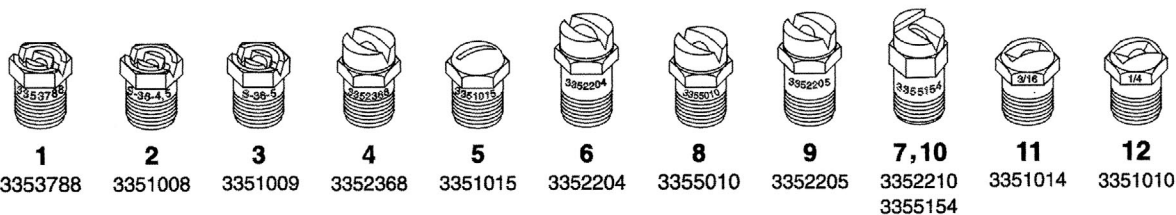


Nozzle Application Charts



Ref.	Part No.	Description	Application Gallons Per Square Yard	Application (Metric) Liters Per Square Meter	US Flow Gallons Per Minute Per Foot
1	3353788	V Slot Tack Nozzle 1/8" Rifle Bored	.05 – .20	.23 – 0.91	3.0 – 4.5
	3351013*	V Slot Tack Nozzle 1/16" Coin Slot	.05 – .20	.23 – 0.91	3.0 – 4.5
	3354904	V Slot Tack Nozzle 1/8" Counterbored	.05 – .20	.23 – 0.91	3.0 – 4.5
2	3351008	S36-4 V Slot	.10 – .35	.45 – 1.58	4.0 to 7.5
3	3351009	S36-5 V Slot	.18 – .45	.81 – 2.04	7.0 to 10.0
4	3352368	Multi-Material V Slot	.15 – .40	.68 – 1.81	6.0 to 9.0
5	3351015	3/32" Coin Slot	.15 – .40	.68 – 1.81	6.0 to 9.0
6	3352204	Multi-Material V Slot	.35 – .95	1.58 – 4.30	12.0 to 21.0
7	3355154	End Nozzle (use with 3352204 nozzle)	.35 – .95	1.58 – 4.30	12.0 to 21.0
8	3355010	Multi-Material V Slot	.29 – .72	1.31 – 3.26	10.0 – 16.5
9	3352205	Multi-Material V Slot	.20 – .55	.91 – 2.49	7.5 to 12.0
10	3352210	End Nozzle (use with 3352205 nozzle)	.20 – .55	.91 – 2.49	7.5 to 12.0
11	3351014	3/16" Coin Slot	.35 – .95	1.58 – 4.30	12.0 to 21.0
12	3351010	1/4" Coin Slot	.40 – 1.10	1.81 – 4.98	15.0 to 24.0

* Special Order



E. D. ETNYRE & CO.

Oregon, Illinois 61061

Phone: 815/732-2116

www.etnyre.com

RPM, Nozzles and Adjustments

Engine RPM

In addition to knowing the correct GPM per foot of spraybar and the total GPM for each nozzle size, another key factor that needs to be considered is engine RPM.

Engine RPM is a critical factor for application and pump systems to operate correctly. *Maximum RPM* is 1200–1500 RPM. *Minimum RPM* is 800–1000 RPM. The exception to this rule would be when ready to spray, the truck will be at idle.

Recommended normal operating ranges for light tack application rates .010 to .20, is 800 to 1000 RPM. Heavier prime to chipseal rates .250 to .550, is 1200 to 1500 RPM.,

If RPM is too high, go to a higher gear. If RPM is too low, go to a lower gear.

GPM output is dictated by truck speed.

Automatic transmission may have to be locked out in lower ranges to allow truck to go faster without needing to shift. Two-speed rear differentials (if equipped) may have to be put in high range to lower engine RPM.

Never exceed 1800 RPM, the pump system could surge or pulsate.

Spray Bar Nozzle Flow Range

Spray bar nozzles have a limited flow range at which optimal performance will be achieved. Flow rates greater than this optimal range will cause excessive fogging. Rates that are too low will cause the fan to sag and cause heavy edges. Refer to the nozzle selection chart to select the nozzles appropriate for your conditions.

