WILGER

Control your coverage.
Control your drift.
All with one tip.

COMBO-JET® ER, SR, MR & DR
Droplet Selective Tip-Caps
deliver consistent and proven drift reduction while providing a choice level of coverage

80° & 110° Spray Tip Charts - US Gallons/Acre on 20" spacing for Standard and PWM Sprayer Systems

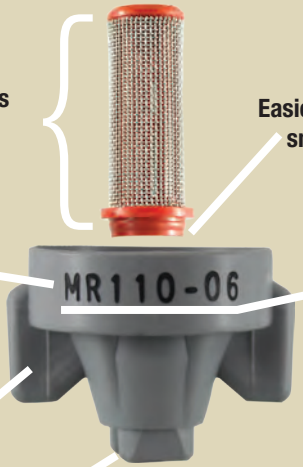
Revised 2017

COMBO-JET® Tip-Caps and Strainers

Are you spending more time cleaning nozzles than spraying?

The **COMBO-JET®** Tip-Cap with snap-in strainer plugs less, is easier to clean, and stays clean longer.

The COMBO-JET® Advantage



- 40% Longer Strainers that snap into place
- Easier Handling with snap-in design
- Fits all nozzle bodies [with adapters]
- SR / MR / DR Drift Reduction Series
- Easy to read cap label (MR110-06 = MR Series, 110° tip, 0.6 USGPM flow rate)
- Droplet Size Selective Tip Options
- Cap Color matches international flow rates
- Best Tips for Pulse Width Modulation Systems (i.e. Case AIM Command PRO, Capstan Sharpshooter, Raven Hawkeye)
- Permanent Stainless Steel Tip

How to remove strainers for cleaning

SR, MR, & DR Series
To clean stainless tip
Pull strainer (with pre-orifice) up and out

To clean plastic pre-orifice
Push strainer sideways to release from pre-orifice

ER Series
Push strainer sideways to remove

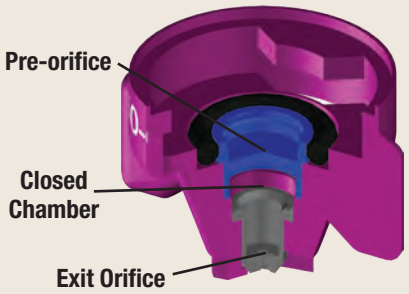
To use/replace strainer
Push strainer down to snap in strainer

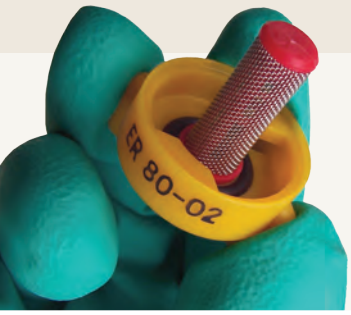
COMBO-JET® Drift Reduction - Closed Chamber Design

Unlike air-induction nozzles, **COMBO-JET®** SR, MR, and DR series of tip-caps do not rely on a steady stream of air to reduce drift. Wilger uses a unique pre-orifice and closed chamber design that reduces drift while creating more meaningful droplets.

Each of the **COMBO-JET®** drift reduction series (SR/MR/DR) provide different levels of drift reduction and coverage, so you have more flexibility in choosing a tip that fits your application. Without needing consistent airflow for controlling drift, **COMBO-JET®** tips have become the preferred tip for Pulse Width Modulation (PWM) spraying systems.

For an example of comparison between the four **COMBO-JET®** tip-cap series, see the next page, or use Tip Wizard found on the wilger.net website or Tip Wizard smartphone app.





If you are tired of picking parts out of the dirt, you will really like COMBO-JET® Tip-Caps!

Since the strainer, O-ring, and tip-cap all snap together tightly, dislodged debris cannot plug the tip while changing or cleaning.

COMBO-JET® tip-caps handle as one piece, so they are safer & easier to use.

Not sure which tips to use? Make it easy with Tip Wizard.

Tip Wizard is available on the wilger.net website as well as a FREE smartphone app.
Enter your application to receive crucial information to help you make your tip selection and spraying decisions.

Better Engineered Sprayer Components for Over 40 Years

COMBO-JET® ER, SR, MR, & DR Tip-Caps
What is the difference?

Each *chemical, crop, and application* are different. For best application efficacy, each might use a different spray tip. Wilger engineered four series of tip-caps to best match any application to its ideal spray tip.

As an example of how each tip series (ER/SR/MR/DR) compare, see the below chart, referencing the -06 tip size:

COMBO-JET®
ER / SR/ MR / DR Series
Performance
& Specifications
Comparison

Comparison Factor	ER Series Extended Range	SR Series Small Reduction	MR Series Mid Range	DR Series Drift Control
Droplet Size[1]	Smallest (246µ VMD*)	Medium (371µ VMD*)	Large (474µ VMD*)	Largest (529µ VMD*)
% <141µ (Driftable)[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
Coverage	Best	Excellent	Very good	Good
Drift Potential	Most likely to drift	Lower drift potential	Major reduction	Least likely to drift
Design	Single orifice flat fan	Dual orifice flat fan	Dual orifice flat fan	Dual orifice flat fan
Serviceability	All-in-one Tip-Cap. Strainer & Pre-orifice (SR, MR, & DR) snap into Tip-Cap.			

[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 determining driftable fines.
[3]Droplets smaller than 600µ will provide better coverage. Droplets larger than 600µ use more spray volume, potentially reducing coverage.

Protect yourself by using the correct spray tip.

Minimizing crop damage and maximizing chemical efficacy means more than just impacting the crop. Proper spraying is an important aspect of every farm's bottom line, both financially and environmentally.

Each field's spray conditions can differ greatly, so it is imperative that spray tips match those conditions.

To achieve the best application control, ER/SR/MR/DR **COMBO-JET®** tip-caps can match the ideal droplet size for any spraying conditions.

A word or two on multi-tip spraying.

Using a single spray tip to apply high volume applications produces larger droplets, that can result in poor coverage. This is especially true with faster sprayers and higher application rates.

To maintain effective application while minimize coverage loss, use multiple spray tips at the same time. Effectively, each tip makes more meaningful droplets [for coverage], resulting in finer coverage. When used with **COMBO-JET®** drift reduction tip-caps, you have the ultimate configuration for any application.

Aside from coverage-sensitive chemicals, multi-tip spraying is also useful for "hard to reach" applications, such as spraying both sides of a head of wheat.

For applying chemical on both sides of a head of wheat, use a dual tip adapter [left], or for hard to reach applications like pigweed (amaranth), use **COMBO-RATE®** stacking nozzle bodies [right] to maximize canopy penetration.

Did you know that size matters?

A 500 micron(µ) droplet contains the same volume as 8x 250µ diameter droplets, and halving those 8 droplets would make 64x 125µ droplets. That is why with smaller droplets, with the same flow rate, you get finer coverage.

COMBO-JET® 80° Tip-Cap Performance Specifications

FOR STANDARD SPRAYERS

Please Note:
1. Flow rates based on water (80°F), applied at 20" spacing.
2. For applications where a uniform pattern is required, recommended pressure ranges for Tip-Caps are shown.
3. Cap color determined by flow rate, as per ISO standard.
4. In order to make this chart easier to use, not all available tip-cap sizes are shown. For specifications for 005, 0067, 30, 40, 50 & 60 size Tip-Caps, visit our website.

