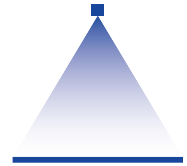


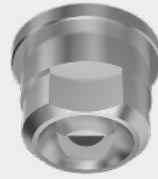
# Low pressure flat fan nozzles for retaining nut

## Series 652

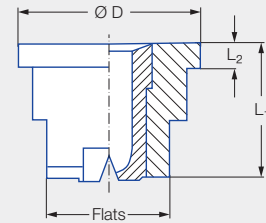


### Features:

- Uniform, parabolic liquid distribution
- Stable spray angle
- Assembly with retaining nut



Series 652



### Applications:

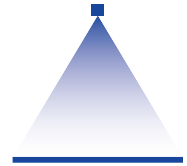
- Spray cleaning
- Surface cleaning
- Filter cleaning
- Coating processes
- Belt cleaning
- Lubrication processes

Connection	Dimensions [in]				Weight [lb] Brass
	L <sub>1</sub>	L <sub>2</sub>	Ø D	Flats (mm)	
Assembly with retaining nut 3/8 BSPP	0.43	0.08	0.58	10	.02

Spray angle	Ordering number					Equivalent bore diameter A [in]	Narrowest free cross section Ø [in]	V̇ water [gal/min]								Spray width B [in] (at p = 75 psi)	
	Type	Material number						p [psi]									
		16	17 <sup>1</sup>	30	5E												
		Stainless steel 303	Stainless steel 316Ti/ Stainless steel 316L	Brass	PVDF			7	15	30	45	75	liters per minute 5 bar	145	H = 10 [in]	H = 20 [in]	
20°	652.301	●	●	●	●	0.03	0.02	0.04*	0.06*	0.09	0.11	0.14	0.51	0.19	3	6	
	652.361	●	●	●	●	0.04	0.03	0.08*	0.12*	0.17	0.21	0.27	1.00	0.37	3	6	
	652.441	●	●	●	●	0.05	0.04	0.16*	0.24	0.34	0.41	0.53	1.98	0.74	3	6	
	652.481	●	●	●	●	0.06	0.05	0.21*	0.30	0.43	0.53	0.68	2.53	0.95	3	6	
30°	652.302	●	●	●	●	0.02	0.02	0.04*	0.06*	0.08	0.11	0.13	0.51	0.19	5	9	
	652.362	●	●	●	●	0.04	0.03	0.08*	0.12*	0.17	0.21	0.27	1.00	0.37	5	9	
	652.402	●	●	●	●	0.05	0.035	0.13*	0.19	0.27	0.33	0.42	1.58	0.59	5	9	
	652.482	●	●	●	●	0.06	0.04	0.21*	0.30	0.43	0.53	0.68	2.53	0.95	5	9	
	652.562	●	●	●	●	0.08	0.06	0.32	0.47	0.67	0.82	1.06	3.95	1.48	5	9	
	652.642	●	●	●		0.10	0.07	0.52	0.76	1.08	1.32	1.70	6.33	2.36	6	10	
	652.722	●	●	●		0.12	0.09	0.82	1.20	1.69	2.07	2.68	9.96	3.72	6	10	
	652.762	●	●	●		0.14	0.11	1.04	1.52	2.15	2.63	3.40	12.65	4.73	6	10	
652.802	●	●	●		0.16	0.12	1.30	1.90	2.69	3.29	4.25	15.81	5.91	6	10		
45°	652.303	●	●	●		0.03	0.02	0.04*	0.06*	0.08	0.11	0.13	0.51	0.19	7	13	
	652.363	●	●	●	●	0.04	0.024	0.08*	0.12*	0.17	0.21	0.27	1.00	0.37	7	14	
	652.403	●	●	●	●	0.05	0.035	0.13*	0.19	0.27	0.33	0.42	1.58	0.59	8	15	
	652.483	●	●	●	●	0.06	0.04	0.21*	0.30	0.43	0.53	0.68	2.53	0.95	8	15	
	652.563	●	●	●	●	0.08	0.06	0.32	0.47	0.67	0.82	1.06	3.95	1.48	8	16	
	652.643	●	●	●	●	0.10	0.07	0.52	0.76	1.08	1.32	1.70	6.33	2.36	9	16	
	652.723	●	●	●		0.12	0.09	0.82	1.20	1.69	2.07	2.68	9.96	3.72	9	17	
	652.763	●	●	●		0.14	0.10	1.04	1.52	2.15	2.63	3.40	12.65	4.73	9	17	
	652.803	●	●	●		0.16	0.12	1.30	1.90	2.69	3.29	4.25	15.81	5.91	9	17	

\* Differing spray pattern.

