

2016 360 Y-DROP™ Technical Guide



Issued November 1, 2015

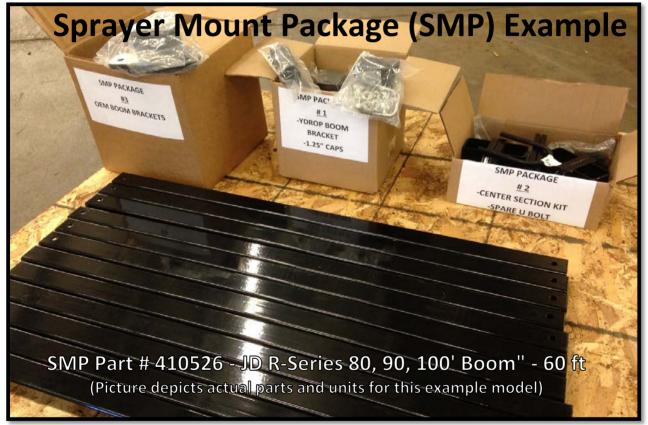
These steps are intended to follow the steps in the Order & Retail Price Guide. This guide will provide the technical detail in having a successful 360 Y-DROP[™] order placed with 360 Yield Center and should be used in conjunction with the 360 Y-DROP[™] price guide.



Order a 360 Y-DROP™ System

STEP 1 - Sprayer Mount Package (SMP)

The Sprayer Mount Package (SMP) is a pre-packaged set of parts sold by 360 Yield Center to attach the Y-DROP boom assembly to the sprayer manufacturer's boom. The SMP includes boom mounting brackets, top bracket plates, extension brackets, connectors, and any other hardware to complete an install. Every SMP has differing brackets, hardware, and kits as well as the correct number of such parts. 360 Yield Center will ensure your ordered package includes all parts necessary for a successful mount.



- Appendix A (of the Technical guide) provides charts to be used in determining the correct system boom length. Simply find your model, # of rows, and row width (while considering the 1st fold boom size) which will provide you the correct boom length to find your OEM sprayer.
- Find the resulting system boom length in the Price Guide Sprayer Mount Package listing with applicable part number all hardware and mounting part quantities are all included in a single SMP.
- ▶ Reminder: 360 Y-DROP[™] Systems Can ONLY be Mounted on the 1st fold of any self-propelled sprayer.

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STEP 2 - Boom Assemblies

► The 360 Y-DROP[™] System's boom assembly comes in 5 foot sections that connect together with 8" connectors and hardware. The boom assembly provides a consistent boom for the attachment of the riser mounts. It takes several boom assemblies to fit the entire length of the OEM sprayer boom as noted below.



Quantity Needed: (Sprayer Mount Package boom length in feet / 5) + 1
 Ex: Sprayer Mount Pkg - JD R-Series 80, 90, 100' - 60 ft or (60' / 5) + 1 = 13 boom assemblies

SMP	Boom Assy Qty (Part # 415000)
Boom Length	Formula (SMP Ft / 5 + 1)
30'	7
40'	9
60'	13
70'	15

▶ Part number 415000 includes a single 5 foot boom section along with a connector and hardware.

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STEP 3 - Riser Mount Assemblies

▶ The Riser Mount Assembly is the connector that attaches the Riser Tube to the system's Boom Assembly.



- Quantity Needed: # of drops
 Ex: Sprayer Mount Pkg JD R-Series 80, 90, 100' 60 ft or 24 row system = 23 riser mounts.
- Part number 416000 includes connector and hardware.

STEP 4 - Riser Mount Assemblies for Transport

- Needed for placement of Y-drops (risers and base units) on the boom for reduced interference during transportation.
- Quantity Needed: see chart below and refer to Appendix A for Calculated Boom Ft.
- ▶ Part number 416000 includes connector and hardware.

Calculated Boom Ft.	Recommended Qty
30-44 ft	none
51 ft	4
59 ft and greater	6

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STEP 5 - Riser Tube Assemblies

► The Riser Tube is the long steel tube that attaches the 360 Y-DROP[™] Base Unit to the system's Boom Assembly via the Riser Mount.



- Quantity Needed: # of drops
 - Ex: Sprayer Mount Pkg JD R-Series 80, 90, 100' 60 ft or 24 row system = 23 riser tubes
- Note: Some sprayer models sit higher in the center rows, requiring longer risers. It may be necessary to make a visual identification of the sprayer center to determine potential variability in riser sizes on the center section of the sprayer versus the outer boom heights. John Deere R Series and several models of the Miller Sprayers will need to have longer risers for the center section. See picture below:



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► The Riser length is now measured from the boom to the top of the 360 Y-DROPTM base unit. This is a more intuitive measurement of the actual riser rod itself. See illustration below for actual riser measurements and lengths.

Actual Riser Measurements & Lengths



See charts below for old and new part numbers corresponding with Riser length, and recommended riser lengths by OEM Maker.

	Comparison of Old and	New Riser Pa	rt Numbers
Old Part #	Old Stated Riser Length	New Part #	"New" Riser Length
416124	24 Inch	416043	43 Inch
n/a	n/a	416049	49 Inch
416136	36 Inch	416055	55 Inch
n/a	n/a	416061	61 Inch
416148	48 Inch	416067	67 Inch
416160	60 Inch	416079	79 Inch
416172	72 Inch	416091	91 Inch

Recommer	nded Riser Tu	bes
	Outside	Center
Rogator	49"	49"
Case	49"	49"
JD-R Series	55"	67"
JD - 4830/4730	55"	49"
JD -4930/4940	55"	61"
Hagie	67"	67"
Miller-pre 08	67"	67"
Miller-2008+	67"	79"

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STEP 6 - Riser Hose Assemblies

► The Riser Hose Assembly is the hose that liquid flows through from the OEM Sprayer lines to the 360 Y-DROP[™] Base Units.



Quantity Needed: # of drops

Ex: Sprayer Mount Pkg - JD R-Series 80, 90, 100' - 60 ft or 24 row system = 23 riser hose assemblies

• See chart below for the Riser Hoses corresponding with the Riser Tubes.

