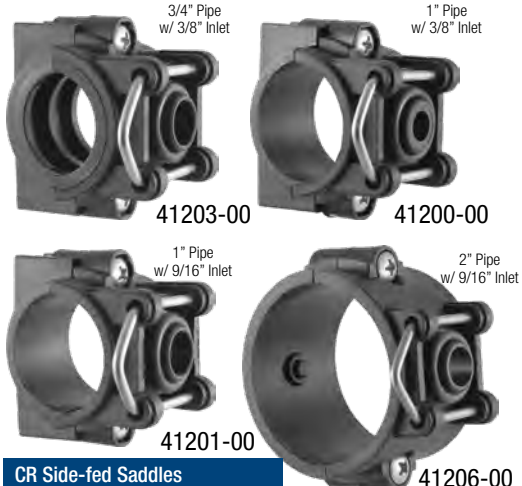
COMBO-RATE® Stacking Nozzle Bodies

The COMBO-RATE® Advantage



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



CR Side-fed Saddles		
Boom Size	Inlet Size	Part#
3/4" Pipe (1.05" OD)	3/8" inlet	41203-00
1" Pipe (1.315" OD)	3/8" inlet	41200-00
	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.

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

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

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.

KWIKSTOP™ Raised Inlet Available

41433-00

KWIKSTOP™ Raised Inlets Naturally aspirate the boom, reducing nozzle run-on

41453-00

HOW THEY WORK: Manual ON/OFF Check Valves

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

When the knob is OPEN, it acts as a standard 0.7 bar check valve.

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

Boom Size	Sch40 Pipe Outside Diameter	Inlet Size	Stacking Direction	Nozzle Bodies with 5/16" Bolt Mount Upper Clamp Module Description & Part#			
				Dia. Check Valve	Manual ON/OFF	Air-Off Operated[2]	PWM (w/o Nut)**
1/2"	0.84"	3/8" Inlet	One-Way	41411-00	41413-00	41415-00	41417-00
3/4"	1.05"	3/8" Inlet	One-Way	41421-00	41423-00	41425-00	41427-00
28mm	28mm	3/8" Inlet	One-Way	41481-00	41483-00	41485-00	41487-00
1"	1.315"	3/8" Inlet	One-Way	41431-00	41433-00	41435-00	41437-00
		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

Nozzle Body Specifications

Operating Pressure	0.7*-7bar [2](5.5 bar for air-off)
3/8" Inlet Single Outlet Flow Rate	8 L/min @0.34bar pressure drop 11.7 L/min @0.68bar pressure drop
9/16" Inlet Single Outlet Flow Rate	8.3 L/min @0.34bar pressure drop 13.25 L/min @0.68bar pressure drop
21/32" Inlet High Flow Single Outlet Flow Rate	11.35L/min @0.34bar pressure drop 15L/min @0.68bar pressure drop
O-ring Seals	FKM (viton avail.)
Materials	SS (screws) Glass-Reinforced Polypropylene (body)

* 0.7bar minimum with 0.7bar check valve

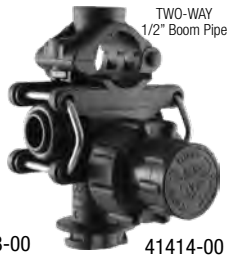
Two-Way Stacking Integrated COMBO-RATE® II Nozzle Bodies

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

KWIKSTOP™ Raised Inlet Available

41434-00

41438-00



41414-00

High Flow Nozzle Bodies

For very high flow requirements, use the 21/32" inlet size nozzle bodies.

Boom Size	Sch40 Pipe Outside Diameter	Inlet Size	Stacking Direction	Nozzle Bodies with 5/16" Bolt Mount Upper Clamp Module Description & Part#			
				Dia. Check Valve	Manual ON/OFF	Air-Off Operated[2]	PWM (w/o Nut)**
1/2"	0.84"	3/8" Inlet	Two-Way	41412-00	41414-00	41416-00	41418-00
3/4"	1.05"	3/8" Inlet	Two-Way	41422-00	41424-00	41426-00	41428-00
28mm	28mm	3/8" Inlet	Two-Way	41482-00	41484-00	41486-00	41488-00
1"	1.315"	3/8" Inlet	Two-Way	41432-00	41434-00	41436-00	41438-00
		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	0.7*-7bar [2](5.5 bar for air-off)
3/8" Inlet Two Outlets Used Flow Rate	12 L/min @0.34bar pressure drop 19 L/min @0.68bar pressure drop
9/16" Inlet Two Outlets Used Flow Rate	13.6 L/min @0.34bar pressure drop 23 L/min @0.68bar pressure drop
21/32" Inlet High Flow Two Outlets Used Flow Rate	17 L/min @0.34bar pressure drop 34 L/min @0.68bar pressure drop
O-ring Seals	FKM (viton avail.)
Materials	SS (screws) Glass-Reinforced Polypropylene (body)

* 0.7bar minimum with 0.7bar check valve

Combo-Rate Body, Turret Replacement & Auxiliary 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
41331-03	Screw, Hi Lo, SS, CRII Body Hinge Clamp Screw (for 2016+ newer)
41285-00	Adapter, CR Plug [Covers unused Combo-Rate port]
41286-00	Plug, Inner CR2 port plug [fits inside side port of CRII bodies]
41502-04	CR Turret Outlet Arm, Combo-Jet Outlet
41502-10	CR Turret Outlet Arm, Square Lug Outlet
41502-13	CR Turret Outlet Arm, Double-Down Combo-Jet Outlet
41502-05	CR Turret Outlet Arm, Plug
40155-23	Diaphragm, Molded, FKM (Replaces #40155-07 + 20455-04)
41100-15	CRII Nozzle Body O-ring Repair Kit, FKM (6 Bodies)
41100-16	CRII Nozzle Body O-ring Repair Kit, VITON® (6 Bodies)
41502-11	CR Turret Repair Kit, FKM (2 Bodies)
41502-12	CR Turret Repair Kit, VITON® (2 Bodies)
41593-00	Plug, CR Clamp to plug 21/32" inlet hole on 1" pipe

* Requires #20455-07 O-Ring

NEW

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

NEW

41593-00 21/32" Inlet Plug Clamp

41331-03

20460-04

40155-23 Molded Diaphragm + pad o-ring

Replaces

41285-00 Plug

41502-05* Turret Arm Plug

40200-02 Inter-body O-ring

20455-07 Turret Arm O-ring

NEW

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

20455-04

40155-07 Diaphragm

41502-04* Combo-Jet® Turret Arm

41502-10* Square Lug Turret Arm

41502-13* Double-Down Turret Arm

NEW

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

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

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

	Standard Kit includes	viton Kit incl.
6x Pressure Pad O-rings	#20455-04	#20455-V4
6x Inter-body O-rings	#40200-02	#40200-V2
6x Diaphragms	#40155-07	#40155-12

*Repair kits may include a pair(s) of #40155-07 and #20455-04, or a single #40155-23. Both serve the same purpose. Ensure to remove the 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 female port for further expansion.

Manual ON/OFF Check Valve — 41110-00

Air-Off Operated Check Valve — 41125-00

Combo-Rate Thru Body

COMBO-RATE Thru Body [Connects to any Combo-Rate female ports]			
Dia. Check Valve	Manual ON/OFF	Air-Off Operated[2]	PWM (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.

Manual ON/OFF Check Valve — 41111-00

PWM w/o nut** (For PWM Solenoids, or equivalent control) — 41136-00

Combo-Rate End Body

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

CR Swivel End Bodies

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

NEW 41137-00

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

Combo-Rate Stacking Body Specification

Operating Pressure	O-ring Seals	Materials	Flow Rate
0.7*-7bar *(5.5 bar for air-off)	FKM (viton avail.)	Glass-reinforced Polypropylene	8L/min (end & thru), 6L/min (swivel body)

COMBO-RATE® Turrets

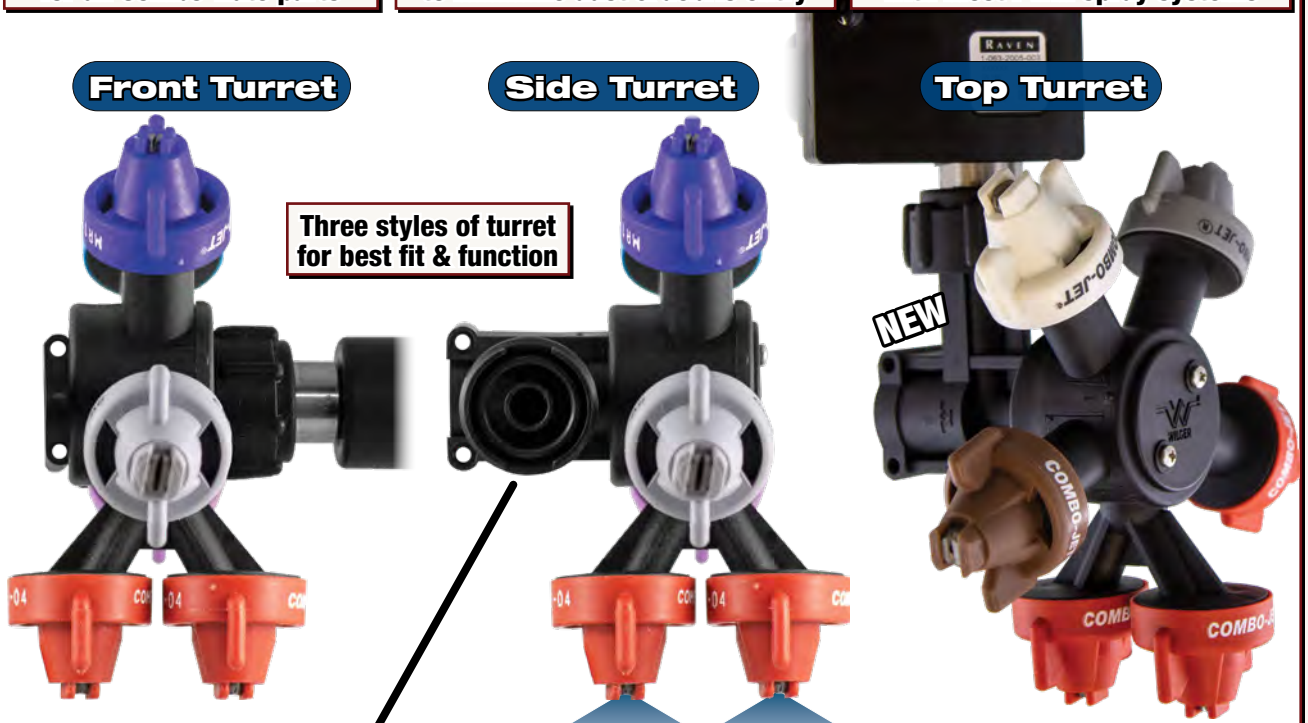
The COMBO-RATE® Turret Advantage

Common U-clip connections for all Combo-Rate parts

Each turret arm is o-ring sealed to minimize dust & debris entry

Module threads are compatible with most PWM spray systems

Front Turret | **Side Turret** | **Top Turret**



Three styles of turret for best fit & function

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

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

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

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

COMBO-RATE® Stacking Component Examples

COMBO-RATE® Side-Fed Saddles

Side-Fed saddle with a thru and end body

COMBO-RATE® II (CRII) Top/Bottom-Fed Saddles

PERK Passively removes air from the boom

Same parts, but different configuration to solve sprayer issues.

COMBO-RATE® II Bottom-Fed Nozzle Body

CRII integral body with end body and turret

CR Turrets

COMBO-RATE® Stacking Components

PERK Can be fixed in 15° increments

Thru Bodies | End Bodies | Swivel End Bodies For Fence-row nozzles

COMBO-RATE® Turrets - cont'd

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

COMBO-RATE Front Turrets

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

Number of Outlets	Description & Part #			
	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

41515-00 Manual ON/OFF Check Valve Module

41535-00

Open module thread must have 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 OPEN, it acts as a standard 0.7bar check valve.

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

Module Installation & Re-installation

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

COMBO-RATE Side Turrets - Reversible

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

Number of Outlets	Description & Part #			
	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

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

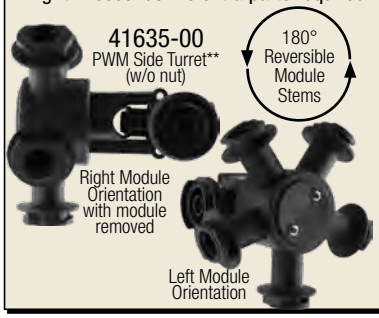
41615-00 Manual ON/OFF Module

41602-07 Kit for Teejet PWM Solenoids

41602-09 Kit for Hypro/Arag PWM Solenoids

Reversing Orientation

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



NEW 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.

Number of Outlets	Description & Part #			
	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

NEW

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

41133-03 Solenoid Gasket Seal (replaces O-ring if req'd)

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

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

PWM READY

41836-00 No module nut (for PWM Solenoid) with double-down outlet

NEW Double-Down Turrets

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

PWM APPROVED

41836-00 4+1 Double-Down **Top Turret** w/ solenoid & nozzles (solenoid sold sep.)

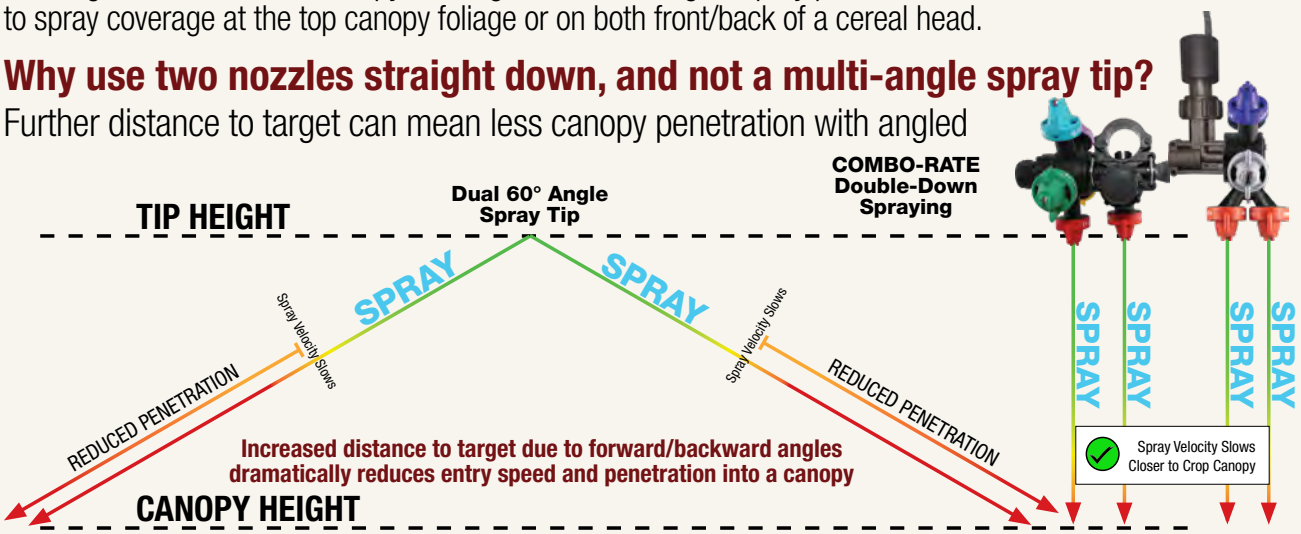
Increasing Coverage with Crop-Adapted Spraying

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 less-ideal or wasted areas.

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

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

Further distance to target can mean less canopy penetration with angled



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

Options for Double-Down Spraying

Stacked bodies	*Double-Down Adapters*		*Double-Down Turrets*
	#40206-00 for Non-Wilger Bodies	#40441-00 for COMBO-JET & COMBO-RATE Bodies	

Examples of *Tough to Penetrate* Crop Canopies

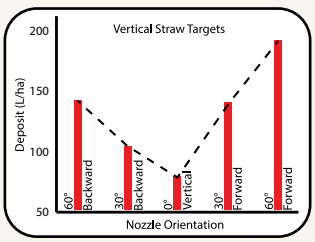
Picking Nozzles for Double-Down Spraying?

Applicators often already have nozzles to be used in pairs for double down spraying.
E.g. 50L + 100 L/ha nozzles could be used for 150 L/ha.
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*.



