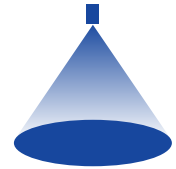


FULL CONE NOZZLES



FULL CONE NOZZLES OVERVIEW OF TYPES



Lechler full cone nozzles are characterised by uniform liquid distribution over the entire circular impact area and are used, among other things, for surface spraying, in cleaning and washing processes and also in chemical process engineering. Full cone nozzles come in a variety of sizes and are made available as an axial full cone or a tangential full cone design. For special applications, unique types are made available, e.g. cluster head nozzles and deflector-plate nozzles.

Axial-flow full cone nozzles



- Axial flow
- Uniform liquid distribution
- Full surface impact
- Extensive flow rate range
- Extensive range of spray angles
- Standard materials:
Stainless steel 316Ti/316L, Brass, PVDF (special material available on request)

Tangential-flow full cone nozzles



- Tangential flow
- Uniform liquid distribution
- Full surface impact
- Maximum free passage making less susceptible to clogging
- Stable spray angle
- Standard materials:
Stainless steel 316L, Brass, PVDF (special material available on request)

Cluster head nozzles



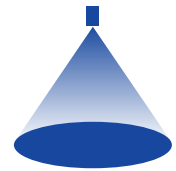
- Axial flow
- Multi-nozzle spray head
- Full surface impact
- Atomized spray – very fine droplets
- Small droplet sizes
- Enlarged droplet surface area
- Standard materials:
Stainless steel 316Ti/316L, Brass
(special material available on request)

Deflector-plate nozzles



- Axial flow
- Large impact area
- Large free cross sections
- Standard materials:
Stainless steel 316Ti/316L, Brass
(special material available on request)

FULL CONE NOZZLES OVERVIEW OF SERIES



		Axial-flow full cone nozzles					
							
Series		460/461	490/491	468	452	405	459
Information on page		173	175	174	175	180	177
 Flow rate at p = 30 psi	Very low < 1.32 gal/min	•	•	•	•		
	Low 1.32 gal/min–6.6 gal/min	•	•	•	•		
	Medium 6.6 gal/min–21.13 gal/min	•	•				•
	High 21.13 gal/min–105.67 gal/min					•	•
	Very high > 105.67 gal/min						•
 Spray angle	Small 45°		•		•		•
	Medium 60°–90°	•	•	•		•	•
	Large ≥ 120°	•	•	•		•	•
 Nozzle material	Stainless steel		•	•	•	•	•
	Brass		•	•	•	•	
	Plastic	•		•			
 Nozzle connection		1/8 NPT 1/4 NPT 3/8 NPT 1/2 NPT 3/4 NPT 3/4 NPT 1 NPT	1/8 NPT 1/4 NPT 3/8 NPT 1/2 NPT 3/4 NPT 3/4 NPT 1 NPT	Assembly with retaining nut 3/8 NPT	1/4 NPT 3/8 NPT	1 1/4 NPT 1 1/2 NPT 2 NPT	1 1/2 NPT 2 NPT 2 1/2 NPT 3 NPT

			Tangential-flow full cone nozzles		Helix Nozzle	Cluster head nozzles	Deflector-plate nozzles
							
403	419	485	422/423	422 with bayonet quick-release system	4Fx	502/503	524/525
182	179	180	185/188	190	191	192	193
			•	•		•	
			•			•	•
			•		•	•	•
	• (at p = 15 psi)	•	•		•		•
•	• (at p = 15 psi)	•			•		
•	•	•	•	•	•	•	
•	•		•	•	•	•	•
•	•	•	•		•	•	•
			•			•	•
			•	•			
2 1/2 NPT 3 NPT 3 1/2 NPT 4 NPT	2 NPT 2 1/2 NPT 3 NPT	4 NPT 5 NPT 6 NPT 8 NPT	1/4 NPT 3/8 NPT 1/2 NPT 3/4 NPT 1 NPT	Assembly with bayonet quick-release system	1/2 NPT 3/4 NPT 1 NPT 1 1/2 NPT 2 NPT	1/2 NPT 3/4 NPT	1/2 NPT