<sup>1</sup> We reserve the right to supply material 316Ti or 316L under material no. 17.



Spray angle	Ordering number					Equivalent bore diameter A [in]	Narrowest free cross section Ø [in]	V̇ water [gal/min]							Spray width B [in] (at p = 75 psi)	
	Type	Material number						p [psi]							H = 10 [in]	H = 20 [in]
		16	17 <sup>1</sup>	30	5E			liters per minute 5 bar	145	7	15	30	45	75		
		Stainless steel 303	Stainless steel 316Ti/ Stainless steel 316L	Brass	PVDF											
60°	652.304	●	●	●	●	0.03	0.016	0.04*	0.06	0.09	0.11	0.14	<b>0.51</b>	0.19	10	19
	652.334	●	●	●	●	0.035	0.02	0.06*	0.09	0.12	0.15	0.19	<b>0.71</b>	0.27	10	19
	652.364	●	●	●	●	0.04	0.024	0.08*	0.12	0.17	0.21	0.27	<b>1.00</b>	0.37	10	20
	652.404	●	●	●	●	0.047	0.03	0.13*	0.19	0.27	0.33	0.42	<b>1.58</b>	0.59	10	20
	652.444	●	●	●	●	0.05	0.035	0.16*	0.24	0.34	0.41	0.53	<b>1.98</b>	0.74	10	20
	652.484	●	●	●	●	0.06	0.04	0.21*	0.30	0.43	0.53	0.68	<b>2.53</b>	0.95	10	20
	652.514	●	●	●	●	0.065	0.043	0.25*	0.36	0.51	0.62	0.81	<b>3.00</b>	1.12	11	20
	652.564	●	●	●	●	0.08	0.05	0.32	0.47	0.67	0.82	1.06	<b>3.95</b>	1.48	11	21
	652.604	●	●	●	●	0.09	0.06	0.41	0.60	0.85	1.04	1.34	<b>4.98</b>	1.86	11	21
	652.644	●	●	●	●	0.10	0.063	0.52	0.76	1.08	1.32	1.70	<b>6.33</b>	2.36	11	21
	652.674	●	●	●	●	0.11	0.07	0.62	0.90	1.28	1.56	2.02	<b>7.51</b>	2.81	11	22
	652.724	●	●	●	●	0.12	0.08	0.82	1.20	1.69	2.07	2.68	<b>9.96</b>	3.72	11	22
	652.764	●	●	●	●	0.14	0.09	1.04	1.52	2.15	2.63	3.40	<b>12.65</b>	4.73	11	22
	652.804	●	●	●	●	0.16	0.10	1.30	1.90	2.69	3.29	4.25	<b>15.81</b>	5.91	11	23
652.844	●	●	●	●	0.18	0.12	1.62	2.37	3.36	4.11	5.31	<b>19.76</b>	7.38	11	23	
652.884	●	●	●	●	0.20	0.13	2.08	3.04	4.30	5.26	6.80	<b>25.30</b>	9.45	11	23	
75°	652.145	●	●	●	●	0.008	0.004	–	0.01*	0.014	0.017	0.021	<b>0.08</b>	0.03	15	27