Recommended Pressure: 20-70 PSI

Recommended Pressure: 20-100 PSI

Recommended Pressure: 25-100 PSI

Recommended Pressure: 30-100 PSI

Tip Cap No.	Flow Rate USGPM	PSI	Application Rate - US Gallons / Acre @ 20" Sprayer Speed - Miles / Hour							VMD (Droplet Size in µ); %<141µ (Drift %); %<200µ (Drift %); %<600µ (Small Droplets)														Tip-Cap & Part No.	
										80° ER Series				80° SR Series				80° MR Series				80° DR Series				Tip-Cap	Part #
			5.0	7.5	10.0	12.5	15.0	17.5	20.0	VMD	<141	<200	<600	VMD	<141	<200	<600	VMD	<141	<200	<600	VMD	<141	<200	<600	Strainer Part #	
01	0.07	20	4.2	2.8	2.1	1.7	1.4	1.2	1.1	175	29%	64%	100%	292	8%	22%	97%	-	-	-	-	-	-	-	-	ER80-01	40270-01
	0.09	30	5.1	3.4	2.6	2.1	1.7	1.5	1.3	156	41%	74%	100%	233	21%	39%	97%	218	23%	44%	97%	312	10%	21%	94%	SR80-01	40288-01
	0.10	40	5.9	4.0	3.0	2.4	2.0	1.7	1.5	143	49%	81%	100%	199	29%	51%	97%	191	30%	54%	97%	274	14%	29%	96%	MR80-01	40290-01
	0.11	50	6.6	4.4	3.3	2.7	2.2	1.9	1.7	134	56%	87%	100%	176	36%	61%	98%	173	36%	61%	97%	248	17%	34%	98%	DR80-01	40280-01
	0.12	60	7.3	4.8	3.6	2.9	2.4	2.1	1.8	128	62%	91%	100%	159	41%	68%	98%	159	40%	68%	97%	229	19%	39%	99%	100 Mesh - Green	
	0.13	70	7.9	5.2	3.9	3.1	2.6	2.2	2.0	122	66%	95%	100%	146	46%	75%	98%	148	44%	73%	97%	214	21%	43%	100%	40251-00	
015	0.11	20	6.3	4.2	3.2	2.5	2.1	1.8	1.6	199	21%	50%	100%	317	8%	19%	93%	-	-	-	-	-	-	-	-	ER80-015	40270-015
	0.13	30	7.7	5.1	3.9	3.1	2.6	2.2	1.9	180	29%	59%	100%	262	16%	32%	95%	323	10%	21%	94%	418	4%	9%	87%	SR80-015	40288-015
	0.15	40	8.9	5.9	4.5	3.6	3.0	2.5	2.2	167	34%	65%	100%	230	22%	41%	96%	283	14%	28%	96%	380	6%	12%	90%	MR80-015	40290-015
	0.17	50	10.0	6.6	5.0	4.0	3.3	2.8	2.5	158	39%	70%	100%	207	26%	48%	97%	256	17%	34%	97%	353	7%	15%	92%	DR80-015	40280-015
	0.18	60	10.9	7.3	5.5	4.4	3.6	3.1	2.7	151	42%	74%	100%	191	30%	54%	97%	236	20%	38%	98%	332	8%	17%	94%	100 Mesh - Green	
	0.20	70	11.8	7.9	5.9	4.7	3.9	3.4	2.9	145	46%	77%	100%	177	33%	58%	98%	220	22%	42%	99%	316	9%	19%	95%	40251-00	
02	0.14	20	8.4	5.6	4.2	3.4	2.8	2.4	2.1	184	28%	57%	100%	295	9%	21%	93%	-	-	-	-	-	-	-	-	ER80-02	40270-02
	0.17	30	10.3	6.9	5.1	4.1	3.4	2.9	2.6	170	34%	62%	100%	257	16%	31%	95%	326	8%	18%	94%	454	3%	7%	80%	SR80-02	40288-02
	0.20	40	11.9	7.9	5.9	4.8	4.0	3.4	3.0	161	38%	66%	100%	233	20%	38%	96%	298	11%	24%	94%	419	4%	10%	84%	MR80-02	40290-02
	0.22	50	13.3	8.9	6.6	5.3	4.4	3.8	3.3	155	42%	70%	100%	216	24%	44%	97%	277	14%	28%	95%	394	5%	12%	87%	DR80-02	40280-02
	0.24	60	14.5	9.7	7.3	5.8	4.8	4.2	3.6	150	45%	72%	100%	203	27%	48%	98%	262	16%	31%	95%	375	6%	14%	88%	50 Mesh - Red	
	0.26	70	15.7	10.5	7.9	6.3	5.2	4.5	3.9	145	47%	74%	99%	193	30%	52%	98%	249	17%	34%	95%	359	7%	15%	90%	40250-00	
025	0.18	20	10.5	7.0	5.3	4.2	3.5	3.0	2.6	232	17%	38%	100%	341	6%	15%	89%	-	-	-	-	-	-	-	-	ER80-025	40270-025
	0.22	30	12.9	8.6	6.4	5.1	4.3	3.7	3.2	209	23%	46%	100%	296	11%	24%	93%	425	5%	10%	81%	460	3%	8%	77%	SR80-025	40288-025
	0.25	40	14.9	9.9	7.4	5.9	5.0	4.2	3.7	194	28%	51%	100%	268	15%	30%	94%	382	6%	14%	85%	430	4%	10%	81%	MR80-025	40290-025
	0.28	50	16.6	11.1	8.3	6.6	5.5	4.7	4.2	182	31%	56%	100%	248	18%	35%	95%	353	8%	17%	87%	408	5%	12%	83%	DR80-025	40280-025
	0.31	60	18.2	12.1	9.1	7.3	6.1	5.2	4.5	174	34%	59%	100%	233	20%	39%	96%	330	9%	19%	89%	391	6%	13%	85%	50 Mesh - Red	
	0.33	70	19.6	13.1	9.8	7.9	6.5	5.6	4.9	167	37%	62%	100%	221	22%	42%	97%	312	10%	21%	90%	377	7%	15%	86%	40250-00	
03	0.21	20	12.6	8.4	6.3	5.0	4.2	3.6	3.2	249	17%	38%	99%	400	5%	9%	86%	-	-	-	-	-	-	-	-	ER80-03	40270-03
	0.26	30	15.4	10.3	7.7	6.2	5.1	4.4	3.9	228	23%	45%	99%	344	9%	17%	89%	432	5%	10%	81%	481	3%	7%	72%	SR80-03	40288-03
	0.30	40	17.8	11.9	8.9	7.1	5.9	5.1	4.5	215	26%	49%	99%	309	12%	23%	91%	390	7%	14%	85%	447	4%	9%	77%	MR80-03	40290-03
	0.34	50	19.9	13.3	10.0	8.0	6.6	5.7	5.0	205	29%	53%	99%	285	15%	27%	92%	360	8%	17%	88%	422	5%	11%	80%	DR80-03	40280-03
	0.37	60	21.8	14.5	10.9	8.7	7.3	6.2	5.5	197	32%	55%	99%	266	17%	31%	93%	337	9%	19%	89%	403	6%	13%	83%	50 Mesh - Red	
	0.40	70	23.6	15.7	11.8	9.4	7.9	6.7	5.9	191	34%	58%	99%	251	18%	34%	93%	319	10%	21%	91%	387	7%	14%	84%	40250-00	
04	0.28	20	16.8	11.2	8.4	6.7	5.6	4.8	4.2	251	16%	34%	99%	399	3%	11%	83%	-	-	-	-	-	-	-	-	ER80-04	40270-04
	0.35	30	20.6	13.7	10.3	8.2	6.9	5.9	5.1	230	21%	40%	99%	344	7%	19%	87%	420	5%	11%	80%	543	2%	5%	62%	SR80-04	40288-04
	0.40	40	23.8	15.8	11.9	9.5	7.9	6.8	5.9	216	24%	44%	99%	310	10%	24%	89%	385	7%	15%	84%	507	3%	7%	68%	MR80-04	40290-04
	0.45	50	26.6	17.7	13.3	10.6	8.9	7.6	6.6	206	26%	48%	99%	286	12%	28%	91%	360	9%	18%	86%	480	4%	8%	72%	DR80-04	40280-04
	0.49	60	29.1	19.4	14.5	11.6	9.7	8.3	7.3	198	28%	51%	99%	267	14%	32%	92%	341	10%	20%	88%	460	4%	9%	75%	50 Mesh - Red	
	0.53	70	31.4	21.0	15.7	12.6	10.5	9.0	7.9	192	29%	53%	99%	253	15%	34%	92%	326	11%	22%	89%	443	5%	10%	77%	40250-00	
05	0.35	20	21.0	14.0	10.5	8.4	7.0	6.0	5.3	296	11%	24%	95%	445	3%	8%	78%	-	-	-	-	-	-	-	-	ER80-05	40270-05
	0.43	30	25.7	17.1	12.9	10.3	8.6	7.3	6.4	267	16%	31%	95%	381	7%	15%	83%	504	3%	7%	68%	574	2%	4%	56%	SR80-05	40288-05
	0.50	40	29.7	19.8	14.9	11.9	9.9	8.5	7.4	248	20%	36%	95%	342	10%	20%	86%	466	4%	9%	73%	538	2%	5%	62%	MR80-05	40290-05
	0.56	50	33.2	22.1	16.6	13.3	11.1	9.5	8.3	235	22%	40%	95%	314	12%	24%	87%	438	5%	11%	77%	512	3%	7%	67%	DR80-05	40280-05
	0.61	60	36.4	24.2	18.2	14.5	12.1	10.4	9.1	224	25%	43%	95%	293	14%	27%	89%	417	6%	12%	79%	492	3%	8%	70%	50 Mesh - Red	
	0.66	70	39.3	26.2	19.6	15.7	13.1	11.2	9.8	215	26%	46%	95%	277	15%	30%	90%	400	6%	14%	81%	475	4%	8%	72%	40250-00	
06	0.42	20	25.2	16.8	12.6	10.1	8.4	7.2	6.3	322	12%	20%	92%	466	3%	7%	74%	-	-	-	-	-	-	-	-	ER80-06	40270-06
	0.52	30	30.9	20.6	15.4	12.3	10.3	8.8	7.7	296	17%	25%	91%	420	5%	11%	81%	526	2%	6%	64%	596	1%	4%	51%	SR80-06	40288-06
	0.60	40	35.6	23.8	17.8	14.3	11.9	10.2	8.9	279	20%	29%	91%	390	7%	14%	84%	492	3%	8%	70%	564	2%	5%	57%	MR80-06	40290-06
	0.67	50	39.8	26.6	19.9	15.9	13.3	11.4	10.0	267	22%	32%	90%	368	8%	17%	86%	468	4%	9%	73%	540	2%	7%	61%	DR80-06	40280-06
	0.73	60	43.6	29.1	21.8	17.5	14.5	12.5	10.9	257	24%	35%	90%	351	9%	18%	88%	448	5%	10%	76%	521	3%	8%	64%	50 Mesh - Red	
	0.79	70	47.1	31.4	23.6	18.9	15.7	13.5	11.8	249	26%	37%	90%	337	10%	20%	89%	433	5%	11%	78%	505	3%	9%	66%	40250-00	

Droplet Categories as per **ASABE S572.1** Classification (2009-current)

- Extremely Fine <60
- Very Fine 60-105µ
- Fine 106-235µ
- Medium 236-340µ
- Coarse 341-403µ
- Very Coarse 404-502µ
- Extremely Coarse 503-665µ
- Ultra Coarse >665µ

VMD
Volume Median Diameter
Size of the median droplet in microns (µ) for a sprayed volume. Half of the volume is made up of droplets smaller than the VMD; half is made up of droplets larger.

% <141µ
% Driftable Fines
Percentage of volume which is likely to drift. 141µ is now replacing 200µ as the new standard for driftable fines.

% <200µ
% Driftable Fines
Percentage of volume which is likely to drift. 200µ is shown for reference. 141µ is used as the new standard for driftable fines.

% <600µ
% Useful Droplets
Percentage of volume which is made up of 'useful' droplets. As the distribution of useful droplets lowers, coverage is reduced.

Strainer Mesh & Tips
Recommended Strainer mesh
Mesh of strainer determined by the size of a tip. For larger tips (08+), strainers are not required.

80° Tip-Cap Specifications
Standard Spray Systems

COMBO-JET® 80° High Flow Tip-Cap Performance Specifications

FOR STANDARD SPRAYERS

Please Note:
1. Flow rates based on water (80°F), applied at 20" spacing.
2. For applications where a uniform pattern is required, recommended pressure ranges for Tip-Caps are shown.
3. Cap color determined by flow rate, as per ISO standard.
4. In order to make this chart easier to use, not all available tip-cap sizes are shown. For specifications for 005, 0067, 30, 40, 50 & 60 size Tip-Caps, visit our website.

Recommended Pressure: 20-70 PSI

Recommended Pressure: 20-100 PSI

Recommended Pressure: 25-100 PSI

Recommended Pressure: 30-100 PSI

Tip Cap No.	Flow Rate USGPM	PSI	Application Rate - US Gallons / Acre @ 20" Sprayer Speed - Miles / Hour							VMD (Droplet Size in µ); %<141µ (Drift %); %<200µ (Drift %); %<600µ (Small Droplets)														Tip-Cap & Part No.	
										80° ER Series				80° SR Series				80° MR Series				80° DR Series				Tip-Cap	Part #
			5.0	7.5	10.0	12.5	15.0	17.5	20.0	VMD	<141	<200	<600	VMD	<141	<200	<600	VMD	<141	<200	<600	VMD	<141	<200	<600	Strainer not req'd	
08	0.57	20	33.6	22.4	16.8	13.4	11.2	9.6	8.4	367	12%	23%	86%	548	6%	9%	46%	-	-	-	-	-	-	-	-	ER80-08	40270-08
	0.69	30	41.2	27.4	20.6	16.5	13.7	11.8	10.3	317	17%	29%	90%	490	8%	12%	59%	540	6%	11%	63%	619	3%	5%	52%	SR80-08	40288-08
	0.80	40	47.5	31.7	23.8	19.0	15.8	13.6	11.9	286	21%	34%	93%	449	9%	15%	66%	500	8%	14%	69%	585	4%	7%	58%	MR80-08	40290-08
	0.89	50	53.1	35.4	26.6	21.3	17.7	15.2	13.3	264	23%	37%	94%	417	10%	16%	71%	470	9%	16%	73%	559	5%	8%	62%	DR80-08	40280-08
	0.98	60	58.2	38.8	29.1	23.3	19.4	16.6	14.5	247	26%	40%	95%	390	11%	18%	74%	448	10%	18%	76%	539	5%	9%	65%		
	1.06	70	62.9	41.9	31.4	25.1	21.0	18.0	15.7	233	28%	43%	95%	368	12%	19%	76%	430	11%	20%	78%	523	6%	10%	67%		
10	0.71	20	42.0	28.0	21.0	16.8	14.0	12.0	10.5	458	9%	16%	78%	568	5%	7%	42%	-	-	-	-	-	-	-	-	ER80-10	40270-10
	0.87	30	51.4	34.3	25.7	20.6	17.1	14.7	12.9	405	12%	21%	82%	512	7%	11%	55%	546	5%	9%	62%	611	4%	6%	52%	SR80-10	40288-10
	1.00	40	59.4	39.6	29.7	23.8	19.8	17.0	14.9	371	14%	24%	84%	472	8%	13%	63%	513	6%	11%	67%	582	5%	8%	57%	MR80-10	40290-10
	1.12	50	66.4	44.3	33.2	26.6	22.1	19.0	16.6	346	16%	27%	86%	441	9%	15%	67%	489	7%	13%	70%	561	6%	9%	60%	DR80-10	40280-10
	1.22	60	72.7	48.5	36.4	29.1	24.2	20.8	18.2	328	18%	29%	87%	415	10%	16%	71%	470	8%	15%	72%	544	6%	10%	63%		
	1.32	70	78.6	52.4	39.3	31.4	26.2	22.5	19.6	313	19%	31%	88%	394	10%	17%	74%	454	8%	16%	74%	530	7%	11%	65%		
125	0.88	20	52.5	35.0	26.3	21.0	17.5	15.0	13.1	458	9%	17%	76%	558	5%	8%	45%	-	-	-	-	-	-	-	-	ER80-125	40270-125
	1.08	30	64.3	42.9	32.2	25.7	21.4	18.4	16.1	413	11%	21%	81%	509	7%	11%	55%	585	5%	9%	56%	624	4%	6%	50%	SR80-125	40288-125
	1.25	40	74.3	49.5	37.1	29.7	24.8	21.2	18.6	383	13%	23%	83%	474	8%	13%	61%	556	6%	11%	60%	595	5%	8%	54%	MR80-125	40290-125
	1.40	50	83.0	55.3	41.5	33.2	27.7	23.7	20.8	362	14%	25%	85%	447	9%	15%	65%	535	7%	13%	63%	574	5%	9%	57%	DR80-125	40280-125
	1.53	60	90.9	60.6	45.5	36.4	30.3	26.0	22.7	345	15%	27%	87%	425	10%	16%	68%	519	8%	14%	66%	557	6%	10%	59%		
	1.65	70	98.2	65.5	49.1	39.3	32.7	28.1	24.6	331	16%	28%	88%	407	11%	17%	70%	505	8%	15%	67%	543	6%	11%	61%		
15	1.06	20	63.0	42.0	31.5	25.2	21.0	18.0	15.8	464	7%	14%	76%	602	5%	7%	38%	-	-	-	-	-	-	-	-	ER80-15	40270-15
	1.30	30	77.2	51.4	38.6	30.9	25.7	22.0	19.3	412	10%	19%	79%	554	6%	9%	47%	513	7%	13%	66%	637	3%	4%	48%	SR80-15	40288-15
	1.50	40	89.1	59.4	44.6	35.6	29.7	25.5	22.3	379	12%	22%	81%	519	6%	10%	53%	480	8%	15%	70%	605	3%	6%	53%	MR80-15	40290-15
	1.68	50	99.6	66.4	49.8	39.8	33.2	28.5	24.9	355	14%	25%	82%	492	7%	11%	58%	456	9%	17%	73%	581	4%	7%	57%	DR80-15	40280-15
	1.84	60	109.1	72.7	54.6	43.6	36.4	31.2	27.3	337	15%	27%	83%	471	7%	12%	61%	438	10%	18%	75%	562	4%	8%	59%		
	1.98	70	117.9	78.6	58.9	47.1	39.3	33.7	29.5	322	17%	29%	84%	452	8%	13%	63%	422	11%	19%	77%	547	4%	8%	62%		
20	1.41	20	84.0	56.0	42.0	33.6	28.0	24.0	21.0	511	6%	12%	67%	602	5%	6%	38%	-	-	-	-	-	-	-	-	ER80-20	40270-20
	1.73	30	102.9	68.6	51.4	41.2	34.3	29.4	25.7	460	9%	16%	73%	551	5%	8%	48%	564	5%	8%	58%	628	3%	5%	50%	SR80-20	40288-20
	2.00	40	118.8	79.2	59.4	47.5	39.6	33.9	29.7	427	11%	19%	76%	515	6%	10%	54%	523	6%	11%	64%	587	4%	7%	56%	MR80-20	40290-20
	2.24	50	133	88.5	66.4	53.1	44.3	37.9	33.2	403	12%	21%	79%	487	7%	11%	58%	494	7%	13%	68%	556	4%	8%	61%	DR80-20	40280-20
	2.45	60	145	97	72.7	58.2	48.5	41.6	36.4	385	13%	22%	81%	464	7%	12%	62%	472	8%	14%	71%	533	5%	9%	64%		
	2.65	70	157	105	78.6	62.9	52.4	44.9	39.3	370	14%	24%	82%	444	7%	13%	64%	453	8%	16%	73%	514	5%	10%	66%		
25	1.77	20	105.0	70.0	52.5	42.0	35.0	30.0	26.3	515	7%	12%	68%	556	4%	7%	46%	-	-	-	-	-	-	-	-	ER80-25	40270-25
	2.17	30	129	85.7	64.3	51.4	42.9	36.7	32.2	462	10%	16%	72%	511	5%	9%	54%	604	4%	6%	55%	657	3%	4%	46%	SR80-25	40288-25
	2.50	40	149	99	74.3	59.4	49.5	42.4	37.1	427	11%	19%	75%	479	6%	10%	59%	566	4%	8%	60%	617	3%	6%	52%	MR80-25	40290-25
	2.80	50	166	111	83	66.4	55.3	47.4	41.5	402	12%	21%	77%	454	7%	11%	62%	539	5%	9%	63%	587	3%	7%	57%	DR80-25	40280-25
	3.06	60	182	121	91	72.7	60.6	52.0	45.5	383	13%	23%	79%	434	7%	12%	65%	518	5%	10%	66%	563	4%	8%	60%		
	3.31	70	196	131	98	78.6	65.5	56.1	49.1	367	14%	25%	80%	417	8%	13%	67%	500	6%	11%	68%	544	4%	8%	62%		