IMPORTANT

Exceeding maximum nozzle application rate will result in improper application of product.

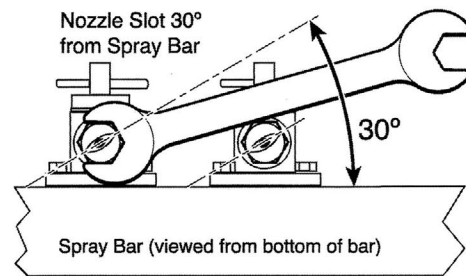
In addition to the information in this document, there are three other resources available to assist you.

1. Slide rule pump computator (#3390408).
2. An electronic interactive link or the pump computator can be found on our website etnyre.com.
3. A smart phone app (Etnyre pump computator) is available at the appropriate app store for your smart phone service provider.

The tools listed above can be used to help understand and figure out the appropriate speed required (feet per minute), and the needed asphalt pump rate output (gallons per minute) to create the correct amount of material output, and achieve the application rates desired.

Adjusting the Spray Bar Nozzle Angle

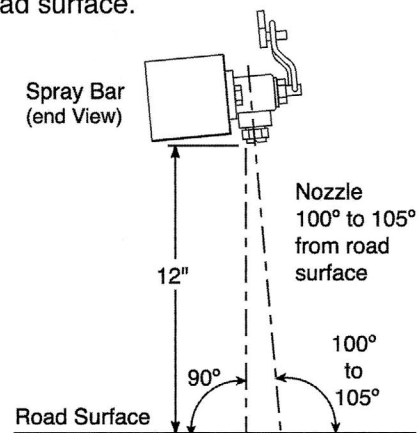
Adjust the nozzles to obtain an angle of approximately 30 degrees with the spraybar center line. Every nozzle should be at the same angle. A nozzle adjustment wrench is supplied with each new unit.



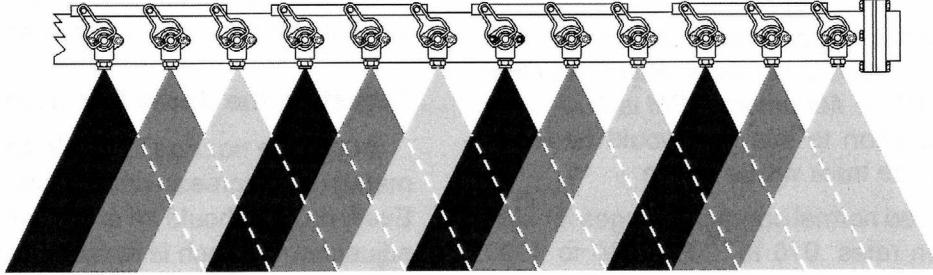
Adjusting the Spray Bar Height

With both wings folded and the tank empty, lower the spraybar and adjust the down stops so that the nozzles on the main bar are approximately 12 inches above the road. At this height, the spray fans from the nozzles will overlap to provide triple lap coverage of material on the ground. This is the normal spraying height. Lower the wings and adjust them with the cylinder nuts to follow the crown of the road.

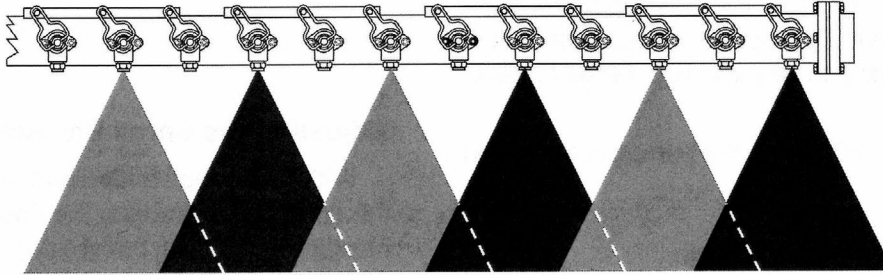
The spraybar should be at an angle of 100 to 105 degrees with the surface of the road when viewed across the road. This slight rearward trajectory compensates for the forward movement of the distributor to evenly coat the front and back sides of projections on the road surface.