Riser Tube	Riser Hose Needed	Part Number
43" or 49"	78"	416078
55", 61" or 67"	90"	416090
79"	102"	416099
91"	114"	416110

• Each part number includes a single hose with required connectors.

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STEP 7 - 360 Y-DROP™ Base Unit

► The 360 Y-DROP[™] Base Unit is the molded part at the bottom of the Riser Tube which runs through the field.





Quantity Needed: INSIDE ROWS: Conventional (Black): # of drops - 2
 Quantity Needed: OUTSIDE ROWS: High Visibility (Orange): 2
 Ex: Sprayer Mount Pkg - JD R-Series 80, 90, 100' - 60 ft or 24 row system = 23 drops.

prayer Mount Pkg - 10 K-Series 80, 90, 100 - 00 ft of 24 fow system – 25 drop

24 row system = 21 360 Y-DROP[™] Conventional Base Units

+ 2 360 Y-DROP[™] High Visibility Base Units

- = 23 Total Base Units
- ► See chart below for the 360 Y-DROPTM Base Unit part numbers.

Part Number	360 Y-DROP™ Base Unit
413000	360 Y-DROP™ Base Unit - Conventional (Black)
413010	360 Y-DROP™ Base Unit - High Visibility (Orange)

► Each part number includes a single 360 Y-DROPTM Base Unit.

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STEP 8 - Drag Hoses

► Two Drag Hoses (order singly) attach to each 360 Y-DROP[™] Base Unit and precisely apply the liquid nitrogen or other product along the base of the stalk.



- ▶ Quantity Needed: # of drops * 2 hoses per 360 Y-DROP[™].
 - Ex: Sprayer Mount Pkg JD R-Series 80, 90, 100' 60 ft or 24 row system = 23 drops * 2 = 46 drag hoses.
- ► See chart below for Drag Hoses offered for sale.

Part Number	Drag Hose Length
413124	24 Inch
413130	30 Inch
413136	36 Inch
413148	44 Inch

- ▶ Recommendation is that most systems will utilize the 30" hose.
- Each part number includes a single drag hose and hose clamp.

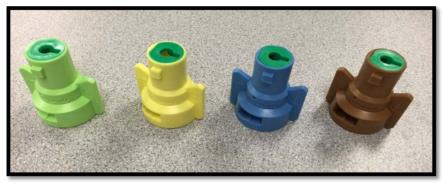
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STEP 9 - Nozzles/Orifices (Optional)

The Variable Rate Nozzle is utilized to provide a wider flow range than conventional fertilizer nozzles, to allow greater speed changes or true variable rate fertilizer applications.



Color of nozzle corresponds with size as indicated in chart below

- Quantity needed: INSIDE ROWS: (# of drops * 2) 2 Recommended TDVRHB015 or TDVRHB02 Quantity needed: OUTSIDE ROWS: Two - Recommended TDVRHB03
 - Ex: Sprayer Mount Pkg JD R-Series 80, 90, 100' 60 ft or 24 row system = 23 drops * 2 = 46 total nozzles.

24 row system = (23 drops * 2) - 2 = 44 Inside nozzles

+ 2 Outside nozzles

= 46 Total nozzles

- ► (See Appendix B) for inside rows nozzle selection based on flow rates at various row widths and speeds.
- After deciding on inside nozzle, reference chart below for corresponding outside nozzle. The outside nozzle has a larger volume requirement due to outside rows are only fed by one drag house.

INSIDE Nozzle (Select in Appendix B)	OUTSIDE Nozzle (Selection Should Correspond to the Inside Nozzle as Below)
TDVRHB015	TDVRHB03
TDVRHB02	TDVRHB03
TDVRHB03	TDVRHB05

► See chart below for nozzles offered for sale which are manufactured by TURBODROP[®].

Part Number	Part Name	Nozzle Size	Color
418015	TDVRHB015	015	Green
418020	TDVRHB02	02	Yellow
418030	TDVRHB03	03	Blue
418050	TDVRHB05	05	Brown

• Each part number includes a single variable rate nozzle.

Appendix A

360 Y-DROP™ Sprayer Mount Packages

38	38	38	30	30	30	30	28	22	22	22	20	15	Spacing
24	16	12	32	24	16	12	32	36	32	24	36	48	Rows
76	51	38	80	60	40	30	75	66	59	44	60	60	Calculated Boom Feet
70	60	40	70	60	40	30	70	70	60	40	60	60	Y-Drop Boom Category
N/A	410506	410504	N/A	410506	410504	410503	N/A	N/A	410506	410504	410506	410506	JD 4830/4730
410517	410516	410514	410517	410516	410514	41513	410517	410517	410516	410514	410516	410516	JD 4930/4940
410527	410526	410524	410527	410526	410524	410523	410527	410527	410526	410524	410526	410526	JD R-Series 80, 90, 100' Boom
410537	410536	410534	410537	410536	410534	410533	410537	410537	410536	410534	410536	410536	JD R-Series 120' Booms
410547	410546	410544	410547	410546	410544	410543	410547	410547	410546	410544	410546	410546	Hagie STS Steel 80, 90, 100' Boom
410557	410556	410554	410557	410556	410554	410553	410557	410557	410556	410554	410556	410556	Hagie 120' Aluminum Boom
N/A	410636	410634	N/A	410636	410634	410633	N/A	N/A	410636	410634	410636	410636	Hagie DTS
N/A	410566	410564	N/A	410566	410564	410563	N/A	N/A	410566	410564	410566	410566	Case IH 120' Boom
N/A	410576	410574	N/A	410576	410574	410573	N/A	N/A	410576	410574	410576	410576	Case IH 80'-90' Boom
410587	410586	410584	410587	410586	410584	410583	410587	410587	410586	410584	410586	410586	Miller Nitro 2008+
410597	410596	410594	410597	410596	410594	410593	410597	410597	410596	410594	410596	410596	New Holland
410607	410606	410604	410607	410606	410604	410603	410607	410607	410606	410604	410606	410606	Miller Nitro pre 2008
N/A	410616	410614	N/A	410616	410614	410613	N/A	N/A	410616	410614	410616	410616	ROGATOR 80, 90, 100' Boom
N/A	410626	410624	N/A	410626	410624	410623	N/A	N/A	410626	410624	410626	410626	ROGATOR 120' Boom
N/A	410646	410644	N/A	410646	410644	410643	N/A	N/A	410646	410644	410646	410646	Apache 80, 90, 100' boom

