



IMPORTANT DISCLAIMER: The below tip charts are based on commonly used Pulse Width Modulation ("PWM") spray systems, and the inherent pressure drops that occur through the solenoid associated with them. ENSURE your PWM system follows the same gauge and tip pressure relationships. ALWAYS confirm pressure at spray tip corresponds with label requirements PRIOR to spraying any chemical. Proper maintenance and observation of system performance to maintain accurate pressures is recommended.



Pulse Width Modulation (PWM) Spray Tip Charts[§] for Spraying XtendiMax[®] Herbicide With VaporGrip[®] Technology¹



For use with COMBO-JET[®] Tip-Caps & PWM Spray Systems

LEGEND:

[§]Charts based on application of water with 20" Nozzle Spacing, with 110° Spray Angle Tips

VERY IMPORTANT NOTE ON PRESSURE

GAUGE PRESSURE
Boom Pressure (PSI)
Gauge pressure is the boom pressure required to obtain the required tip pressure (PSI). Gauge pressure figures (due to solenoids) are for standard Capstan and Raven PWM solenoids. Check with PWM system supplier to confirm gauge/tip pressure relationship.

TIP PRESSURE
Pressure (PSI) at the Tip
All required label rates and operating criteria are based on required tip pressure, not to be confused with gauge pressure. Tip pressure creates the spray pattern and droplet quality required for spray application.

FLOW RATE
Flow Rate at Tip Pressure
The US Gallon/Minute flow rate of water at the tip at stated pressure.


DUTY CYCLE (%)
Effective ON time of PWM
Since PWM systems hold pressure constant, the flow at the tip is adjusted by the length of time the solenoids stay open (the duty cycle). Ideal operating duty cycle range is 50-100%. At 100% duty cycle, solenoid is fully open and not pulsing.

25 PSI **15.0 MPH**
OUTSIDE REQ'D RANGE
Outside label requirements
If a cell is crossed out, it signifies that the travel speed, pressure or droplet category is outside the required operating range by the chemical label.


15.0 MPH
OUTSIDE BOUNDS
Outside label requirements
If a cell is crossed out in black, it signifies the speed is out of bound due to tip pressure or other criteria.

EXAMPLE APPLICATIONS

15 US GPA @ 12.5 MPH **20 US GPA @ 12.5 MPH**







UR110-08 @ 15 US GPA
63 PSI @ Gauge
50 PSI @ Tip
12.5 MPH
71% duty cycle²



UR110-10 @ 10 US GPA
55 PSI @ Gauge
50 PSI @ Tip
12.5 MPH
75% duty cycle²

²To calculate duty cycle for a specific speed, divide traveled speed by speed at 100% duty cycle.
i.e. UR110-08 @ 15 GPA and 50 PSI @ tip:
13.3MPH / 17.7MPH = 71% Duty Cycle