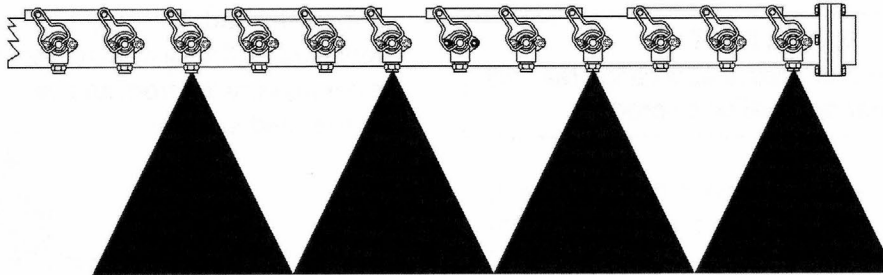
Adjust the GPM for number of nozzles used



All nozzles: use the GPM shown on charts.



Every other nozzle: GPM should be one half ($1/2$) the GPM shown on charts.



One nozzle per foot: GPM should be one third ($1/3$) the GPM shown on charts.

- 3351013 Etnyre 1/16" Coin Slot Nozzle (Special Order) App Rate .05 - .20**
- 3353788 Etnyre V Slot Tack Nozzle 1/8" Rifle Bored App Rate .05 - .20**
- 3354904 Etnyre V Slot Tack Nozzle 1/8" Counterbored App Rate .05 - .20**

Drive Distributor to achieve GPM between Min and Max for Application accuracy

# of Feet	Min GPM	Max GPM	# of Feet	Min GPM	Max GPM
1	3	4.5	13	39	58
2	6	9	14	42	63
3	9	13	15	45	67
4	12	18	16	48	72
5	15	22	17	51	76
6	18	27	18	54	81
7	21	31	19	57	85
8	24	36	20	60	90
9	27	40	21	63	94
10	30	45	22	66	99
11	33	49	23	69	103
12	36	54	24	72	108

METRIC

- 3351013 Etnyre 1/16" Coin Slot Nozzle (Special Order) App Rate .23 - .90**
- 3353788 Etnyre V Slot Tack Nozzle 1/8" Rifle Bored App Rate .23 - .90**
- 3354904 Etnyre V Slot Tack Nozzle 1/8" Counterbored App Rate .23 - .90**

Drive Distributor to achieve Lt/min between Min and Max for Application accuracy

# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum	# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum
1	0.304	11	17	13	3.963	148	220
2	0.609	23	34	14	4.268	159	238
3	0.914	34	49	15	4.573	170	254
4	1.219	45	68	16	4.878	182	273
5	1.524	57	83	17	5.182	193	288
6	1.829	68	102	18	5.487	204	307
7	2.134	79	117	19	5.792	216	322
8	2.439	91	136	20	6.097	227	341
9	2.743	102	151	21	6.402	238	356
10	3.048	114	170	22	6.707	250	375
11	3.353	125	185	23	7.012	261	390
12	3.658	136	204	24	7.317	273	409

3351008 Etnyre S36-4 V Slot Nozzle**App Rate .10 - .35**

Drive Distributor to achieve GPM between Min and Max for Application accuracy

# of Feet	Min GPM	Max GPM	# of Feet	Min GPM	Max GPM
1	4	7.5	13	52	97
2	8	15	14	56	105
3	12	22	15	60	112
4	16	30	16	64	120
5	20	37	17	68	127
6	24	45	18	72	135
7	28	52	19	76	142
8	32	60	20	80	150
9	36	67	21	84	157
10	40	75	22	88	165
11	44	82	23	92	172
12	48	90	24	96	180