Appendix B

Inch Corr	1	All Recon	imendation	s based o	n Water Sp	oecific Gra	wity					
		U	SE THIS	S CHA	RT INS	IDE NO	DZZLE	SELEC	ΓΙΟN -	30 INCI	HCORN	N
TDVRF	015											
Pressure	Flow	Ap	plication	n Rate	GPA a	t MPH	Based	on 15"	Spacin	l g (2 Nozz	les Per YD	ROP)
PSI	GPM	5	6	7	8	9	10	11	12	13	14	15
20	0.174	13.8	11.5	9.8	8.6	7.7	6.9	6.3	5.7	5.3	4.9	4.6
30	0.266	21.1	17.6	15.0	13.2	11.7	10.5	9.6	8.8	8.1	7.5	7.0
40	0.350	27.7	23.1	19.8	17.3	15.4	13.9	12.6	11.6	10.7	9.9	9.2
50	0.391	31.0	25.8	22.1	19.4	17.2	15.5	14.1	12.9	11.9	11.1	10.3
60	0.443	35.1	29.2	25.1	21.9	19.5	17.5	15.9	14.6	13.5	12.5	11.7
70	0.483	38.3	31.9	27.3	23.9	21.3	19.1	17.4	15.9	14.7	13.7	12.8
80 90	0.516	40.9 42.5	34.1 35.4	29.2 30.4	25.5 26.6	22.7 23.6	20.4 21.3	18.6 19.3	17.0 17.7	15.7 16.4	14.6 15.2	13.6
100	0.566	44.8	37.4	32.0	28.0	23.0	21.3	20.4	17.7	17.2	16.0	14.9
120	0.620	49.1	40.9	35.1	30.7	27.3	24.6	22.3	20.5	18.9	17.5	16.4
140	0.670	53.1	44.2	37.9	33.2	29.5	26.5	24.1	22.1	20.4	19.0	17.7
TDVR			<u> </u>		I		ļ	I	ļ	Į		
Pressure	Flow	Ap	plication	n Rate	GPA a	t MPH	Based	on 15"	Spacin	l g (2 Nozz	les Per YD	ROP)
PSI	GPM	5	6	7	8	9	10	11	12	13	14	15
20	0.251	19.9	16.6	14.2	12.4	11.0	9.9	9.0	8.3	7.6	7.1	6.6
30	0.384	30.4	25.3	21.7	19.0	16.9	15.2	13.8	12.7	11.7	10.9	10.1
40	0.512	40.6	33.8	29.0	25.3	22.5	20.3	18.4	16.9	15.6	14.5	13.5
50	0.575	45.5	38.0	32.5	28.5	25.3	22.8	20.7	19.0	17.5	16.3	15.2
60	0.653	51.7	43.1	36.9	32.3	28.7	25.9	23.5	21.5	19.9	18.5	17.2
70	0.696	55.1	45.9	39.4	34.5	30.6	27.6	25.1	23.0	21.2	19.7	18.4
80	0.744	58.9	49.1	42.1	36.8	32.7	29.5	26.8	24.6	22.7	21.0	19.6
90	0.779	61.7	51.4	44.1	38.6	34.3	30.8	28.0	25.7	23.7	22.0	20.6
100	0.821	65.0	54.2	46.4	40.6	36.1	32.5	29.6	27.1	25.0	23.2	21.7
120 140	0.900	71.3	59.4 64.2	50.9 55.0	44.6 48.1	39.6 42.8	35.6 38.5	32.4 35.0	29.7 32.1	27.4 29.6	25.5 27.5	23.8 25.7
		//.0	04.2	33.0	40.1	42.0	38.3	33.0	32.1	29.0	27.3	23.1
TDVR		Ap	plication	1 Rate	GPA a	t MPH	Based	on 15"	Spacin	g (2 Nozz	les Per YD	ROP)
Pressure	Flow		-			1		r	_	-		
PSI 20	GPM	5 25.8	6 21.5	7 18.4	8 16.1	9 14.3	10 12.9	11 11.7	12	13 9.9	14 9.2	15
30	0.326	39.0	32.5	27.8	24.4	21.6	12.9	11.7	10.8	9.9 15.0	13.9	8.6 13.0
40	0.492	52.4	43.6	37.4	32.7	29.1	26.2	23.8	21.8	20.1	18.7	17.5
50	0.739	58.5	48.8	41.8	36.6	32.5	29.3	26.6	24.4	22.5	20.9	19.5
60	0.825	65.3	54.5	46.7	40.8	36.3	32.7	29.7	27.2	25.1	23.3	21.8
70	0.885	70.1	58.4	50.1	43.8	38.9	35.0	31.9	29.2	27.0	25.0	23.4
80	0.943	74.7	62.2	53.3	46.7	41.5	37.3	33.9	31.1	28.7	26.7	24.9
90	1.000	79.2	66.0	56.6	49.5	44.0	39.6	36.0	33.0	30.5	28.3	26.4
100	1.054	83.5	69.6	59.6	52.2	46.4	41.7	37.9	34.8	32.1	29.8	27.8
120	1.154	91.4	76.2	65.3	57.1	50.8	45.7	41.5	38.1	35.2	32.6	30.5
140	1.247	98.8	82.3	70.5	61.7	54.9	49.4	44.9	41.2	38.0	35.3	32.9
TDVRI	1	An	plication	ı Rate	GPA a	t MPH	Based	on 15"	Spacin	9 (2 Nozz	les Per VD	ROPI
Pressure	Flow		-						_	-		
PSI 20	GPM 0.642	5 50.8	6 42.4	7 36.3	8 31.8	9 28.2	10 25.4	11 23.1	12 21.2	13 19.6	14 18.2	15 16.9
30	0.642	50.8 60.0	50.0	42.9	31.8	33.4	30.0	23.1	21.2	23.1	21.4	20.0
40	0.738	73.7	61.4	52.6	46.0	40.9	36.8	33.5	30.7	23.1	26.3	20.0
50	1.039	82.3	68.6	58.8	51.4	45.7	41.1	37.4	34.3	31.6	29.4	27.4
60	1.091	86.4	72.0	61.7	54.0	48.0	43.2	39.3	36.0	33.2	30.9	28.8
70	1.269	100.5	83.8	71.8	62.8	55.8	50.3	45.7	41.9	38.7	35.9	33.5
80	1.368	108.3	90.3	77.4	67.7	60.2	54.2	49.2	45.1	41.7	38.7	36.1
90	1.451	114.9	95.8	82.1	71.8	63.8	57.5	52.2	47.9	44.2	41.0	38.3
100	1.530	121.2	101.0	86.6	75.7	67.3	60.6	55.1	50.5	46.6	43.3	40.4
120	1.676	132.7	110.6	94.8	83.0	73.7	66.4	60.3	55.3	51.1	47.4	44.2
140	1.810	143.4	119.5	102.4	89.6	79.6	71.7	65.2	59.7	55.1	51.2	47.8