Spray angle	Ordering number							Bore diameter B [in]	Narrowest free cross sections Ø [in]	V̇ water [gal/min]								Spray diameter D [in] (at p = 30 psi) 		
	Type	Mat. no.	Connection							p [psi]										
		5E	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT			1 NPT	7	15	30	Liters per min. 2 bar	45	60	75	145	H = 10 [in]	H =20 [in]
		PVDF																		
90°	460.326	●	BA						0.031	0.022	0.06	0.08	0.11	0.40	0.13	0.14	0.15	0.20	17	30
	460.406	●	BA						0.047	0.033	0.15	0.20	0.27	1.00	0.31	0.35	0.39	0.50	17	31
	460.486	●	BA						0.057	0.047	0.24	0.32	0.43	1.60	0.50	0.57	0.62	0.80	18	31
	460.526	●	BA						0.065	0.051	0.30	0.41	0.54	2.00	0.63	0.71	0.77	1.01	18	32
	460.606	●	BA		BE				0.081	0.057	0.47	0.64	0.84	3.15	0.99	1.11	1.22	1.58	19	33
	460.646	●		BC					0.091	0.071	0.60	0.81	1.07	4.00	1.26	1.41	1.55	2.01	19	34
	460.726	●			BE				0.116	0.079	0.94	1.28	1.69	6.30	1.98	2.23	2.43	3.17	20	35
	460.746	●			BE				0.130	0.075	1.06	1.44	1.90	7.10	2.24	2.51	2.74	3.57	20	36
	460.766	●			BE				0.130	0.094	1.20	1.62	2.14	8.00	2.52	2.83	3.09	4.02	20	36
	460.806	●			BE				0.146	0.106	1.50	2.03	2.68	10.00	3.15	3.53	3.86	5.03	20	36
	460.846	●			BE				0.159	0.126	1.87	2.54	3.35	12.50	3.94	4.42	4.83	6.29	20	37
	460.886	●				BG			0.185	0.122	2.39	3.25	4.28	16.00	5.04	5.65	6.18	8.05	20	37
	460.926	●				BG			0.201	0.110	2.99	4.06	5.36	20.00	6.30	7.07	7.73	10.06	20	37
	460.966	●				BG			0.228	0.150	3.74	5.07	6.69	25.00	7.87	8.83	9.66	12.57	20	37
	461.006	●				BG			0.252	0.150	4.71	6.39	8.43	31.50	9.92	11.13	12.17	15.84	20	37
	461.046	●					BK ¹		0.283	0.209	5.98	8.12	10.71	40.00	12.60	14.13	15.45	20.11	20	37
	461.086	●					BK ¹		0.331	0.197	7.48	10.15	13.39	50.00	15.74	17.66	19.31	25.14	21	37
120°	460.368	●	BA						0.037	0.026	0.09	0.13	0.17	0.63	0.20	0.22	0.24	0.32	26	41
	460.408	●	BA						0.047	0.033	0.15	0.20	0.27	1.00	0.31	0.35	0.39	0.50	27	43
	460.488	●	BA						0.059	0.039	0.24	0.32	0.43	1.60	0.50	0.57	0.62	0.80	28	46
	460.528	●	BA						0.065	0.047	0.30	0.41	0.54	2.00	0.63	0.71	0.77	1.01	28	47
	460.608	●	BA						0.083	0.055	0.47	0.64	0.84	3.15	0.99	1.11	1.22	1.58	29	50
	460.648	●		BC					0.096	0.063	0.60	0.81	1.07	4.00	1.26	1.41	1.55	2.01	30	52
	460.728	●			BE				0.122	0.075	0.94	1.28	1.69	6.30	1.98	2.23	2.43	3.17	31	54
	460.748	●			BE				0.130	0.075	1.06	1.44	1.90	7.10	2.24	2.51	2.74	3.57	31	55
	460.768	●			BE				0.138	0.075	1.20	1.62	2.14	8.00	2.52	2.83	3.09	4.02	31	56
	460.808	●			BE				0.150	0.095	1.50	2.03	2.68	10.00	3.15	3.53	3.86	5.03	32	56
	460.848	●			BE				0.165	0.107	1.87	2.54	3.35	12.50	3.94	4.42	4.83	6.29	32	57
	460.888	●				BG			0.181	0.122	2.39	3.25	4.28	16.00	5.04	5.65	6.18	8.05	33	58
	460.968	●				BG			0.232	0.161	3.74	5.07	6.69	25.00	7.87	8.83	9.66	12.57	33	59
	461.048	● ¹					BK ¹		0.300	0.193	5.98	8.12	10.71	40.00	12.60	14.13	15.45	20.11	34	60

¹ Material PP (mat. no. 53).