METRIC**3351008 Etnyre S36-4 V Slot Nozzle****App Rate .45-1.60**

Drive Distributor to achieve Lt/min between Min and Max for Application accuracy

# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum	# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum
1	0.304	15	28	13	3.963	197	367
2	0.609	30	57	14	4.268	212	397
3	0.914	45	83	15	4.573	227	424
4	1.219	61	114	16	4.878	242	454
5	1.524	76	140	17	5.182	257	481
6	1.829	91	170	18	5.487	273	511
7	2.134	106	197	19	5.792	288	537
8	2.439	121	227	20	6.097	303	568
9	2.743	136	254	21	6.402	318	594
10	3.048	151	284	22	6.707	333	625
11	3.353	167	310	23	7.012	348	651
12	3.658	181	341	24	7.317	363	681

3351009 Etnyre S36-5 V Slot Nozzle**App Rate .18 - .45**

Drive Distributor to achieve GPM between Min and Max for Application accuracy

# of Feet	Min GPM	Max GPM	# of Feet	Min GPM	Max GPM
1	7	10	13	91	130
2	14	20	14	98	140
3	21	30	15	105	150
4	28	40	16	112	160
5	35	50	17	119	170
6	42	60	18	126	180
7	49	70	19	133	190
8	56	80	20	140	200
9	63	90	21	147	210
10	70	100	22	154	220
11	77	110	23	161	230
12	84	120	24	168	240

METRIC**3351009 Etnyre 536-5 V Slot Nozzle****App Rate .82 - 2.00**

Drive Distributor to achieve Lt/min between Min and Max for Application accuracy

# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum	# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum
1	0.304	26	38	13	3.963	344	492
2	0.609	53	76	14	4.268	371	530
3	0.914	79	114	15	4.573	397	568
4	1.219	106	151	16	4.878	424	606
5	1.524	132	189	17	5.182	450	644
6	1.829	159	227	18	5.487	477	681
7	2.134	185	265	19	5.792	503	719
8	2.439	212	303	20	6.097	530	757
9	2.743	238	341	21	6.402	556	795
10	3.048	265	379	22	6.707	583	833
11	3.353	291	416	23	7.012	609	871
12	3.658	318	454	24	7.317	636	908

3352368 Etnyre Multi-Material V Slot Nozzle**App Rate 15 - .40**

Drive Distributor to achieve GPM between Min and Max for Application accuracy

# of Feet	Min GPM	Max GPM	# of Feet	Min GPM	Max GPM
1	6	9	13	78	117
2	12	18	14	84	126
3	18	27	15	90	135
4	24	36	16	96	144
5	30	45	17	102	153
6	36	54	18	108	162
7	42	63	19	114	171
8	48	72	20	120	180
9	54	81	21	126	189
10	60	90	22	132	198
11	66	99	23	138	207
12	72	108	24	144	216

METRIC**3352368 Etnyre Multi-Material V Slot Nozzle****App Rate .68 - 1.80**

Drive Distributor to achieve Lt/min between Min and Max for Application accuracy

# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum	# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum
1	0.304	23	34	13	3.963	295	443
2	0.609	45	68	14	4.268	318	477
3	0.914	68	102	15	4.573	341	511
4	1.219	91	136	16	4.878	363	545
5	1.524	114	170	17	5.182	386	579
6	1.829	136	204	18	5.487	409	613
7	2.134	159	238	19	5.792	432	647
8	2.439	182	273	20	6.097	454	681
9	2.743	204	307	21	6.402	477	715
10	3.048	227	341	22	6.707	500	750
11	3.353	250	375	23	7.012	522	784
12	3.658	273	409	24	7.317	545	818

3351015 Etnyre 3/32 Coin Slot Nozzle**App Rate .15 - .40**

Drive Distributor to achieve GPM between Min and Max for Application accuracy

# of Feet	Min GPM	Max GPM	# of Feet	Min GPM	Max GPM
1	6	9	13	78	117
2	12	18	14	84	126
3	18	27	15	90	135
4	24	36	16	96	144
5	30	45	17	102	153
6	36	54	18	108	162
7	42	63	19	114	171
8	48	72	20	120	180
9	54	81	21	126	189
10	60	90	22	132	198
11	66	99	23	138	207
12	72	108	24	144	216