#40440-00
30/30 Y Splitter

#40442-00
30/50 Y Adapter

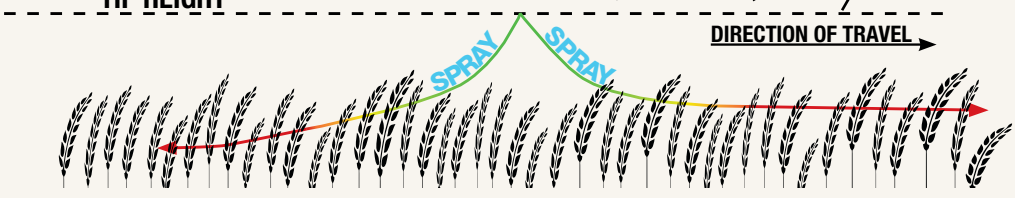


Illustration for conceptual use only

Vertical Target Spraying
e.g. Applying Fungicide on Wheat

Dry Boom Nozzle Bodies & Accessories

Compact Nozzle Bodies

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

Outlet Adapter

40498-00
3/8" NPT-F inlet

Inlet	Part #
1/4"	40497-00
3/8"	40498-00

Adapts a threaded port to a Combo-Jet outlet

1/4" Push-in Tube Bodies

40502-NM *solenoid or control module must be used on -NM assemblies

40502-00
1/4" Quick Connect inlet

Inlet (O.D.)	0.7BAR C.V.	0.3BAR C.V.	No Module
1/4"	40502-00	40502-P4	40502-NM

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

Threaded Inlet Bodies

40501-P4

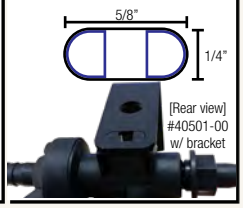
40501-00
1/4" NPT Female Inlet

Thread	0.7BAR C.V.	0.3BAR C.V.	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

Mounting

A 5/8"x1/4" slotted profile is used to mount compact bodies with 1/4" bolts



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.

Add a 3/8" NPT hose shank adapter

40311-00

40352-00

COMBO-JET Square-Mount Bodies

40352-00

Outlets	Part #
Single CJ	40352-00
Dual CJ	40353-00
Triple CJ	40354-00

40353-00

40354-00

Square Lug Square-Mount Bodies

Square Lug Outlets (Teejet/Hypro/etc.) with dust shield

Outlets	Part #
Dual Sq. L	40152-00
Triple Sq. L	40153-00

40152-00

40153-00

3/8" NPT-M Hose Shank Adapters

40311-00

40312-00

40313-00

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

Combo-Jet Outlet Swivel Turret Adapters

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

Combo-Jet Outlets

40471-00

40470-00

40473-00

Square Lug Outlets

40472-00

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

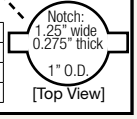
High Mount Flange

Flange Mount bodies mount right above the nozzle cap, with a round hole with notches cut to fix nozzle orientation

40461-00

3/8" HB

40464-00 1/4"NPT-M



[Top View]

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

40451-00

40450-00

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

Square Mount Compact Bodies without check valves

40406-00

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

Dry Boom Nozzle Bodies & Accessories - cont'd

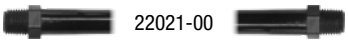
Rotating Adjustable Swivel Bodies & Hose Drop Assemblies

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


22021-00

Hose Drop & Extension Caps

Outlet	Length	Part #
Combo-Jet to Combo-Jet	5cm	40210-00
	13cm	40211-00
Combo-Jet Cap to 1/4" NPT-M	40cm	22026-00
	61cm	22036-00
	91cm	22038-00
	122cm	22048-00

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

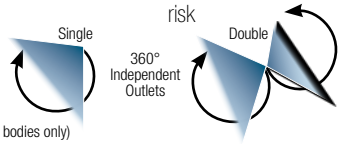
Swivel Bodies can be rotated front to back 360° use for Crop Adapted Spraying or other targeting

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

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

Crop Adapted Spraying

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



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.

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
3/4" HB	40370-00	40371-00	40372-00

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

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.

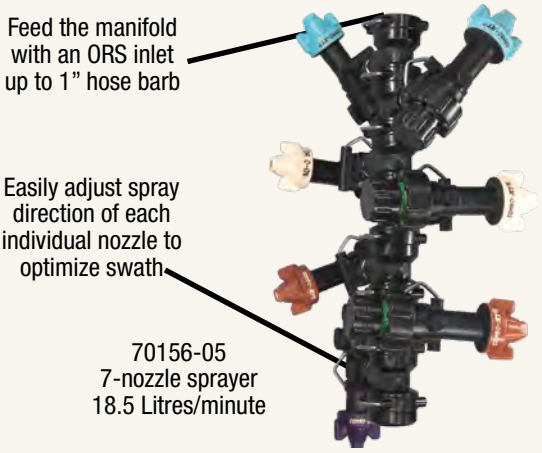
Inlet Size	One-Way [Left]	One-Way [Right]	Two-Way	Three-Way
3/8" HB	40380-00	40381-00	40382-00	40383-00
1/2" HB	40385-00	40386-00	40387-00	40388-00
3/4" HB	40390-00	40391-00	40392-00	N/A

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.



Alternate style boomless nozzle assembly using COMBO-RATE fittings

Example Assembly	Flow Rate (L/min)	Part#
3-Nozzle Boomless Spraying Manifold	5L/ min	70154-01
	10L/ min	70154-03
	22L/ min	70154-06
5-Nozzle Boomless Spraying Manifold	8.7L/ min	70155-02
	11L/ min	70155-03
	22L/ min	70155-06
	43.5L/ min	70155-12
7-Nozzle Boomless Spraying Manifold	15L/ min	70156-04
	18.5L/ min	70156-05
	36L/ min	70156-10
	74L/ min	70156-20

Adjustable swath distance charts online

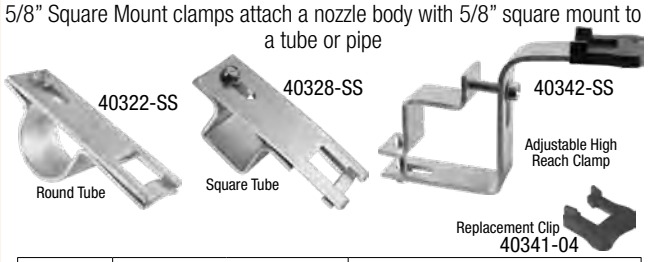
Easy-to-follow charts are online to help you figure out how to get the swath distance for your application needs.

Find them at
WWW.WILGER.NET

Stainless Steel Clamps for Sprayer & Liquid Fertilizer Appl.

5/8" Square Mount Clamps

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



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

40341-04 Replacement Lock Clip, Plastic

3/4" Square Mount Clamps for Nozzle Bodies

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

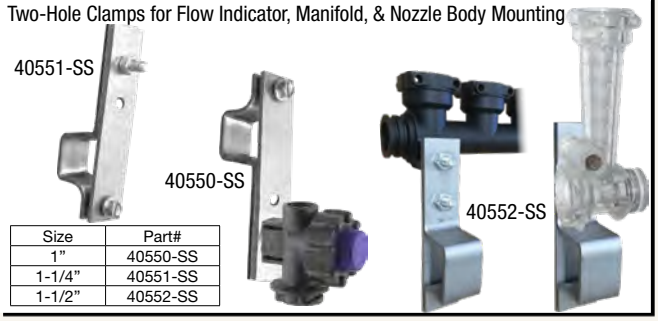
Example of 3/4" Square mount clamp and adapters, mounting to a Combo-Rate u-clip port

41261-SS

Use #41255-00 (1/4" NPT-F) or #41256-00 (3/8" NPT-F) Adapters

Two-Hole Bolt-Mount Clamps for Sq. Tube

Two-Hole Clamps for Flow Indicator, Manifold, & Nozzle Body Mounting



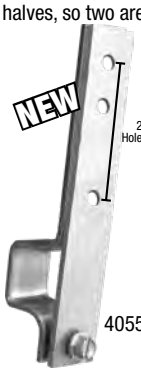
Size	Part#
1"	40550-SS
1-1/4"	40551-SS
1-1/2"	40552-SS

Three-Hole Bolt-Mount Clamps for Sq. Tube

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

41591-00
For 1" Pipe (1.315" O.D.)

41580-00
For 1/2" Pipe (0.84" O.D.)



Example of 1/2" Boom pipe clamp (#41580-00), mounted on 40553-SS

Size	Part#
1"	40553-SS
1-1/4"	40554-SS
1-1/2"	40555-SS

Nozzle Body Accessories & Replacement Parts

Combo-Rate Control Modules & Nuts

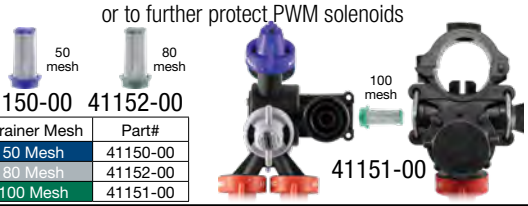
Wilger manufacturers a few styles of control modules that can be swapped between any Combo-Rate or Combo-Jet nozzle bodies

Check Valve Type	Extra Information	Module Assembly Part# (no diaphragm/o-ring incl.) 0.7bar (Standard)	0.3bar (Blue Knob)	1.0bar (Red Knob)
Diaphragm	Drip check, use w/ body nut #41100-02 (separate)	41100-03	41100-12	41100-11
Manual ON/OFF	In 'Off' position, closes check valve (no flow)	41110-01	41110-07	41110-08
Air-OFF	When air is applied*, closes check valve (no flow)	41125-01	-	-

* Recommended to apply 1.4bar more than spray pressure for ideal operation & quick shut-off

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



Strainer Mesh	Part#
50 Mesh	41150-00
80 Mesh	41152-00
100 Mesh	41151-00

Diaphragm Seals

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

40155-23 (FKM)

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

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

Two-piece diaphragm & pressure pad o-ring

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

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

O-ring Seals

O-ring seals are commonly used on many component parts.
FKM material is standard, viton is available.

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

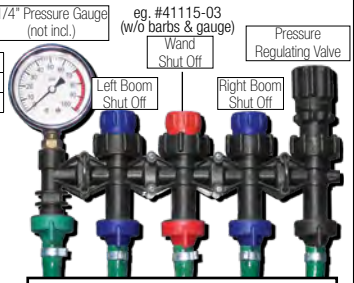
Estate Sprayer Manifolds, Accessories & Adapters

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.

Outlets	Manifold Assy
2	41115-02
3	41115-03

Manifold Assemblies do not include pressure gauge, or COMBO-JET hose barb caps.)



COMBO-JET Hose Barb Caps not included. Available in sizes up to 1/2" Hose Barb See NOZZLES section of Catalog.

Manifolds can also be built with O-Ring Seal (ORS) Fittings

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

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

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

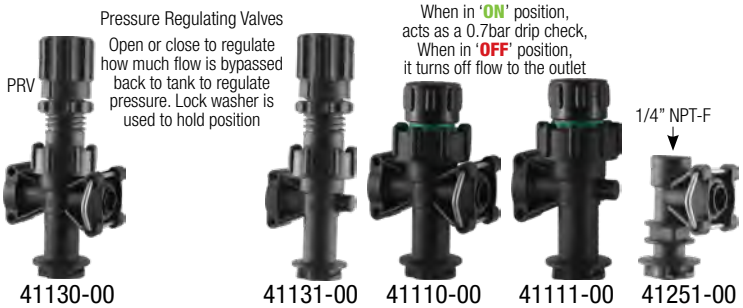
Connection	Outlet	Part #
Combo-Clip Male	Plug	41285-00
	1/4" NPT-F	41275-00
	3/8" NPT-F	41276-00
Combo-Clip Female	1/4" NPT-F	41251-00
	1/4" NPT-M	41252-00
	3/8" NPT-M	41253-00
	90° CC-M	41250-00
Combo-Clip Female w/ 3/4" Sq Mount	1/4" NPT-F	41255-00
	3/8" NPT-F	41256-00

Clamps for 3/4" Square-Mount Adapters

Square Tube Size	3/4" Sq. Mount Nozzle Body Clamps
1"	41261-SS
1-1/4"	41262-SS
1-1/2"	41263-SS
2"	41264-SS

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

Regulating & Manual On/Off Manifold Valves



Ensure to visit the NOZZLES section of the catalog for the full listing of ***COMBO-JET*** Caps

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

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

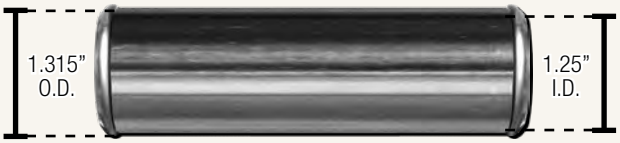
Custom tube lengths, spacing and inlet holes are available by order.

Larger Inside Diameter
Inside diameter is larger to accommodate higher flow rates

Rolled End for Cost-Effective Manufacturing
Tube ends are rolled instead of threaded to minimize downtime, and thread leaking/failure

For Recirculating Booms
Compatible boom fittings & tubing for building recirculating booms

1” Stainless Steel Tubing
Shares 1” sch40 pipe outside diameter (1.315” OD.) with larger 1.25” inside diameter



Lighter 1” Boom = Less Fuel
weighs 66% of aluminum
weighs 23% of sch40 pipe
Lighter than hose

1/2” Stainless Steel Tubing
Shares 1/2” sch40 pipe outside diameter (0.84” OD.) with larger 0.788” inside diameter

Lighter 1/2” Boom = Less Fuel
weighs 80% of aluminum
weighs 28% of sch40 pipe
Lighter than hose

Sprayer Tube Shipping Consideration - Length

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

Pre-punched Outlet Spacing

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

Picking the Correct Style of Tube End & Length

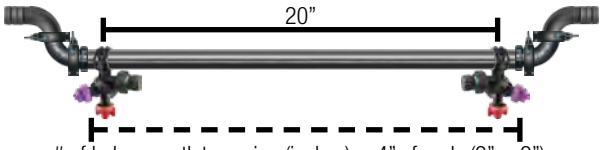
Different sprayer boom configurations require different combinations of lengths of tube.

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

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

Standard Tube Ends (2”)

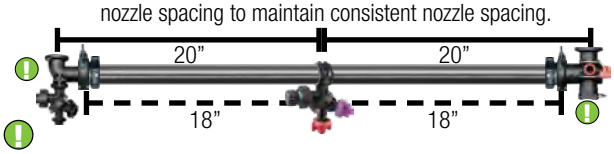
Tubes that have 2” of tube after the last nozzle body are commonly used with QN100 or QF100 plumbing parts.



# of holes x outlet spacing (inches) + 4” of ends (2” + 2”)

Super Compact Nozzle Body Ends (18”)

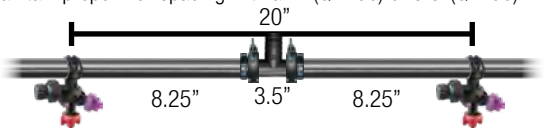
The CR BEFV & QF100 w/ CR clamp integrates the last nozzle for a super compact boom end. The tube should be 2” shorter than the intended nozzle spacing to maintain consistent nozzle spacing.



NOTE: For <u>each</u> CR BEFV/Integrated Elbow, tube will be 1 inlet hole “short”.

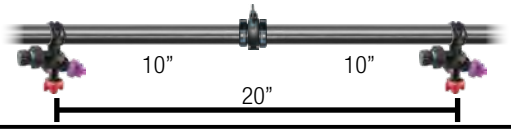
Center-fed Section Ends (8” or 8.25”)

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



10” Ends for Tube to Tube SST

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



Select a Type of Plumbing Parts

NEW Quick-Flange (QF100) Fittings

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

Available for 1” boom sizes.

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.

Available in both 1” & 1/2” boom sizes.