Also available in metric thread.

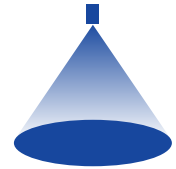
Conversion formula for this series: $\dot{V}_2 = \dot{V}_1 \cdot \left(\frac{p_2}{p_1}\right)^{0.4}$
(≤ 10 bar)

Ordering Type + Material no. + Connection = Ordering no.
example: 460.326 + 5E + CB = 460.326.5E.BA



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

Axial-flow full cone nozzles Series 490/491



Features:

- Extremely uniform liquid distribution
- Very stable spray angle
- Non clogging due to large free cross sections

Applications:

- Cleaning and washing processes
- Surface spraying
- Chemical process engineering
- Foam control



Series 490/491

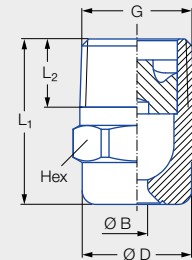


Figure 1

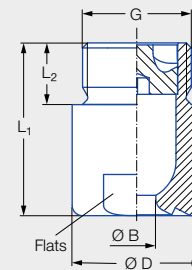


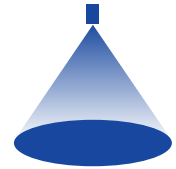
Figure 2

Connection	Figure	G	Dimensions [in]				Weight [lb] (brass)
			L ₁	L ₂	Ø D	Hex (mm)	
BA	1	1/8 NPT	0.71	0.26	0.39	11	0.03
BC	1	1/4 NPT	0.87	0.39	0.51	14	0.04
BE	1	3/8 NPT	0.96	0.39	0.63	17	0.07
BE	1	3/8 NPT	1.18	0.39	0.63	17	0.11
BG	1	1/2 NPT	1.28	0.51	0.83	22	0.13
BG	1	1/2 NPT	1.65	0.51	0.83	22	0.19
BK	2	3/4 NPT	1.65	0.59	1.26	27	0.42
BM	2	1 NPT	2.20	0.67	1.57	36	0.77

Spray angle	Ordering number								Bore diameter B [in]	Narrowest free cross sections Ø [in]	V̇ water [gal/min]								Spray diameter D [in] (at p = 30 psi) 		
	Type	Mat. no.		Connection							p [psi]										
		1Y	30	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT			1 NPT	7	15	30	Liters per min. 2 bar	45	75	100	145	H =10 [in]	H =20 [in]
45°	490.403	●	●	BA						0.049	0.049	0.15	0.20	0.27	1.00	0.31	0.39	0.43	0.50	8	16
	490.523	●	●	BA						0.067	0.067	0.30	0.41	0.54	2.00	0.63	0.77	0.87	1.01	8	16
	490.603	●	●		BC	BE ¹				0.079	0.079	0.47	0.64	0.84	3.15	0.99	1.22	1.37	1.58	8	16
	490.643	●	●		BC	BE ¹				0.096	0.096	0.60	0.81	1.07	4.00	1.26	1.55	1.73	2.01	8	16
	490.683		●			BE				0.100	0.100	0.75	1.01	1.34	5.00	1.57	1.93	2.17	2.51	8	16
	490.703		●			BE				0.104	0.104	0.84	1.14	1.50	5.60	1.76	2.16	2.43	2.82	8	17
	490.723	●	●			BE				0.112	0.112	0.94	1.28	1.69	6.30	1.98	2.43	2.73	3.17	8	17
	490.783		●				BG			0.136	0.136	1.35	1.83	2.41	9.00	2.83	3.48	3.90	4.53	8	17
490.843		●				BG			0.150	0.150	1.87	2.54	3.35	12.50	3.94	4.83	5.42	6.29	9	17	

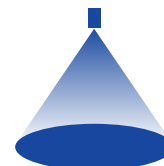
¹ Only available in material 30.