METRIC**3351015 Etnyre 3/32 Coin Slot Nozzle****App Rate .68 - 1.80**

Drive Distributor to achieve Lt/min between Min and Max for Application accuracy

# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum	# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum
1	0.304	23	34	13	3.963	295	443
2	0.609	45	68	14	4.268	318	477
3	0.914	68	102	15	4.573	341	511
4	1.219	91	136	16	4.878	363	545
5	1.524	114	170	17	5.182	386	579
6	1.829	136	204	18	5.487	409	613
7	2.134	159	238	19	5.792	432	647
8	2.439	182	273	20	6.097	454	681
9	2.743	204	307	21	6.402	477	715
10	3.048	227	341	22	6.707	500	750
11	3.353	250	375	23	7.012	522	784
12	3.658	273	409	24	7.317	545	818

**3352204 Etnyre Multi-Material VSlot
(Emulsion Products)**

App Rate .35 - .95

Drive Distributor to achieve GPM between Min and Max for Application accuracy

# of Feet	Min GPM	Max GPM	# of Feet	Min GPM	Max GPM
1	12	21	13	156	273
2	24	42	14	170	294
3	36	63	15	180	315
4	48	84	16	192	336
5	60	105	17	204	357
6	72	126	18	216	378
7	84	147	19	228	399
8	96	168	20	240	399
9	108	189	21	252	399
10	120	210	22	264	399
11	132	231	23	276	399
12	144	252	24	288	399

METRIC

**3352204 Etnyre Multi-Material V Slot
(Emulsion Products)**

App Rate 1.60 - 4.30

Drive Distributor to achieve Lt/min between Min and Max for Application accuracy

# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum	# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum
1	0.304	45	79	13	3.963	591	1033
2	0.609	91	159	14	4.268	636	1113
3	0.914	136	238	15	4.573	681	1192
4	1.219	182	318	16	4.878	727	1272
5	1.524	227	397	17	5.182	772	1351
6	1.829	273	477	18	5.487	818	1431
7	2.134	318	556	19	5.792	863	1510
8	2.439	363	636	20	6.097	908	1510
9	2.743	409	715	21	6.402	954	1510
10	3.048	454	795	22	6.707	999	1510
11	3.353	500	874	23	7.012	1045	1510
12	3.658	545	954	24	7.317	1090	1510

**3352205 Etnyre Multi-Material V Slot Nozzle
(Emulsion Products)**

App Rate .20 - .55

Drive Distributor to achieve GPM between Min and Max for Application accuracy

# of Feet	Min GPM	Max GPM	# of Feet	Min GPM	Max GPM
1	7.5	12	13	97	156
2	15	24	14	105	168
3	22	36	15	112	180
4	30	48	16	120	192
5	37	60	17	127	204
6	45	72	18	135	216
7	52	84	19	142	228
8	60	96	20	150	240
9	67	108	21	157	252
10	75	120	22	165	264
11	82	132	23	172	276
12	90	144	24	180	288

METRIC

3352205 Etnyre Multi-Material V Slot Nozzle App Rate

.90- 2.50

Drive Distributor to achieve Lt/min between Min and Max for Application accuracy

# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum	# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum
1	0.304	28	45	13	3.963	367	591
2	0.609	57	91	14	4.268	397	636
3	0.914	83	136	15	4.573	424	681
4	1.219	114	182	16	4.878	454	727
5	1.524	140	227	17	5.182	481	772
6	1.829	170	273	18	5.487	511	818
7	2.134	197	318	19	5.792	538	863
8	2.439	227	363	20	6.097	568	908
9	2.743	254	409	21	6.402	594	954
10	3.048	284	454	22	6.707	625	999
11	3.353	310	500	23	7.012	651	1045
12	3.658	341	545	24	7.317	681	1090

3355010 Etnyre Multi-Material V Slot Nozzle**App Rate .29 - .72**

Drive Distributor to achieve GPM between Min and Max for Application accuracy

# of Feet	Min GPM	Max GPM	# of Feet	Min GPM	Max GPM
1	10.0	16.5	13	130	214.5
2	20.0	33.0	14	140	231
3	30	49.5	15	150	247.5
4	40	66	16	160	264
5	50	82.5	17	170	280.5
6	60	99	18	180	297
7	70	115.5	19	190	313.5
8	80	132	20	200	330
9	90	148.5	21	210	346.5
10	100	165	22	220	363
11	110	181.5	23	230	379.5
12	120	198	24	240	396