*Droplet categories: The above chart is based on the ASABE Standard 572.1. Refer to chemical label to verify which ASABE S572.1 categories should be followed.

Droplet Categories as per **ASABE S572.1** Classification (2009-current)

Extremely Fine	Very Fine	Fine	Medium	Coarse	Very Coarse	Extremely Coarse	Ultra Coarse
<60	60-105µ	106-235µ	236-340µ	341-403µ	404-502µ	503-665µ	>665µ

Combo-Jet® Adapters
Square Lug Compatibility

Combo-Jet® tip-caps use a radialock O-ring seal to secure the cap to the nozzle body. Adapters are available to mount a radialock cap on a non-radialock nozzle body.

New for 2017
Lock Nut Adapter
(#40204-00)

ASABE Droplet Categories
Color Classifications

The colors associated with the VMD is based on an ASABE standard for droplet size categorization. See categories and colors above. Refer to wilger.net for older ASABE standard S572.

Recommended Pressure
Pressure Range for Tips

For applications which require a uniform pattern, the recommended pressure range is provided. Specified pressure in chart is boom pressure.

Pre-orifice Length & Color
Differences in tip pre-orifices

Pre-orifice color and length vary for some tips. SR-series pre-orifices will vary in color from the color of the cap. MR & DR pre-orifices will be the same color as the cap. Pre-orifices for high volume tips use a longer pre-orifice.

Have you tried the TIP WIZARD?

An easy to use spray tip calculator that helps find the best spray tip for your application.
It is as easy as entering your application, and seeing the results.
Tip Wizard is available on the wilger.net website, FREE smartphone app, and Wilger USB.

COMBO-JET® 80° Tip-Cap Performance Specifications for PWM Systems

FOR PWM SPRAYERS

Please Note:
1. Flow and application rates shown are for water only, applied on 20" spacing.
2. For applications where a uniform pattern is required, recommended pressures are higher than in standard spray systems.
3. Cap color determined by flow rate, as per ISO standard.
4. In order to make this chart easier to use, not all available tip-cap sizes are shown. For specifications for 005, 0067, 20, 25, 30, 40, 50 & 60 size Tip-Caps, visit our website.
5. Standard PWM systems have inherent flow capacity up to 1.5 US Gallons/Min

Recommended Pressure: 25-70 PSI

Recommended Pressure: 30-100 PSI

Recommended Pressure: 30-100 PSI

Recommended Pressure: 35-100 PSI

Tip Cap No.	Flow Rate USGPM	PSI	Sprayer Speed Range (Rounded) @ Application Rate (US Gallons/Acre) @ 20"					VMD (Droplet Size in µ); %<141µ (Drift %); %<200µ (Drift %); %<600µ (Small Droplets)														Tip-Cap & Part No.	
								80° ER Series				80° SR Series				80° MR Series				80° DR Series				Tip-Cap	Part #
			5.0	7.5	10.0	12.5	15.0	VMD	<141	<200	<600	VMD	<141	<200	<600	VMD	<141	<200	<600	VMD	<141	<200	<600	Strainer Part #	
01	0.07	20	1.0-4.2	0.7-2.8	0.5-2.1	0.4-1.7	0.3-1.4	176	28%	64%	100%	293	8%	22%	97%	-	-	-	-	-	-	-	-	ER80-01	40270-01
	0.09	30	1.3-5.1	0.9-3.4	0.6-2.6	0.5-2.1	0.4-1.7	156	41%	74%	100%	234	20%	39%	97%	219	23%	43%	97%	312	10%	21%	94%	SR80-01	40288-01
	0.10	40	1.5-5.9	1.0-4.0	0.7-3.0	0.6-2.4	0.5-2.0	144	49%	81%	100%	199	29%	51%	97%	192	30%	53%	97%	275	14%	29%	96%	MR80-01	40290-01
	0.11	50	1.7-6.6	1.1-4.4	0.8-3.3	0.7-2.7	0.6-2.2	135	56%	86%	100%	176	36%	60%	98%	173	36%	61%	97%	249	17%	34%	98%	DR80-01	40280-01
	0.12	60	1.8-7.3	1.2-4.8	0.9-3.6	0.7-2.9	0.6-2.4	128	61%	91%	100%	159	41%	68%	98%	159	40%	67%	97%	230	19%	39%	99%	100 Mesh - Green	
	0.13	70	2.0-7.8	1.3-5.2	1.0-3.9	0.8-3.1	0.7-2.6	122	66%	95%	100%	146	46%	75%	98%	148	44%	73%	97%	214	21%	43%	100%	40251-00	
015	0.11	20	1.6-6.3	1.0-4.2	0.8-3.1	0.6-2.5	0.5-2.1	200	21%	50%	100%	318	8%	19%	93%	-	-	-	-	-	-	-	-	ER80-015	40270-015
	0.13	30	1.9-7.7	1.3-5.1	1.0-3.8	0.8-3.1	0.6-2.6	180	29%	59%	100%	264	16%	31%	95%	324	10%	21%	94%	419	4%	9%	87%	SR80-015	40288-015
	0.15	40	2.2-8.9	1.5-5.9	1.1-4.4	0.9-3.5	0.7-3.0	167	34%	65%	100%	231	22%	40%	96%	285	14%	28%	96%	381	6%	12%	90%	MR80-015	40290-015
	0.17	50	2.5-9.9	1.7-6.6	1.2-5.0	1.0-4.0	0.8-3.3	158	39%	70%	100%	208	26%	48%	97%	257	17%	33%	97%	354	7%	15%	92%	DR80-015	40280-015
	0.18	60	2.7-11	1.8-7.2	1.4-5.4	1.1-4.3	0.9-3.6	151	42%	73%	100%	191	30%	53%	97%	237	19%	38%	98%	333	8%	17%	94%	100 Mesh - Green	
	0.20	70	2.9-12	2.0-7.8	1.5-5.9	1.2-4.7	1.0-3.9	145	45%	77%	100%	178	33%	58%	98%	221	22%	42%	99%	317	9%	19%	95%	40251-00	
02	0.14	20	2.1-8.3	1.4-5.6	1.0-4.2	0.8-3.3	0.7-2.8	185	28%	56%	100%	296	9%	21%	93%	-	-	-	-	-	-	-	-	ER80-02	40270-02
	0.17	30	2.6-10	1.7-6.8	1.3-5.1	1.0-4.1	0.9-3.4	171	34%	62%	100%	258	15%	31%	95%	328	8%	18%	94%	456	3%	7%	80%	SR80-02	40288-02
	0.20	40	2.9-12	2.0-7.9	1.5-5.9	1.2-4.7	1.0-3.9	162	38%	66%	100%	235	20%	38%	96%	299	11%	23%	94%	421	4%	10%	84%	MR80-02	40290-02
	0.22	50	3.3-13	2.2-8.8	1.6-6.6	1.3-5.3	1.1-4.4	155	42%	69%	100%	217	24%	43%	97%	279	13%	27%	95%	396	5%	12%	86%	DR80-02	40280-02
	0.24	60	3.6-14	2.4-9.6	1.8-7.2	1.4-5.8	1.2-4.8	150	44%	72%	100%	204	27%	48%	98%	263	15%	31%	95%	376	6%	13%	88%	50 Mesh - Red	
	0.26	70	3.9-16	2.6-10	1.9-7.8	1.6-6.2	1.3-5.2	146	47%	74%	99%	194	29%	52%	98%	251	17%	34%	95%	361	7%	15%	89%	40250-00	
025	0.17	20	2.6-10	1.7-6.9	1.3-5.2	1.0-4.1	0.9-3.5	234	17%	37%	100%	344	6%	14%	89%	-	-	-	-	-	-	-	-	ER80-025	40270-025
	0.21	30	3.2-13	2.1-8.5	1.6-6.3	1.3-5.1	1.1-4.2	210	23%	45%	100%	299	11%	23%	92%	429	4%	10%	80%	463	3%	7%	77%	SR80-025	40288-025
	0.25	40	3.7-15	2.4-9.8	1.8-7.3	1.5-5.9	1.2-4.9	195	28%	51%	100%	270	15%	29%	94%	386	6%	14%	84%	432	4%	10%	80%	MR80-025	40290-025
	0.28	50	4.1-16	2.7-11	2.0-8.2	1.6-6.6	1.4-5.5	184	31%	55%	100%	250	18%	34%	95%	356	8%	17%	87%	410	5%	12%	83%	DR80-025	40280-025
	0.30	60	4.5-18	3.0-12	2.2-9.0	1.8-7.2	1.5-6.0	175	34%	59%	100%	235	20%	38%	96%	333	9%	19%	88%	393	6%	13%	84%	50 Mesh - Red	
	0.33	70	4.8-19	3.2-13	2.4-9.7	1.9-7.8	1.6-6.5	168	36%	62%	100%	223	22%	42%	97%	315	10%	21%	90%	379	7%	14%	86%	40250-00	
03	0.21	20	3.1-12	2.1-8.2	1.5-6.2	1.2-4.9	1.0-4.1	251	17%	38%	99%	406	4%	9%	86%	-	-	-	-	-	-	-	-	ER80-03	40270-03
	0.26	30	3.8-15	2.5-10	1.9-7.6	1.5-6.1	1.3-5.1	230	22%	44%	99%	349	9%	17%	89%	437	4%	10%	80%	485	3%	7%	71%	SR80-03	40288-03
	0.29	40	4.4-17	2.9-12	2.2-8.7	1.7-7.0	1.5-5.8	217	26%	49%	99%	314	12%	22%	91%	395	6%	13%	85%	451	4%	9%	76%	MR80-03	40290-03
	0.33	50	4.9-20	3.3-13	2.4-9.8	2.0-7.8	1.6-6.5	207	29%	52%	99%	289	14%	27%	92%	364	8%	16%	87%	426	5%	11%	80%	DR80-03	40280-03
	0.36	60	5.4-21	3.6-14	2.7-11	2.1-8.6	1.8-7.1	199	31%	55%	99%	270	16%	30%	93%	341	9%	18%	89%	406	6%	13%	82%	50 Mesh - Red	
	0.39	70	5.8-23	3.9-15	2.9-12	2.3-9.3	1.9-7.7	192	33%	57%	99%	255	18%	33%	93%	323	10%	20%	90%	391	7%	14%	84%	40250-00	
04	0.27	20	4.1-16	2.7-11	2-8.1	1.6-6.5	1.4-5.4	254	16%	33%	99%	409	3%	10%	83%	-	-	-	-	-	-	-	-	ER80-04	40270-04
	0.34	30	50-20	3.3-13	2.5-10	2.0-8.0	1.7-6.6	233	20%	39%	99%	352	6%	18%	86%	428	5%	11%	79%	551	2%	4%	60%	SR80-04	40288-04
	0.39	40	5.8-23	3.8-15	2.9-12	2.3-9.2	1.9-7.7	219	23%	44%	99%	317	9%	23%	89%	393	7%	14%	83%	515	3%	6%	67%	MR80-04	40290-04
	0.43	50	6.4-26	4.3-17	3.2-13	2.6-10	2.1-8.6	209	25%	47%	99%	292	11%	27%	90%	367	8%	17%	86%	488	3%	8%	71%	DR80-04	40280-04
	0.47	60	7.0-28	4.7-19	3.5-14	2.8-11	2.3-9.4	201	27%	50%	99%	274	13%	30%	91%	348	10%	19%	87%	467	4%	9%	74%	50 Mesh - Red	
	0.51	70	7.6-30	5.1-20	3.8-15	3.0-12	2.5-10	195	29%	52%	99%	259	14%	33%	92%	332	11%	21%	89%	450	5%	10%	76%	40250-00	
05	0.34	20	5.0-20	3.3-13	2.5-10	2.0-8.0	1.7-6.7	303	10%	22%	95%	462	2%	6%	77%	-	-	-	-	-	-	-	-	ER80-05	40270-05
	0.41	30	6.1-24	4.1-16	3.1-12	2.4-9.8	2.0-8.2	274	15%	29%	95%	396	6%	13%	82%	517	3%	6%	65%	587	1%	3%	53%	SR80-05	40288-05
	0.48	40	7.1-28	4.7-19	3.5-14	2.8-11	2.4-9.4	255	19%	34%	95%	355	9%	18%	85%	478	4%	8%	71%	551	2%	5%	60%	MR80-05	40290-05
	0.53	50	7.9-32	5.3-21	4.0-16	3.2-13	2.6-11	241	21%	38%	95%	326	11%	22%	87%	450	5%	10%	75%	524	3%	6%	65%	DR80-05	40280-05
	0.58	60	8.7-35	5.8-23	4.3-17	3.5-14	2.9-12	230	23%	41%	95%	305	13%	25%	88%	428	5%	12%	78%	503	3%	7%	68%	50 Mesh - Red	
	0.63	70	9.3-37	6.2-25	4.7-19	3.7-15	3.1-12	221	25%	44%	95%	287	14%	28%	89%	410	6%	13%	80%	486	4%	8%	71%	40250-00	
06	0.40	20	5.9-24	3.9-16	2.9-12	2.4-9.4	2.0-8.0	331	11%	18%	92%	483	2%	6%	72%	-	-	-	-	-	-	-	-	ER80-06	40270-06
	0.48	30	7.2-29	4.8-19	3.6-14	2.9-12	2.4-10	305	15%	24%	91%	435	4%	10%	79%	544	2%	5%	61%	613	1%	3%	48%	SR80-06	40288-06
	0.56	40	8.3-33	5.5-22	4.2-17	3.3-13	2.8-11	287	18%	27%	91%	404	6%	13%	82%	509	3%	7%	67%	579	2%	5%	54%	MR80-06	40290-06
	0.63	50	9.3-37	6.2-25	4.6-19	3.7-15	3.1-12	275	21%	30%	91%	382	7%	15%	85%	483	4%	8%	71%	555	2%	6%	58%	DR80-06	40280-06
	0.69	60	10-41	6.8-27	5.1-20	4.1-16	3.4-14	265	23%	33%	90%	364	8%	17%	87%	463	4%	9%	74%	535	3%	7%	61%	50 Mesh - Red	
	0.74	70	11-44	7.3-29	5.5-22	4.4-18	3.7-15	256	24%	35%	90%	350	9%	19%	88%	447	5%	10%	76%	519	3%	8%	64%	40250-00	