Spray angle	Ordering number									Bore diameter B [in]	Narrowest free cross sections Ø [in]	V̇ water [gal/min]								Spray diameter D [in] (at p = 30 psi)	
	Type	Mat. no.		Connection								p [psi]									
		1Y	30																		
		Stainless steel 316L	Brass																		1/8 NPT
												7	15	30	Liters per min. 2 bar	45	75	100	145	H =10 [in]	H =20 [in]
60°	490.404	●	●	BA						0.045	0.045	0.15	0.20	0.27	1.00	0.31	0.39	0.43	0.50	10	20
	490.444	●		BA						0.049	0.049	0.19	0.25	0.33	1.25	0.39	0.48	0.54	0.63	10	20
	490.484	●	●	BA						0.057	0.057	0.24	0.32	0.43	1.60	0.50	0.62	0.69	0.80	10	20
	490.524	●	●	BA						0.063	0.063	0.30	0.41	0.54	2.00	0.63	0.77	0.87	1.01	11	21
	490.564	●	●	BA						0.071	0.071	0.37	0.51	0.67	2.50	0.79	0.97	1.08	1.26	11	21
	490.604	●	●	BA	BC	BE				0.081	0.081	0.47	0.64	0.84	3.15	0.99	1.22	1.37	1.58	11	21
	490.644	●	●		BC	BE				0.091	0.091	0.60	0.81	1.07	4.00	1.26	1.55	1.73	2.01	11	21
	490.684	●	●		BC	BE				0.102	0.102	0.75	1.01	1.34	5.00	1.57	1.93	2.17	2.51	11	22
	490.724	●	●		BC	BE				0.116	0.110	0.94	1.28	1.69	6.30	1.98	2.43	2.73	3.17	11	22
	490.764	●	●			BE				0.128	0.128	1.20	1.62	2.14	8.00	2.52	3.09	3.47	4.02	11	22
	490.804	●	●			BE				0.146	0.146	1.50	2.03	2.68	10.00	3.15	3.86	4.33	5.03	11	22
	490.844	●	●				BG			0.159	0.159	1.87	2.54	3.35	12.50	3.94	4.83	5.42	6.29	11	22
	490.884	●	●				BG			0.183	0.183	2.39	3.25	4.28	16.00	5.04	6.18	6.93	8.05	12	23
	490.924	●	●					BK		0.205	0.205	2.99	4.06	5.36	20.00	6.30	7.73	8.67	10.06	12	23
	490.964	●	●					BK		0.228	0.228	3.74	5.07	6.69	25.00	7.87	9.66	10.83	12.57	12	23
491.044	●	●						BM	0.285	0.285	5.98	8.12	10.71	40.00	12.60	15.45	17.34	20.11	12	24	
491.084	●	●						BM	0.320	0.320	7.48	10.15	13.39	50.00	15.74	19.31	21.67	25.14	12	24	
90°	490.406	●	●	BA						0.047	0.047	0.15	0.20	0.27	1.00	0.31	0.39	0.43	0.50	19	35
	490.446		●	BA						0.051	0.051	0.19	0.25	0.33	1.25	0.39	0.48	0.54	0.63	19	35
	490.486	●	●	BA						0.057	0.057	0.24	0.32	0.43	1.60	0.50	0.62	0.69	0.80	20	35
	490.526	●	●	BA						0.067	0.061	0.30	0.41	0.54	2.00	0.63	0.77	0.87	1.01	20	36
	490.566	●	●	BA						0.075	0.075	0.37	0.51	0.67	2.50	0.79	0.97	1.08	1.26	20	36
	490.606	●	●	BA			BE			0.083	0.081	0.47	0.64	0.84	3.15	0.99	1.22	1.37	1.58	20	37
	490.646	●	●		BC	BE				0.094	0.094	0.60	0.81	1.07	4.00	1.26	1.55	1.73	2.01	20	37
	490.686	●	●		BC	BE				0.106	0.106	0.75	1.01	1.34	5.00	1.57	1.93	2.17	2.51	20	38
	490.726	●	●		BC	BE				0.126	0.110	0.94	1.28	1.69	6.30	1.98	2.43	2.73	3.17	21	38
	490.746	●	●			BE				0.124	0.124	1.06	1.44	1.90	7.10	2.24	2.74	3.08	3.57	21	39
	490.766	●	●			BE				0.134	0.134	1.20	1.62	2.14	8.00	2.52	3.09	3.47	4.02	21	39
	490.806	●	●			BE				0.154	0.154	1.50	2.03	2.68	10.00	3.15	3.86	4.33	5.03	22	39
	490.846	●	●			BE				0.183	0.157	1.87	2.54	3.35	12.50	3.94	4.83	5.42	6.29	22	39
	490.886	●	●				BG			0.215	0.177	2.39	3.25	4.28	16.00	5.04	6.18	6.93	8.05	22	40
	490.926	●	●				BG			0.232	0.177	2.99	4.06	5.36	20.00	6.30	7.73	8.67	10.06	22	40
	490.966	●	●				BG			0.258	0.191	3.74	5.07	6.69	25.00	7.87	9.66	10.83	12.57	22	40
	491.006	●	●					BK		0.297	0.217	4.78	6.31	8.32	31.50	9.79	12.01	13.73	15.84	22	41
	491.046	●	●					BK		0.339	0.260	5.98	8.12	10.71	40.00	12.60	15.45	17.34	20.11	22	41
	491.086	●	●						BM	0.372	0.285	7.48	10.15	13.39	50.00	15.74	19.31	21.67	25.14	22	41
	491.126	●	●						BM	0.409	0.315	9.42	12.78	16.87	63.00	19.84	24.34	27.30	31.68	22	41
	491.146	●							BM	0.433	0.295	10.62	14.41	19.01	71.00	22.36	27.43	30.77	35.70	22	41
120°	490.368	●	●	BA						0.033	0.026	0.09	0.13	0.17	0.63	0.20	0.24	0.27	0.32	28	49
	490.408	●	●	BA						0.047	0.047	0.15	0.20	0.27	1.00	0.31	0.39	0.43	0.50	28	50
	490.448	●	●	BA						0.051	0.051	0.19	0.25	0.33	1.25	0.39	0.48	0.54	0.63	29	50
	490.488	●	●	BA						0.057	0.057	0.24	0.32	0.43	1.60	0.50	0.62	0.69	0.80	30	51
	490.528	●	●	BA						0.067	0.067	0.30	0.41	0.54	2.00	0.63	0.77	0.87	1.01	31	52
	490.568	●	●	BA						0.075	0.075	0.37	0.51	0.67	2.50	0.79	0.97	1.08	1.26	31	53