	652.165	●	●	●	●	0.008	0.005	–	0.01*	0.017	0.02	0.027	<b>0.10</b>	0.04	15	27
	652.185	●	●	●	●	0.008	0.006	–	0.011*	0.02	0.03	0.035	<b>0.13</b>	0.05	15	27
	652.215	●	●	●	●	0.016	0.008	–	0.02*	0.03	0.04	0.05	<b>0.18</b>	0.07	15	27
	652.245	●	●	●	●	0.02	0.012	–	0.03*	0.04	0.05	0.07	<b>0.26</b>	0.10	15	27
	652.275	●	●	●	●	0.024	0.012	0.03*	0.04*	0.06	0.07	0.09	<b>0.35</b>	0.13	15	27
90°	652.216	●	●	●	●	0.016	0.008	0.01*	0.02*	0.03	0.04	0.05	<b>0.18</b>	0.07	17	31
	652.246	●	●	●	●	0.02	0.012	0.02*	0.03*	0.04	0.05	0.07	<b>0.26</b>	0.10	17	31
	652.276	●	●	●	●	0.024	0.012	0.03*	0.04*	0.06	0.07	0.09	<b>0.35</b>	0.13	17	31
	652.306	●	●	●	●	0.03	0.016	0.04*	0.06*	0.09	0.11	0.14	<b>0.51</b>	0.19	17	31
	652.336	●	●	●	●	0.035	0.02	0.06*	0.09*	0.12	0.15	0.19	<b>0.71</b>	0.27	17	32
	652.366	●	●	●	●	0.04	0.02	0.08*	0.12	0.17	0.21	0.27	<b>1.00</b>	0.37	18	33
	652.406	●	●	●	●	0.047	0.028	0.13*	0.19	0.27	0.33	0.42	<b>1.58</b>	0.59	18	33
	652.446	●	●	●	●	0.05	0.03	0.16*	0.24	0.34	0.41	0.53	<b>1.98</b>	0.74	18	34
	652.486	●	●	●	●	0.06	0.03	0.21*	0.30	0.43	0.53	0.68	<b>2.53</b>	0.95	19	34
	652.516	●	●	●	●	0.065	0.035	0.25*	0.36	0.51	0.62	0.81	<b>3.00</b>	1.12	19	35
	652.566	●	●	●	●	0.08	0.04	0.32	0.47	0.67	0.82	1.06	<b>3.95</b>	1.48	19	35
	652.606	●	●	●	●	0.09	0.047	0.41	0.60	0.85	1.04	1.34	<b>4.98</b>	1.86	20	36
	652.646	●	●	●	●	0.10	0.05	0.52	0.76	1.08	1.32	1.70	<b>6.33</b>	2.36	20	37
	652.676	●	●	●	●	0.11	0.06	0.62	0.90	1.28	1.56	2.02	<b>7.51</b>	2.81	20	37
	652.726	●	●	●	●	0.12	0.07	0.82	1.20	1.69	2.07	2.68	<b>9.96</b>	3.72	20	39
	652.766	●	●	●	●	0.14	0.075	1.04	1.52	2.15	2.63	3.40	<b>12.65</b>	4.73	21	39
	652.806	●	●	●	●	0.16	0.09	1.30	1.90	2.69	3.29	4.25	<b>15.81</b>	5.91	21	41
	652.846	●	●	●	●	0.18	0.09	1.62	2.37	3.36	4.11	5.31	<b>19.76</b>	7.38	21	41
652.886	●	●	●	●	0.20	0.12	2.08	3.04	4.30	5.26	6.80	<b>25.30</b>	9.45	21	42	