Most sprayers will allow lower application rates down to 15 PSI.

20 Inch Corn

20 Inch Corn											N
	THIS (CHART	FOR	INSIDI	E NUZ	LLE SE	ELECI	ION - 2	20 INC.		LIN .
TDVRF Pressure	F 015 Flow	Appl	ication R	Rate GPA	at MPH	Based o	on 10" Sr	acing (2	Nozzles	Per YDI	ROP)
	-			r			-				-
PSI	GPM	6 17.2	7 14.8	8 12.9	9 11.5	10 10.3	9.4	12	13	14	15
20 30	0.174 0.266	26.3	22.6	12.9	11.5	10.3	9.4	8.6 13.2	8.0 12.2	7.4	6.9
40	0.266	34.7	22.6	26.0	23.1	20.8	14.4	13.2	12.2	11.3	10.5
50	0.330	34.7	33.2	20.0	25.8	20.8	21.1	17.3	17.9	14.9	15.5
60	0.391	43.9	37.6	32.9	29.2	26.3	23.9	21.9	20.2	18.8	17.5
70	0.483	47.8	41.0	35.9	31.9	28.7	26.1	23.9	20.2	20.5	19.1
80	0.516	51.1	43.8	38.3	34.1	30.7	27.9	25.5	23.6	21.9	20.4
90	0.537	53.2	45.6	39.9	35.4	31.9	29.0	26.6	24.5	22.8	21.3
100	0.566	56.0	48.0	42.0	37.4	33.6	30.6	28.0	25.9	24.0	22.4
120	0.620	61.4	52.6	46.0	40.9	36.8	33.5	30.7	28.3	26.3	24.6
140	0.670	66.3	56.9	49.7	44.2	39.8	36.2	33.2	30.6	28.4	26.5
TDVRI	F 02										
Pressure	Flow	Appl	ication F	Rate GPA	at MPH	Based o	on 10" Sp	acing (2	Nozzles	Per YD	ROP)
PSI	GPM	6	7	8	9	10	11	12	13	14	15
20	0.251	24.8	21.3	18.6	16.6	14.9	13.6	12.4	11.5	10.6	9.9
30	0.384	38.0	32.6	28.5	25.3	22.8	20.7	19.0	17.5	16.3	15.2
40	0.512	50.7	43.4	38.0	33.8	30.4	27.6	25.3	23.4	21.7	20.3
50	0.575	56.9	48.8	42.7	38.0	34.2	31.1	28.5	26.3	24.4	22.8
60	0.653	64.6	55.4	48.5	43.1	38.8	35.3	32.3	29.8	27.7	25.9
70	0.696	68.9	59.1	51.7	45.9	41.3	37.6	34.5	31.8	29.5	27.6
80	0.744	73.7	63.1	55.2	49.1	44.2	40.2	36.8	34.0	31.6	29.5
90	0.779	77.1	66.1	57.8	51.4	46.3	42.1	38.6	35.6	33.1	30.8
90	0.772							40 C	25.5	24.0	22.5
100	0.821	81.3	69.7	61.0	54.2	48.8	44.3	40.6	37.5	34.8	32.5
		81.3 89.1	69.7 76.4	61.0 66.8	54.2 59.4	48.8 53.5	44.3 48.6	40.6	37.5 41.1	34.8 38.2	32.5
100	0.821 0.900 0.972										
100 120 140 TDVRI Pressure	0.821 0.900 0.972 F 03 F low	89.1 96.2	76.4 82.5	66.8 72.2	59.4 64.2	53.5 57.7	48.6 52.5	44.6 48.1	41.1 44.4 Nozzles	38.2 41.2 Per YDI	35.6 38.5 ROP)
100 120 140 TDVRI Pressure PSI	0.821 0.900 0.972 F 03 Flow GPM	89.1 96.2 Appl 6	76.4 82.5 ication R	66.8 72.2 Rate GPA	59.4 64.2 at MPH 9	53.5 57.7 Based o	48.6 52.5 on 10" Sp	44.6 48.1 pacing (2	41.1 44.4 Nozzles	38.2 41.2 Per YDI 14	35.6 38.5 ROP) 15
100 120 140 TDVRI Pressure PSI 20	0.821 0.900 0.972 F 03 Flow GPM 0.326	89.1 96.2 Appl 6 32.3	76.4 82.5 ication F 7 27.7	66.8 72.2 Rate GPA 8 24.2	59.4 64.2 • at MPH 9 21.5	53.5 57.7 Based o 10 19.4	48.6 52.5 n 10" Sp 11 17.6	44.6 48.1 pacing (2 12 16.1	41.1 44.4 Nozzles 13 14.9	38.2 41.2 Per YDI 14 13.8	35.6 38.5 ROP) 15 12.9
100 120 140 TDVRI Pressure PSI 20 30	0.821 0.900 0.972 F 03 Flow GPM 0.326 0.492	89.1 96.2 Appl 6 32.3 48.7	76.4 82.5 ication R 7 27.7 41.7	66.8 72.2 Rate GPA 8 24.2 36.5	59.4 64.2 at MPH 9 21.5 32.5	53.5 57.7 I Based o 10 19.4 29.2	48.6 52.5 n 10" Sp 11 17.6 26.6	44.6 48.1 bacing (2 12 16.1 24.4	41.1 44.4 Nozzles 13 14.9 22.5	38.2 41.2 Per YDI 14 13.8 20.9	35.6 38.5 ROP) 15 12.9 19.5
100 120 140 TDVRI Pressure PSI 20 30 40	0.821 0.900 0.972 F 03 Flow GPM 0.326 0.492 0.661	89.1 96.2 Appl 6 32.3 48.7 65.4	76.4 82.5 ication R 7 27.7 41.7 56.1	66.8 72.2 Rate GPA 8 24.2 36.5 49.1	59.4 64.2 at MPH 9 21.5 32.5 43.6	53.5 57.7 I Based o 10 19.4 29.2 39.3	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7	44.6 48.1 bacing (2 12 16.1 24.4 32.7	41.1 44.4 Nozzles 13 14.9 22.5 30.2	38.2 41.2 Per YDI 14 13.8 20.9 28.0	35.6 38.5 ROP) 15 12.9 19.5 26.2
100 120 140 TDVRI Pressure PSI 20 30 40 50	0.821 0.900 0.972 F 03 Flow GPM 0.326 0.492 0.661 0.739	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9	59.4 64.2 at MPH 9 21.5 32.5 43.6 48.8	53.5 57.7 I Based o 10 19.4 29.2 39.3 43.9	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9	44.6 48.1 bacing (2 12 16.1 24.4 32.7 36.6	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8	38.2 41.2 Per YDI 14 13.8 20.9 28.0 31.4	35.6 38.5 ROP) 15 12.9 19.5 26.2 29.3
100 120 140 TDVRI Pressure PSI 20 30 40 50 60	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825	89.1 96.2 6 32.3 48.7 65.4 73.2 81.7	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3	59.4 64.2 at MPH 9 21.5 32.5 43.6 48.8 54.5	53.5 57.7 I Based o 10 19.4 29.2 39.3 43.9 49.0	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9 44.6	44.6 48.1 0acing (2 12 16.1 24.4 32.7 36.6 40.8	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7	38.2 41.2 Per YDI 14 13.8 20.9 28.0 31.4 35.0	35.6 38.5 ROP) 15 12.9 19.5 26.2 29.3 32.7
100 120 140 TDVRI Pressure PSI 20 30 40 50	0.821 0.900 0.972 F 03 Flow GPM 0.326 0.492 0.661 0.739	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9	59.4 64.2 at MPH 9 21.5 32.5 43.6 48.8	53.5 57.7 I Based o 10 19.4 29.2 39.3 43.9	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9	44.6 48.1 bacing (2 12 16.1 24.4 32.7 36.6	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8	38.2 41.2 Per YDI 14 13.8 20.9 28.0 31.4	35.6 38.5 ROP) 15 12.9 19.5 26.2 29.3
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825 0.885	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7	59.4 64.2 at MPH 9 21.5 32.5 43.6 48.8 54.5 58.4	53.5 57.7 I Based o 10 19.4 29.2 39.3 43.9 49.0 52.6	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9 44.6 47.8	44.6 48.1 0acing (2 12 16.1 24.4 32.7 36.6 40.8 43.8	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4	38.2 41.2 Per YDI 14 13.8 20.9 28.0 31.4 35.0 37.5	35.6 38.5 ROP) 15 12.9 19.5 26.2 29.3 32.7 35.0