Spray angle	Ordering number								Bore diameter B [in]	Narrowest free cross sections Ø [in]	V̇ water [gal/min]								Spray diameter D [in] (at p = 30 psi)		
	Type	Mat. no.		Connection							p [psi]										
		1Y	30																		
		Stainless steel 316L	Brass															1/8 NPT		1/4 NPT	3/8 NPT
											7	15	30	Liters per min. 2 bar	45	75	100	145	H =10 [in]	H =20 [in]	
120°	490.608	●	●	BA						0.083	0.081	0.48	0.63	0.83	3.15	0.98	1.20	1.37	1.58	32	54
	490.648	●	●		BC	BE				0.094	0.094	0.61	0.80	1.06	4.00	1.24	1.52	1.74	2.01	33	55
	490.688	●	●		BC	BE				0.108	0.108	0.76	1.00	1.32	5.00	1.55	1.90	2.18	2.51	33	56
	490.728	●	●		BC	BE				0.126	0.110	0.96	1.26	1.66	6.30	1.96	2.40	2.75	3.17	34	58
	490.748	●	●			BE				0.126	0.126	1.08	1.42	1.88	7.10	2.21	2.71	3.10	3.57	34	59
	490.768	●	●			BE				0.136	0.136	1.21	1.60	2.11	8.00	2.49	3.05	3.49	4.02	35	60
	490.808	●	●			BE				0.154	0.154	1.52	2.00	2.64	10.00	3.11	3.81	4.36	5.03	35	62
	490.848	●	●			BE				0.185	0.157	1.90	2.50	3.30	12.50	3.88	4.76	5.45	6.29	36	64
	490.888	●	●				BG			0.201	0.177	2.43	3.20	4.23	16.00	4.97	6.10	6.98	8.05	36	66
	490.928	●	●				BG			0.228	0.187	3.04	4.00	5.28	20.00	6.21	7.62	8.72	10.06	37	67
	490.968	●	●				BG	BK		0.262	0.191	3.79	5.01	6.60	25.00	7.77	9.53	10.90	12.57	37	67
	491.048	●	●					BK		0.358	0.230	6.07	8.01	10.57	40.00	12.43	15.25	17.44	20.11	37	68
	491.128	●	●						BM	0.425	0.305	9.56	12.61	16.64	63.00	19.57	24.01	27.47	31.68	37	69
	491.148	●							BM	0.449	0.301	10.77	14.22	18.76	71.00	22.06	27.06	30.96	35.70	37	69