Quick-Flange Fittings & Fluid Supply System

The Quick-Flange Advantage

- Perfect Recirc. Booms
- Stronger Compact Fittings
- Compact Boom End Options
- No Threads or Sealant Required
- Cutting out Boom Contamination

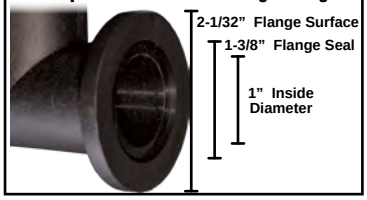
Retrofitting & Flange Compatibility

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

Can be Outfitted for:

- *1" sch40 Pipe (1.315" OD)*
- *Any 1" Flanged Fittings*
- *Wilger Stainless Tubing*
- *Case Thin Wall Stainless*

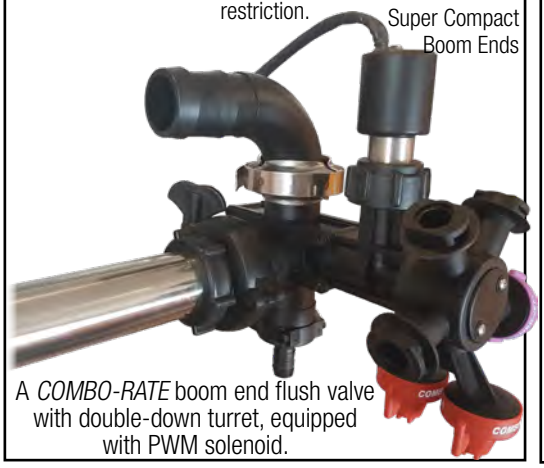
Compatible with other 1" Flange Fittings



Compact & Robust Sweep Fittings

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

Super Compact Boom Ends



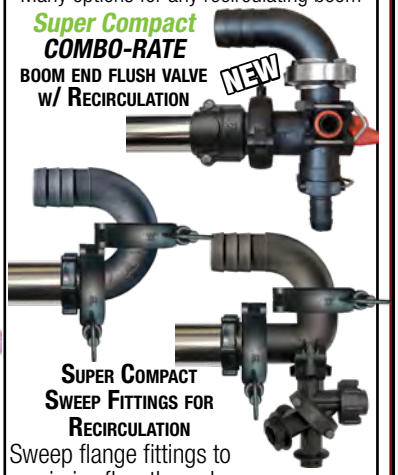
A *COMBO-RATE* boom end flush valve with double-down turret, equipped with PWM solenoid.

Recirculation Made Easy

Many options for any recirculating boom

Super Compact COMBO-RATE
Boom End Flush Valve w/ Recirculation

NEW



Super Compact Sweep Fittings for Recirculation

Sweep flange fittings to maximize flow through a sprayer

Quick-Flange Adapters for Different Sprayer Tubing Types

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

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

Case® Thin-Wall Stainless (TWS) to Quick-Flange

3-piece Flange Sleeve Adapter

27316-00* TWS x QF100 Seal

27312-00 3-piece flange adapter end

27343-00 QF100 x 1-1/4" HB, 90°

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

*For greater anti-twist resistance, the skirted 27316-SK gasket is available

Case® is a registered trademarks of CNH Industrial America LLC.

Wilger Stainless Steel Tube (SST) to Quick-Flange

3-piece Flange Sleeve Adapter

27315-00 SST to QF100 Seal

27312-00 3-piece flange adapter end

27343-00 QF100 x 1-1/4" HB, 90°

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

Through-Pipe to CR BEFV & Thru Elbow

Through-Pipe Flange End Adapter

NEW

Super Flexible
Up to 3/4" of excess tube material can fit into a CR BEFV

27382-00 QF100 through-pipe adapter kit

27360-00 CR BEFV for with flange sleeve removed

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

Cut-Pipe to Quick-Flange

Cut-Pipe Flange End Adapter

27317-00 Flange to Flange Seal

NEW

27381-00 QF100 cut-pipe adapter kit

27343-00 QF100 x 1-1/4" HB, 90°

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

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

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

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.

STEP 1 Determine tube lengths & spacing required for each section. Simply count the number of outlets on each required boom tube between each fold, accounting for separated sections (if required).

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

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

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

STEP 3 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)

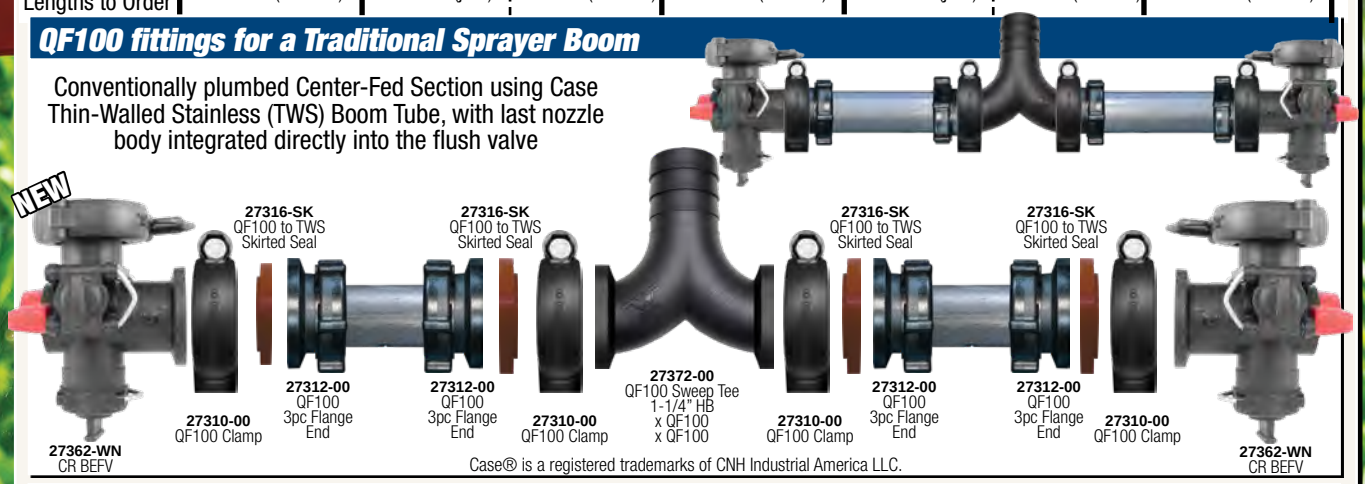
STEP 4 Determine the tube end spacing depending on the fittings used.
CR BEFV requires 18" tube end. Tube Joint requires 10" tube end. Regular fittings requires 2" end.

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

	SECTION 1	SECTION 2		SECTION 3	SECTION 4		SECTION 5
STEP 1 Section sizing	11 nozzles	20 nozzles		10 nozzles	20 nozzles		11 nozzles
STEP 2 Tube Lengths	11 hole	10 hole + 10 hole joined		10 hole	10 hole + 10 hole joined		11 hole
STEP 3 Specialty Boom End Considerations	11 hole -2 (CR BEFV) 9 hole tube	10 hole -1 (CR BEFV) 9 hole tube + joint	10 hole -1 (CR BEFV) 9 hole tube + joint	10 hole -2 (CR BEFV) 8 hole tube	10 hole -1 (CR BEFV) 9 hole tube + joint	10 hole -1 (CR BEFV) 9 hole tube + joint	11 hole -2 (CR BEFV) 9 hole tube
STEP 4 Tube/End Lengths to Order	9 hole tube with 18" End (CR BEFV) & 18" End (CR BEFV)	9 hole tube with 18" End (CR BEFV) & 10" End (joint)	9 hole tube with 10" End (joint) & 18" End (CR BEFV)	8 hole tube with 18" End (CR BEFV) & 18" End (CR BEFV)	9 hole tube with 18" End (CR BEFV) & 10" End (joint)	9 hole tube with 10" End (joint) & 18" End (CR BEFV)	9 hole tube with 18" End (CR BEFV) & 18" End (CR BEFV)

QF100 fittings for a Traditional Sprayer Boom

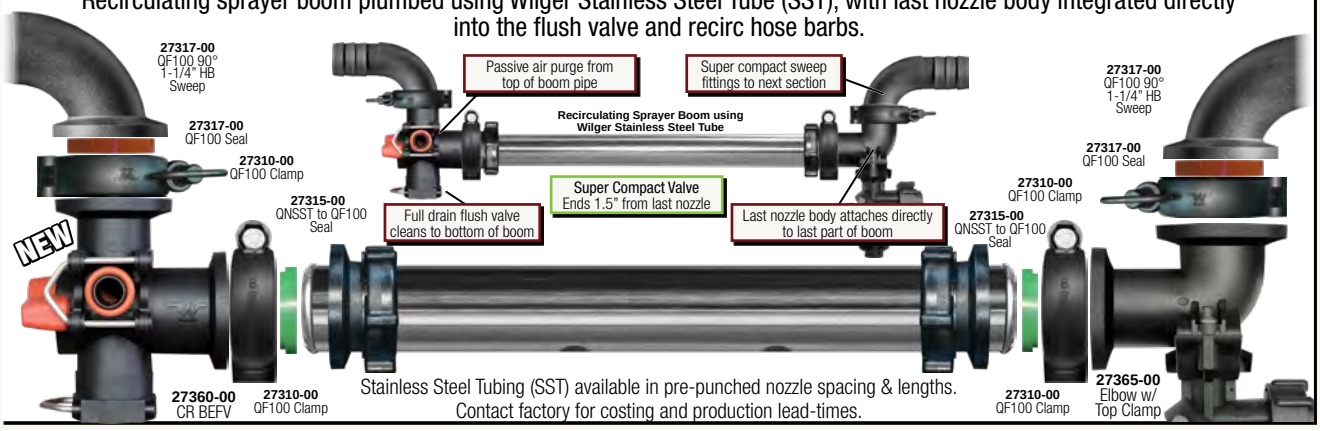
Conventionally plumbed Center-Fed Section using Case Thin-Walled Stainless (TWS) Boom Tube, with last nozzle body integrated directly into the flush valve



Case® is a registered trademarks of CNH Industrial America LLC.

QF100 fittings for a Recirculating Sprayer Boom

Recirculating sprayer boom plumbed using Wilger Stainless Steel Tube (SST), with last nozzle body integrated directly into the flush valve and recirc hose barbs.



Stainless Steel Tubing (SST) available in pre-punched nozzle spacing & lengths. Contact factory for costing and production lead-times.

Quick-Flange Tube-End Adapters, Seals & Kits

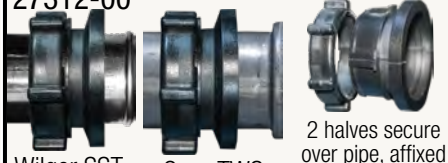
QF100 Tube-End & Pipe-End Adapters, Seals & Kits

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

3pc End Adapter

Max Pressure 150PSI/10BAR

27312-00



Seals Used

Wilger SST uses flared taper gasket

OR

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

2pc End Adapter

Max Pressure 100PSI/7BAR

27313-00

for non-mobile applications, requiring low pressure

Case TWS uses stepped or skirted gasket

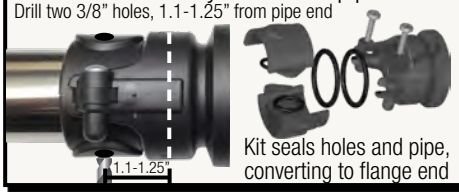
OR

27316-SK [skirt]
27316-00 [std]

Cut Pipe End Adapter Kit

27381-00 For any 1.315" OD pipe/tube

Drill two 3/8" holes, 1.1-1.25" from pipe end



Seals Used

Uses QF100 Standard Gasket

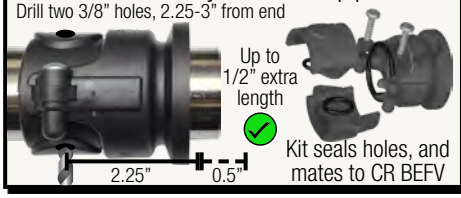
27317-00 [std]
27317-SK [skirt]

OR

Through Pipe Adapter Kit

27382-00 For any 1.315" OD pipe/tube

Drill two 3/8" holes, 2.25-3" from end



Most Robust

Use with CR BEFV or 'Through-Pipe' Elbows

Threaded Pipe Adapter

For male national pipe threaded (NPT) pipes

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

Threaded

Uses QF100 Standard Gasket

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

OR

Adapters & Kits

Boom End/Tube Type		Adapter/Kit
Wilger SST rolled end OR Case TWS flared end		[3pc] 27312-00 [2pc] 27313-00
Cut pipe end kit [9pc]		27381-00
Through pipe end kit [9pc]		27382-00
NPT-F Threaded Pipe Adapters	1/2" NPT-F	27357-00
	3/4" NPT-F	27358-00
	1" NPT-F	27359-00

QF100 Gasket Seals

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

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

Tube to Flange End Seals

Material: FKM

Gasket seal against a formed tube end profile

Tube to Flange Seals	Standard Seal Part#	Skirted* Seal Part#
SST Tube x Flange	27315-00	27315-SK
TWS Tube x Flange	27316-00	27316-SK

*Skirted gaskets are used when more robust connections are required

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

Flange to Flange Fitting Seal

Material: FKM

Gasket seals common 1" flange fitting ends

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

Tube End to Tube End Seals

Material: FKM

Gasket seals between two butt ends of tube

Tube to Tube Seals	Standard Seal Part#	Skirted* Seal Part#
Wilger SST to SST	27318-00	27318-SK
Case TWS to TWS	27319-00	27319-SK

Quick-Flange Clamps

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

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

Butterfly Nut Flange Clamp 27310-00

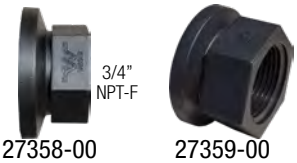
Nut & Bolt Flange Clamp 27311-00

Polypropylene Clamp & Stainless Hardware

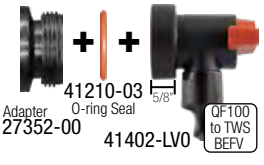
QF100 Adapters & Caps

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

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



E.g. QF100 to QN100 Flush Valve



Quick-Flange Fittings & Parts

QF100 Elbows & Hose Barb Fittings

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

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


27326-00
Elbow, 45°


27324-00
Elbow, 90°


27331-00
1" HB, Straight


27332-00
1" HB, 45°


27333-00
1" HB
Elbow, 90°


27341-00
1-1/4" HB, Straight


27342-00
1-1/4" HB, 45°


High Flow Sweep Fittings

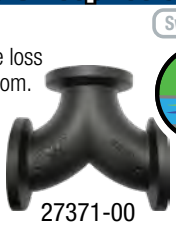

27343-00
1-1/4" HB
Elbow, 90°

QF100 Sweep Tee & Regular Tee Fittings

Sweep Tees

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

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


27371-00


Sweep Tees
27372-00
Sweep Tee, QF100 x QF100 x 1-1/4" HB

Regular Tees

Compact tees for flat bottom drainage.


27322-00


27321-00

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

The Better Boom End Nozzle Body & Valve

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

Valve version	Part#
Base Model w/o plugs	27360-00
Recirc Model w/ plugs	27361-00
Non-Recirc model w/ plugs	27362-00
Non-recirc w/ butterfly nut	27362-WN


27360-00
1" flange inlet/outlet
COMBO-RATE u-clip port x2
Full Flush Boom End Flush Valve
O-ring Seal outlet
[compatible with any Wilger ORS fittings]


Non-recirc with plugs & Butterfly nut
27362-WN
Easily adaptable for any configuration

Designed for Recirculating Booms
Designed to incorporate an in-line flange fitting for easy recirc configuration.

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

Super Compact Boom Ends
The last nozzle body, flush valve and flange outlet combined in one piece

Remove Dead Spots in the boom
Boom ends directly with last nozzle body and flush valve to ensure boom hygiene

QF100 Flange Elbow with Nozzle Body Upper Clamp

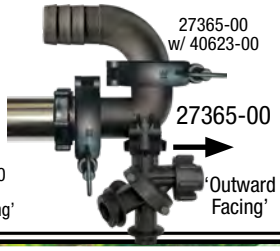
Designed for Recirculating Booms

Flange Elbows w/ Body Clamp

Compact flanged elbows with built-in nozzle body clamp

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


27366-00
27366-00 w/ 41438-00
'Inward Facing'


27365-00 w/ 40623-00
27365-00
'Outward Facing'

Super Compact Boom Ends

Offset Extended Elbow w/ Body Clamp

NEW


27369-00
21/32" High Flow Inlet

The offset flange allows for free use of flange fittings for recirculating sprayers ahead of the last nozzle body.
Nozzle bodies would be 'inward' facing.

