



See Any Application Accurately

WILGER BALL FLOW INDICATORS

Using Flow Indicators lets you identify and resolve leaks or plugs, resulting in more consistent application.

Visual Ball Flow Indicators for Planters, Seeders, Sprayers



Spot any disruptions in flow immediately.

A glance is all it takes to know that liquid is properly flowing to the outlets.

Using Visual Ball Flow Indicators

Flow Indicators are used on Planting Equipment & Sprayers to illustrate any flow blockages (or overages).

Manual On/Off Check Valves
Easy to turn off for maintenance or convert equipment to mid-row banding

Larger Metering Orifices
Easier handling & cleaning

360° O-ring Seal Fittings
Easier installation without any threads

Ball Suspended Higher
Indicates excess flow or leak

Desired Flow
Based on required application

Ball Suspended Lower
Indicates blockage or plug

Simple Operation.
Critical Feedback.

Some Uses for Visual Ball Flow Indicators



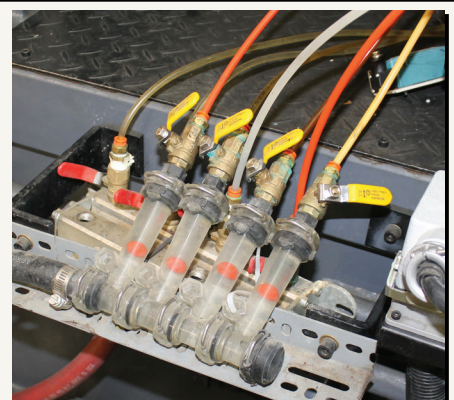
AGRICULTURAL

Liquid Fertilizer Kits for Planters, Air Seeders, Sprayers



TURF & GOLF COURSE

Turf Sprayers & Liquid Application Equipment



INDUSTRIAL

Watering, Cooling & Air Distribution Systems

Do you want to see your actual flow rate? Check out the EFM!

If you require more accuracy when monitoring your implement with row-by-row accuracy, the Electronic Flow Monitoring (EFM) System might be what you are looking for.

The system's row-by-row flowmeters can even retro-fit onto flow indicator manifolds, so it can be added after-the-fact to give you flowmeter accuracy and alarms in the cab.

Perfect for applying dark liquids (e.g. humic acid), or when planting in the dark or low visibility.

NEW

Product	1	2	3	4	5	6	7	8	9	10
Starter	●	●	●	●	●	●	●	●	●	●
Liquid N	●	●	●	●	●	●	●	●	●	●
Injected Inoculant	●	●	●	●	●	●	●	●	●	●
Product 1	●	●	●	●	●	●	●	●	●	●
Product 2	●	●	●	●	●	●	●	●	●	●
Product 3	●	●	●	●	●	●	●	●	●	●

Build your Flow Indicator Kit in 8 Easy Steps

STEP 1 Manifold or Isolated-Feed Style Flow Columns

Choose the style of flow column that suites your application equipment

Manifold Feed Column

Manifold style columns stack with O-ring seal connections

Available in column sizes to monitor from **0.01-2.70 us gpm**



Typical for:
Multi-line monitoring
Liquid Application on Seeders/Planters/Sprayers

Isolated Feed

Isolated-feed style columns are fed individually with a radiallock cap

Available in column sizes to monitor from **0.05-2.70 us gpm***



Typical for:
Individual line monitoring
Squeeze Pump Systems

OR

* Ultra-Low flow size is not available in Isolated Feed style

STEP 2 Required Flow Column Size

Pick the column size that best suits the operational flow range required.
How to tell them apart? Check the top labels.

		Ultra-Low Flow Column Size Operational Flow Range: 0.01 to 0.24 us gpm
		Low Flow Column Size Operational Flow Range: 0.05 to 0.65 us gpm
		Standard Flow Column Size Operational Flow Range: 0.07 to 2.70 us gpm

HOW TO: Calculate required flow rate

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

$$\text{US GPM (per outlet)} = \frac{\text{GPA} \times \text{mph} \times \text{W} \times \text{conv}}{5940}$$

$$\text{GPA} = \frac{5940 \times \text{GPM (per outlet)}}{\text{mph} \times \text{W}}$$

W = Outlet Spacing (INCH)

conv = Conversion Factor based on solution density

[Advanced] If you intend to split a line down-stream from the flow indicator, ensure you multiply the US GPM flow rate by the number of outlets being fed through the flow indicator. For best accuracy, 1 outlet per column; 3 outlets as recommended maximum.