Droplet Categories as per **ASABE S572.1** Classification (2009-current)

- Extremely Fine <60
- Very Fine 60-105µ
- Fine 106-235µ
- Medium 236-340µ
- Coarse 341-403µ
- Very Coarse 404-502µ
- Extremely Coarse 503-665µ
- Ultra Coarse >665µ

VMD
Volume Median Diameter
Size of the median droplet in microns (µ) for a sprayed volume. Half of the volume is made up of droplets smaller than the VMD; half is made up of droplets larger.

% <141µ
% Driftable Fines
Percentage of volume which is likely to drift. 141µ is now replacing 200µ as the new standard for driftable fines.

% <200µ
% Driftable Fines
Percentage of volume which is likely to drift. 200µ is shown for reference. 141µ is used as the new standard for driftable fines.

% <600µ
% Useful Droplets
Percentage of volume which is made up of 'useful' droplets. As the distribution of useful droplets lowers, coverage is reduced.

Strainer Mesh & Tips
Recommended Strainer mesh
Mesh of strainer determined by the size of a tip. For larger tips (08+), strainers are not required. For PWM systems, typically 80 mesh inline strainers are used as well.

80° Tip-Cap Specifications
Pulse Width Modulation Spray Systems

COMBO-JET® 80° Tip-Cap Performance Specifications for PWM Systems

FOR PWM SPRAYERS

Please Note:
1. Flow and application rates shown are for water only, applied at 20" spacing.
2. For applications where a uniform pattern is required, recommended pressures are higher than in standard spray systems.
3. Cap color determined by flow rate, as per ISO standard.
4. In order to make this chart easier to use, not all available tip-cap sizes are shown. For specifications for 005, 0067, 20, 25, 30, 40, 50 & 60 size Tip-Caps, visit our website.
5. Standard PWM systems have inherent flow capacity up to 1.5 USG/Min

Recommended pressure varies with each size of tip

Recommended pressure varies with each size of tip

Recommended pressure varies with each size of tip

Recommended pressure varies with each size of tip

Tip Cap No.	Flow Rate USGPM	PSI	Sprayer Speed Range (Rounded) @ Application Rate (US Gallons/Acre) @ 20"					VMD (Droplet Size in µ); %<141µ (Drift %); %<200µ (Drift %); %<600µ (Small Droplets)														Tip-Cap & Part No.	
								80° ER Series				80° SR Series				80° MR Series				80° DR Series				Tip-Cap	Part #
			5.0	7.5	10.0	12.5	15.0	VMD	<141	<200	<600	VMD	<141	<200	<600	VMD	<141	<200	<600	VMD	<141	<200	<600	Strainer not req'd	
	0.62	30	9.1-37	6.1-24	4.6-18	3.7-15	3.0-12	345	14%	26%	88%	524	6%	10%	52%	575	5%	8%	58%	649	2%	3%	46%	ER80-08	40270-08
	0.71	40	11-42	7.0-28	5.3-21	4.2-17	3.5-14	311	18%	30%	91%	482	8%	13%	60%	532	7%	11%	65%	613	3%	5%	53%	SR80-08	40288-08
08	0.79	50	12-47	7.9-31	5.9-24	4.7-19	3.9-16	287	20%	34%	92%	450	9%	15%	66%	501	8%	14%	69%	586	4%	7%	57%	MR800-08	40290-08
	0.87	60	13-52	8.6-34	6.5-26	5.2-21	4.3-17	269	23%	37%	94%	424	10%	16%	70%	477	9%	16%	72%	565	4%	8%	61%	DR80-08	40280-08
	0.94	70	14-56	9.3-37	7.0-28	5.6-22	4.7-19	254	25%	39%	94%	402	11%	17%	73%	458	10%	17%	75%	548	5%	9%	63%		
	0.73	30	11-43	7.2-29	5.4-22	4.3-17	3.6-14	450	9%	16%	78%	560	5%	8%	44%	589	4%	6%	56%	648	3%	4%	46%	ER80-10	40270-10
	0.84	40	12-50	8.3-33	6.2-25	5.0-20	4.2-17	412	11%	20%	81%	520	6%	10%	54%	553	5%	8%	61%	618	4%	6%	51%	SR80-10	40288-10
10	0.94	50	14-56	9.3-37	7.0-28	5.6-22	4.7-19	385	13%	23%	83%	489	7%	12%	60%	527	6%	10%	65%	595	5%	7%	55%	MR80-10	40290-10
	1.03	60	15-61	10-41	7.6-31	6.1-24	5.1-20	364	15%	25%	85%	464	8%	13%	64%	507	6%	12%	68%	577	5%	8%	58%	DR80-10	40280-10
	1.11	70	17-66	11-44	8.3-33	6.6-26	5.5-22	348	16%	27%	86%	442	9%	15%	67%	490	7%	13%	70%	562	6%	9%	60%		
	0.84	30	13-50	8.3-33	6.3-25	5.0-20	4.2-17	470	9%	16%	75%	569	5%	8%	43%	638	3%	5%	47%	678	3%	4%	42%	ER80-125	40270-125
	0.97	40	14-58	9.6-39	7.2-29	5.8-23	4.8-19	436	10%	19%	78%	535	6%	10%	50%	607	4%	7%	52%	647	3%	5%	47%	SR80-125	40288-125
125	1.09	50	16-65	11-43	8.1-32	6.5-26	5.4-22	412	11%	21%	81%	508	7%	11%	55%	584	5%	9%	56%	623	4%	6%	50%	MR80-125	40290-125
	1.19	60	18-71	12-47	8.8-35	7.1-28	5.9-24	393	12%	22%	83%	486	8%	12%	59%	566	6%	10%	59%	605	4%	7%	53%	DR80-125	40280-125
	1.29	70	19-76	13-51	9.6-38	7.6-31	6.4-25	377	13%	24%	84%	467	8%	14%	62%	551	6%	11%	61%	589	5%	8%	55%		
	0.93	30	14-55	9.2-37	6.9-28	5.5-22	4.6-18	499	5%	11%	74%	633	4%	6%	30%	596	4%	7%	55%	718	1%	1%	34%	ER80-15	40270-15
	1.08	40	16-64	11-43	8.0-32	6.4-26	5.3-21	459	7%	14%	76%	599	5%	7%	38%	558	5%	10%	61%	682	2%	2%	41%	SR80-15	40288-15
15	1.20	50	18-72	12-48	8.9-36	7.2-29	6.0-24	430	9%	17%	78%	572	5%	8%	44%	530	6%	11%	64%	655	2%	3%	45%	MR80-15	40290-15
	1.32	60	20-78	13-52	9.8-39	7.8-31	6.5-26	408	10%	19%	79%	550	6%	9%	48%	509	7%	13%	67%	634	3%	4%	49%	DR80-15	40280-15
	1.43	70	21-85	14-56	11-42	8.5-34	7.1-28	390	12%	21%	80%	531	6%	10%	51%	491	8%	14%	69%	616	3%	5%	51%		

*Droplet categories: The above chart is based on the ASABE Standard 572.1. Refer to chemical label to verify which ASABE S572.1 categories should be followed.