#27382-00

'Through Pipe' Elbow w/ Body Clamp

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

#27382-00 to Flange	Module Orientation	
	Outward Facing	Inward Facing
3/8" Inlet	27375-00	27376-00
21/32" Inlet	27377-00	27378-00

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

The Quick-Nut Fitting & SST Advantage

Lighter Booms - Wilger SST
weighs 66% of aluminum
weighs 23% of sch40 pipe
Lighter than hose

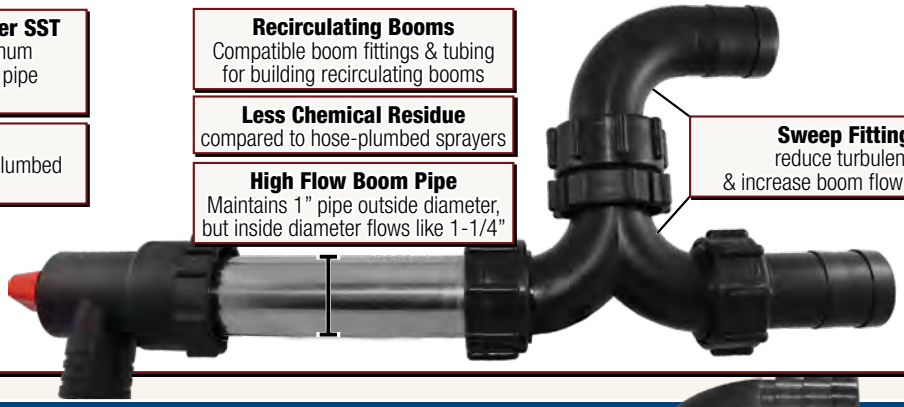
Lower Cost
compared to other pipe plumbed sprayer booms

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"

Sweep Fittings
reduce turbulence & increase boom flow capacity



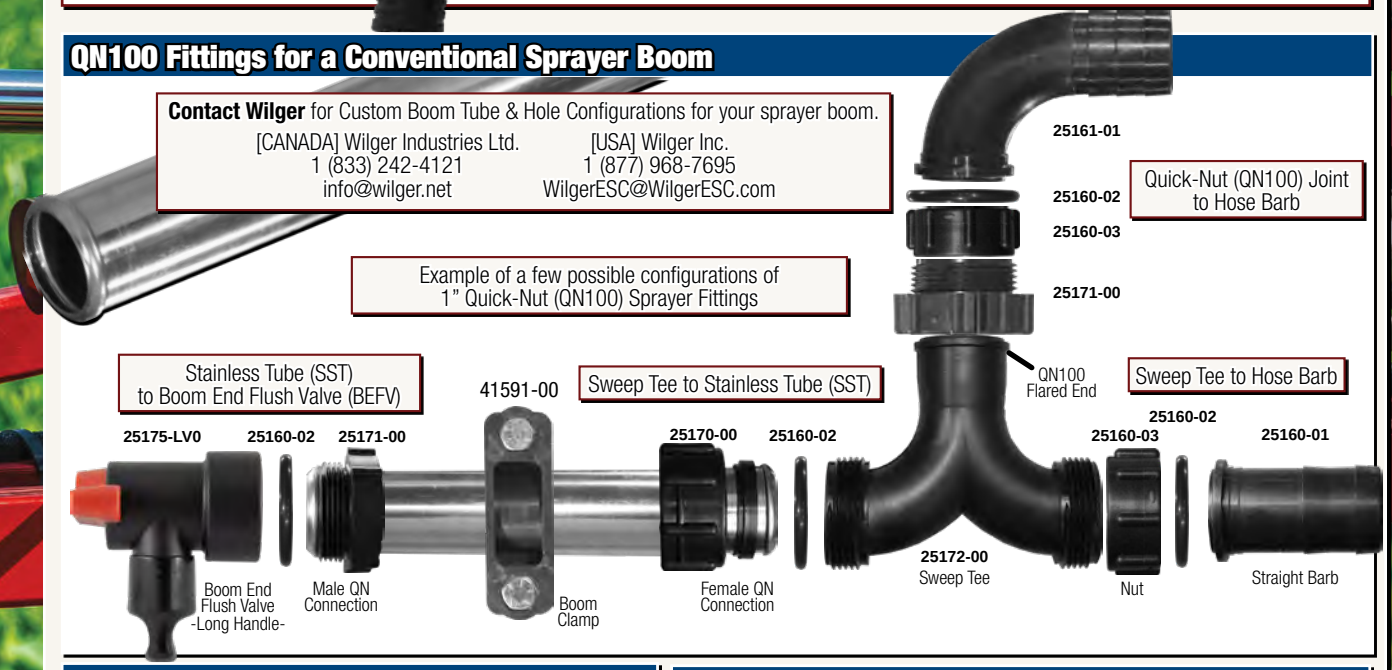
QN100 Fittings for a Conventional Sprayer Boom

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

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



QN100 Connectors & Components

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

Component	Description	Part#
SS Tube End Adapters	Female Thread End, 2pc	25170-00
	Male Thread End, split ring	25171-00
Quick Nut	Nut with QN100-F Thread	25160-03
Plug	QN100 x Plug Cap	25163-01
O-ring for QN100 Connections	#219 O-ring, FKM	25160-02
	#219 O-ring, viton	25160-v2
Threaded Adapters	QN100 x 3/4" NPT-F Thread	25164-01
	1" NPT-F x QN100M Bushing	25137-00
Boom Tube Clamps	Half Clamp, for 1" SST (1.31" OD)	41591-00
	Half Clamp, for 1-1/4" Tube	41590-00
Replacement Parts	BEFV Cover Cap	25175-10
	BEFV Seal Repair Kit (2 valves)	25175-11
	BEFV Handle, Long	25175-13
	BEFV Handle, Short	25175-03

For QN100 Connections

25160-02

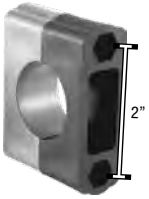
25160-03

25164-01

25163-01

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

25171-00
Split-ring male thread



2x 41591-00

25175-10

25175-03
Compact Handle

25175-13
Long Handle

QN100 to 1" Bushing

25137-00

QN100 Tee Fittings

Compact & lightweight sweep tees for any sprayer boom configuration.

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

25169-00 25172-00

QN100 Hose Barb Fittings

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

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

25162-01

25160-01 25161-01

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
	QN100 BEFV, Long Handle	25175-LV0
1" NPT-F	1" NPT BEFV, Short Handle	25176-V0
	1" NPT BEFV, Long Handle	25176-LV0

25175-LV0 25176-V0

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

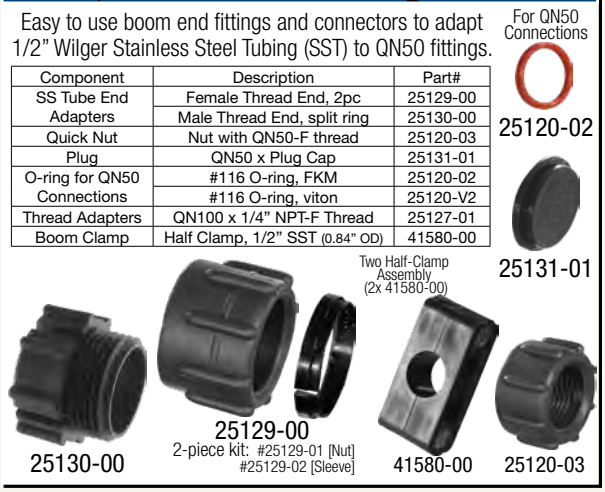
[USA] Wilger Inc.
1 (877) 968-7695
WilgerESC@WilgerESC.com

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

QN50 Connectors & Components

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

Component	Description	Part#
SS Tube End Adapters	Female Thread End, 2pc	25129-00
	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 Connections	#116 O-ring, FKM	25120-02
	#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



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 Barb x QN50	QN50 x 1/2” HB, Straight	25120-01
	QN50 x 1/2” HB, 45° Sweep	25124-01
	QN50 x 1/2” HB, 90° Sweep	25122-01
3/4” Hose Barb x QN50	QN50 x 3/4” HB, Straight	25121-01
	QN50 x 3/4” HB, 45° Sweep	25125-01
	QN50 x 3/4” HB, 90° Sweep	25123-01

Case® Thin Wall Stainless (TWS) Tube Fittings

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

Component	Description	Part#
TWS Male Tube End Adapter (3pc)	Male End Adapter, Left Thread	41400-04
	Male End Adapter, Right Thread	41400-05
	Male End Adapter, Binding Nut	41400-02
Coupler	TWS-F to QN100-F Coupler	41401-01
Quick Nut	TWS Nut, use with QN100 HB	41400-03
O-ring for TWS Connections	#209 square O-ring, FKM	25160-04
	#209 square O-ring, viton	25160-v4
Threaded Adapters	1” NPT-F x TWS-M Bushing	41403-00
	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
Boom End Flush Valves (BEFV) & Replacement Parts	Flush Valve, Short Handle	41402-V0
	Flush Valve, Long Handle	41402-LV0
	BEFV Seal Repair Kit (2 valves)	25175-11
	BEFV Cover Cap	25175-10
	BEFV Handle, Long	25175-13
	BEFV Handle, Short	25175-03

TWS Flush Valves

Compact & Robust Full Drain Flush Valve

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

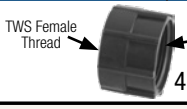
A bushing kit can adapt to any 1” NPT-M pipe end

Hose Barb Fittings for TWS

TWS Connectors are compatible with QN100 Hose Barb Fittings & Accessories

Size/Style	Description	Part#
Plug	QN100 x Plug Cap	25163-01
Adapters	QN100 x 3/4” NPT-F Thread	25164-01
1” HB x QN100	QN100 x 1” HB, Straight	25166-01
	QN100 x 1” HB, 90° Sweep	25167-01
1-1/4” Hose Barb x QN100	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

TWS to QN100 Coupler



Couples TWS-M and QN100M ends

Case® is a registered trademarks of CNH Industrial America LLC.

O-ring Seal (ORS) Fittings & Components

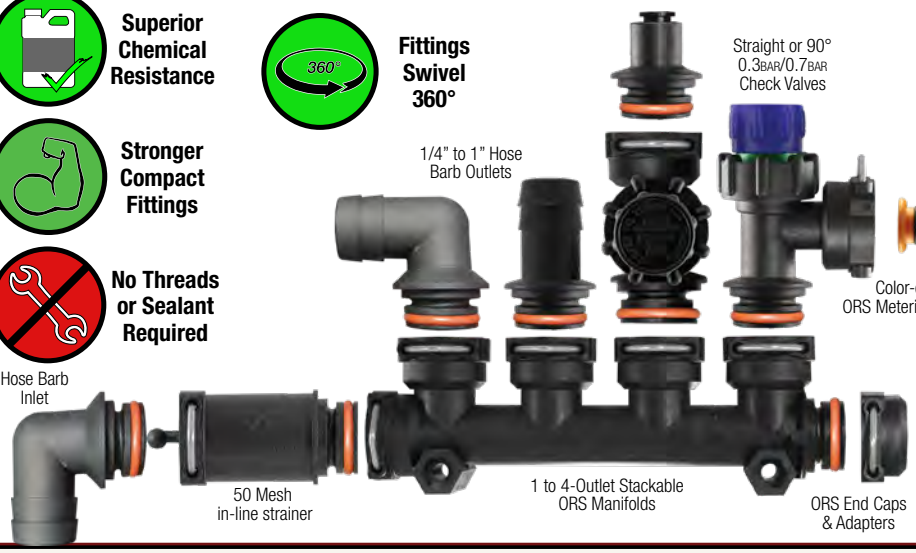
The O-ring Seal (ORS) Fitting Advantage

Superior Chemical Resistance

Fittings Swivel 360°

Stronger Compact Fittings

No Threads or Sealant Required



Full Line of Metering Orifices
Precision metering orifices for rates as low as 16L/ha

Standard FKM O-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


0.3bar Manual ON/OFF Check Valve
20551-P4


0.7bar Manual ON/OFF Check Valve, 90°
20551-00


0.7bar Diaphragm Check Valve, 90°
20550-00

0.7bar Manual ON/OFF Check Valve, Straight
20556-00


NEW

Check Valve Style	90° Outlet	Straight
Dia. Check Valve	20550-00	20555-00
0.7BAR Manual On/Off	20551-00	20556-00
0.3BAR Manual On/Off	20551-P4	20556-P4
Air-Off Operated	20552-00	20557-00
For PWM/no-check	20553-00	20558-00

*0.3bar check valves available: change '-00' to '-P4'. For ultra-low flow (<0.01 US GPM), 0.3bar may be required.

Manual ON/OFF Valves

When the knob is OPEN, it acts as a standard 0.7bar check valve.

When the knob is CLOSED, it turns off flow to that outlet ONLY. It does not turn off flow to any other outlets.

ORS to *COMBO-JET* Check Valves

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


0.7bar Diaphragm Check Valve, 90°
Radialock or COMBO-JET outlet
20560-00


0.7bar Manual ON/OFF Check Valve, 90°
20561-00

Check Valve Style	90° Outlet
Dia. Check Valve	20560-00
0.7BAR Manual On/Off	20561-00
0.3BAR Manual On/Off	20561-P4
Air-Off Operated	20562-00
PWM/no-check	20563-00

COMBO-JET Caps & Metering Orifices

A variety of radialock or COMBO-JET caps & metering orifices are available for hose barb, push-in-tube, spray tips, and other adapters.

ORS Hose Barb Inlets/Outlets

O-ring seal hose barb inlets and outlets. Compatible with all ORS metering orifices.

Hose Barbs	Orientation	Part#
1/4"	Straight	20500-00
3/8"	Straight	20501-00
	90°	20511-00
1/2"	Straight	20502-00
	90°	20512-00
5/8"	90°	20514-00
3/4"	Straight	20503-00
	90°	20513-00
1"	Straight	20504-00
	90°	20515-00


NEW 1/4" Hose Barb Straight
20500-00


1/2" Hose Barb Straight
20502-00


NEW 1" Hose Barb Straight
20504-00


3/8" 90°
20511-00


1/2" 90°
20512-00


3/4" 90°
20513-00

ORS Outlet Adapters & Plugs

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


20518-00


20519-00


20529-00


NEW
20549-00

Type	Orientation	Part#
1/4" NPT-F	Straight	20519-00
	90°	20518-00
ORS x Sq Lug	Straight	20549-00
ORS Plug	Straight	20529-00

ORS x Square Lug adapter adapts to any square lug nozzle cap (e.g. Teejet/Hypro/Varitarget). [1]Ensure hoses connected are supported well.

ORS End Caps & Adapters

O-ring seal end caps are used on any ORS-M ports

Style & Size		Part#
End Cap		20521-00
Straight Hose Barb	3/8"	20544-00
	1/2"	20545-00
	3/4"	20547-00
	1"	20548-00
Push-in Tube (seals on O.D.)	1/4"	20540-00
	5/16"	20541-00
	3/8"	20542-00
NPT-F Thread	1/4"	20535-00
	3/8"	20536-00
	1/2"	20537-00
NPT-M Thread	1/4"	20530-00

ORS Splitters & Couplers

Use ORS outlet & end caps to make swiveling, robust o-ring seal splitters, couplers and reducers.


20540-00 + e.g. 1/4" Splitter 20509-00


20530-00


20535-00


20521-00


NEW
20540-00


NEW 3/4" HB
20547-00

ORS Push-in-Tube Outlets

O-ring seal quick-connect outlets that seal around the outside diameter of a tube. Compatible with ORS orifices


Ensure tubes are fully pushed in (at least 5/8" inside housing) for proper sealing and performance
20516-V0 (order -V0 for viton)


NEW Double 1/4" Push-in-tube Splitter
20509-00


NEW 1/4" Straight Push-In Tube
20506-00

Tube O.D.	Orientation	Part#
1/4"	Straight	20506-00
	Double	20509-00
	90°	20516-00
5/16"	Straight	20508-00
	90°	20528-00
3/8"	Straight	20507-00
	90°	20517-00


1/4" 90° Push-In Tube
20516-00

O-ring Seal (ORS) Parts & Manifolds

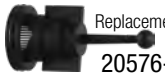
PRO TIP: *Lubricate ORS fittings before assembly*

When assembling any flow indicator or O-ring seal (ORS) parts, using a touch of lubricant (e.g. liquid silicone) on the O-ring makes assembly easy.