Solution Weight (lbs/ us gallon)	Specific Gravity	Conversion (conv)
7.0	0.84	0.92
8.34 (Water)	1.00	1.00
9.0	1.08	1.04
10.0	1.20	1.10
10.65 (28-0-0)	1.28	1.13
11.0	1.32	1.15
11.65 (10-34-0)	1.39	1.18
12.0	1.44	1.20

STEP 3 Which Balls to Use [based on column size & flow rate]

Depending on the flow column size and flow rate, select the best ball option.

Flow Indicator Balls Ball Categories may have alternate colors for improved visibility.	Ultra-Low Flow Ball Flow Ranges	Low Flow Ball Flow Ranges	Standard Flow Ball Flow Ranges
Polypropylene Balls Lightest Balls* <small>*may float in dense liquids</small>	Use if typical flow is between 0.01 - 0.04 us gpm	Use if typical flow is between 0.05 - 0.12 us gpm	Use if typical flow is between 0.07 - 0.25 us gpm
Weighted Celcon Balls Heavier Plastic Balls* <small>*may float in high viscosity liquids</small>	Use if typical flow is between 0.02 - 0.06 us gpm	Use if typical flow is between 0.06 - 0.16 us gpm	Use if typical flow is between 0.10 - 0.35 us gpm
Red Glass Ball Ground Glass Ball	Use if typical flow is between 0.06 - 0.13 us gpm	Use if typical flow is between 0.12 - 0.26 us gpm	Use if typical flow is between 0.21 - 0.72 us gpm
1/2" Stainless Ball Stainless Steel Ball	Use if typical flow is between 0.13 - 0.24 us gpm	Use if typical flow is between 0.18 - 0.65 us gpm	Use if typical flow is between 0.40 - 1.70 us gpm
7/16" Stainless Ball Smaller Stainless Ball	7/16" SS Ball cannot be used in Ultra-Low Flow	7/16" SS Ball cannot be used in Low Flow	Use if typical flow is between 1.00 - 2.70 us gpm

TIP WIZARD Makes Ball Selection EASY!

Plug in your req'd application & TIP WIZARD does the rest.



TIP WIZARD

Try TIP WIZARD Today!



Available @ WWW.WILGER.NET

Ball Selection Example

Liquid Weight: 10.67 lbs/ US Gallon
Speed: 5 mph
Outlet Spacing: 30 inch

Ultra-Low Flow
Rate: 4.5 US Gal/Acre
Flow Rate: 0.129 us gpm
Ball: Red Glass

Low Flow
Rate: 10 US Gal/Acre
Flow Rate: 0.286 us gpm
Ball: 1/2" Stainless

Standard Flow
Rate: 20 US Gal/Acre
Flow Rate: 0.571 us gpm
Ball: Red Glass



Cost Effective, Modular & Flexible Ball Flow Indicator Configurations

STEP 4 [OPTIONAL] Flow Indicator Check Valve Bodies [If no check valves are to be installed per row, skip to STEP 5]

Using check valves reduces line dripping, allows for cleaner orifice changing, and can provide more stable pressure through orifices.



ORS to ORS Check Valve

Check valve bodies are available in two styles with a handful of module options to suit your system. One is required per outlet.

Check Valve or Control Module Options

Manual ON/OFF Check Valve

When 'ON', acts as a check valve. When 'OFF', shuts off flow.



Available in 4PSI, 10PSI, or 15PSI check valve strength

Diaphragm Check Valve

Standard check valve opens at a certain pressure. (10 PSI standard)



Available in 4PSI, 10PSI, or 15PSI check valve strength

Air-OFF Module

When sufficient air pressure is sent to check valve, check valve is forced closed.



Available in 4PSI, 10PSI, or 15PSI check valve strength

No Module

No module is typically used when a PWM solenoid or electronic shut-off is used.*



A module is required for proper operation.

ORS to CJ Cap Check Valve

For convenience, a style for ORS to Combo-Jet Cap is also available.

Do you use the same planter to seed alternate row spacing for different crops?

If your planting implement plants on 30" rows for one crop, and 15" rows for another, simply use manual ON/OFF check valves, and turn off every 2nd row outlets when planting on 15" rows, saving you from building separate manifolds for your 15" and 30" rows. You can even get different colored caps for your check valves to differentiate which are which.

STEP 5 Feeding your Plumbing Manifold [For use with Manifold-style Columns Only]



1" Straight Hose Barb

Manifolds are fed with flow from an ORS Inlet. Either a center-fed TEE or side-fed inlet can be used. For larger manifolds (8+), consider center-feeding with a TEE. For Isolated-Feed flow indicator columns, a Combo-Jet® cap (not shown) is used to feed each column.

ORS TEE Fittings [Best]



Center fed tee fittings provide split-flow suited to manifolds.