Droplet Categories as per **ASABE S572.1** Classification (2009-current)

Extremely Fine	Very Fine	Fine	Medium	Coarse	Very Coarse	Extremely Coarse	Ultra Coarse
<60	60-105µ	106-235µ	236-340µ	341-403µ	404-502µ	503-665µ	>665µ

Recommended Pressure
Pressure Range for Tips
For PWM systems, the pressure loss through system components is accounted for in these charts. Specified pressure in chart is boom pressure. Additional solenoid wear may occur for pressures above 60PSI.

ASABE Droplet Categories
Color Classifications
The colors associated with the VMD is based on an ASABE standard for droplet size categorization. See categories and colors above. Refer to wilger.net for older ASABE standard S572.

Duty Cycles
Effective run time of PWM
Since PWM systems hold pressure constant, they adjust rates by the length of time the solenoids stay open (the duty cycle). Duty cycle is calculated by dividing your current speed into the max speed for that tip. Ideal operating duty cycles are 40-100%.

Pre-orifice Length & Color
Differences in tip pre-orifices
Pre-orifice color and length vary for some tips. SR-series pre-orifices will vary in color from the color of the cap. MR & DR pre-orifices will be the same color as the cap. Pre-orifices for high volume tips use a longer pre-orifice.

Using Tip Wizard
Same search, different results
PWM systems use plumbing components that cause more in pressure loss when compared to standard spray systems. Tip Wizard accounts for those pressure drops, and also provides crucial duty cycle information as well.

Multi-tip spraying with Pulse Width Modulation Technology

Pulse Width Modulation (PWM) provides the ability to hold tip pressure constant; therefore, holding the droplet size constant as well. This holds true with multi-tip spraying as well.

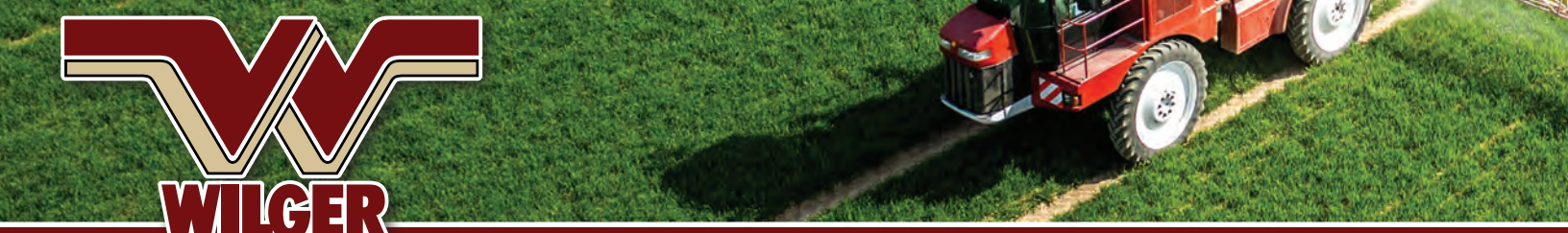
As a standard, PWM systems use one solenoid per nozzle body. For best utilization of PWM technology, a dual tip adapter [left] is used.

Spraying with two seperate outlets [right] is possible, but the outlet not controlled by a solenoid will be controlled by the auto-rate controller.

To use Tip Wizard to help select a multi-tip setup, simply split the total flow rate into two (or more) parts and ensure the tips selected can operate within the same duty cycle range and pressures.

Example Rate: 10 US Gallons/Acre; **Speed:** 15 MPH; **Nozzle Spacing:** 20"; **Target Droplet Size:** 400 microns (Systemic Herbicide)

If the total application is 10GPA, the effective rates per tip must add up to 10GPA. For simplicity, split the flow in equal parts; for example, two tips applying 5GPA. While consulting the tip charts, a suitable choice might be the MR80-04 at 40PSI, with effective volume of 5GPA per tip. The droplet size is right around 400 microns, and max travel speed (15MPH) is at a ~70% duty cycle.



COMBO-JET® 110° Tip-Cap Performance Specifications

FOR STANDARD SPRAYERS

Please Note:
1. Flow rates based on water (80°F), applied at 20" spacing.
2. For applications where a uniform pattern is required, recommended pressure ranges for Tip-Caps are shown.
3. Cap color determined by flow rate, as per ISO standard.
4. In order to make this chart easier to use, not all available tip-cap sizes are shown. For specifications for 005, 0067, 30, 40, 50 & 60 size Tip-Caps, visit our website.

Recommended Pressure: 20-70 PSI

Recommended Pressure: 20-100 PSI

Recommended Pressure: 25-100 PSI

Recommended Pressure: 30-100 PSI

Tip Cap No.	Flow Rate USGPM	PSI	Application Rate - US Gallons / Acre @ 20" @ Sprayer Speed - Miles / Hour							VMD (Droplet Size in µ); %<141µ (Drift %); %<200µ (Drift %); %<600µ (Small Droplets)												Tip-Cap & Part No.	
										110° ER Series				110° SR Series				110° MR Series				110° DR Series				Tip-Cap	Part #
			5.0	7.5	10.0	12.5	15.0	17.5	20.0	VMD	<141	<200	<600	VMD	<141	<200	<600	VMD	<141	<200	<600	VMD	<141	<200	<600	Strainer Part #	
01	0.07	20	4.2	2.8	2.1	1.7	1.4	1.2	1.1	148	45%	84%	100%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-01	40281-01
	0.09	30	5.1	3.4	2.6	2.1	1.7	1.5	1.3	140	51%	87%	100%	-	-	-	-	-	-	-	-	-	-	-	-		
	0.10	40	5.9	4.0	3.0	2.4	2.0	1.7	1.5	133	56%	90%	100%	-	-	-	-	-	-	-	-	-	-	-	-		
	0.11	50	6.6	4.4	3.3	2.7	2.2	1.9	1.7	128	59%	91%	100%	-	-	-	-	-	-	-	-	-	-	-	-		
	0.12	60	7.3	4.8	3.6	2.9	2.4	2.1	1.8	124	62%	93%	100%	-	-	-	-	-	-	-	-	-	-	-	-		
	0.13	70	7.9	5.2	3.9	3.1	2.6	2.2	2.0	121	65%	94%	100%	-	-	-	-	-	-	-	-	-	-	-	-	100 Mesh - Green	40251-00
015	0.11	20	6.3	4.2	3.2	2.5	2.1	1.8	1.6	153	40%	77%	100%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-015	40281-015
	0.13	30	7.7	5.1	3.9	3.1	2.6	2.2	1.9	145	47%	81%	100%	215	24%	45%	98%	322	11%	22%	94%	366	7%	15%	92%	SR110-015	40287-015
	0.15	40	8.9	5.9	4.5	3.6	3.0	2.5	2.2	139	52%	84%	100%	199	28%	51%	98%	277	16%	30%	97%	328	10%	20%	94%	MR110-015	40291-015
	0.17	50	10.0	6.6	5.0	4.0	3.3	2.8	2.5	134	55%	86%	100%	187	32%	55%	98%	247	20%	36%	99%	301	12%	24%	95%	DR110-015	40286-015
	0.18	60	10.9	7.3	5.5	4.4	3.6	3.1	2.7	131	58%	87%	100%	177	34%	59%	98%	225	23%	41%	99%	281	14%	27%	96%	100 Mesh - Green	
	0.20	70	11.8	7.9	5.9	4.7	3.9	3.4	2.9	128	61%	89%	100%	169	37%	62%	98%	208	25%	46%	99%	265	15%	30%	97%	40251-00	
02	0.14	20	8.4	5.6	4.2	3.4	2.8	2.4	2.1	173	32%	62%	100%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-02	40281-02
	0.17	30	10.3	6.9	5.1	4.1	3.4	2.9	2.6	160	39%	69%	100%	219	23%	44%	99%	315	12%	23%	95%	431	5%	10%	82%	SR110-02	40287-02
	0.20	40	11.9	7.9	5.9	4.8	4.0	3.4	3.0	151	45%	74%	100%	206	26%	48%	99%	279	15%	30%	97%	392	7%	14%	87%	MR110-02	40291-02
	0.22	50	13.3	8.9	6.6	5.3	4.4	3.8	3.3	144	49%	77%	100%	196	29%	52%	99%	254	19%	35%	97%	361	8%	16%	90%	DR110-02	40286-02
	0.24	60	14.5	9.7	7.3	5.8	4.8	4.2	3.6	138	52%	80%	100%	188	31%	55%	99%	235	21%	39%	98%	336	9%	19%	92%	50 Mesh - Red	
	0.26	70	15.7	10.5	7.9	6.3	5.2	4.5	3.9	133	55%	83%	100%	181	33%	58%	99%	220	23%	42%	98%	315	10%	21%	93%	40250-00	
025	0.18	20	10.5	7.0	5.3	4.2	3.5	3.0	2.6	194	28%	54%	100%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-025	40281-025
	0.22	30	12.9	8.6	6.4	5.1	4.3	3.7	3.2	186	29%	56%	100%	236	20%	38%	98%	350	9%	18%	91%	434	5%	10%	80%	SR110-025	40287-025
	0.25	40	14.9	9.9	7.4	5.9	5.0	4.2	3.7	181	30%	58%	100%	222	23%	43%	98%	320	11%	22%	93%	398	7%	14%	86%	MR110-025	40291-025
	0.28	50	16.6	11.1	8.3	6.6	5.5	4.7	4.2	176	30%	59%	100%	211	25%	46%	98%	296	13%	26%	95%	370	8%	16%	89%	DR110-025	40286-025
	0.31	60	18.2	12.1	9.1	7.3	6.1	5.2	4.5	173	31%	60%	100%	203	27%	49%	98%	277	15%	29%	96%	347	9%	18%	92%	50 Mesh - Red	
	0.33	70	19.6	13.1	9.8	7.9	6.5	5.6	4.9	170	31%	61%	100%	195	29%	52%	98%	261	17%	31%	96%	328	10%	20%	93%	40250-00	
03	0.21	20	12.6	8.4	6.3	5.0	4.2	3.6	3.2	198	27%	51%	99%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-03	40281-03
	0.26	30	15.4	10.3	7.7	6.2	5.1	4.4	3.9	183	31%	56%	99%	303	11%	24%	95%	394	6%	13%	86%	479	4%	8%	74%	SR110-03	40287-03
	0.30	40	17.8	11.9	8.9	7.1	5.9	5.1	4.5	173	35%	60%	98%	279	15%	29%	96%	360	9%	17%	91%	443	5%	10%	80%	MR110-03	40291-03
	0.34	50	19.9	13.3	10.0	8.0	6.6	5.7	5.0	165	37%	63%	98%	260	17%	33%	97%	333	10%	20%	93%	414	6%	12%	84%	DR110-03	40286-03
	0.37	60	21.8	14.5	10.9	8.7	7.3	6.2	5.5	159	39%	65%	97%	244	19%	37%	97%	311	12%	23%	94%	391	6%	14%	86%	50 Mesh - Red	
	0.40	70	23.6	15.7	11.8	9.4	7.9	6.7	5.9	153	41%	67%	97%	231	21%	40%	98%	292	13%	25%	95%	371	7%	15%	88%	40250-00	
04	0.28	20	16.8	11.2	8.4	6.7	5.6	4.8	4.2	240	18%	36%	97%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-04	40281-04
	0.35	30	20.6	13.7	10.3	8.2	6.9	5.9	5.1	225	22%	42%	97%	314	11%	22%	94%	416	5%	11%	84%	510	3%	7%	69%	SR110-04	40287-04
	0.40	40	23.8	15.8	11.9	9.5	7.9	6.8	5.9	215	24%	45%	96%	288	14%	27%	95%	377	7%	15%	89%	469	4%	9%	76%	MR110-04	40291-04
	0.45	50	26.6	17.7	13.3	10.6	8.9	7.6	6.6	206	26%	48%	96%	269	16%	31%	96%	346	8%	18%	92%	438	5%	11%	80%	DR110-04	40286-04
	0.49	60	29.1	19.4	14.5	11.6	9.7	8.3	7.3	199	28%	51%	96%	253	17%	34%	96%	321	9%	20%	94%	412	6%	12%	83%	50 Mesh - Red	
	0.53	70	31.4	21.0	15.7	12.6	10.5	9.0	7.9	194	29%	53%	95%	239	19%	37%	97%	300	10%	22%	95%	391	6%	13%	85%	40250-00	
05	0.35	20	21.0	14.0	10.5	8.4	7.0	6.0	5.3	248	18%	36%	95%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-05	40281-05
	0.43	30	25.7	17.1	12.9	10.3	8.6	7.3	6.4	226	22%	41%	95%	355	8%	17%	91%	486	3%	8%	72%	530	2%	5%	63%	SR110-05	40287-05
	0.50	40	29.7	19.8	14.9	11.9	9.9	8.5	7.4	212	26%	46%	95%	322	11%	22%	93%	445	5%	10%	78%	503	3%	6%	68%	MR110-05	40291-05
	0.56	50	33.2	22.1	16.6	13.3	11.1	9.5	8.3	202	28%	49%	95%	296	13%	26%	95%	412	6%	12%	82%	482	3%	7%	72%	DR110-05	40286-05
	0.61	60	36.4	24.2	18.2	14.5	12.1	10.4	9.1	194	30%	52%	95%	275	15%	29%	96%	386	7%	14%	85%	465	3%	8%	74%	50 Mesh - Red	
	0.66	70	39.3	26.2	19.6	15.7	13.1	11.2	9.8	187	32%	54%	95%	257	16%	32%	96%	364	7%	16%	87%	451	4%	9%	76%	40250-00	
06	0.42	20	25.2	16.8	12.6	10.1	8.4	7.2	6.3	282	14%	28%	94%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-06	40281-06
	0.52	30	30.9	20.6	15.4	12.3	10.3	8.8	7.7	261	18%	34%	94%	416	6%	13%	84%	507	3%	7%	68%	565	2%	4%	57%	SR110-06	40287-06
	0.60	40	35.6	23.8	17.8	14.3	11.9	10.2	8.9	246	20%	38%	94%	371	8%	17%	89%	474	4%	9%	74%	529	2%	6%	64%	MR110-06	40291-06
	0.67	50	39.8	26.6	19.9	15.9	13.3	11.4	10.0	235	22%	41%	95%	337	10%	21%	92%	448	4%	10%	78%	501	3%	7%	68%	DR110-06	40286-06
	0.73	60	43.6	29.1	21.8	17.5	14.5	12.5	10.9	225	24%	43%	95%	308	12%	24%	93%	427	5%	11%	81%	478	3%	7%	71%	50 Mesh - Red	
	0.79	70	47.1	31.4	23.6	18.9	15.7	13.5	11.8	217	25%	45%	95%	284	13%	26%	94%	409	5%	12%	83%	459	3%	8%	74%	40250-00	