NEW ORS In-line Strainer

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

20576-00
Strainer Assembly [50 Mesh]



Replacement Strainer
20576-02

20576-05

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

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

20524-00
[Port is open]

20523-00
[Port is blocked]

20520-00

20527-00

20525-00

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

20526-00

Description	Part#
90° ORS Elbow [M x F]	20520-00
ORS Tee w/ 1/4" NPT-F [M x M x F w/ 1/4" NPT-F]	20526-00
3/8" x Blind ORS Tee [Blind F x M x 3/8" NPT-F]	20523-00
3/8" NPT-F x ORS Tee [F x M x 1/8" NPT-F]	20524-00
2-Outlet ORS-F Splitter [F x F x M]	20527-00
1" NPT-F x ORS Tee [M x M x 1" NPT]	20525-00

O-ring Seal (ORS) Manifolds

ORS manifolds can be configured and plumbed to any size, shape or configuration to suit any application equipment needs such as liquid fertilizer manifolds, estate sprayer manifolds, or any other liquid manifold plumbing.

20571-00

20572-00

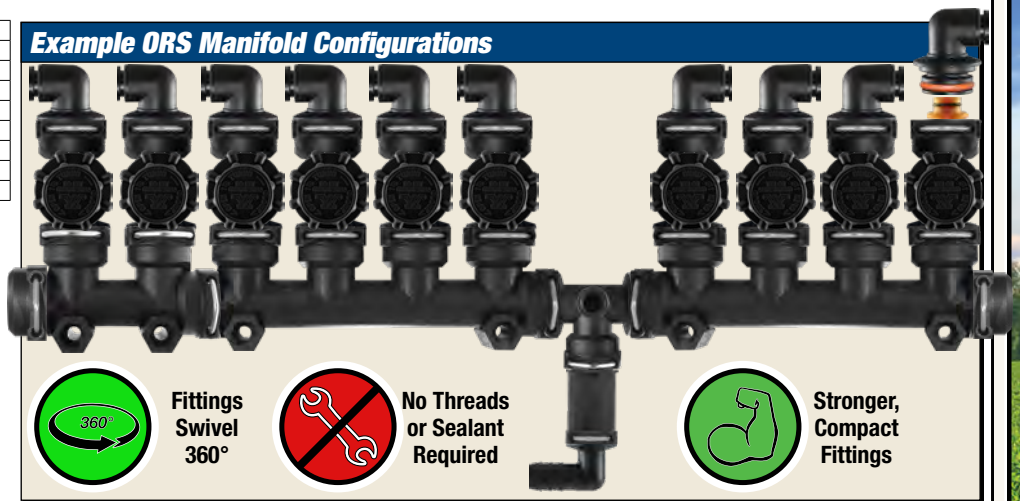
20573-00

20574-00

Model	O-ring	Part#
1-Outlet Manifold	FKM	20571-00
	Body only	20571-01
2-Outlet Manifold	FKM	20572-00
	Body only	20572-01
3-Outlet Manifold	FKM	20573-00
	Body only	20573-01
4-Outlet Manifold	FKM	20574-00
	Body only	20574-01

20573-01
Body only
(no u-clips or o-rings)

Example ORS Manifold Configurations



Fittings Swivel 360°

No Threads or Sealant Required

Stronger, Compact Fittings

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 w/o Indicator Body	Manifold Feed	20460-11
	Isolated Feed	20480-02
O-rings for ORS fittings	FKM	20460-03
	VITON	20460-15
O-rings for metering orifices	FKM	40225-04
	VITON	40225-05

20460-02

20460-04

20460-03

20460-11*

40225-04

*Manifold Kits include: 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)

Mounting Clamps for ORS

Two hole mounting clamps with 1/4" bolt-mount for ORS manifolds and flow indicators

NEW
40550-SS

Tube Size	Type	Part#
1" Sq Tube	302 SS	40550-SS
1-1/4" Sq Tube	302 SS	40551-SS
1-1/2" Sq Tube	302 SS	40552-SS

O-ring Seal (ORS) Metering Orifices & Charts

Precise metering orifices for metering liquid fertilizers, or chemicals. The easier-to-handle orifices fit in any O-ring seal (ORS-M) fitting port, and cannot be inserted backwards. Available in precision molded color-coded sizes or custom drilled sized orifices.

Drilled Orifices

21XXX-00

Molded Orifices

21500-V01

Color-coded Consistent Rust-proof Easy to Handle

Metering Orifice type, seal & ORS Orifice Part#	Molded ORS Orifice	Custom Drilled Orifice	Blank Orifice/Plug
	VITON O-ring	FKM/viton O-ring	FKM/viton O-ring
	21500-VXXX	21XXX-00/21XXX-V0	21000-00/2100-V0
Color	Color-coded*	Black	Black

Use TIP WIZARD for metering orifice selection

Available on

TRY IT FREE AT WWW.WILGER.NET

Download on the App Store

GET IT ON Google Play

WILGER TIP WIZARD

Simply input rate, speed & spacing, and get the best orifice for the job.

Calculating required flow for metering orifice selection

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

W = Outlet Spacing (meters)

conv = Conversion Factor based on specific gravity/weight of liquid

$$\text{Litres/minute (per outlet)} = \frac{L/HA \times kph \times W \times conv}{600} \qquad L/HA = \frac{600 \times L/min\ (per\ outlet)}{kph \times W \times conv}$$

EASY-TO-USE ORS orifice and ball selector calculator available @ WWW.WILGER.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

ORS Orifice Part #	Flow Rate (Litres/minute)						
	1 BAR	1.5 BAR	1.75 BAR	2 BAR	2.25 BAR	2.5 BAR	3 BAR
21009-XX	0.024	0.029	0.031	0.033	0.036	0.037	0.041
21011-XX	0.037	0.045	0.049	0.052	0.055	0.058	0.064
21013-XX	0.050	0.061	0.066	0.071	0.075	0.079	0.087
21015-XX	0.066	0.081	0.087	0.093	0.099	0.104	0.114
21500-V003	0.068	0.084	0.090	0.097	0.103	0.108	0.118
21018-XX	0.095	0.116	0.125	0.134	0.142	0.150	0.164
21500-V005	0.113	0.139	0.150	0.160	0.170	0.179	0.196
21020-XX	0.118	0.145	0.157	0.167	0.178	0.187	0.205
21022-XX	0.139	0.171	0.185	0.197	0.209	0.221	0.242
21500-V007	0.153	0.187	0.202	0.216	0.229	0.241	0.264
21025-XX	0.179	0.219	0.237	0.253	0.268	0.283	0.310
21026-XX	0.197	0.242	0.261	0.279	0.296	0.312	0.342
21027-XX	0.208	0.255	0.275	0.294	0.312	0.329	0.360
21028-XX	0.224	0.274	0.296	0.316	0.336	0.354	0.387
21500-V01	0.229	0.280	0.303	0.324	0.343	0.362	0.397
21031-XX	0.290	0.355	0.383	0.409	0.434	0.458	0.501
21500-V015	0.342	0.419	0.453	0.484	0.513	0.541	0.593
21035-XX	0.368	0.451	0.487	0.521	0.553	0.583	0.638
21037-XX	0.395	0.483	0.522	0.558	0.592	0.624	0.684
21039-XX	0.447	0.548	0.592	0.633	0.671	0.707	0.775
21500-V02	0.474	0.580	0.627	0.670	0.711	0.749	0.821
21041-XX	0.500	0.612	0.662	0.707	0.750	0.791	0.866
21043-XX	0.526	0.645	0.696	0.744	0.691	0.832	0.912
21500-V025	0.579	0.709	0.766	0.819	0.760	0.915	1.003
21046-XX	0.605	0.741	0.801	0.856	0.795	0.957	1.048
21047-XX	0.632	0.774	0.836	0.893	0.829	0.999	1.094
21049-XX	0.684	0.838	0.905	0.968	0.898	1.082	1.185
21500-V03	0.684	0.838	0.905	0.968	0.898	1.082	1.185
21051-XX	0.737	0.903	0.975	1.042	0.967	1.165	1.276
21052-XX	0.763	0.935	1.010	1.079	1.002	1.207	1.322
21055-XX	0.869	1.064	1.149	1.228	1.140	1.373	1.504
21500-V04	0.921	1.128	1.219	1.303	1.209	1.456	1.595
21060-XX	1.026	1.257	1.358	1.452	1.348	1.623	1.778
21061-XX	1.053	1.289	1.393	1.489	1.382	1.665	1.823
21063-XX	1.132	1.386	1.497	1.600	1.486	1.789	1.960
21500-V05	1.158	1.418	1.532	1.638	1.520	1.831	2.006
21064-XX	1.158	1.418	1.532	1.638	1.520	1.831	2.006
21065-XX	1.184	1.450	1.567	1.675	1.555	1.873	2.051
21067-XX	1.263	1.547	1.671	1.787	1.659	1.997	2.188
21500-V06	1.369	1.676	1.810	1.935	1.797	2.164	2.370
21070-XX	1.395	1.708	1.845	1.973	1.831	2.205	2.416
21073-XX	1.500	1.837	1.985	2.122	1.970	2.372	2.598

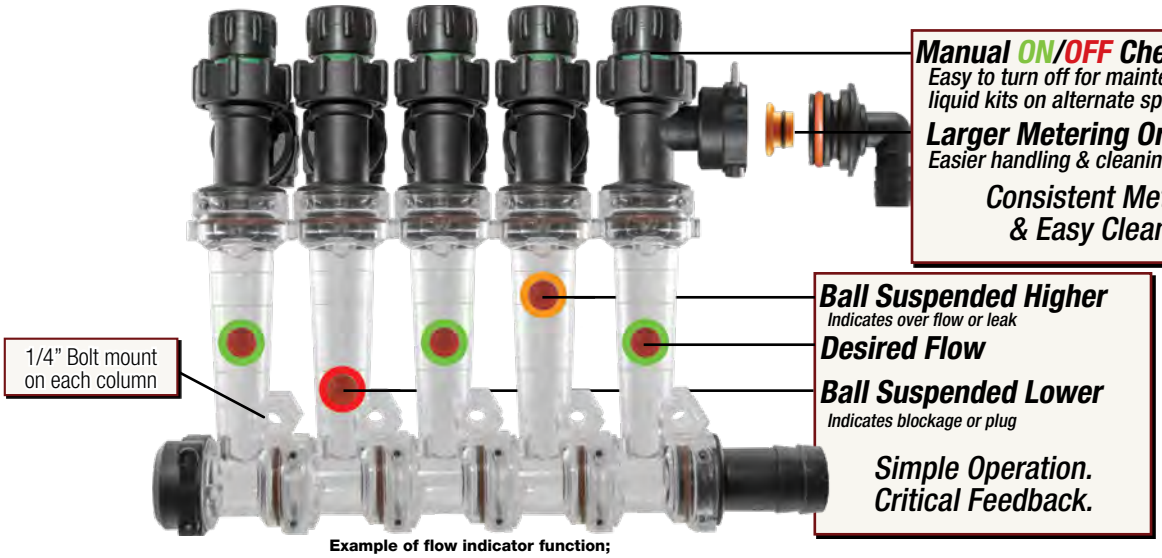
ORS Orifice Part #	Flow Rate (Litres/minute)						
	1 BAR	1.5 BAR	1.75 BAR	2 BAR	2.25 BAR	2.5 BAR	3 BAR
21075-XX	1.579	1.934	2.089	2.233	2.073	2.497	2.735
21078-XX	1.763	2.160	2.333	2.494	2.315	2.788	3.054
21500-V08	1.816	2.224	2.402	2.568	2.384	2.871	3.145
21081-XX	1.869	2.289	2.472	2.643	2.453	2.955	3.237
21083-XX	2.053	2.514	2.716	2.903	2.695	3.246	3.556
21086-XX	2.132	2.611	2.820	3.015	2.799	3.371	3.692
21089-XX	2.237	2.740	2.959	3.164	2.937	3.537	3.875
21500-V10	2.290	2.804	3.029	3.238	3.006	3.620	3.966
21091-XX	2.395	2.933	3.168	3.387	3.144	3.787	4.148
21093-XX	2.500	3.062	3.308	3.536	3.283	3.953	4.33
21096-XX	2.684	3.288	3.551	3.796	3.524	4.245	4.65
21500-V125	2.842	3.481	3.760	4.020	3.732	4.494	4.92
21102-XX	2.974	3.642	3.934	4.206	3.904	4.702	5.15
21104-XX	3.079	3.771	4.073	4.355	4.043	4.869	5.33
21107-XX	3.342	4.094	4.422	4.73	4.388	5.285	5.79
21500-V15	3.421	4.190	4.526	4.84	4.492	5.410	5.93
21110-XX	3.527	4.319	4.665	4.99	4.630	5.576	6.11
21113-XX	3.737	4.577	4.94	5.29	4.907	5.909	6.47
21116-XX	3.921	4.803	5.19	5.55	5.148	6.200	6.79
21120-XX	4.053	4.964	5.36	5.73	5.321	6.408	7.02
21125-XX	4.474	5.480	5.92	6.33	5.874	7.074	7.75
21500-V20	4.553	5.576	6.02	6.44	5.978	7.199	7.89
21128-XX	4.658	5.71	6.16	6.59	6.116	7.365	8.07
21130-XX	4.843	5.93	6.41	6.85	6.358	7.657	8.39
21136-XX	5.422	6.64	7.17	7.67	7.118	8.572	9.39
21140-XX	5.764	7.06	7.62	8.15	7.567	9.113	9.98
21144-XX	5.974	7.32	7.90	8.45	7.844	9.446	10.35
21147-XX	6.132	7.51	8.11	8.67	8.051	9.696	10.62
21150-XX	6.58	8.06	8.70	9.30	8.638	10.403	11.40
21152-XX	6.79	8.32	8.98	9.60	8.915	10.736	11.76
21156-XX	7.08	8.67	9.37	10.01	9.295	11.194	12.26
21161-XX	7.45	9.12	9.85	10.53	9.779	11.776	12.90
21166-XX	7.82	9.57	10.34	11.05	10.262	12.359	13.54
21172-XX	8.58	10.51	11.35	12.13	11.264	13.566	14.86
21177-XX	9.11	11.15	12.05	12.88	11.955	14.398	15.77
21182-XX	9.50	11.64	12.57	13.44	12.474	15.022	16.46
21187-XX	10.05	12.31	13.30	14.22	13.199	15.896	17.41
21196-XX	11.16	13.67	14.76	15.78	14.651	17.644	19.33
21205-XX	12.08	14.80	15.98	17.08	15.860	19.100	20.92
21213-XX	13.00	15.92	17.20	18.39	17.069	20.557	22.52
21218-XX	13.58	16.63	17.96	19.21	17.829	21.472	23.52
21234-XX	15.82	19.37	20.92	22.37	20.766	25.009	27.40
21250-XX	18.24	22.34	24.13	25.79	23.945	28.838	31.59

Wilger Visual Ball Flow Indicators

The Flow Indicator Advantage

See Any Application Accurately

- **Fittings Swivel 360°**
- **Clear Sight Column**
- **Superior Chemical Resistance**
- **Simple, without Electronics**
- **No Threads or Sealant Required**



Example of flow indicator function; Overlay colors are for visual purposes only

Flow Indicators are used on Planting Equipment & Sprayers to indicate relative flow blockage or overage.

Manifold Feed - Ball Flow Indicators

For monitoring many lines from a single feed
(e.g. Liquid fertilizer kits for a planter)

Model	Kit Type*	Part#
Ultra Low Flow [0.037-0.910 L/min]	Bulk Kit	20475-BULK
	Bagged Kit	20475-00
	Body Only	20475-01
Low Flow [0.19-2.46 L/min]	Bulk Kit	20470-BULK
	Bagged Kit	20470-00
	Body Only	20470-01
Standard Flow [0.26-10.22 L/min]	Bulk Kit	20460-BULK
	Bagged Kit	20460-00
	Body Only	20460-01

*Manifold Kits include: Indicator Body, Ball Retainer (#20460-02), O-ring (#20460-03), 2x U-clips (#20460-04), Green Ball (#20460-08), Red Plastic Ball (#20460-07), Red Glass Ball (#20460-06), 1/2" SS Ball (#20460-05)

Flow Indicator & O-ring seal (ORS) Connection Specifications*
Max Operating Pressure: 100PSI / 7BAR
Max Metered Flow Rate: 30 L/min per column
Maximum Operating Temp: 85°C
O-ring Seals: FKM (std) / Viton
U-clip: Stainless Steel (302)
ORS Fittings: Glass-reinforced Polypropylene
Flow Column Material: TPX™ (Polymethylpentene)

Isolated Feed - Ball Flow Indicators

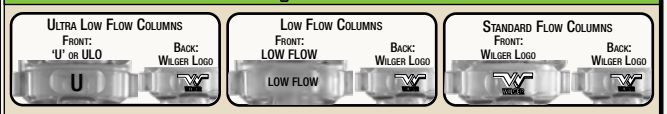
For monitoring single lines from individual feeds
(e.g. Squeeze pump monitoring, chemical injector pumps)

Model	Kit Type**	Part#
Low Flow [0.19-2.46 L/min]	Bulk Kit	20490-BULK
	Bagged Kit	20490-00
	Body Only	20490-01
Standard Flow [0.26-10.22 L/min]	Bulk Kit	20480-BULK
	Bagged Kit	20480-00
	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 (#20460-05)

Inlet feed uses Combo-Jet cap.
Refer to *COMBO-JET* caps & adapters.