Still requires feed inlet with TEE.



Available in 1" NPT-F or ORS Fitting (up to 1" hose). Optional 1/4" NPT port avail. for pressure gauge.

ORS Inlet Fittings [Good]



Straight Hose Barb

Side-fed fittings can make up compact manifolds.

Consider using a TEE for larger (8+) consecutively stacked columns.



90° Hose Barb

Available in up to 1" hose, and up to 3/8" in push-in tube or threaded fittings.

NEW ORS In-line Strainer [Extra]

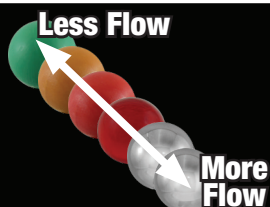
You can now add a manifold strainer at each inlet with the ORS inlet strainer.

Cartridge can be reversed, depending on direction of flow



50 Mesh Strainer Cartridge

Strainer Assembly

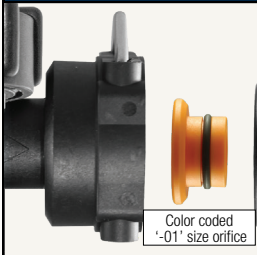


Not sure which flow indicator balls to use?

Every application is different. Wilger's calculators and tools (incl. Tip Wizard) can help guide you. Liquid viscosity and even temperature changes can influence where a ball floats, so ensure to test the floating level of balls (and switch if needed) until satisfied.

Build your Flow Indicator Kit in 8 Easy Steps

STEP 6 [Optional] Flow Indicator Metering Orifices [If metering flow with alternate means, skip to STEP 7]



An ORS metering orifice is a consistent way to meter the required flow through each row of product, mounted right at your manifold for easy access.



Use Tip Wizard for Orifice Selection
 Plug in your req'd application, and Tip Wizard does the rest.
 Available @ WWW.WILGER.NET

Custom Drilled Sizes
 Precision drilled orifices from 0.009" to 0.25"
 Drilled for any size, for any flow rate.

Color-Coded Molded Orifices
 Color coded to flow rate from 0.03-2.5 us gpm
 Molded around a pin for consistent application.

STEP 7 Flow Indicator Outlet Fittings



ORS outlets will send flow directly to your outlet, or opener. All ORS outlets allow for 360° of movement, to alleviate hose kinks or pinches.

PRO-TIP: Assembly

Assembling dry ORS fittings can be tough. Lubricate them with a dab of liquid silicone for easy assembly.

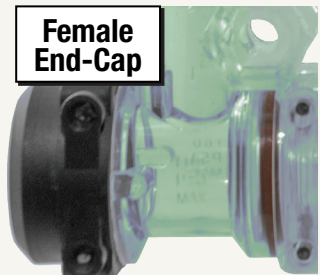
Push-in-Tube Fittings
 Easy "push-to-connect" fittings.
 Use semi-rigid polyethylene or vinyl tubing.
 Available in Straight or 90° Fittings.
 Sizes (Tube Outside diameter): 1/4", 5/16", 3/8"

Hose Barb Fittings
 Hose shank fittings.
 Use with hose & hose clamps.
 Available in Straight or 90° Fittings.
 Sizes (Hose size): 1/4"* , 3/8", 5/8"* , 3/4", 1"
*not available in both 90°/Straight

Threaded Fittings
 National Pipe Thread Fittings
 Use with thread sealant, if necessary.
 Available in Straight or 90° Fittings.
 Sizes (NPT size): 1/4" Female Thread

STEP 8 Flow Indicator End-Caps & Adapters

Each manifold will need an end-cap (2 end-caps required if center-fed by a TEE fitting).



Plugs & Caps
 End-caps terminate a manifold.
 Available as female caps, or male plugs. (less common)

End-cap adapters can also be used for more complex manifolds.

REMINDER: Any Male O-ring Seal (ORS) connection can be mated to an ORS Female connection. This gives a whole host of possible configurations of connections.

End-Cap Adapters
 End-cap adapter options for advanced manifolds.

Final Considerations: Alternative Configurations

Many applications can benefit from non-standard configurations, so it is recommended to review all components (i.e. tees with 1/4" NPT-F threads for pressure gauges) to ensure the configuration provides the most utility.

Wilger Flow Indicator Columns have the Best In Class Clarity and Chemical Resistance

All of the Wilger ball flow indicator columns are molded as a single piece out of a specialty plastic (TPX) that provides the best chemical resistance possible while maintaining the utmost clarity.