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0	59.4 64.2 at MPH 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2	53.5 57.7 I Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9	44.6 48.1 0acing (2 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1	38.2 41.2 Per YDI 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0	35.6 38.5 ROP) 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90	0.821 0.900 0.972 F 03 Flow GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943 1.000	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3 114.2	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4 97.9	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3	59.4 64.2 at MPH 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0	53.5 57.7 I Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0	44.6 48.1 0acing (2 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7	38.2 41.2 Per YDI 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4	35.6 38.5 ROP) 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90 100	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943 1.000 1.054	89.1 96.2 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3 78.3	59.4 64.2 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0 69.6	53.5 57.7 I Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4 62.6	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0 56.9	44.6 48.1 0acing (2 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5 52.2	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7 48.2	38.2 41.2 Per YDI 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4 44.7	35.6 38.5 ROP) 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6 41.7
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90 100 120 140	0.821 0.900 0.972 Flow GPM 0.326 0.492 0.661 0.739 0.825 0.943 1.000 1.054 1.154 1.247	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3 114.2	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4 97.9	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3 78.3 85.7	59.4 64.2 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0 69.6 76.2	53.5 57.7 I Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4 62.6 68.5	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0 56.9 62.3	44.6 48.1 0acing (2 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5 52.2 57.1	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7 48.2 52.7	38.2 41.2 Per YDI 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4 44.7 49.0	35.6 38.5 ROP) 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6 41.7 45.7
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90 100 120 140 TDVRI	0.821 0.900 0.972 F 03 Flow GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943 1.000 1.054 1.154 1.247	89.1 96.2 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3 114.2 123.5	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4 97.9 105.8	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3 78.3 85.7 92.6	59.4 64.2 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0 69.6 76.2 82.3	53.5 57.7 I Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4 62.6 68.5 74.1	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0 56.9 62.3 67.3	44.6 48.1 2000 (2) 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5 52.2 57.1 61.7	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7 48.2 52.7 57.0	38.2 41.2 Per YDI 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4 44.7 49.0 52.9	35.6 38.5 ROP) 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6 41.7 45.7 49.4
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90 100 120 120 140 TDVRI Pressure	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943 1.000 1.054 1.154 1.247 F 05 F low	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3 114.2 123.5 Appl	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4 97.9 105.8 ication R	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3 78.3 85.7 92.6 Rate GPA	59.4 64.2 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0 69.6 76.2 82.3	53.5 57.7 I Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4 62.6 68.5 74.1	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0 56.9 62.3 67.3 67.3 n 10" Sp	44.6 48.1 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5 52.2 57.1 61.7 bacing (2	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7 48.2 52.7 57.0 Nozzles	38.2 41.2 Per YDJ 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4 44.7 49.0 52.9 Per YDJ	35.6 38.5 ROP) 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6 41.7 45.7 49.4 ROP)
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90 100 120 120 140 TDVRI Pressure PSI	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943 1.000 1.054 1.154 1.247 F 05 F low GPM	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3 114.2 123.5 Appl 6	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4 97.9 105.8 ication R 7	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3 78.3 85.7 92.6 Rate GPA 8	59.4 64.2 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0 69.6 76.2 82.3 43.6 48.8 54.5 58.4 62.2 66.0 69.6 76.2 82.3	53.5 57.7 Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4 62.6 68.5 74.1 Based o 10	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0 56.9 62.3 67.3 67.3 n 10" Sp 11	44.6 48.1 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5 52.2 57.1 61.7 0 acing (2 12	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7 48.2 52.7 57.0 Nozzles 13	38.2 41.2 Per YDI 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4 44.7 49.0 52.9 Per YDI 14	35.6 38.5 ROP) 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6 41.7 45.7 49.4 ROP) 15
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90 100 120 120 140 TDVRI Pressure PSI 20	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943 1.000 1.054 1.154 1.247 F 05 F low GPM 0.642	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3 114.2 123.5 Appl 6 6 63.6	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4 97.9 105.8 ication R 7 54.5	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3 78.3 85.7 92.6 Rate GPA 8 47.7	59.4 64.2 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0 69.6 76.2 82.3 at MPH 9 42.4	53.5 57.7 I Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4 62.6 68.5 74.1 I Based o 10 38.1	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0 56.9 62.3 67.3 67.3 67.3 67.3	44.6 48.1 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5 52.2 57.1 61.7 0acing (2 12 31.8	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7 48.2 52.7 57.0 Nozzles 13 29.3	38.2 41.2 Per YDJ 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4 44.7 49.0 52.9 Per YDJ 14 27.2	35.6 38.5 ROP) 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6 41.7 45.7 49.4 ROP) 15 25.4