How to Tell Columns Apart? *Check the top of the column.*



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.

PRO TIP: *Using two balls simultaneously helps adapt to cover changes in rate & speed*

If a lighter ball is suspended too high, using the next heavier ball below can help 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 Indicator Columns & Flow Ranges*		
		Ultra Low Flow	Low Flow	Standard Flow
Orange Polypropylene Ball*	20460-13	0.037-0.151 L/min	0.19-0.45 L/min	0.26-0.95 L/min
Green Polypropylene Ball*	20460-08	0.037-0.151 L/min	0.19-0.45 L/min	0.26-0.95 L/min
Red Celcon Ball*	20460-07	0.075-0.23 L/min	0.23-0.61 L/min	0.38-1.32 L/min
White Celcon Ball*	20460-18	0.075-0.23 L/min	0.23-0.61 L/min	0.38-1.32 L/min
Pink Celcon Ball*	20460-14	0.075-0.23 L/min	0.23-0.61 L/min	0.38-1.32 L/min
Red Glass Ball	20460-06	0.23-0.49 L/min	0.45-0.98 L/min	0.79-2.73 L/min
1/2" Stainless Steel (302) Ball	20460-05	0.49-0.91 L/min	0.68-2.46 L/min	1.51-6.44 L/min
7/16" Stainless Steel (302) Ball	20460-10	n/a	n/a	3.78-10.22 L/min

*Density/Viscosity of liquid used can effect operating range. In very dense liquids, balls may float.

Applying Dark Fertilizers & Variable Rate Applications

With some liquid fertilizers and products being darker (e.g humic acid content), consider a few tips that may help visual representation of flow.

For Red Liquids
(e.g. Paralign Fertilizer)
White backboard for improved visibility.
White celcon ball for red liquids.

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

Ball Selection Example

Liquid Density: 1.278 kg/L
Speed: 8 kph
Outlet Spacing: 76cm

Ultra-Low Flow
Rate: 40L/Ha
Flow Rate: 0.458 L/min
Ball: Red Glass

Low Flow
Rate: 100L/Ha
Flow Rate: 1.146 L/min
Ball: 1/2" Stainless

Standard Flow
Rate: 200L/Ha
Flow Rate: 2.292 L/min
Ball: Red Glass

Guide to Building a Liquid Kit with Flow Indicator Manifolds

STEP 1 Select: Manifold-Feed or Isolated-Feed Style Flow Columns

Choose the style of flow column that suits the application equipment being monitored

STEP 2 Determine Flow Indicator Column Size (e.g. Ultra Low Flow, Low Flow, Standard Flow)

Depending on the flow rates required, select the flow column that would provide the best fit to the required flow rate or range. Usually this is accomplished by finding a column size that has your flow rate towards the middle of the range or higher.

STEP 3 Select: Flow Indicator Balls to use

Consult the ball flow chart to determine which balls should be used. It can be optional to use two balls to illustrate a flow rate range.

STEP 4 ORS Check Valves [Optional]

A variety of check valves are available. Typically an ORS to ORS check valve would be used unless adapting a manifold to combo-jet caps. One check valve is required per flow indicator.

STEP 5 ORS Inlet Feeds, Tees, & Strainers

Determine how many manifolds are required, whether the manifolds are fed with a Tee fitting, as well as whether an in-line strainer will be added to each manifold. Determine the size & type of inlet fitting. One set of inlet/tee/strainer is required per manifold.

STEP 6 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 7 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 8 ORS End Caps & Adapters

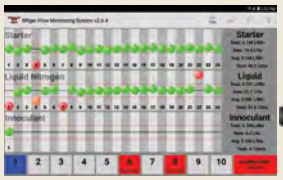
A variety of end caps are available as adapters which can be used for many situations, but typical an ORS end cap would be used. Two end caps are required per manifold if a Tee fitting is used.

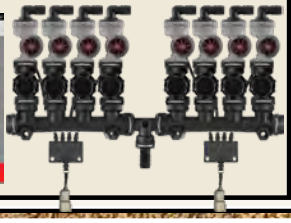
Do you plant at night or in low visibility? Take a look at Wilger's Electronic Flow Monitoring (EFM) System

Wilger's row-by-row flowmeter uses the same ORS parts and manifolds, and can be simply added in-line for existing manifolds.

Simply add a flowmeter for each row, and connect the electronic harness to see actual flow rate on each row (up to 196 rows), for flow rates of 0.15-5.8 L/min.

Flowmeter can also be installed on flow indicators to provide greater accuracy





Wilger Electronic Flow Monitoring System

The Electronic Flow Monitoring Advantage

See Any Application with Row-by-Row Accuracy

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

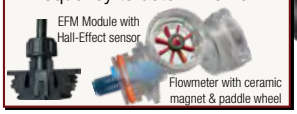
- **Fittings Swivel 360°**
- **Crystal Clear Flowmeter**
- **Superior Chemical Resistance**
- **Perfect for Low Visibility**
- **High Accuracy Flowmeter**

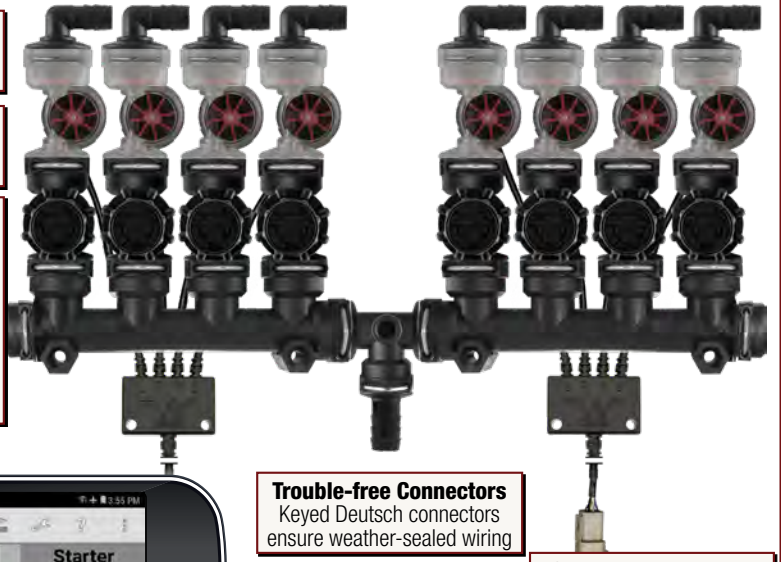
Patented Flowmeter Jets
Canadian Patent No. 2951789
AUS Patent No. 2017376849
U.S. Patent No.10,845,228

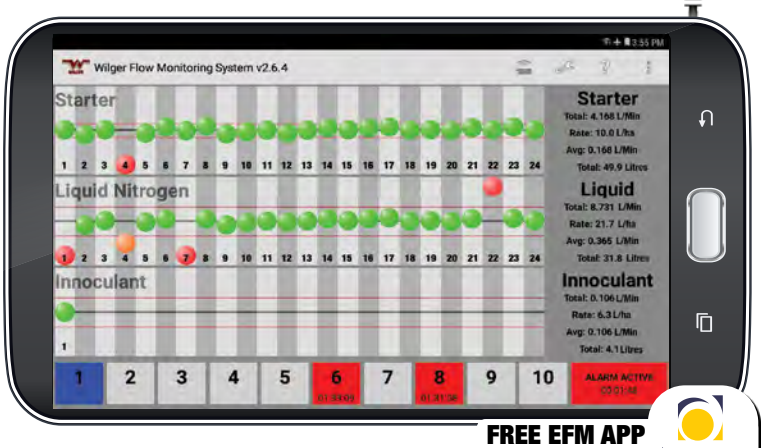
Crystal Clear Flowmeters
Enables easy system troubleshooting & verification

Monitors Huge Flow Range
Accurately measures flow rates of 0.15-5.8 L/min per row

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







FREE EFM APP POWERED BY AGTRON

The Electronic Flow Monitoring system (powered by Agtron) requires an Android 10 OS Tablet or newer.

Trouble-free Connectors
Keyed Deutsch connectors ensure weather-sealed wiring

Monitor up to 3 Products
Simultaneously monitor up to 3 products within the same system

Monitor Any Sized Equip.
Monitor up to 200 rows or outlets on any equipment

Custom High/Low Alarms
Customize threshold alarms

Custom Screen Layouts
Customize screen layouts between products, sections, or any other way

Chemical Resistance
Clear TPX material provides visual & non-stick surface

Easy Retrofit
Easily retrofits to any existing ORS or Flow Indicator Fittings

Simple Harnessing
Composed of an ECU with dairy-chained product nodes & sensors

WIFI communication
ECU generates WIFI straight into the cab

Build your Electronic Flow Monitoring System with help from www.wilger.net

Use the new EFM system parts kit builder available at www.wilger.net.
Simply input your implement size and layout and receive a parts list & quote. It just takes a minute.

Need help with EFM system SETUP, USE & Troubleshooting? Check www.wilger.net

EFM System Manual

The manual is accessible online (wilger.net) and within the EFM app via the (?) button. It contains Setup, Troubleshooting, Considerations, Maintenance and more.

Video Setup Guide

The video describes in detail considerations and how to reference sensor locations properly and usage in the EFM system app.

Online Troubleshooting

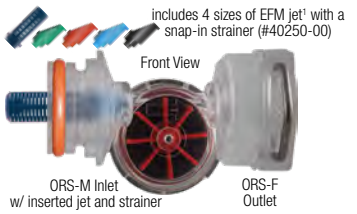
The dedicated page on the website has the most common recent fixes, guides, and troubleshooting information. Check it for quick troubleshooting to save time.

Wilger Electronic Flow Monitoring System Components

Electronic Flowmeters & Jets

A clear flowmeter that connects to any ORS outlets, with an accurate flow range of 0.15-5.8 L/min, using patented flow stabilizing jets.

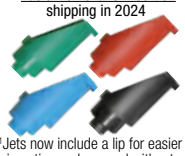
20580-00 EFM KIT



20580-06 Body Assembly

Product	Description	Part#
Electronic Flowmeter Body [0.15-5.8 L/min]	Flowmeter Assy Kit	20580-00
	Body Assembly (no jets)	20580-06
	Body Only (clear plastic)	20580-01
Replacement Jets (without 50 mesh snap-in strainer)	Green (up to 0.45 L/MIN)	20581-01
	Red (0.37- 1.17 L/MIN)	20581-03
	Blue (0.68 to 3.71 L/MIN)	20581-05
	Black (2.2 to 5.8 L/MIN)	20581-07

IMPROVED EFM JET DESIGN
[1]Easier removal & insertion shipping in 2024



[1]Jets now include a lip for easier insertion and removal without a strainer

Required Storage for Flowmeters

Wilger Flowmeters are made of a specialty UV-stabilized compound (TPX™) that maximizes chemical resistance, providing compatibility for a huge range of chemical applications. As with any plastic, UV exposure degrades the flow indicator columns.

To maximize flowmeter clarity & longevity, completely cover the flowmeters from UV exposure (sun/etc.) whenever possible.

Electronic Flowmeter Manifolds

Pre-assembled manifolds [1-4 Outlets] with a flowmeter and check valve. Simply assemble manifolds, add inlet/outlets, caps and sensor cables.

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

How to Complete a Manifold
- ! Stack manifold sections to desired size.
- 1 Add ORS inlet or center-fed tee (#20526-00)
- 2 Add ORS end-cap (2x if TEE is used)
- 3 Add ORS outlets & metering orifice (opt.)

Ensure hose/tube connections minimize strain/weight on manifold parts and joints.

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

20643-00 3-outlet EFM manifold

*0.3bar check valves available: change '-00' to '-P4'. For ultra-low flow (<0.01 US GPM), 0.3bar may be required.

DEMO ECU & Small Planter Kit (16 or less rows, non-expandable)

The following is a Compact ECU DEMO unit, which can be used for showroom/demonstrations, but also functional for planters with 16 rows or less being monitored. The CAN to POWER/USB adapter can be used where WIFI is not an option (tradeshows, etc.). The unit also broadcasts via WIFI.

Product	Description of DEMO Kit Parts	Part#
DEMO ECU	DEMO ECU with built-in 16CH node. One per Demo unit (requires 12v x 1.25 amp)	20625-01
DEMO 16CH Harness	DEMO ECU Harness, with A/B/C/D for up to 4 quad-sensor cables to be connected	20625-02
DEMO Power Supply Harness	CAN to USB (for wired tablet without WIFI) & 12v Power Cable (2-wire, 2m length). USB-A port is powered to supply tablet power.	20625-03
Quad-Sensor Cable	A normal quad-sensor cable, used in any Wilger EFM systems via 6-pin connector. Connects for the A/B/C/D of 20625-02. Order 4x 20585-00 for full 16 sensors.	4x 20585-00
Antenna (7")	If ECU connection is via WIFI, an antenna should be used to connect to the tablet.	20603-03
EFM Manifolds	1,2,3, or 4-outlet manifolds with check valves and an included EFM flowmeter. Simply order inlet/outlets/tee and end caps to complete manifold.	20644-00 (4-outlet)

Compact ECU
parts not to scale 20625-01

Switch for Wired USB Mode

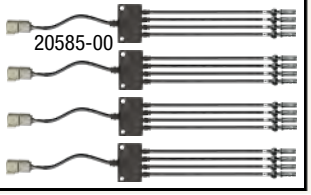
20625-03
CAN to 12v Power Harness

20625-02
DEMO ECU Product Harness*
*Demo harness is not expandable

20603-03
Antenna

Example 16-row manifold for demonstration

Quad-sensor cable
Connects to A / B / C / D
4x 20585-00



EFM DEMO System Parts Checklist

ELECTRONICS Parts
- ☐ 1x DEMO ECU (#20625-01)
- ☐ 1x Demo Product Harness (#20625-02)
- ☐ 1x Demo Power/USB Cable (#20625-03)
- ☐ 1x Antenna (#20603-03)
- ☐ 4x Quad-sensor cable (4x #20585-00)
- ☐ 1x Android Tablet & Mount (non-Wilger) (e.g. Samsung Tab A8)

PLUMBING Parts
- ☐ 4x 4-Outlet Manifolds (#20644-00)
- ☐ 1x ORS Tee (#20526-00)
- ☐ 1x 90° 1/2" Hose Inlet (#20513-00)
- ☐ 16x 1/4" Push-in-tube (#20516-00)
- ☐ 2x End Cap (#20521-00)
- ☐ 16x Metering Orifice (#21500-v03)
- ☐ 1x 5GPM Electric pump (non-Wilger) Small water tank w/ plumbing

Want to show what the system looks like, without a pump? Download the app, enter info, and plug in some example sensor information, and run the app in TEST/DEMO mode. (Simulated info) Contact Wilger for more info.

Wilger Electronic Flow Monitoring ECUs & Electronics

Base Electronic ECU & Kits for EFM Systems (expandable up to 196 rows/sensors)

Electronic Control Units (ECU) & components used in EFM systems.
ECUs are used to monitor up to 196 outlets, across up to 3 products.

Product	Kit Includes	Part#
ECU100 Base Kit	ECU100, 6m 12v Battery Harness (with fuse), Terminator, Antenna	20603-00
ECU200 Base Kit	ECU200, CAN to 12v Harness, 6m 12v Battery Harness (with fuse), ECU200 Node Harness (#20606-02), Terminator, Antenna, 4x Quad-sensor cables (#20585-00)	20606-00
ECU Splitter Kit	ECU Splitter Cable, Terminator	20605-00
ECU/Node to Node	3.5m Extension Harness (Node to ECU/Node)	20616-12
Extension Harness	7.3m Extension Harness (Node to ECU/Node)	20616-24

NEW ECU100 or ECU200? Whats the difference?