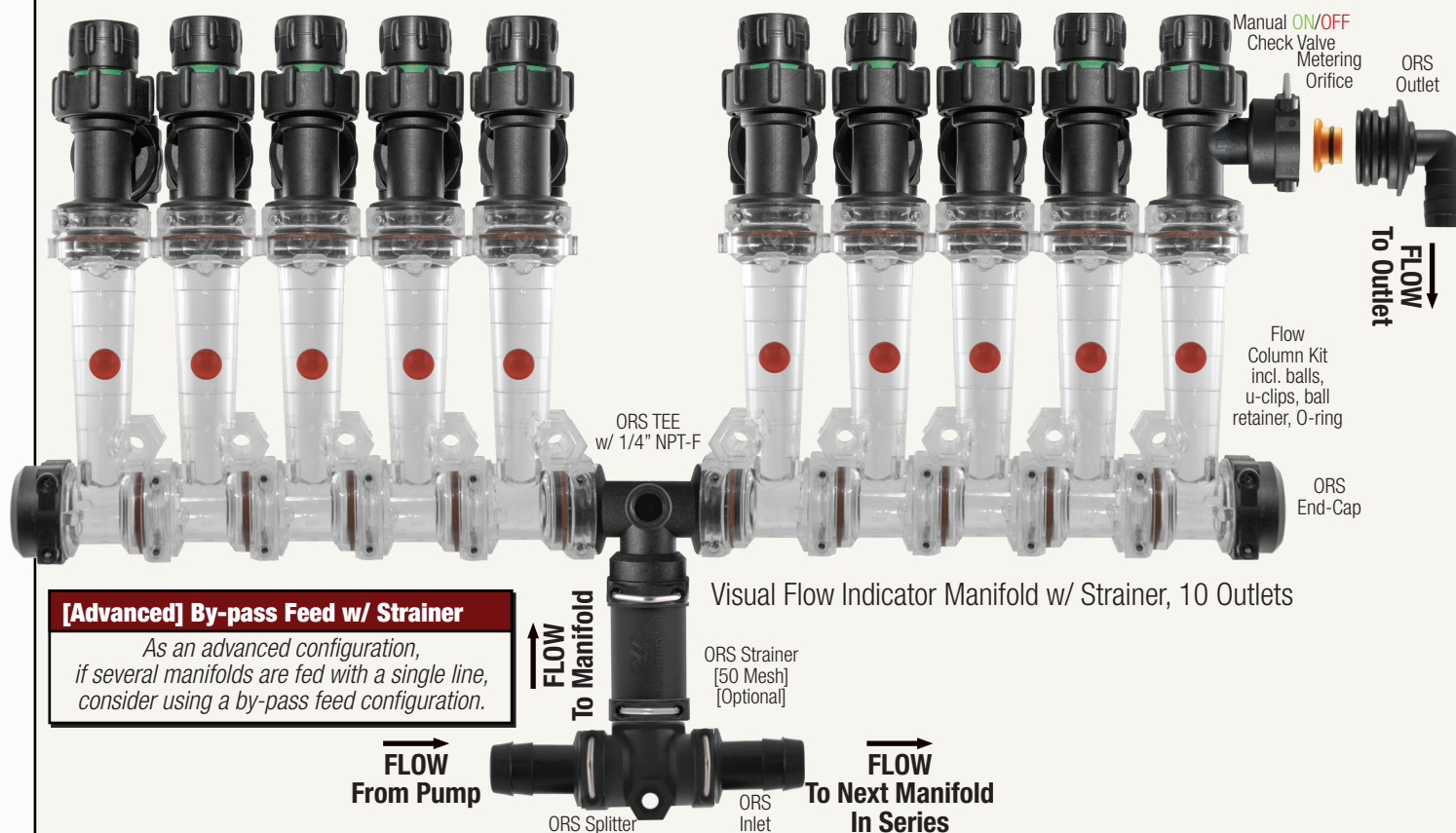
When used with VITON® O-rings, it becomes a veritable powerhouse for most chemical applications.

As all O-ring seal fittings do not require any threading, they can be spun 360° without risk of disconnection or leaking.



Cost Effective, Modular & Flexible Ball Flow Indicator Configurations

Example Flow Indicator Manifold Assembly



[Advanced] By-pass Feed w/ Strainer

As an advanced configuration, if several manifolds are fed with a single line, consider using a by-pass feed configuration.