Droplet Categories as per **ASABE S572.1** Classification (2009-current)

- Extremely Fine <60
- Very Fine 60-105µ
- Fine 106-235µ
- Medium 236-340µ
- Coarse 341-403µ
- Very Coarse 404-502µ
- Extremely Coarse 503-665µ
- Ultra Coarse >665µ

VMD
Volume Median Diameter
Size of the median droplet in microns (µ) for a sprayed volume. Half of the volume is made up of droplets smaller than the VMD; half is made up of droplets larger.

% <141µ
% Driftable Fines
Percentage of volume which is likely to drift. 141µ is now replacing 200µ as the new standard for driftable fines.

% <200µ
% Driftable Fines
Percentage of volume which is likely to drift. 200µ is shown for reference. 141µ is used as the new standard for driftable fines.

% <600µ
% Useful Droplets
Percentage of volume which is made up of 'useful' droplets. As the distribution of useful droplets lowers, coverage is reduced.

Strainer Mesh & Tips
Recommended Strainer mesh
Mesh of strainer determined by the size of a tip. For larger tips (08+), strainers are not required.

110° Tip-Cap Specifications
Standard Spray Systems

COMBO-JET® 110° High Flow Tip-Cap Performance Specifications

FOR STANDARD SPRAYERS

Please Note:
1. Flow rates based on water (80°F), applied at 20" spacing.
2. For applications where a uniform pattern is required, recommended pressure ranges for Tip-Caps are shown.
3. Cap color determined by flow rate, as per ISO standard.
4. In order to make this chart easier to use, not all available tip-cap sizes are shown. For specifications for 005, 0067, 30, 40, 50 & 60 size Tip-Caps, visit our website.

Recommended Pressure: 20-70 PSI

Recommended Pressure: 20-100 PSI

Recommended Pressure: 25-100 PSI

Recommended Pressure: 30-100 PSI

Tip Cap No.	Flow Rate USGPM	PSI	Application Rate - US Gallons / Acre @ 20" @ Sprayer Speed - Miles / Hour 5.0	7.5	10.0	12.5	15.0	17.5	20.0	VMD (Droplet Size in µ); %<141µ (Drift %); %<200µ (Drift %); %<600µ (Small Droplets) 110° ER Series VMD	<141	<200	<600	110° SR Series VMD	<141	<200	<600	110° MR Series VMD	<141	<200	<600	110° DR Series VMD	<141	<200	<600	Tip-Cap & Part No. Tip-Cap	Part # Strainer not req'd
08	0.57	20	33.6	22.4	16.8	13.4	11.2	9.6	8.4	327	14%	26%	91%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-08	40281-08
	0.69	30	41.2	27.4	20.6	16.5	13.7	11.8	10.3	290	17%	32%	93%	453	6%	12%	67%	531	4%	8%	53%	614	3%	5%	40%	SR110-08	40287-08
	0.80	40	47.5	31.7	23.8	19.0	15.8	13.6	11.9	264	20%	36%	95%	408	7%	15%	74%	483	5%	10%	61%	569	4%	6%	47%	MR110-08	40291-08
	0.89	50	53.1	35.4	26.6	21.3	17.7	15.2	13.3	244	22%	39%	95%	374	9%	17%	79%	446	6%	12%	67%	534	4%	7%	51%	DR110-08	40286-08
	0.98	60	58.2	38.8	29.1	23.3	19.4	16.6	14.5	228	23%	42%	96%	346	10%	18%	82%	416	7%	13%	70%	506	4%	8%	55%		
	1.06	70	62.9	41.9	31.4	25.1	21.0	18.0	15.7	214	25%	44%	97%	322	11%	19%	84%	391	7%	14%	73%	482	5%	9%	57%		
10	0.71	20	42.0	28.0	21.0	16.8	14.0	12.0	10.5	362	10%	24%	88%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-10	40281-10
	0.87	30	51.4	34.3	25.7	20.6	17.1	14.7	12.9	325	14%	29%	90%	470	6%	11%	62%	523	4%	8%	53%	672	3%	4%	32%	SR110-10	40287-10
	1.00	40	59.4	39.6	29.7	23.8	19.8	17.0	14.9	298	17%	33%	92%	424	7%	14%	70%	478	5%	9%	59%	635	3%	5%	37%	MR110-10	40291-10
	1.12	50	66.4	44.3	33.2	26.6	22.1	19.0	16.6	277	19%	35%	93%	388	8%	16%	75%	442	6%	10%	64%	606	4%	6%	40%	DR110-10	40286-10
	1.22	60	72.7	48.5	36.4	29.1	24.2	20.8	18.2	260	21%	38%	94%	358	9%	17%	79%	413	6%	12%	67%	583	4%	7%	43%		
	1.32	70	78.6	52.4	39.3	31.4	26.2	22.5	19.6	246	22%	40%	94%	333	10%	18%	81%	388	7%	12%	70%	563	5%	7%	45%		
12.5	0.88	20	52.5	35.0	26.3	21.0	17.5	15.0	13.1	421	9%	16%	70%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-125	40281-125
	1.08	30	64.3	42.9	32.2	25.7	21.4	18.4	16.1	383	10%	18%	76%	471	5%	10%	62%	618	4%	6%	39%	647	3%	6%	35%	SR110-125	40287-125
	1.25	40	74.3	49.5	37.1	29.7	24.8	21.2	18.6	357	11%	20%	80%	423	6%	13%	70%	571	4%	7%	47%	616	4%	7%	39%	MR110-125	40291-125
	1.40	50	83.0	55.3	41.5	33.2	27.7	23.7	20.8	336	12%	21%	83%	386	7%	15%	74%	535	5%	8%	52%	592	4%	7%	42%	DR110-125	40286-125
	1.53	60	90.9	60.6	45.5	36.4	30.3	26.0	22.7	319	13%	21%	85%	355	7%	16%	78%	506	5%	9%	55%	572	5%	8%	44%		
	1.65	70	98.2	65.5	49.1	39.3	32.7	28.1	24.6	305	14%	22%	86%	329	8%	18%	80%	481	6%	10%	58%	555	5%	8%	46%		
15	1.06	20	63.0	42.0	31.5	25.2	21.0	18.0	15.8	438	8%	15%	64%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-15	40281-15
	1.30	30	77.2	51.4	38.6	30.9	25.7	22.0	19.3	398	10%	18%	72%	538	5%	8%	51%	608	4%	7%	40%	659	3%	5%	40%	SR110-15	40287-15
	1.50	40	89.1	59.4	44.6	35.6	29.7	25.5	22.3	370	12%	19%	76%	496	6%	10%	58%	574	4%	8%	45%	624	4%	6%	46%	MR110-15	40291-15
	1.68	50	99.6	66.4	49.8	39.8	33.2	28.5	24.9	348	13%	21%	79%	463	6%	11%	64%	548	5%	8%	49%	597	4%	7%	50%	DR110-15	40286-15
	1.84	60	109.1	72.7	54.6	43.6	36.4	31.2	27.3	330	14%	22%	81%	436	7%	12%	67%	527	5%	9%	52%	575	4%	8%	53%		
	1.98	70	117.9	78.6	58.9	47.1	39.3	33.7	29.5	315	15%	23%	82%	413	7%	13%	70%	508	5%	9%	54%	556	4%	8%	55%		
20	1.41	20	84.0	56.0	42.0	33.6	28.0	24.0	21.0	497	7%	11%	56%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-20	40281-20
	1.73	30	102.9	68.6	51.4	41.2	34.3	29.4	25.7	453	8%	13%	64%	518	6%	10%	55%	593	4%	7%	42%	-	-	-	-	SR110-20	40287-20
	2.00	40	118.8	79.2	59.4	47.5	39.6	33.9	29.7	422	9%	15%	68%	479	6%	12%	62%	557	5%	8%	48%	-	-	-	-	MR110-20	40291-20
	2.24	50	132.8	88.5	66.4	53.1	44.3	37.9	33.2	399	9%	16%	72%	449	7%	13%	67%	529	6%	9%	52%	-	-	-	-		
	2.45	60	145.5	97.0	72.7	58.2	48.5	41.6	36.4	379	10%	17%	74%	424	8%	14%	70%	506	6%	10%	55%	-	-	-	-		
	2.65	70	157.2	104.8	78.6	62.9	52.4	44.9	39.3	362	10%	18%	76%	403	8%	15%	73%	487	6%	11%	57%	-	-	-	-		
25	1.77	20	105.0	70.0	52.5	42.0	35.0	30.0	26.3	495	6%	10%	54%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-25	40281-25
	2.17	30	128.6	85.7	64.3	51.4	42.9	36.7	32.2	453	7%	12%	65%	503	6%	10%	56%	-	-	-	-	-	-	-	-	SR110-25	40287-25
	2.50	40	148.5	99.0	74.3	59.4	49.5	42.4	37.1	422	7%	13%	71%	468	6%	11%	62%	-	-	-	-	-	-	-	-		
	2.80	50	166.0	110.7	83.0	66.4	55.3	47.4	41.5	399	8%	14%	74%	441	7%	13%	66%	-	-	-	-	-	-	-	-		
	3.06	60	181.9	121.2	90.9	72.7	60.6	52.0	45.5	380	8%	15%	77%	419	8%	14%	69%	-	-	-	-	-	-	-	-		
	3.31	70	196.4	131.0	98.2	78.6	65.5	56.1	49.1	364	8%	15%	79%	400	8%	14%	71%	-	-	-	-	-	-	-	-		

*Droplet categories: The above chart is based on the ASABE Standard 572.1. Refer to chemical label to verify which ASABE S572.1 categories should be followed.