METRIC**3355010 Etnyre Multi-Material V Slot Nozzle App Rate****1.31- 3.26**

Drive Distributor to achieve Lt/min between Min and Max for Application accuracy

# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum	# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum
1	0.304	38	62	13	3.963	492	812
2	0.609	76	125	14	4.268	530	874
3	0.914	114	187	15	4.573	568	937
4	1.219	151	250	16	4.878	606	999
5	1.524	189	312	17	5.182	643	1062
6	1.829	227	375	18	5.487	681	1124
7	2.134	265	437	19	5.792	719	1187
8	2.439	303	500	20	6.097	757	1249
9	2.743	341	562	21	6.402	795	1312
10	3.048	379	625	22	6.707	833	1374
11	3.353	416	687	23	7.012	871	1436
12	3.658	454	749	24	7.317	908	1499

3351014 Etnyre 3/16 Coin Slot Nozzle**App Rate .35 - .95**

Drive Distributor to achieve GPM between Min and Max for Application accuracy

# of Feet	Min GPM	Max GPM	# of Feet	Min GPM	Max GPM
1	12	21	13	156	273
2	24	42	14	168	294
3	36	63	15	180	315
4	48	84	16	192	336
5	60	105	17	204	357
6	72	126	18	216	378
7	84	147	19	228	399
8	96	168	20	240	399
9	108	189	21	252	399
10	120	210	22	264	399
11	132	231	23	276	399
12	144	252	24	288	399

METRIC**3351014 Etnyre 3/16 Coin Slot Nozzle****App Rate 1.60 - 4.30**

Drive Distributor to achieve Lt/min between Min and Max for Application accuracy

# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum	# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum
1	0.304	45	79	13	3.963	591	1033
2	0.609	91	159	14	4.268	636	1113
3	0.914	136	238	15	4.573	681	1192
4	1.219	182	318	16	4.878	727	1272
5	1.524	227	397	17	5.182	772	1351
6	1.829	273	477	18	5.487	818	1431
7	2.134	318	556	19	5.792	863	1510
8	2.439	363	636	20	6.097	908	1510
9	2.743	409	715	21	6.402	954	1510
10	3.048	454	795	22	6.707	999	1510
11	3.353	500	874	23	7.012	1045	1510
12	3.658	545	954	24	7.317	1090	1510

3351010 Etnyre 1/4 Coin Slot Nozzle**App Rate .40 - 1.10**

Drive Distributor to achieve GPM between Min and Max for Application accuracy

# of Feet	Min GPM	Max GPM	# of Feet	Min GPM	Max GPM
1	15	24	13	195	312
2	30	48	14	210	336
3	45	72	15	225	360
4	60	96	16	240	384
5	75	120	17	255	399
6	90	144	18	270	399
7	105	168	19	285	399
8	120	192	20	300	399
9	135	216	21	315	399
10	150	240	22	330	399
11	165	264	23	345	399
12	180	288	24	360	399

METRIC**3351010 Etnyre 1/4 Coin Slot Nozzle****App Rate 1.60 - 4.30**

Drive Distributor to achieve Lt/min between Min and Max for Application accuracy

# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum	# of Feet	meter(m)	Lt/min Minimum	Lt/min Maximum
1	0.304	45	79	13	3.963	591	1033
2	0.609	91	159	14	4.268	636	1113
3	0.914	136	238	15	4.573	681	1192
4	1.219	182	318	16	4.878	727	1272
5	1.524	227	397	17	5.182	772	1351
6	1.829	273	477	18	5.487	818	1431
7	2.134	318	556	19	5.792	863	1510
8	2.439	363	636	20	6.097	908	1510
9	2.743	409	715	21	6.402	954	1510
10	3.048	454	795	22	6.707	999	1510
11	3.353	500	874	23	7.012	1045	1510
12	3.658	545	954	24	7.317	1090	1510