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90 100 120 120 140 TDVRI Pressure PSI 20 30	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943 1.000 1.054 1.154 1.247 F 05 F low GPM 0.642 0.758	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3 114.2 123.5 Appl 6 6 63.6 75.0	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4 97.9 105.8 ication R 7 54.5 64.3	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3 78.3 85.7 92.6 Rate GPA 8 47.7 56.3	59.4 64.2 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0 69.6 76.2 82.3 at MPH 9 42.4 50.0	53.5 57.7 Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4 62.6 68.5 74.1 Based o 10 38.1 45.0	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0 56.9 62.3 67.3 67.3 67.3 67.3 11 34.7 40.9	44.6 48.1 pacing (2 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5 52.2 57.1 61.7 pacing (2 12 31.8 37.5	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7 48.2 52.7 57.0 Nozzles 13 29.3 34.6	38.2 41.2 Per YDI 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4 44.7 49.0 52.9 Per YDI 14 27.2 32.2	35.6 38.5 (OP) 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6 41.7 45.7 49.4 (OP) 15 25.4 30.0
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90 100 120 140 120 140 TDVRI Pressure PSI 20 30 40	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943 1.000 1.054 1.154 1.247 F 05 F low GPM 0.642 0.758 0.930	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3 114.2 123.5 Appl 6 6 63.6 75.0 92.1	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4 97.9 105.8 ication R 7 54.5 64.3 78.9	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3 78.3 85.7 92.6 Rate GPA 8 47.7 56.3 69.1	59.4 64.2 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0 69.6 76.2 82.3 4 x MPH 9 42.4 50.0 61.4	53.5 57.7 Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4 62.6 68.5 74.1 Based o 10 38.1 45.0 55.2	48.6 52.5 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0 56.9 62.3 67.3 67.3 67.3 11 34.7 40.9 50.2	44.6 48.1 pacing (2 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5 52.2 57.1 61.7 bacing (2 12 31.8 37.5 46.0	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7 48.2 52.7 57.0 Nozzles 13 29.3 34.6 42.5	38.2 41.2 Per YDI 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4 44.7 49.0 52.9 Per YDI 14 27.2 32.2 39.5	35.6 38.5 (OP) 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6 41.7 45.7 49.4 (OP) 15 25.4 30.0 36.8
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90 100 120 140 120 140 TDVRI Pressure PSI 20 30 40 50	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943 1.000 1.054 1.154 1.247 F 05 F low GPM 0.642 0.758 0.930 1.039	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3 114.2 123.5 Appl 6 6 63.6 75.0 92.1 102.9	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4 97.9 105.8 ication R 7 54.5 64.3 78.9 88.2	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3 78.3 85.7 92.6 Rate GPA 8 47.7 56.3 69.1 77.1	59.4 64.2 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0 69.6 76.2 82.3 4 at MPH 9 42.4 50.0 61.4 68.6	53.5 57.7 Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4 62.6 68.5 74.1 Based o 10 38.1 45.0 55.2 61.7	48.6 52.5 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0 56.9 62.3 67.3 67.3 67.3 11 34.7 40.9 50.2 56.1	44.6 48.1 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5 52.2 57.1 61.7 0 acing (2 12 31.8 37.5 46.0 51.4	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7 48.2 52.7 57.0 Nozzles 13 29.3 34.6 42.5 47.5	38.2 41.2 Per YDI 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4 44.7 49.0 52.9 Per YDI 14 27.2 32.2 39.5 44.1	35.6 38.5 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6 41.7 45.7 49.4 ROP) 15 25.4 30.0 36.8 41.1
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90 100 120 120 140 TDVRI Pressure PSI 20 30 40 50 60	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943 1.000 1.054 1.154 1.247 F 05 F low GPM 0.642 0.758 0.930 1.039 1.091	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3 114.2 123.5 Appl 6 6 63.6 75.0 92.1 102.9 108.0	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4 97.9 105.8 ication R 7 54.5 64.3 78.9 88.2 92.6	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3 78.3 85.7 92.6 Rate GPA 8 47.7 56.3 69.1 77.1 81.0	59.4 64.2 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0 69.6 76.2 82.3 4 at MPH 9 42.4 50.0 61.4 68.6 72.0	53.5 57.7 Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4 62.6 68.5 74.1 Based o 10 38.1 45.0 55.2 61.7 64.8	48.6 52.5 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0 56.9 62.3 67.3 67.3 67.3 7 11 34.7 40.9 50.2 56.1 58.9	44.6 48.1 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5 52.2 57.1 61.7 0 acing (2 12 31.8 37.5 46.0 51.4 54.0	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7 48.2 52.7 57.0 Nozzles 13 29.3 34.6 42.5 47.5 49.9	38.2 41.2 Per YDI 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4 44.7 49.0 52.9 Per YDI 14 27.2 32.2 39.5 44.1 46.3	35.6 38.5 38.5 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6 41.7 45.7 49.4 ROP) 15 25.4 30.0 36.8 41.1 43.2
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90 100 120 140 120 140 TDVRI Pressure PSI 20 30 40 50 60 70	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943 1.000 1.054 1.154 1.247 F 05 Flow GPM 0.642 0.758 0.930 1.039 1.091 1.269	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3 114.2 123.5 Appl 6 6 63.6 75.0 92.1 102.9 108.0 125.6	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4 97.9 105.8 ication R 7 54.5 64.3 78.9 88.2 92.6 107.7	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3 78.3 85.7 92.6 Rate GPA 8 47.7 56.3 69.1 77.1 81.0 94.2	59.4 64.2 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0 69.6 76.2 82.3 at MPH 9 42.4 50.0 61.4 68.6 72.0 83.8	53.5 57.7 Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4 62.6 68.5 74.1 Based o 10 38.1 45.0 55.2 61.7 64.8 75.4	48.6 52.5 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0 56.9 62.3 67.3 67.3 67.3 7 11 34.7 40.9 50.2 56.1 58.9 68.5	44.6 48.1 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5 52.2 57.1 61.7 0 acing (2 12 31.8 37.5 46.0 51.4 54.0 62.8	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7 48.2 52.7 57.0 Nozzles 13 29.3 34.6 42.5 47.5 49.9 58.0	38.2 41.2 Per YDI 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4 44.7 49.0 52.9 Per YDI 14 27.2 32.2 39.5 44.1 46.3 53.8	35.6 38.5 38.5 ROP) 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6 41.7 45.7 49.4 ROP) 15 25.4 30.0 36.8 41.1 43.2 50.3