UR Dual Chamber Spray Tip Series

SPRAY TIP PICTURE & PART #	Gauge Pressure (PSI)	Tip Pressure (PSI)	FLOW RATE (US GPM)	Class.	15 US Gallon/Acre Application				20 US Gallon/Acre Application			
					SPEED (MPH) @ % DUTY CYCLE				SPEED (MPH) @ % DUTY CYCLE			
					25%	50%	75%	100%	25%	50%	75%	100%
UR110-05 - #40292-05	UR110-05 Specifications				UR110-05 @ 15 US GPA				UR110-05 @ 20 US GPA			
	28	25	0.40	UC	2.0	3.9	5.9	7.8	1.5	2.9	4.4	5.9
	33	30	0.43	UC	2.1	4.3	6.4	8.6	1.6	3.2	4.8	6.4
	39	35	0.47	UC	2.3	4.6	6.9	9.3	1.7	3.5	5.2	6.9
	44	40	0.50	UC	2.5	5.0	7.4	9.9	1.9	3.7	5.6	7.4
	55	50	0.56	UC	2.8	5.5	8.3	11.1	2.1	4.2	6.2	8.3
UR110-06 - #40292-06	UR110-06 Specifications				UR110-06 @ 15 US GPA				UR110-06 @ 20 US GPA			
	29	25	0.47	UC	2.3	4.7	7.0	9.4	1.8	3.5	5.3	7.0
	34	30	0.52	UC	2.6	5.1	7.7	10.3	1.9	3.9	5.8	7.7
	40	35	0.56	UC	2.8	5.6	8.3	11.1	2.1	4.2	6.3	8.3
	46	40	0.60	UC	3.0	5.9	8.9	11.9	2.2	4.5	6.7	8.9
	57	50	0.67	UC	3.3	6.6	10.0	13.3	2.5	5.0	7.5	10.0
69	60	0.73	UC	3.6	7.3	10.9	14.5	2.7	5.5	8.2	10.9	
UR110-08 - #40292-08	UR110-08 Specifications				UR110-08 @ 15 US GPA				UR110-08 @ 20 US GPA			
	32	25	0.63	UC	3.1	6.3	9.4	12.5	2.3	4.7	7.0	9.4
	38	30	0.69	UC	3.4	6.9	10.3	13.7	2.6	5.1	7.7	10.3
	44	35	0.75	UC	3.7	7.4	11.1	14.8	2.8	5.6	8.3	11.1
	51	40	0.80	UC	4.0	7.9	11.9	15.8	3.0	5.9	8.9	11.9
	63	50	0.89	UC	4.4	8.9	13.3	17.7	3.3	6.6	10.0	13.3
	76	60	0.98	UC	4.8	9.7	14.5	19.4	3.6	7.3	10.9	14.5
	90	70	1.06	UC	5.2	10.5	15.7	21.0	3.9	7.9	11.8	15.7
UR110-10 - #40292-10	UR110-10 Specifications				UR110-10 @ 15 US GPA				UR110-10 @ 20 US GPA			
	35	25	0.79	UC	3.9	7.8	11.7	15.7	2.9	5.9	8.8	11.7
	42	30	0.87	UC	4.3	8.6	12.9	17.1	3.2	6.4	9.6	12.9
	51	35	0.94	UC	4.6	9.3	13.9	18.5	3.5	6.9	10.4	13.9
	57	40	1.00	UC	5.0	9.9	14.9	19.8	3.7	7.4	11.1	14.9
	71	50	1.12	UC	5.5	11.1	16.6	22.1	4.2	8.3	12.5	16.6
	86	60	1.22	UC	6.1	12.1	18.2	24.2	4.5	9.1	13.6	18.2
	98	70	1.32	UC	6.5	13.1	19.6	26.2	4.9	9.8	14.7	19.6

IMPORTANT: Required Pre-orifices
Each DR & UR tip-caps include snap-in pre-orifices that MUST be used for proper spray operation. These pre-orifices are NOT interchangeable between sizes/series of tip-cap.


UR Dual Pre-orifices Series
The UR series tip-cap includes two snap-in orifices. One is short and snaps directly into the cap, the other is longer and snaps into the short orifice. NEVER operate UR series spray tips without BOTH orifices properly snapped in.



DR Single Pre-orifice Series
The DR series tip-cap includes a single pre-orifice that snaps into the tip-cap. NEVER operate DR series spray tips without the pre-orifice properly snapped in.



DR Single Pre-orifice Series

SPRAY TIP PICTURE & PART #	Gauge Pressure (PSI)	Tip Pressure (PSI)	FLOW RATE (US GPM)	Class.	15 US Gallon/Acre Application				20 US Gallon/Acre Application			
					SPEED (MPH) @ % DUTY CYCLE				SPEED (MPH) @ % DUTY CYCLE			
					25%	50%	75%	100%	25%	50%	75%	100%
DR110-10 - #40286-10	DR110-10 Specifications				DR110-10 @ 15 US GPA				DR110-10 @ 20 US GPA			
	35	25	0.79	UC	3.9	7.8	11.7	15.7	2.9	5.9	8.8	11.7
	42	30	0.87	UC	4.3	8.6	12.9	17.1	3.2	6.4	9.6	12.9
	51	35	0.94	UC	4.6	9.3	13.9	18.5	3.5	6.9	10.4	13.9
	57	40	1.00	UC	5.0	9.9	14.9	19.8	3.7	7.4	11.1	14.9
	71	50	1.12	UC	5.5	11.1	16.6	22.1	4.2	8.3	12.5	16.6

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