Visual Flow Indicator Manifold w/ Strainer, 10 Outlets

Your [Manifold] Visual Flow Indicator Configuration Parts List:

Parts Description	# of parts required	Parts List:		Notes
		QTY Required	Part #	
Flow Indicator Kit (incl. below)	1 Kit/Outlet			
Flow Indicator Kits Include:	Flow Indicator Body	1/Outlet		
	O-ring Seal	1/Outlet		
	U-clips	2/Outlet		
	Balls	1/Outlet [2 if using dual-ball]		
	Ball Retainer	1/Outlet		
Check Valve	1/Outlet [Optional]			
Metering Orifice	1/Outlet [Optional]			
ORS Outlet	1/Outlet			
ORS Inlet	1/Manifold			
ORS Tee	1/Manifold [Optional]			
ORS End-Cap	1/Manifold [2 if using Tee]			
ORS Strainer	1/Manifold [Optional]			

Maintaining your Flow Indicators & Fittings!

Ensure to know the operating capabilities of your system, as well as whether the chemicals being applied are compatible. Always ensure to cover your flow columns from any UV rays (sun/etc) when not in use to maintain clarity.

Flow Indicator Column Specifications*

Max Operating Pressure:	100 PSI (7 BAR)
Max Metered Flow Rate:	Up to 8.0 US gpm
Max Operating Temperature:	185°F / 85° C
O-ring Seal Materials:	FKM or viton
U-clip Material:	Stainless Steel
ORS Fitting Material:	Glass-reinforced Polypropylene
Body Material:	Polymethylpentene (TPX) with UV inhibitor

Build your Flow Indicator Kit in 8 Easy Steps

Parts for STEP 1-3 Flow Indicator Columns, Balls, & Kits

Manifold Feed Columns & Kits

MODEL	KIT*	PART#
ULTRA LOW FLOW 0.01-0.24 us gpm	VITON® KIT	20475-V0
	FKM KIT	20475-00
	BODY ONLY	20475-01
LOW FLOW 0.05-0.65 us gpm	VITON® KIT	20470-V0
	FKM KIT	20470-00
	BODY ONLY	20470-01
STANDARD FLOW 0.07-2.7 us gpm	VITON® KIT	20460-V0
	FKM KIT	20460-00
	BODY ONLY	20460-01

*FKM MANIFOLD KITS INCLUDE: Flow Indicator Body, Ball Retainer (#20460-02), O-ring seal (#20460-03), 2x U-clips (#20460-04), Green Ball (#20460-08), Red Celcon Ball (#20460-07), Red Glass Ball (#20460-06), 1/2" Stainless Ball (#20460-05)



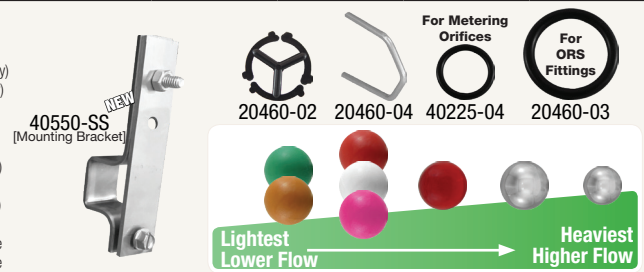
Typical* Operating Ranges for Flow Indicator Balls (US Gal/Min)				
Ball Description & Color	Part #	Flow Indicator Columns & Flow Ranges		
		Ultra Low Flow	Low Flow	Standard Flow
Orange Polypropylene Ball	20460-13	0.01-0.04	0.05-0.12	0.07-0.25
Green Polypropylene Ball	20460-08	0.01-0.04	0.05-0.12	0.07-0.25
Red Celcon Ball	20460-07	0.02-0.06	0.06-0.16	0.10-0.35
White Celcon Ball	20460-18	0.02-0.06	0.06-0.16	0.10-0.35
Pink Celcon Ball	20460-14	0.02-0.06	0.06-0.16	0.10-0.35
Red Glass Ball	20460-06	0.06-0.13	0.12-0.26	0.21-0.72
1/2" Stainless Steel (302) Ball	20460-05	0.13-0.24	0.18-0.65	0.40-1.70
7/16" Stainless Steel (302) Ball	20460-10	n/a	n/a	1.00-2.70

Isolated Feed Columns & Kits

MODEL	KIT**	PART#
LOW FLOW 0.05-0.65 us gpm	ISOLATED KIT	20490-00
	BODY ONLY	20490-01
STANDARD FLOW 0.07-2.7 us gpm	ISOLATED 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)

20460-11 Manifold Feed Components Kit (w/o Indicator Body)
 20480-02 Isolated Feed Components Kit (w/o Indicator Body)
 20460-02 Ball Retainer
 20460-04 U-CLIP, 302SS
 20460-03 O-ring - #212 FKM (For ORS Body and Fittings)
 20460-15 O-ring - #212 Viton® (For ORS Body and Fittings)
 40225-04 O-ring - #015 FKM (For ORS Metering Orifices)
 40225-05 O-ring - #015 Viton® (For ORS Metering Orifices)
 40550-SS 2 Hole 1/4" Bolt-Mount Clamp for 1" Sq Tube
 40551-SS 2 Hole 1/4" Bolt-Mount Clamp for 1-1/4" Sq Tube
 40552-SS 2 Hole 1/4" Bolt-Mount Clamp for 1-1/2" Sq Tube



Parts for STEP 4 Check Valve Bodies†

†If check valve body is not used, alternative check valve in-line is recommended.