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90 100 120 140 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90 100 120 140	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943 1.000 1.054 1.154 1.247 F 05 F low GPM 0.642 0.758 0.930 1.039 1.091 1.269 1.368	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3 114.2 123.5 Appl 6 6 63.6 75.0 92.1 102.9 108.0 125.6 135.4	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4 97.9 105.8 ication R 7 54.5 64.3 78.9 88.2 92.6 107.7 116.1	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3 78.3 85.7 92.6 Rate GPA 8 47.7 56.3 69.1 77.1 81.0 94.2 101.6	59.4 64.2 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0 69.6 76.2 82.3 at MPH 9 42.4 50.0 61.4 68.6 72.0 83.8 90.3	53.5 57.7 Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4 62.6 68.5 74.1 Based o 10 38.1 45.0 55.2 61.7 64.8 75.4 81.3	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0 56.9 62.3 67.3 67.3 67.3 67.3 67.3 67.3 73.9	44.6 48.1 pacing (2 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5 52.2 57.1 61.7 61.7 52.2 57.1 61.7 61.7 52.2 57.1 61.7 61.	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7 48.2 52.7 57.0 Nozzles 13 29.3 34.6 42.5 47.5 49.9 58.0 62.5	38.2 41.2 Per YDJ 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4 44.7 49.0 52.9 Per YDJ 14 27.2 32.2 39.5 44.1 46.3 53.8 58.0	35.6 38.5 38.5 ROP) 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6 41.7 45.7 49.4 ROP) 15 25.4 30.0 36.8 41.1 43.2 50.3 54.2
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90 100 120 140 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943 1.000 1.054 1.154 1.247 F 05 F low GPM 0.642 0.758 0.930 1.039 1.091 1.269 1.368 1.451	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3 114.2 123.5 Appl 6 6 63.6 75.0 92.1 102.9 108.0 125.6 135.4 143.6	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4 97.9 105.8 ication R 7 54.5 64.3 78.9 88.2 92.6 107.7 116.1 123.1	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3 78.3 85.7 92.6 Rate GPA 8 47.7 56.3 69.1 77.1 81.0 94.2 101.6 107.7	59.4 64.2 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0 69.6 76.2 82.3 4 82.3 4 8.2 82.3 90.3 95.8	53.5 57.7 Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4 62.6 68.5 74.1 Based o 10 38.1 45.0 55.2 61.7 64.8 75.4 81.3 86.2	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0 56.9 62.3 67.3 67.3 67.3 67.3 67.3 67.3 73.9 11 34.7 40.9 50.2 56.1 58.9 68.5 73.9 78.4	44.6 48.1 pacing (2 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5 52.2 57.1 61.7 61.7 52.2 57.1 61.7 61.7 52.2 57.1 61.7 61.7 61.7 61.7 61.7 61.7 61.7 71.8	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7 48.2 52.7 57.0 Nozzles 13 29.3 34.6 42.5 47.5 49.9 58.0 62.5 66.3	38.2 41.2 Per YDJ 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4 44.7 49.0 52.9 Per YDJ 14 27.2 32.2 39.5 44.1 46.3 53.8 58.0 61.6	35.6 38.5 38.5 ROP) 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6 41.7 45.7 49.4 ROP) 15 25.4 30.0 36.8 41.1 43.2 50.3 54.2 57.5
100 120 140 Pressure PSI 20 30 40 50 60 70 80 90 100 120 140 120 140 Pressure PSI 20 30 40 50 60 70 80 90 100	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943 1.000 1.054 1.154 1.247 F 05 F low GPM 0.642 0.758 0.930 1.039 1.091 1.269 1.368 1.451 1.530	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3 114.2 123.5 Appl 6 6 63.6 75.0 92.1 102.9 108.0 125.6 135.4 143.6 151.5	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4 97.9 105.8 ication R 7 54.5 64.3 78.9 88.2 92.6 107.7 116.1 123.1 129.8	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3 78.3 85.7 92.6 Rate GPA 8 47.7 56.3 69.1 77.1 81.0 94.2 101.6 107.7 113.6	59.4 64.2 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0 69.6 76.2 82.3 4 82.3 4 8.2 82.3 90.6 76.2 82.3 90.3 95.8 101.0	53.5 57.7 Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4 62.6 68.5 74.1 Based o 10 38.1 45.0 55.2 61.7 64.8 75.4 81.3 86.2 90.9	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0 56.9 62.3 67.3 67.3 67.3 67.3 67.3 67.3 67.3 67	44.6 48.1 pacing (2 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5 52.2 57.1 61.7 61.7 52.2 57.1 61.7 61.7 52.2 57.1 61.7 61.7 61.7 61.7 61.7 71.8 75.7	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7 48.2 52.7 57.0 Nozzles 13 29.3 34.6 42.5 47.5 49.9 58.0 62.5 66.3 69.9	38.2 41.2 Per YDJ 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4 44.7 49.0 52.9 Per YDJ 14 27.2 32.2 39.5 44.1 46.3 53.8 58.0 61.6 64.9	35.6 38.5 38.5 ROP) 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6 41.7 45.7 49.4 ROP) 15 25.4 30.0 36.8 41.1 43.2 50.3 54.2 57.5 60.6
100 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90 100 120 140 120 140 TDVRI Pressure PSI 20 30 40 50 60 70 80 90	0.821 0.900 0.972 F 03 F low GPM 0.326 0.492 0.661 0.739 0.825 0.885 0.943 1.000 1.054 1.154 1.247 F 05 F low GPM 0.642 0.758 0.930 1.039 1.091 1.269 1.368 1.451	89.1 96.2 Appl 6 32.3 48.7 65.4 73.2 81.7 87.6 93.4 99.0 104.3 114.2 123.5 Appl 6 6 63.6 75.0 92.1 102.9 108.0 125.6 135.4 143.6	76.4 82.5 ication R 7 27.7 41.7 56.1 62.7 70.0 75.1 80.0 84.9 89.4 97.9 105.8 ication R 7 54.5 64.3 78.9 88.2 92.6 107.7 116.1 123.1	66.8 72.2 Rate GPA 8 24.2 36.5 49.1 54.9 61.3 65.7 70.0 74.3 78.3 85.7 92.6 Rate GPA 8 47.7 56.3 69.1 77.1 81.0 94.2 101.6 107.7	59.4 64.2 9 21.5 32.5 43.6 48.8 54.5 58.4 62.2 66.0 69.6 76.2 82.3 4 82.3 4 8.2 82.3 90.3 95.8	53.5 57.7 Based o 10 19.4 29.2 39.3 43.9 49.0 52.6 56.0 59.4 62.6 68.5 74.1 Based o 10 38.1 45.0 55.2 61.7 64.8 75.4 81.3 86.2	48.6 52.5 n 10" Sp 11 17.6 26.6 35.7 39.9 44.6 47.8 50.9 54.0 56.9 62.3 67.3 67.3 67.3 67.3 67.3 67.3 73.9 11 34.7 40.9 50.2 56.1 58.9 68.5 73.9 78.4	44.6 48.1 pacing (2 12 16.1 24.4 32.7 36.6 40.8 43.8 46.7 49.5 52.2 57.1 61.7 61.7 52.2 57.1 61.7 61.7 52.2 57.1 61.7 61.7 61.7 61.7 61.7 61.7 61.7 71.8	41.1 44.4 Nozzles 13 14.9 22.5 30.2 33.8 37.7 40.4 43.1 45.7 48.2 52.7 57.0 Nozzles 13 29.3 34.6 42.5 47.5 49.9 58.0 62.5 66.3	38.2 41.2 Per YDJ 14 13.8 20.9 28.0 31.4 35.0 37.5 40.0 42.4 44.7 49.0 52.9 Per YDJ 14 27.2 32.2 39.5 44.1 46.3 53.8 58.0 61.6	35.6 38.5 38.5 ROP) 15 12.9 19.5 26.2 29.3 32.7 35.0 37.3 39.6 41.7 45.7 49.4 ROP) 15 25.4 30.0 36.8 41.1 43.2 50.3 54.2 57.5