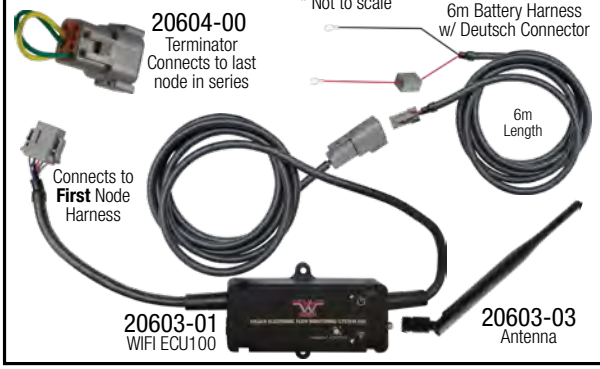
ECU100 and ECU200 share identical function as a controller. Both create their own WIFI signal to the tablet in the cab, sending row-by-row flowmeter information. They differ somewhat in the first node connected, and potentially the use of other components, the harnesses, and cables used.

The ECU200 effectively integrates the first 16CH node, as well as provides a CAN plug for future-proofed connections.

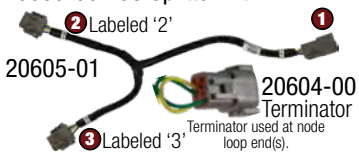
ECU Type	ECU100	ECU200
Combined Node?	No integrated 16CH node	First 16CH node built-in
Expandable Size?	Yes, up to 196 sensors	Yes, up to 196 sensors
Power Cable	2-pin 12v PWR harness	CAN to 2-pin 12v PWR harn.
Compatibility	Both are compatible to all EFM system components	

20603-00 **ECU100** Base Kit, Breakdown*

* Not to scale

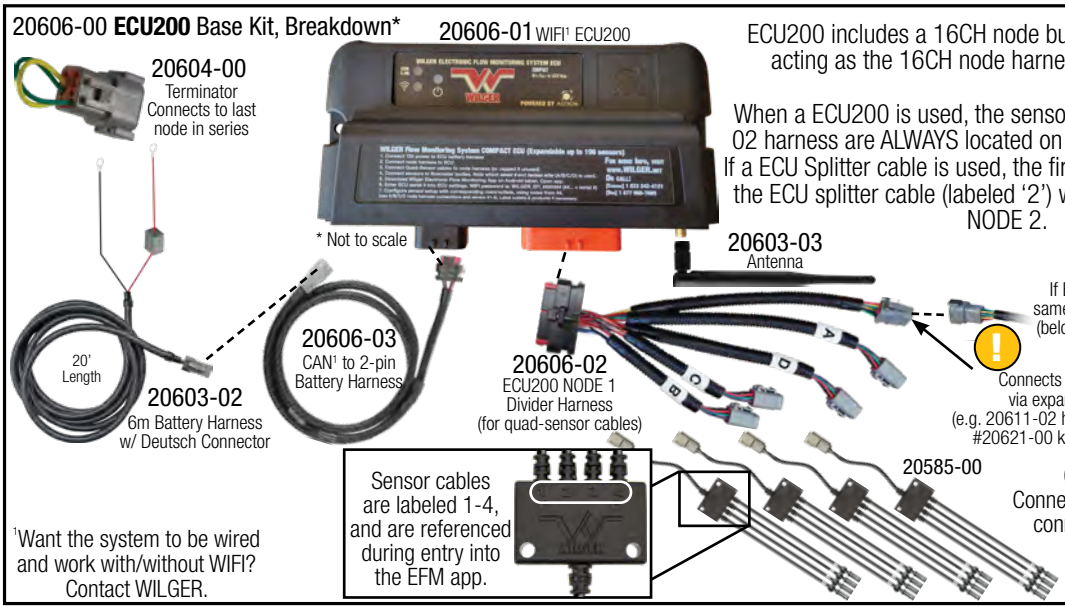


20605-00 ECU Splitter Kit



1. Connects to ECU100 or ECU200.
2. If ECU100, first node is Node 1. If ECU200, first node is Node 2. (As ECU200 has built-in Node1)
3. Connects to 2nd node series loop. Node # determined by last node in 1st series loop.

20606-00 **ECU200** Base Kit, Breakdown*



ECU200 includes a 16CH node built-in, with 20606-02 acting as the 16CH node harness for the ECU200.

When a ECU200 is used, the sensors used on the 20606-02 harness are ALWAYS located on NODE 1 of the system. If a ECU Splitter cable is used, the first node connected after the ECU splitter cable (labeled '2') would be recognized as NODE 2.

If ECU splitter cable is used, the same logic follows numbering nodes (below), BUT the series would begin instead at Node 2)

Connects to **Node 2 Harness** via expansion Node harness (e.g. 20611-02 harness that is supplied with #20621-00 kit will always be NODE 2)

Quad-sensor cable(s) Connects to A / B / C / D harness connections from 20606-02

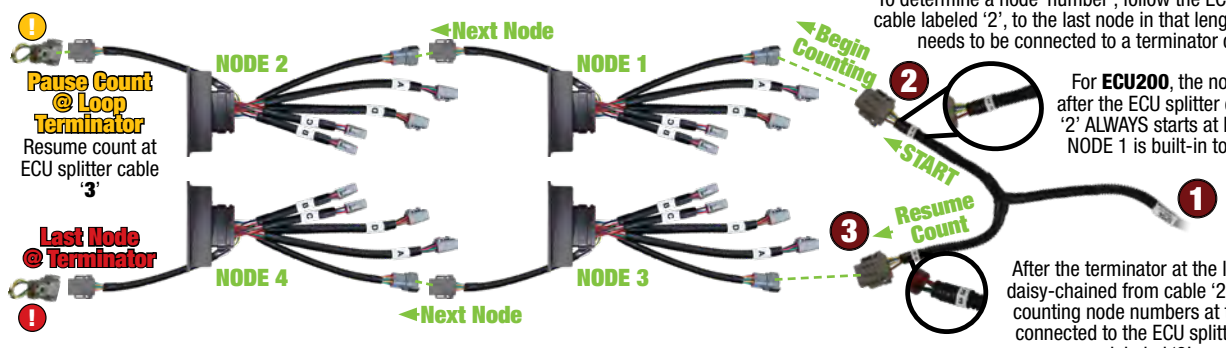
4x 20585-00

[1]Want the system to be wired and work with/without WIFI? Contact WILGER.

! Using an ECU Splitter Cable with ECU100 - Navigating 'Node Numbers' & Locations

Example: NODE 3 was designated #3 by position, due to NODE 2 closing the series with a terminator.

Terminators are required for the end of each node daisy-chained loop.



To determine a node 'number', follow the ECU splitter cable labeled '2', to the last node in that length, which needs to be connected to a terminator cap.

For **ECU200**, the node count after the ECU splitter connection '2' ALWAYS starts at Node 2 (as NODE 1 is built-in to ECU200)

After the terminator at the last node daisy-chained from cable '2', resume counting node numbers at the node connected to the ECU splitter cable labeled '3'.

Wilger Electronic Flow Monitoring System Components

16 Channel (16CH) Product Node Kits & Components

16CH Product nodes provide communication between sensors and ECU.

Product	Description	Part#
16CH Node Kit	incl. 16CH Node, 16CH Harness, 4x Quad-sensor cables	20621-00
Quad-Sensor Cable	4-Sensor Cable (55cm 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 Extensions	1.8m Extension Cable (16CH Harness to quad-sensor cable)	20615-06
	3.6m Extension Cable (16CH Harness to quad-sensor cable)	20615-12

Capping Unused Connections & Sensors

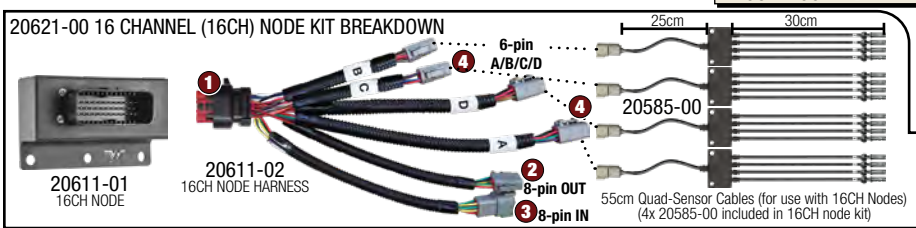
For proper function of your EFM system, each unused connection must be sealed with a node harness cover cap, sensor cap, or terminator. Unsealed Connections have increased chance of shorts, electrical shock, or damage to the system or equipment.

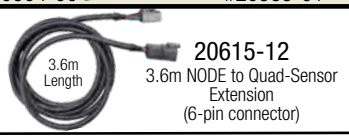
Unused Node Connections
Cap unused A/B/C/D with 16CH node harness
#20612-00

Terminators
Cap all 'last node' connections
#20604-00

Unused Sensors
Cap unused sensors with rubber cap
#20585-01

20621-00 16 CHANNEL (16CH) NODE KIT BREAKDOWN





1. Node Connects to Harness
2. Connects to next node in series
3. Connects to ECU (or previous node)
4. Connects to (4) quad-sensor cables

Limited Stock 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 Cables (lim. qty)	15cm single-sensor Cable for 4CH Node harness	20584-00
	300cm single-sensor Cable for 4CH Node harness	20584-10

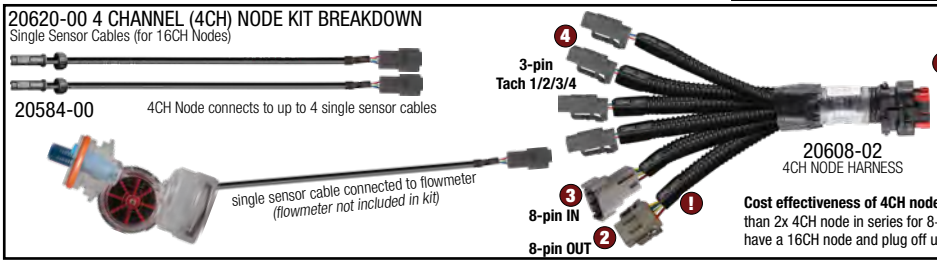
Capping Unused Connections

For proper function of your EFM system, each unused connection must be sealed with a 4CH node harness/sensor cover cap, or terminator.

Unused Sensor Connections
Cap unused 4CH node harness connections
#20609-00

Terminators
Cap all 'last node in series' connections
#20604-00

20620-00 4 CHANNEL (4CH) NODE KIT BREAKDOWN



1. Node Connects to Harness
2. Connects to next node in series
3. Connects to ECU (or previous node)
4. Connects up to 4 single sensor cables

Cost effectiveness of 4CH nodes: For any configurations requiring more than 2x 4CH node in series for 8+ sensors, it can be more cost effective to have a 16CH node and plug off unused harness connectors.

ECU Splitters, Extended Harnesses & Cables

A variety of harnesses available for alternate EFM system configurations or replacement cables and caps

Product	Description	Part#
12v Power Extension	Extends 2-pin power connection by 10m	20603-07
Antenna Extension	Extends connection to ECU antenna, 10m length	20603-05
1.2m quad-sensor cbl	1.2m Long Quad-sensor cable (1.2m/0.5m/0.5m/1.2m)	20585-04
3m Single Sensor Cbl	3m long single sensor cable	20584-10
Node to Node Extensions	3.6m Extension Cable (8-pin Harness male to 8-pin female)	20616-12
	7.2m Extension Cable (8-pin Harness male to 8-pin female)	20616-24
Node to Quad-Sensor Extensions	1.8m Extension Cable (16CH Harness to quad-sensor cable)	20615-06
	3.6m Extension Cable (16CH Harness to quad-sensor cable)	20615-12
	7.2m Extension Cable (16CH Harness to quad-sensor cable)	20615-24

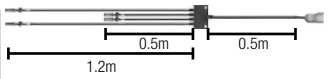
10m Antenna Extension

10m co-axial antenna extension cable to bring ECU antenna closer to the tractor

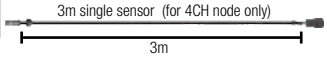
20603-05
10m Extension

ECU antenna has 30m range (15m one-way)

20585-04
Quad-sensor cable (for 16CH node only)



20584-10
3m single sensor (for 4CH node only)

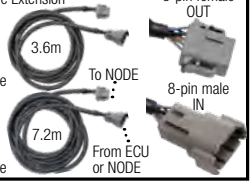


Extensions: ECU/Node to Node

ECU/Node to Node Extension (8-pin)

20616-12
3.6m Extension
ECU/Node to Node

20616-24
7.2m Extension
ECU/Node to Node



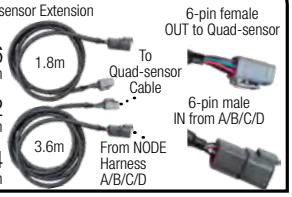
Extensions: Node to Quad-sensor

Node to Quad-Sensor Extension (6-pin)

20615-06
1.8m Extension

20615-12
3.6m Extension

20615-24
7.2m Extension

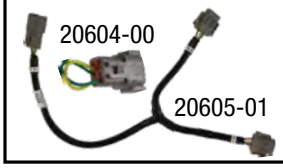


12v power Extension

2-pin Extension harness for 12v power from tractor

20603-07
10.5m Extension

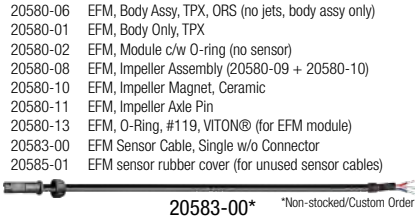
20605-00 ECU Splitter Kit includes



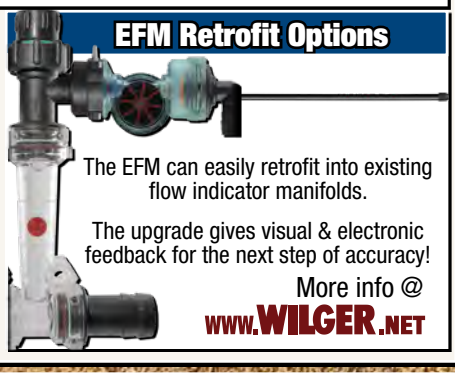
Flowmeter Component Parts

Electronic flow monitoring system parts and components are easily replaceable. For individual component parts that were not listed in the above product breakdowns, find the below.

20580-06	EFM, Body Assy, TPX, ORS (no jets, body assy only)
20580-01	EFM, Body Only, TPX
20580-02	EFM, Module c/w O-ring (no sensor)
20580-08	EFM, Impeller Assembly (20580-09 + 20580-10)
20580-10	EFM, Impeller Magnet, Ceramic
20580-11	EFM, Impeller Axle Pin
20580-13	EFM, O-Ring, #119, VITON® (for EFM module)
20583-00	EFM Sensor Cable, Single w/o Connector
20585-01	EFM sensor rubber cover (for unused sensor cables)



EFM Retrofit Options



The EFM can easily retrofit into existing flow indicator manifolds.