Model	Diaphragm Check	[10 PSI] Manual ON/OFF	[4 PSI] Manual ON/OFF	Air-Off Operated	No Module
ORS to ORS	20550-00	20551-00	20551-P4	20552-00	20553-00
ORS to CJ Cap	20560-00	20561-00	20561-P4	20562-00	20563-00



Parts for STEP 5 Tee & Feed Fittings†

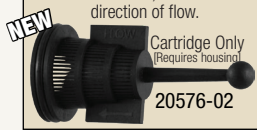
Below is for Manifold Feed Columns ONLY. [For Isolated Feed Column feeds, consult Combo-Jet® cap brochure or Wilger price list.]

Tee & Related Feed Fittings	Part #
ORS Strainer [50 Mesh]	20576-00
Replacement Strainer Only [50 Mesh]	20576-02
90° ORS Elbow [M x F]	20520-00
ORS Tee [M x M x F]	20522-00
ORS Tee w/ 1/4" NPT-F [M x M x F w/1/4" NPT]	20526-00
3/8" x Blind ORS Tee [Blind F x M x 3/8" NPT]	20523-00
3/8" NPT-F x ORS Tee [F x M x 3/8" NPT]	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

Straight Hose Barbs	Part #
1/4"	20500-00
3/8"	20501-00
1/2"	20502-00
3/4"	20503-00
1"	20504-00

NEW ORS Strainer

50 Mesh Strainer & housing can be added in-line to any ORS connection. The strainer cartridge can be reversed, to match the direction of flow.



Auxiliary Feed Fittings



Straight Hose Barbs



90° Hose Barbs



ORS Tees



Electronic Flow Monitoring is now an option!

For application equipment, using the new Wilger Electronic Flow Meter (EFM) gives row-by-row flow sensor feedback and data to a screen in your cab, giving real-time row-by-row application information and flow rates. Allows for up to 3 products to be monitored simultaneously.



Make sure to check out more info & example configurations at www.WILGER.NET

Parts for STEP 6 ORS Metering Orifices

Calculating Required Flow Rate

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

W = Outlet Spacing (INCH)

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

$$\text{GPM (per outlet)} = \frac{\text{GPA} \times \text{mph} \times \text{W} \times \text{conv}}{5940}$$

$$\text{GPA} = \frac{5940 \times \text{GPM (per outlet)}}{\text{mph} \times \text{W}}$$

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

Solution Weight (lbs/ us gallon)	Specific Gravity	Conversion Factor (conv)
7.0	0.84	0.92
8.34 (Water)	1.00	1.00
9.0	1.08	1.04
10.0	1.20	1.10
10.65 (28-0-0)	1.28	1.13
11.0	1.32	1.15
11.65 (10-34-0)	1.39	1.18
12.0	1.44	1.20