Most sprayers will allow lower application rates down to 15 PSI.

Spraying Liquids with a Density other than Water

Since all tabulations we have computed are based on spraying water, which weighs 8.34 lbs per USA gallon (1 kilogram per liter) conversion factors must be used when spraying liquids that are heavier or lighter than water. To determine the proper size nozzle for the liquid to be sprayed, first multiply the desired GPM or GPA of liquid by the water rate conversion factor. Then use the new converted GPM or GPA rate to select the proper size nozzle.

Example:

Desired application rate is 20 GPA of 28% N. Determine the correct nozzle size as follows:

GPA (liquid other than water) x Conversion Factor = GPA

20 GPA (28%) x 1.13 = 22.6 GPA (water)

The applicator should choose a nozzle size that will supply 22.6 GPA of water at the desired pressure.

Weight of Solution	Specific Gravity	Conversion Factor
7.0 lbs/gal.	.84	.92
8.0 lbs/gal.	.96	.88
8.34 lbs/gal.	1.00 - WATER	1.00
9.0 lbs/gal.	1.08	1.04
10.0 lbs/gal.	1.20	1.10
10.65 lbs/gal.	1.28 - 28% nitrogen	1.13
11.0 lbs/gal.	1.32	1.15
12.0 lbs/gal.	1.44	1.20
14.0 lbs/gal.	1.68	1.30