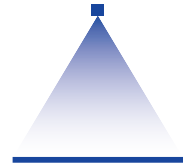
Conversion formula for this series:  $\dot{V}_2 = \dot{V}_1 \cdot \sqrt{\frac{p_2}{p_1}}$

\* Differing spray pattern.

<sup>1</sup> We reserve the right to supply material 316Ti or 316L under material no. 17.



Ordering	Type	+	Material no.	=	Ordering no.
example:	652. 216	+	16	=	652. 216. 16

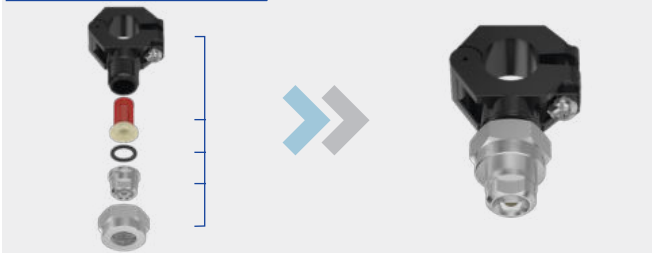


Spray angle	Ordering number					Equivalent bore diameter A [in]	Narrowest free cross section Ø [in]	V̇ water [gal/min]							Spray width B [in] (at p = 75 psi)	
	Type	Material number						p [psi]							H = 10 [in]	H = 20 [in]
		16	17 <sup>1</sup>	30	5E			7	15	30	45	75	liters per minute 5 bar	145		
120°	652.187	●		●		0.01	0.008	–	0.011*	0.02	0.03	0.035	<b>0.13</b>	0.05	25	42
	652.217	●		●		0.016	0.008	–	0.02*	0.03	0.04	0.05	<b>0.18</b>	0.07	26	43
	652.247	●		●		0.02	0.008	–	0.03*	0.04	0.05	0.07	<b>0.26</b>	0.10	26	43
	652.277	●		●		0.024	0.012	–	0.04*	0.06	0.07	0.09	<b>0.35</b>	0.13	26	45
	652.307	●		●	●	0.03	0.012	0.04*	0.06*	0.09	0.11	0.14	<b>0.51</b>	0.19	28	49
	652.337	●	●	●	●	0.035	0.016	0.06*	0.09*	0.12	0.15	0.19	<b>0.71</b>	0.27	29	53
	652.367	●	●	●	●	0.04	0.02	0.08*	0.12*	0.17	0.21	0.27	<b>1.00</b>	0.37	31	56
	652.407	●	●	●	●	0.047	0.024	0.13*	0.19	0.27	0.33	0.42	<b>1.58</b>	0.59	33	58
	652.447	●	●	●	●	0.05	0.024	0.16*	0.24	0.34	0.41	0.53	<b>1.98</b>	0.74	33	60
	652.487	●	●	●	●	0.06	0.024	0.21*	0.30	0.43	0.53	0.68	<b>2.53</b>	0.95	33	61
	652.517	●	●	●	●	0.065	0.035	0.25*	0.36	0.51	0.61	0.81	<b>3.00</b>	1.12	33	61
	652.567	●	●	●	●	0.08	0.04	0.32	0.47	0.67	0.82	1.06	<b>3.95</b>	1.48	34	63
	652.607	●	●	●	●	0.09	0.043	0.41	0.60	0.85	1.04	1.34	<b>4.98</b>	1.86	34	64
	652.647	●	●	●		0.10	0.05	0.52	0.76	1.08	1.32	1.70	<b>6.33</b>	2.36	35	65
	652.677	●	●	●		0.11	0.06	0.62	0.90	1.28	1.56	2.02	<b>7.51</b>	2.81	35	65
	652.727	●	●	●	●	0.12	0.063	0.82	1.20	1.69	2.07	2.68	<b>9.96</b>	3.72	35	66
	652.767	●	●	●		0.14	0.07	1.04	1.52	2.15	2.63	3.40	<b>12.65</b>	4.73	35	67
652.807	●		●		0.16	0.08	1.30	1.90	2.69	3.29	4.25	<b>15.81</b>	5.91	35	67	
652.847				●	0.18	0.09	1.62	2.37	3.36	4.11	5.31	<b>19.76</b>	7.38	35	67	
652.887				●	0.20	0.10	2.08	3.04	4.30	5.26	6.80	<b>25.30</b>	9.45	36	67	

\* Differing spray pattern.

<sup>1</sup> We reserve the right to supply material 316Ti or 316L under material no. 17.

#### Assembly example



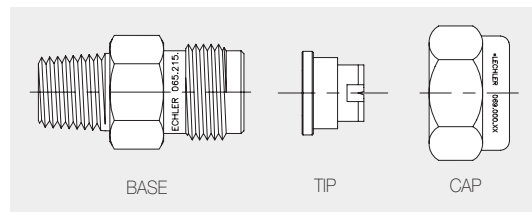
#### Bases and Caps for Mounting

Inlet NPT Male	Outlet Male	Part No.	Standard Materials: 17 316 SS 30 Brass
1/4"	11/16 x 16	065. 215. XX. 10	
3/8"	11/16 x 16	065. 211. XX. 10	
1/4"	3/8 BSPP	065. 215. XX. 11	
3/8"	3/8 BSPP	065. 215. XX. 12	
Caps			Other materials available. See Accessories beginning on page 127.
To fit 11/16x16		069. 000. XX. 00	
To fit 3/8 BSPP		065. 200. XX. 00	

Example Type + Material no. = Ordering no.  
for ordering: 652. 407 + 30 = 652. 407. 30

Conversion formula for this series:  $\dot{V}_2 = \dot{V}_1 \cdot \sqrt{\frac{p_2}{p_1}}$

Ordering Type + Material no. = Ordering no.  
example: 652.187 + 16 = 652.187.16



1) We reserve the right to deliver material 316 SS or 316L SS, if we show the material code 17.



Assembly accessories can be found in Chapter 12 "Accessories".