Orifice Part#	Flow Rate (US gallons/minute)							
	5PSI	10PSI	15PSI	20PSI	25PSI	30PSI	35PSI	40PSI
21009-XX	0.004	0.005	0.006	0.007	0.008	0.009	0.010	0.010
21011-XX	0.006	0.008	0.010	0.011	0.013	0.014	0.015	0.016
21013-XX	0.008	0.011	0.013	0.016	0.017	0.019	0.021	0.022
21015-XX	0.010	0.014	0.018	0.020	0.023	0.025	0.027	0.029
21500-V003	0.011	0.015	0.018	0.021	0.024	0.026	0.028	0.030
21018-XX	0.015	0.021	0.025	0.029	0.033	0.036	0.039	0.042
21500-V005	0.018	0.025	0.030	0.035	0.039	0.043	0.046	0.050
21020-XX	0.018	0.026	0.032	0.037	0.041	0.045	0.049	0.052
21022-XX	0.022	0.031	0.037	0.043	0.048	0.053	0.057	0.061
21500-V007	0.024	0.033	0.041	0.047	0.053	0.058	0.063	0.067
21025-XX	0.028	0.039	0.048	0.056	0.062	0.068	0.073	0.079
21026-XX	0.031	0.043	0.053	0.061	0.068	0.075	0.081	0.087
21027-XX	0.032	0.046	0.056	0.065	0.072	0.079	0.085	0.091
21028-XX	0.035	0.049	0.060	0.069	0.078	0.085	0.092	0.098
21500-V01	0.036	0.050	0.062	0.071	0.079	0.087	0.094	0.100
21029-XX	0.045	0.064	0.078	0.090	0.100	0.110	0.119	0.127
21031-XX	0.045	0.064	0.078	0.090	0.100	0.110	0.119	0.127
21500-V015	0.053	0.075	0.092	0.106	0.119	0.130	0.140	0.150
21035-XX	0.057	0.081	0.099	0.114	0.128	0.140	0.151	0.162
21037-XX	0.061	0.087	0.106	0.122	0.137	0.150	0.162	0.173
21039-XX	0.069	0.098	0.120	0.139	0.155	0.170	0.184	0.196
21500-V02	0.073	0.104	0.127	0.147	0.164	0.180	0.194	0.208
21041-XX	0.078	0.110	0.134	0.155	0.173	0.190	0.205	0.219
21043-XX	0.082	0.115	0.141	0.163	0.183	0.200	0.216	0.231
21500-V025	0.090	0.127	0.156	0.180	0.201	0.220	0.238	0.254
21046-XX	0.094	0.133	0.163	0.188	0.210	0.230	0.248	0.266
21047-XX	0.098	0.139	0.170	0.196	0.219	0.240	0.259	0.277
21049-XX	0.106	0.150	0.184	0.212	0.237	0.260	0.281	0.300
21500-V03	0.106	0.150	0.184	0.212	0.237	0.260	0.281	0.300

Orifice Part#	Flow Rate (US gallons/minute)							
	5PSI	10PSI	15PSI	20PSI	25PSI	30PSI	35PSI	40PSI
21051-XX	0.114	0.162	0.198	0.229	0.256	0.280	0.302	0.323
21052-XX	0.118	0.167	0.205	0.237	0.265	0.290	0.313	0.335
21055-XX	0.135	0.191	0.233	0.269	0.301	0.330	0.356	0.381
21500-V04	0.143	0.202	0.247	0.286	0.320	0.350	0.378	0.404
21061-XX	0.159	0.225	0.276	0.318	0.356	0.390	0.421	0.450
21063-XX	0.163	0.231	0.283	0.327	0.365	0.400	0.432	0.462
21063-XX	0.176	0.248	0.304	0.351	0.393	0.430	0.464	0.497
21500-V05	0.180	0.254	0.311	0.359	0.402	0.440	0.475	0.508
21064-XX	0.180	0.254	0.311	0.359	0.402	0.440	0.475	0.508
21065-XX	0.184	0.260	0.318	0.367	0.411	0.450	0.486	0.520
21067-XX	0.196	0.277	0.339	0.392	0.438	0.480	0.518	0.554
21500-V08	0.212	0.300	0.368	0.425	0.475	0.520	0.562	0.600
21070-XX	0.216	0.306	0.375	0.433	0.484	0.530	0.572	0.612
21073-XX	0.233	0.329	0.403	0.465	0.520	0.570	0.616	0.658
21075-XX	0.245	0.346	0.424	0.490	0.548	0.600	0.648	0.693
21078-XX	0.274	0.387	0.474	0.547	0.612	0.670	0.724	0.774
21500-V09	0.282	0.398	0.488	0.568	0.630	0.690	0.745	0.797
21081-XX	0.290	0.410	0.502	0.580	0.648	0.710	0.767	0.820
21083-XX	0.318	0.450	0.552	0.637	0.712	0.780	0.842	0.901
21086-XX	0.331	0.468	0.573	0.661	0.739	0.810	0.875	0.935
21089-XX	0.347	0.491	0.601	0.694	0.776	0.850	0.918	0.981
21500-V10	0.355	0.502	0.615	0.710	0.794	0.870	0.940	1.00
21091-XX	0.372	0.525	0.643	0.743	0.831	0.910	0.983	1.05
21093-XX	0.388	0.548	0.672	0.776	0.867	0.950	1.03	1.10
21096-XX	0.416	0.589	0.721	0.833	0.931	1.02	1.10	1.18
21500-V125	0.441	0.624	0.764	0.882	0.986	1.08	1.17	1.25
21102-XX	0.461	0.652	0.799	0.923	1.03	1.13	1.22	1.30
21104-XX	0.478	0.675	0.827	0.955	1.07	1.17	1.26	1.35
21107-XX	0.518	0.733	0.898	1.037	1.16	1.27	1.37	1.47