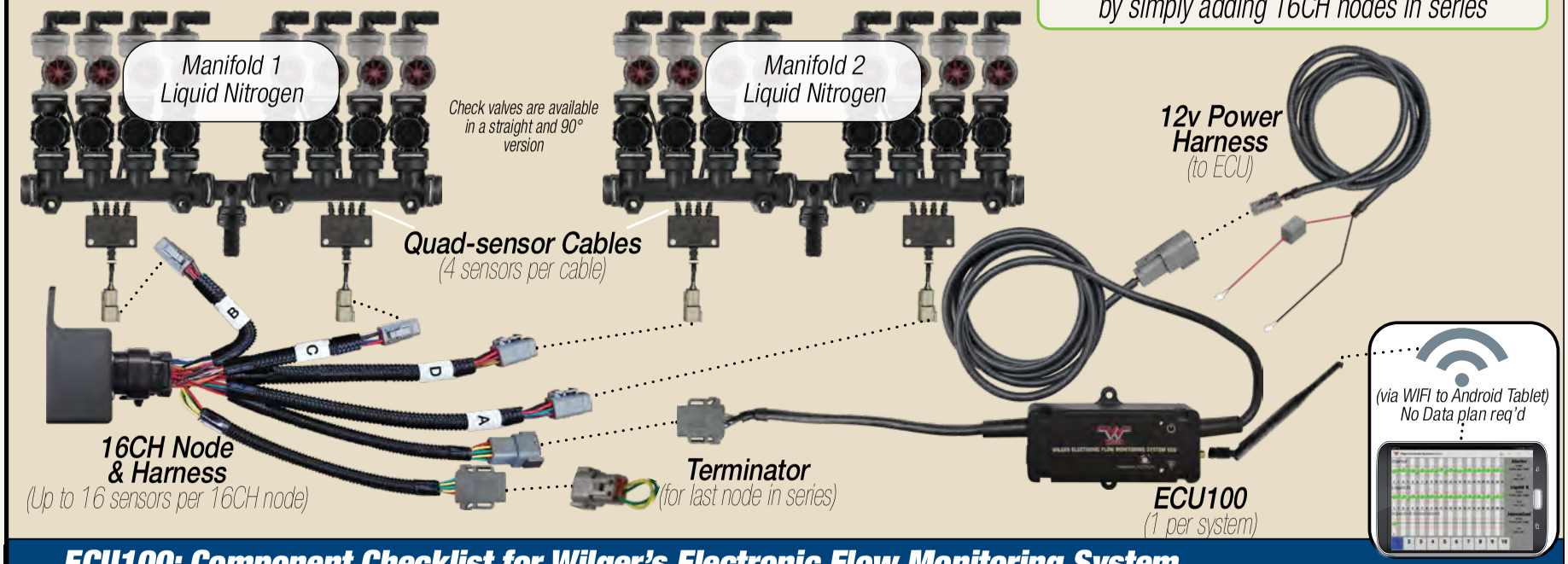
The upgrade gives visual & electronic feedback for the next step of accuracy!

More info @ WWW.WILGER.NET

Wilger Electronic Flow Monitoring System ECU100 Example

ECU100 on a 16-row Planter, applying liquid fertilizer

Expand system to larger planters or implements by simply adding 16CH nodes in series



ECU100: Component Checklist for Wilger's Electronic Flow Monitoring System

! As equipment & implements greatly vary, this is a simplified approach assuming the implement is fairly standard and evenly spread, with the manifold centrally located. It may be cost effective to move manifolds from the wings of the implement, to the center.

1. **Order 1 ECU100 kit** per system. (#20603-00)
2. 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 be effective for 'extra' outlets in systems, but 16CH node kits are typically 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.
4. 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.
5. [Optional if metering orifice req'd] **Order an ORS orifice for each outlet**, ensure proper metering orifice size for each rate. Use Tip Wizard @ www.wilger.net or via app, to ensure proper sizing.

EFM System Checklist for ECU100

ELECTRONICS Parts

- ☐ 1x **ECU100 KIT** per system
- ☐ 1x **16CH Node Kit** per 16 outlets
- ☐ 1x **Flowmeter (EFM)** per outlet
- ☐ **Extension harnesses** if req'd
- ☐ 1x **Android Tablet** [Android 10 OS or newer. Avoid non-brand name tablets that may not be running full OS)]

PLUMBING Parts

- ☐ 1x **ORS Manifold Outlet** per outlet
- ☐ 1x **ORS Outlet Fitting** per outlet
- ☐ 1x **ORS Check Valve** per outlet
- ☐ 1x **Inlet Feed or Tee** per manifold
- ☐ 1x **End Cap** per manifold [2x if center Tee]
- ☐ 1x **Metering Orifice** per outlet [or alt.]

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

Build your EFM system liquid kit on www.WILGER.NET

Use the new EFM system parts kit builder available at www.wilger.net. Simply input your implement size and layout and receive a parts list & quote. Simple as that.

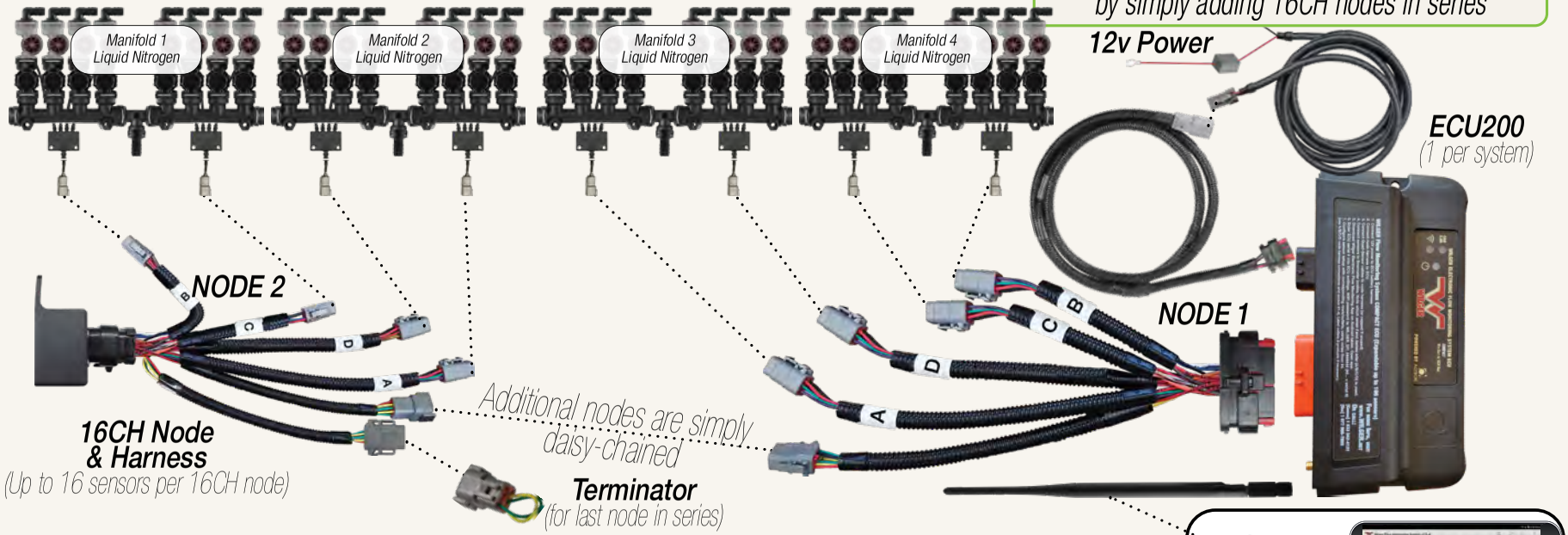
EFM VIDEO TUTORIALS - Setting up EFM App on Android Tablet

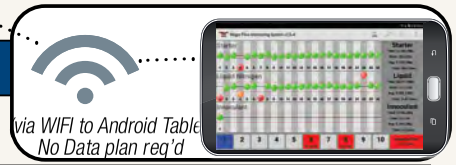
Make sure to take advantage of video tutorials on initial setup and planning of EFM system app on your Android Tablet. Videos on YOUTUBE, or accessible from www.WILGER.NET

Wilger Electronic Flow Monitoring System ECU200 Example

ECU200 on a 32-row Planter, applying liquid fertilizer

Expand system to larger planters or implements by simply adding 16CH nodes in series





ECU200: Component Checklist for Wilger's Electronic Flow Monitoring System

! Since the ECU200 includes the FIRST 16CH product node, it changes the ordering checklist slightly.

1. **Order 1 ECU200 kit** per system. (#20606-00)
2. Add the # of outlets (incl. multiples for monitoring multiple products). **First subtract 16 outlets from the total (as the first 16 are included with ECU200), then divide the total # of outlets by 16.** Round up to nearest whole number. **Order that many 16CH Node kits**. (#20621-00)
   4CH Node kits can be effective for 'extra' outlets in systems, but 16CH node kits are typically cost effective.
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) for pre-built manifolds with flowmeters installed.
4. Order **1 ORS Outlet & 1 ORS Check Valve (#20551-00 style) per EFM body.**
   Order manifolds & plumbing components (& end caps) suited for the implement size.
5. [Optional if metering orifice req'd] **Order an ORS orifice for each outlet**, ensure proper metering orifice size for each rate. Use Tip Wizard @ www.wilger.net or via app, to ensure proper sizing.

EFM System Checklist for ECU200

ELECTRONICS Parts

- ☐ 1x ECU200 KIT per system, incl. 1st 16CH
- ☐ 1x 16CH Node Kit per adtl. 16 outlet
- ☐ 1x Flowmeter (EFM) per outlet
- ☐ Extension harnesses if req'd
- ☐ 1x Android Tablet [Android 8.0 OS or newer]

PLUMBING Parts

- ☐ 1x ORS Manifold Outlet per outlet
- ☐ 1x ORS Outlet Fitting per outlet
- ☐ 1x ORS Check Valve per outlet
- ☐ 1x Inlet Feed or Tee per manifold
- ☐ 1x End Cap per manifold [2x if center Tee]
- ☐ 1x Metering Orifice per outlet [or alt.]

For more information, start the conversation for your EFM system with your Wilger dealer, and for more pictures/information, visit our website at: WWW.WILGER.NET

Build your EFM system liquid kit on WWW.WILGER.NET

Use the new EFM system parts kit builder available at www.wilger.net. Simply input your implement size and layout and receive a parts list & quote. 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

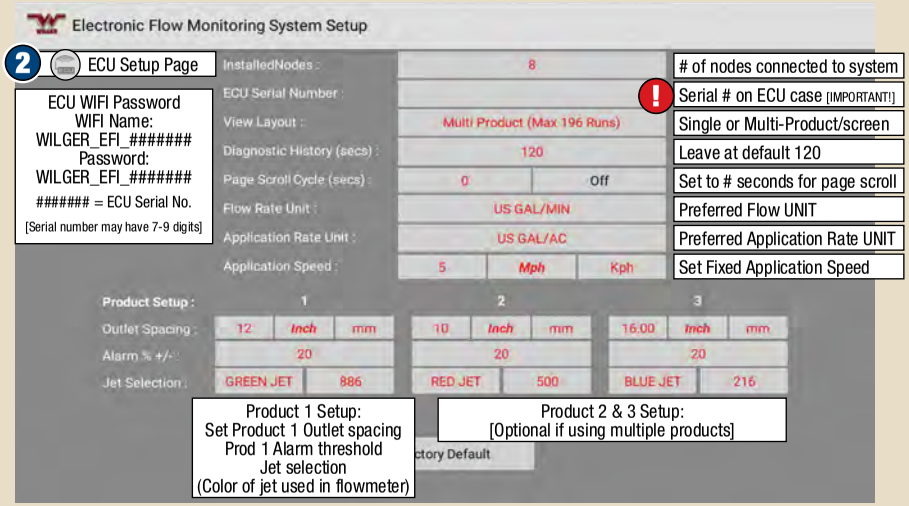
EFM System App Preview - Setup & Go

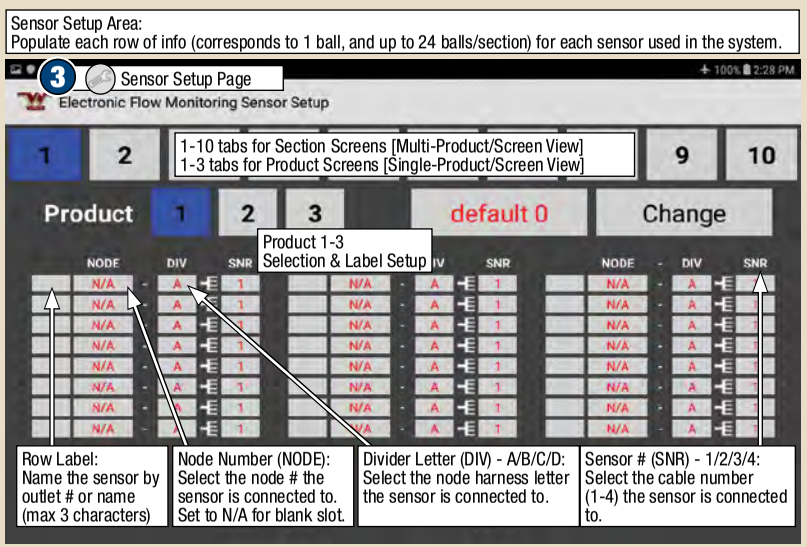
1. Download the Wilger Electronic Flow Monitoring System App. (GooglePlay Store, or APK download from www.wilger.net/efm.apk)

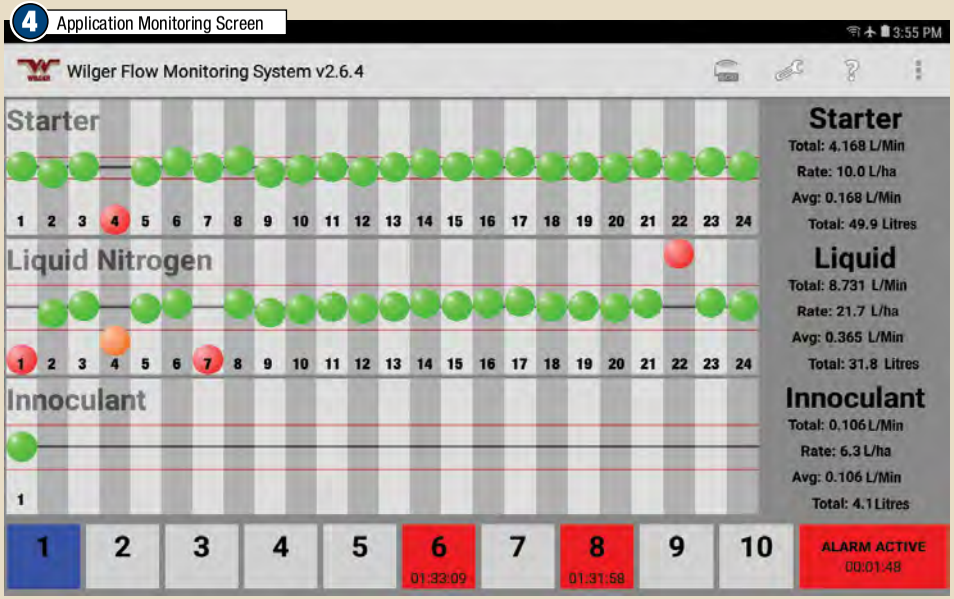
2. Power up ECU, connect tablet to ECU WIFI, and complete ECU setup, including specifying product-specific alarm, outlet spacing & jet selection.
(WIFI password is ECU serial number; eg. "WILGER_EFI_**1234567**")
ECU serial number may be between 7-9 digits.

3. Set row/outlet locations (on screen) by pairing row # and physical location of sensor (which node/cables it is connected to). Customize page layout by preference (group balls by sections or any other layout by user preference).

4. System will now monitor each individual flowmeter individually (on detailed snapshot screen and alarms), by product (with visual balls), and as a whole system.







Now that basic setup is complete, explore the individual row detailed screens, application widgets, advanced calibration screen, and equipment profile saving/recalling as well.

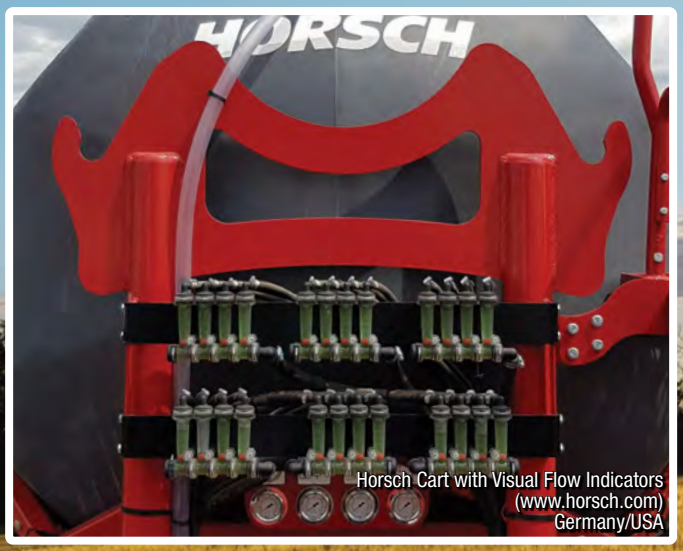
Case IH Sprayer with AimCommand Flex
(www.caseih.com)
USA

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

Smithco Sprayer with PinPoint II
(www.smithco.com)
USA

Elvorti seeder with flow indicators [top-right]
fed to metering in-line check valves
Ukraine

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



Horsch Cart with Visual Flow Indicators
(www.horsch.com)
Germany/USA

Electronic Flow Monitoring System [view from below]
Retrofit by Tech-Farming
Ukraine

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

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