Droplet Categories as per **ASABE S572.1** Classification (2009-current)

- Extremely Fine <60
- Very Fine 60-105µ
- Fine 106-235µ
- Medium 236-340µ
- Coarse 341-403µ
- Very Coarse 404-502µ
- Extremely Coarse 503-665µ
- Ultra Coarse >665µ

Combo-Jet® Adapters
Square Lug Compatibility

Combo-Jet® tip-caps use a radialock O-ring seal to secure the cap to the nozzle body. Adapters are available to mount a radialock cap on a non-radialock nozzle body.

New for 2017
Lock Nut Adapter
(#40204-00)

ASABE Droplet Categories
Color Classifications

The colors associated with the VMD is based on an ASABE standard for droplet size categorization. See categories and colors above. Refer to wilger.net for older ASABE standard S572.

Recommended Pressure
Pressure Range for Tips

For applications which require a uniform pattern, the recommended pressure range is provided. Specified pressure in chart is boom pressure.

Pre-orifice Length & Color
Differences in tip pre-orifices

Pre-orifice color and length vary for some tips. SR-series pre-orifices will vary in color from the color of the cap. MR & DR pre-orifices will be the same color as the cap. Pre-orifices for high volume tips use a longer pre-orifice.

Have you tried the TIP WIZARD?

An easy to use spray tip calculator that helps find the best spray tip for your application.
It is as easy as entering your application, and seeing the results.
Tip Wizard is available on the wilger.net website, FREE smartphone app, and Wilger USB.

COMBO-JET® 110° Tip-Cap Performance Specifications for PWM Systems

FOR PWM SPRAYERS

Please Note:
1. Flow and application rates shown are for water only, applied on 20" spacing.
2. For applications where a uniform pattern is required, recommended pressures are higher than in standard spray systems.
3. Cap color determined by flow rate, as per ISO standard.
4. In order to make this chart easier to use, not all available tip-cap sizes are shown. For specifications for 005, 0067, 20, 25, 30, 40, 50 & 60 size Tip-Caps, visit our website.
5. Standard PWM systems have inherent flow capacity up to 1.5 US Gallons/Min

Recommended Pressure: 25-70 PSI

Recommended Pressure: 30-100 PSI

Recommended Pressure: 30-100 PSI

Recommended Pressure: 35-100 PSI

Tip Cap No.	Flow Rate USGPM	PSI	Sprayer Speed Range (Rounded) @ Application Rate (US Gallons/Acre) @ 20"					VMD (Droplet Size in µ); %<141µ (Drift %); %<200µ (Drift %); %<600µ (Small Droplets)														Tip-Cap & Part No.	
								110° ER Series				110° SR Series				110° MR Series				110° DR Series				Tip-Cap	Part #
			5.0	7.5	10.0	12.5	15.0	VMD	<141	<200	<600	VMD	<141	<200	<600	VMD	<141	<200	<600	VMD	<141	<200	<600	Strainer Part #	
01	0.07	20	1.0-4.2	0.7-2.8	0.5-2.1	0.4-1.7	0.3-1.4	149	45%	84%	100%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-01	40281-01
	0.09	30	1.3-5.1	0.9-3.4	0.6-2.6	0.5-2.1	0.4-1.7	140	51%	87%	100%	-	-	-	-	-	-	-	-	-	-	-	-		
	0.10	40	1.5-5.9	1.0-4.0	0.7-3.0	0.6-2.4	0.5-2.0	133	56%	89%	100%	-	-	-	-	-	-	-	-	-	-	-	-		
	0.11	50	1.7-6.6	1.1-4.4	0.8-3.3	0.7-2.7	0.6-2.2	128	59%	91%	100%	-	-	-	-	-	-	-	-	-	-	-	-		
	0.12	60	1.8-7.3	1.2-4.8	0.9-3.6	0.7-2.9	0.6-2.4	124	62%	93%	100%	-	-	-	-	-	-	-	-	-	-	-	-		
	0.13	70	2.0-7.8	1.3-5.2	1.0-3.9	0.8-3.1	0.7-2.6	121	65%	94%	100%	-	-	-	-	-	-	-	-	-	-	-	-	100 Mesh - Green	40251-00
015	0.11	20	1.6-6.3	1.0-4.2	0.8-3.1	0.6-2.5	0.5-2.1	153	40%	77%	100%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-015	40281-015
	0.13	30	1.9-7.7	1.3-5.1	1.0-3.8	0.8-3.1	0.6-2.6	145	47%	81%	100%	216	24%	45%	98%	323	11%	22%	94%	368	7%	15%	92%	SR110-015	40287-015
	0.15	40	2.2-8.9	1.5-5.9	1.1-4.4	0.9-3.5	0.7-3.0	139	51%	83%	100%	200	28%	50%	98%	279	16%	30%	97%	329	10%	20%	94%	MR110-015	40291-015
	0.17	50	2.5-10	1.7-6.6	1.2-5.0	1.0-4.0	0.8-3.3	135	55%	86%	100%	188	32%	55%	98%	248	20%	36%	98%	302	12%	24%	95%	DR110-015	40286-015
	0.18	60	2.7-11	1.8-7.2	1.4-5.4	1.1-4.3	0.9-3.6	131	58%	87%	100%	178	34%	59%	98%	226	23%	41%	99%	282	14%	27%	96%	100 Mesh - Green	
	0.20	70	2.9-12	2.0-7.8	1.5-5.9	1.2-4.7	1.0-3.9	128	61%	89%	100%	169	37%	62%	98%	209	25%	46%	99%	265	15%	30%	97%	40251-00	
02	0.14	20	2.1-8.0	1.4-5.6	1.0-4.2	0.8-3.3	0.7-2.8	173	32%	62%	100%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-02	40281-02
	0.17	30	2.6-10	1.7-6.8	1.3-5.1	1.0-4.1	0.9-3.4	160	39%	69%	100%	220	22%	43%	99%	317	11%	23%	95%	433	5%	10%	82%	SR110-02	40287-02
	0.20	40	2.9-12	2.0-7.9	1.5-5.9	1.2-4.7	1.0-3.9	151	45%	73%	100%	207	26%	48%	99%	281	15%	29%	97%	394	6%	13%	87%	MR110-02	40291-02
	0.22	50	3.3-13	2.2-8.8	1.6-6.6	1.3-5.3	1.1-4.4	144	49%	77%	100%	197	28%	52%	99%	256	18%	34%	97%	364	8%	16%	90%	DR110-02	40286-02
	0.24	60	3.6-14	2.4-10	1.8-7.2	1.4-5.8	1.2-4.8	138	52%	80%	100%	189	31%	55%	99%	237	21%	38%	98%	339	9%	19%	91%	50 Mesh - Red	
	0.26	70	3.9-16	2.6-10	1.9-7.8	1.6-6.2	1.3-5.2	133	55%	82%	100%	182	32%	57%	99%	222	23%	42%	98%	318	10%	20%	93%	40250-00	
025	0.17	20	2.6-10	1.7-7.0	1.3-5.2	1.0-4.1	0.9-3.5	194	28%	54%	100%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-025	40281-025
	0.21	30	3.2-13	2.1-8.0	1.6-6.3	1.3-5.1	1.1-4.2	187	29%	56%	100%	237	19%	38%	98%	353	8%	17%	90%	437	5%	10%	79%	SR110-025	40287-025
	0.25	40	3.7-15	2.4-10	1.8-7.3	1.5-5.9	1.2-4.9	181	30%	57%	100%	223	22%	43%	98%	322	11%	22%	93%	401	6%	13%	86%	MR110-025	40291-025
	0.28	50	4.1-16	2.7-11	2.0-8.2	1.6-6.6	1.4-5.5	177	30%	59%	100%	213	25%	46%	98%	299	13%	25%	95%	373	8%	16%	89%	DR110-025	40286-025
	0.30	60	4.5-18	3.0-12	2.2-9.0	1.8-7.2	1.5-6.0	173	31%	60%	100%	204	27%	49%	98%	280	15%	28%	96%	350	9%	18%	91%	50 Mesh - Red	
	0.33	70	4.8-19	3.2-13	2.4-10	1.9-7.8	1.6-6.5	170	31%	60%	100%	196	28%	51%	98%	263	16%	31%	96%	331	10%	20%	93%	40250-00	
03	0.21	20	3.1-12	2.1-8.0	1.5-6.0	1.2-4.9	1.0-4.1	199	26%	51%	99%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-03	40281-03
	0.26	30	3.8-15	2.5-10	1.9-8.0	1.5-6.1	1.3-5.1	185	31%	56%	99%	307	11%	23%	95%	399	6%	13%	86%	484	3%	7%	73%	SR110-03	40287-03
	0.29	40	4.4-17	2.9-12	2.2-9.0	1.7-7.0	1.5-5.8	175	34%	59%	98%	282	14%	28%	96%	364	8%	17%	90%	447	5%	10%	79%	MR110-03	40291-03
	0.33	50	4.9-20	3.3-13	2.4-10	2.0-7.8	1.6-6.5	167	37%	62%	98%	263	17%	33%	97%	337	10%	20%	93%	419	6%	12%	83%	DR110-03	40286-03
	0.36	60	5.4-21	3.6-14	2.7-11	2.1-8.6	1.8-7.1	160	39%	65%	97%	247	19%	36%	97%	315	11%	22%	94%	396	6%	13%	86%	50 Mesh - Red	
	0.39	70	5.8-23	3.9-15	2.9-12	2.3-9.3	1.9-7.7	155	41%	67%	97%	234	20%	39%	97%	297	13%	25%	95%	376	7%	15%	88%	40250-00	
04	0.27	20	4.1-16	2.7-11	2.0-8.1	1.6-6.5	1.4-5.4	243	18%	35%	97%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-04	40281-04
	0.34	30	5.0-20	3.3-13	2.5-10	2.0-8.0	1.7-6.6	228	21%	41%	97%	319	10%	21%	93%	425	4%	10%	83%	519	3%	6%	67%	SR110-04	40287-04
	0.39	40	5.8-23	3.8-15	2.9-12	2.3-9.2	1.9-7.7	217	24%	44%	97%	294	13%	26%	95%	386	6%	14%	88%	478	4%	9%	74%	MR110-04	40291-04
	0.43	50	6.4-26	4.3-17	3.2-13	2.6-10.3	2.1-8.6	209	26%	47%	96%	275	15%	30%	96%	355	8%	17%	91%	447	5%	10%	79%	DR110-04	40286-04
	0.47	60	7.0-28	4.7-19	3.5-14	2.8-11.3	2.3-9.4	202	27%	50%	96%	259	17%	33%	96%	330	9%	19%	93%	421	6%	12%	82%	50 Mesh - Red	
	0.51	70	7.6-30	5.1-20	3.8-15	3-12.2	2.5-10.1	196	29%	52%	96%	245	18%	35%	97%	309	10%	21%	95%	400	6%	13%	84%	40250-00	
05	0.34	20	5.0-20	3.3-13	2.5-10	2.0-8.0	1.7-6.7	253	17%	34%	95%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-05	40281-05
	0.41	30	6.1-24	4.1-16	3.1-12	2.4-9.8	2.0-8.2	231	21%	40%	95%	367	7%	16%	90%	501	3%	7%	69%	539	2%	5%	61%	SR110-05	40287-05
	0.48	40	7.1-28	4.7-19	3.5-14	2.8-11.3	2.4-9.4	217	25%	44%	95%	334	10%	21%	93%	459	4%	9%	76%	513	3%	6%	66%	MR110-05	40291-05
	0.53	50	7.9-32	5.3-21	4.0-16	3.2-12.6	2.6-10.5	207	27%	47%	95%	308	12%	24%	94%	427	5%	12%	80%	492	3%	7%	70%	DR110-05	40286-05
	0.58	60	8.7-35	5.8-23	4.3-17	3.5-13.8	2.9-11.5	198	29%	50%	95%	287	14%	27%	95%	400	6%	13%	83%	475	3%	8%	73%	50 Mesh - Red	
	0.63	70	9.3-37	6.2-25	4.7-19	3.7-15	3.1-12.5	192	31%	52%	95%	269	15%	30%	96%	378	7%	15%	85%	460	4%	8%	75%	40250-00	
06	0.40	20	5.9-24	3.9-16	2.9-12	2.4-9.4	2.0-7.8	289	13%	26%	94%	-	-	-	-	-	-	-	-	-	-	-	-	ER110-06	40281-06
	0.48	30	7.2-29	4.8-19	3.6-14	2.9-12	2.4-9.6	268	16%	32%	94%	438	5%	10%	81%	524	3%	6%	64%	583	2%	4%	54%	SR110-06	40287-06
	0.56	40	8.3-33	5.5-22	4.2-17	3.3-13	2.8-11	253	19%	36%	94%	393	7%	15%	87%	490	3%	8%	71%	547	2%	5%	61%	MR110-06	40291-06
	0.63	50	9.3-37	6.2-25	4.6-19	3.7-15	3.1-12	242	21%	39%	95%	358	9%	19%	90%	465	4%	9%	76%	519	3%	6%	65%	DR110-06	40286-06
	0.69	60	10-41	6.8-27	5.1-20	4.1-16	3.4-14	233	23%	41%	95%	330	11%	22%	92%	443	5%	10%	79%	496	3%	7%	69%	50 Mesh - Red	
	0.74	70	11-44	7.3-29	5.5-22	4.4-18	3.7-15	225	24%	43%	95%	306	12%	24%	93%	426	5%	11%	81%	476	3%	7%	71%	40250-00	

Droplet Categories as per **ASABE S572.1** Classification (2009-current)

Extremely Fine <60 | Very Fine 60-105µ | Fine 106-235µ | Medium 236-340µ | Coarse 341-403µ | Very Coarse 404-502µ | Extremely Coarse 503-665µ | Ultra Coarse >665µ

VMD
Volume Median Diameter
Size of the median droplet in microns (µ) for a sprayed volume. Half of the volume is made up of droplets smaller than the VMD; half is made up of droplets larger.