Orifice Part#	Flow Rate (US gallons/minute)							
	5PSI	10PSI	15PSI	20PSI	25PSI	30PSI	35PSI	40PSI
21500-V15	0.531	0.751	0.919	1.061	1.19	1.30	1.40	1.50
21110-XX	0.547	0.774	0.948	1.094	1.22	1.34	1.45	1.55
21113-XX	0.580	0.820	1.00	1.16	1.30	1.42	1.53	1.64
21116-XX	0.608	0.860	1.05	1.22	1.36	1.49	1.61	1.72
21120-XX	0.629	0.889	1.09	1.26	1.41	1.54	1.66	1.78
21125-XX	0.694	0.981	1.20	1.39	1.55	1.70	1.84	1.96
21500-V20	0.706	0.999	1.22	1.41	1.58	1.73	1.87	2.00
21128-XX	0.723	1.02	1.25	1.45	1.62	1.77	1.91	2.04
21130-XX	0.751	1.06	1.30	1.50	1.68	1.84	1.99	2.12
21136-XX	0.841	1.19	1.46	1.68	1.88	2.06	2.23	2.38
21140-XX	0.894	1.26	1.55	1.79	2.00	2.19	2.37	2.53
21144-XX	0.927	1.31	1.61	1.85	2.07	2.27	2.45	2.62
21147-XX	0.951	1.35	1.65	1.90	2.13	2.33	2.52	2.69
21150-XX	1.02	1.44	1.77	2.04	2.28	2.50	2.70	2.89
21152-XX	1.05	1.49	1.82	2.11	2.36	2.58	2.79	2.98
21156-XX	1.10	1.55	1.90	2.20	2.46	2.69	2.91	3.11
21161-XX	1.16	1.63	2.00	2.31	2.58	2.83	3.06	3.27
21166-XX	1.21	1.71	2.10	2.42	2.71	2.97	3.21	3.43
21172-XX	1.33	1.88	2.31	2.66	2.98	3.26	3.52	3.76
21177-XX	1.41	2.00	2.45	2.83	3.16	3.46	3.74	4.00
21182-XX	1.47	2.08	2.55	2.95	3.30	3.61	3.90	4.17
21187-XX	1.56	2.21	2.70	3.12	3.49	3.82	4.13	4.41
21196-XX	1.73	2.45	3.00	3.46	3.87	4.24	4.58	4.90
21205-XX	1.87	2.65	3.25	3.75	4.19	4.59	4.96	5.30
21213-XX	2.02	2.85	3.49	4.03	4.51	4.94	5.34	5.70
21218-XX	2.11	2.98	3.65	4.21	4.71	5.16	5.57	5.96
21234-XX	2.45	3.47	4.25	4.91	5.49	6.01	6.49	6.94
21250-XX	2.83	4.00	4.90	5.66	6.33	6.93	7.49	8.00

Parts for STEP 7 ORS Outlet Fittings

Straight Hose Barbs

1/4"	20500-00
3/8"	20501-00
1/2"	20502-00
3/4"	20503-00
1"	20504-00

Straight Hose Barbs



90° Push-in-Tube

1/4"	20516-00
5/16"	20528-00
3/8"	20517-00

Push-in-Tube	
1/4"	20506-00
5/16"	20508-00
3/8"	20507-00

1/4" NPT-F	
90°	20518-00
Straight	20519-00

Push-In Tube Fittings



1/4" Thread (NPT) Fittings



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

Parts for STEP 8 ORS End Caps

Female End Cap		
20521-00		

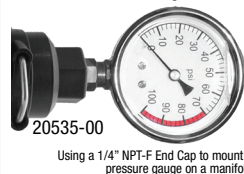
Push-in-Tube Caps		
1/4"	20540-00	
5/16"	20541-00	
3/8"	20542-00	

Threaded End Caps		
NPT-M	1/4"	20530-00
NPT-F	1/4"	20535-00
	3/8"	20536-00
	1/2"	20537-00

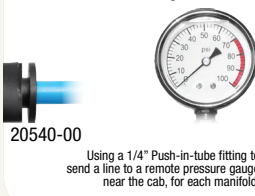
End Caps



Using NPT-F End Caps



Using Push In Tube End Caps



[Advanced] End Cap Options

Manifold Flush Valve
Using a 1/2" NPT-F End-cap (#20537-00) with a ball valve or flush valve can be an effective way to flush or rinse a manifold out with an auxiliary fresh water feed from the manifold.

Other Advanced Options
Any female ORS connection can be adapted to the end of a flow indicator column, so while the option isn't shown in this brochure doesn't mean it isn't an option.
Example: Manifold Pressure Regulator
Use a #20533-00 body with a Wilger pressure regulating valve module with hose back to tank, to have manual pressure regulation at the manifold for simpler systems.

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