% <141µ
% Driftable Fines
Percentage of volume which is likely to drift. 141µ is now replacing 200µ as the new standard for driftable fines.

% <200µ
% Driftable Fines
Percentage of volume which is likely to drift. 200µ is shown for reference. 141µ is used as the new standard for driftable fines.

% <600µ
% Useful Droplets
Percentage of volume which is made up of 'useful' droplets. As the distribution of useful droplets lowers, coverage is reduced.

Strainer Mesh & Tips
Recommended Strainer mesh
Mesh of strainer determined by the size of a tip. For larger tips (08+), strainers are not required. For PWM systems, typically 80 mesh inline strainers are used as well.

110° Tip-Cap Specifications
Pulse Width Modulation Spray Systems

COMBO-JET® 110° Tip-Cap Performance Specifications for PWM Systems

FOR PWM SPRAYERS

Please Note:
1. Flow and application rates shown are for water only, applied on 20" spacing.
2. For applications where a uniform pattern is required, recommended pressures are higher than in standard spray systems.
3. Cap color determined by flow rate, as per ISO standard.
4. In order to make this chart easier to use, not all available tip-cap sizes are shown. For specifications for 005, 0067, 20, 25, 30, 40, 50 & 60 size Tip-Caps, visit our website.
5. Standard PWM systems have inherent flow capacity up to 1.5 USG/Min

Recommended pressure varies with each size of tip

Recommended pressure varies with each size of tip

Recommended pressure varies with each size of tip

Recommended pressure varies with each size of tip

Tip Cap No.	Flow Rate USGPM	PSI	Sprayer Speed Range (Rounded) @ Application Rate (US Gallons/Acre) @ 20"					VMD (Droplet Size in µ); %<141µ (Drift %); %<200µ (Drift %); %<600µ (Small Droplets)														Tip-Cap & Part No.	
								110° ER Series				110° SR Series				110° MR Series				110° DR Series				Tip-Cap	Part #
			5.0	7.5	10.0	12.5	15.0	VMD	<141	<200	<600	VMD	<141	<200	<600	VMD	<141	<200	<600	VMD	<141	<200	<600	Strainer not req'd	
	0.62	30	9.1-37	6.1-24	4.6-18	3.7-15	3.0-12	312	15%	28%	92%	489	4%	11%	59%	570	3%	7%	45%	651	3%	4%	35%	ER110-08	40281-08
	0.71	40	11-42	7-28	5.3-21	4.2-17	3.5-14	286	18%	32%	93%	445	6%	13%	68%	522	4%	9%	54%	606	3%	5%	42%	SR110-08	40287-08
08	0.79	50	12-47	7.9-31	5.9-24	4.7-19	3.9-16	266	20%	36%	95%	410	7%	15%	74%	486	5%	10%	61%	571	4%	6%	47%	MR110-08	40291-08
	0.87	60	13-52	8.6-34	6.5-26	5.2-21	4.3-17	249	21%	38%	95%	382	8%	16%	78%	455	6%	11%	65%	543	4%	7%	50%	DR110-08	40286-08
	0.94	70	14-56	9.3-37	7.0-28	5.6-22	4.7-19	235	23%	41%	96%	359	9%	17%	80%	430	6%	12%	69%	519	4%	8%	53%		
	0.73	30	11-43	7.2-29	5.4-22	4.3-17	3.6-14	357	11%	25%	88%	527	4%	9%	50%	579	3%	6%	43%	716	2%	3%	26%	ER110-10	40281-10
	0.84	40	13-50	8.3-33	6.2-25	5.0-20	4.2-17	330	13%	28%	90%	480	6%	11%	60%	533	4%	7%	51%	679	2%	4%	31%	SR110-10	40287-10
10	0.94	50	14-56	9.3-37	7.0-28	5.6-22	4.7-19	310	16%	31%	91%	444	7%	13%	67%	497	5%	8%	57%	651	3%	5%	35%	MR110-10	40291-10
	1.03	60	15-61	10-41	7.6-31	6.1-24	5.1-20	293	17%	33%	92%	414	8%	14%	72%	468	5%	10%	61%	628	3%	5%	38%	DR110-10	40286-10
	1.11	70	17-66	11-44	8.3-33	6.6-26	5.5-22	278	19%	35%	93%	389	8%	15%	75%	444	6%	10%	64%	608	4%	6%	40%		
	0.84	30	13-50	8.3-33	6.3-25	5.0-20	4.2-17	430	8%	16%	68%	554	3%	5%	44%	699	3%	3%	24%	670	2%	5%	31%	ER110-125	40281-125
	0.97	40	14-58	9.6-39	7.2-29	5.8-23	4.8-19	403	9%	17%	73%	506	4%	8%	55%	652	3%	4%	33%	635	3%	6%	36%	SR110-125	40287-125
125	1.09	50	16-65	11-43	8.1-32	6.5-26	5.4-22	383	10%	18%	77%	469	5%	10%	62%	616	4%	6%	40%	617	3%	7%	39%	MR110-125	40291-128
	1.19	60	18-71	12-47	8.8-35	7.1-28	5.9-24	366	11%	19%	79%	439	6%	12%	67%	587	4%	7%	44%	605	4%	7%	40%	DR110-125	40286-125
	1.29	70	19-76	13-51	9.6-38	7.6-31	6.4-25	351	12%	20%	81%	413	6%	13%	71%	562	5%	7%	48%	596	4%	7%	41%		
	0.93	30	14-55	9.2-37	6.9-28	5.5-22	4.6-18	463	7%	14%	58%	636	3%	4%	27%	686	4%	5%	27%	740	3%	2%	23%	ER110-15	40281-15
	1.08	40	16-64	11-43	8.0-32	6.4-26	5.3-21	434	9%	16%	65%	594	4%	6%	38%	652	4%	6%	33%	705	3%	3%	31%	SR110-15	40287-15
15	1.20	50	18-72	12-48	8.9-36	7.2-29	6.0-24	413	10%	17%	69%	561	4%	7%	46%	626	4%	6%	38%	678	3%	4%	36%	MR110-15	40291-15
	1.32	60	20-78	13-52	9.8-39	7.8-31	6.5-26	395	11%	18%	72%	534	5%	8%	52%	604	4%	7%	41%	655	3%	5%	40%	DR110-15	40286-15
	1.43	70	21-85	14-56	11-42	8.5-34	7.1-28	380	11%	19%	74%	511	5%	9%	56%	586	4%	7%	44%	637	4%	5%	43%		

*Droplet categories: The above chart is based on the ASABE Standard 572.1. Refer to chemical label to verify which ASABE S572.1 categories should be followed.

Droplet Categories as per **ASABE S572.1** Classification (2009-current)

Extremely Fine <60 | Very Fine 60-105µ | Fine 106-235µ | Medium 236-340µ | Coarse 341-403µ | Very Coarse 404-502µ | Extremely Coarse 503-665µ | Ultra Coarse >665µ

Recommended Pressure
Pressure Range for Tips
For PWM systems, the pressure loss through system components is accounted for in these charts. Specified pressure in chart is boom pressure. Additional solenoid wear may occur for pressures above 60PSI.

ASABE Droplet Categories
Color Classifications
The colors associated with the VMD is based on an ASABE standard for droplet size categorization. See categories and colors above. Refer to wilger.net for older ASABE standard S572.

Duty Cycles
Effective run time of PWM
Since PWM systems hold pressure constant, they adjust rates by the length of time the solenoids stay open (the duty cycle). Duty cycle is calculated by dividing your current speed into the max speed for that tip. Ideal operating duty cycles are 40-100%.

Pre-orifice Length & Color
Differences in tip pre-orifices
Pre-orifice color and length vary for some tips. SR-series pre-orifices will vary in color from the color of the cap. MR & DR pre-orifices will be the same color as the cap. Pre-orifices for high volume tips use a longer pre-orifice.

Using Tip Wizard
Same search, different results
PWM systems use plumbing components that cause more in pressure loss when compared to standard spray systems. Tip Wizard accounts for those pressure drops, and also provides crucial duty cycle information as well.

Multi-tip spraying with Pulse Width Modulation Technology

Pulse Width Modulation (PWM) provides the ability to hold tip pressure constant; therefore, holding the droplet size constant as well. This holds true with multi-tip spraying as well.

As a standard, PWM systems use one solenoid per nozzle body. For best utilization of PWM technology, a dual tip adapter [left] is used.

Spraying with two seperate outlets [right] is possible, but the outlet not controlled by a solenoid will be controlled by the auto-rate controller.

To use Tip Wizard to help select a multi-tip setup, simply split the total flow rate into two (or more) parts and ensure the tips selected can operate within the same duty cycle range and pressures.

Example Rate: 10 US Gallons/Acre; **Speed:** 15 MPH; **Nozzle Spacing:** 20"; **Target Droplet Size:** 400 microns (Systemic Herbicide)

If the total application is 10GPA, the effective rates per tip must add up to 10GPA. For simplicity, split the flow in equal parts; for example, two tips applying 5GPA. While consulting the tip charts, a suitable choice might be the MR110-04 at ~35PSI, with effective volume of 5GPA per tip. The droplet size is right around 400microns, and max travel speed (15MPH) is at a ~70% duty cycle.

Spray Tips

Drift vs. Efficacy

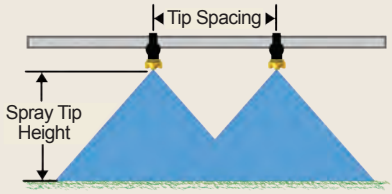
Generally speaking, smaller droplets deposit on the target more effectively than larger droplets, but larger droplets will drift less. So, when balancing drift control and efficacy, ensure to consider chemical labels and guidelines to designate the required droplet size/category. Find the below chart as an illustration showing the general differences in how different droplet sizes are required for different applications.

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

The above table provides general guidelines regarding chemical efficacy vs. droplet size.
It is always recommended that you carefully read and follow the chemical manufacturers application label and instructions.

Minimum Spray Tip Height

Tip Spacing	Minimum Spray Tip Height		
	ER, SR, MR & DR 80 Degree Tips	ER Series 110 Degree Tips	SR, MR & DR Series 110 Degree Tips
10	10”	9”	13”
20	17”	15”	19”
30	26”	20”	24”



For additional information on droplet sizes and considerations,
visit the *Knowledge Center* section of the www.wilger.net website, or contact Wilger.

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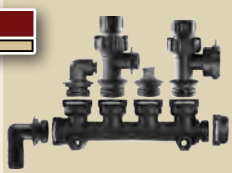

Wilger Boom End Flush Valves

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