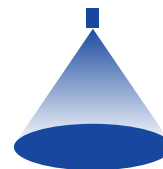
Conversion formula for this series: $\dot{V}_2 = \dot{V}_1 \cdot \left(\frac{p_2}{p_1}\right)^{0.4}$
(≤ 10 bar)

Ordering Type + Material no. + Connection = Ordering no.
example: 490.608 + 1Y + BA = 490.608.1Y.BA



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

Axial-flow full cone nozzles Series 468/494



Features:

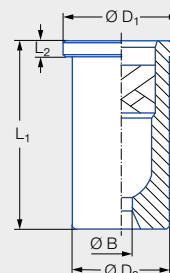
- Extremely uniform liquid distribution
- Assembly with retaining nut

Applications:

- Surface spraying
- Chemical process engineering
- Cleaning and washing processes
- Water treatment



Series 468/494



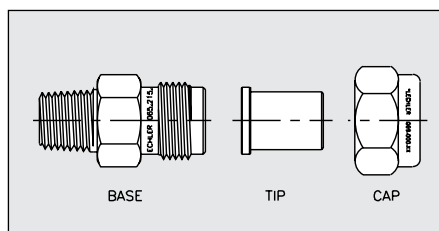
Connection	Dimensions [in]			Weight [lb] (brass)
	L ₂	Ø D ₁	Ø D ₂	
Assembly with retaining nut 3/8 BSPP	0.08	0.58	0.50	0.04

Spray angle	Ordering number				Bore diameter B [in]	Narrowest free cross sections Ø [in]	L ₁ [in]	V̇ water [gal/min]										Spray diameter D [in] (at p = 30 psi)	
	Type	Material number						p [psi]										H =10 [in]	H =20 [in]
		17 ¹	30	5E															
		Stainless steel 316Ti/ Stainless steel 316L	Brass	PVDF				10	20	30	Liters per min. 2 bar	40	60	80	100	145			
60°	494.604	●	●		0.08	0.08	0.71	0.54	0.71	0.84	3.15	0.94	1.11	1.25	1.36	1.58	11	22	
	468.644			●	0.09	0.11	0.96	0.69	0.91	1.07	4.00	1.20	1.41	1.58	1.73	2.01	11	22	
	494.644		●		0.09	0.11	0.96	0.69	0.91	1.07	4.00	1.20	1.41	1.58	1.73	2.01	11	22	
	494.684		●		0.10	0.11	0.96	0.86	1.14	1.34	5.00	1.50	1.76	1.98	2.16	2.51	12	23	
	494.724	●	●		0.12	0.11	0.96	1.08	1.43	1.68	6.30	1.89	2.22	2.49	2.73	3.17	12	23	
90°	468.526			●	0.07	0.06	0.71	0.34	0.45	0.53	2.00	0.60	0.70	0.79	0.86	1.00	18	31	
	494.526	●	●		0.07	0.06	0.71	0.34	0.45	0.53	2.00	0.60	0.70	0.79	0.86	1.00	18	31	
	468.846	●	●		0.19	0.13	0.96	2.15	2.84	3.34	12.50	3.75	4.41	4.95	5.41	6.28	20	36	
120°	494.368		●		0.03	0.03	0.71	0.11	0.14	0.17	0.63	0.19	0.22	0.25	0.27	0.31	29	69	
	494.408	●	●		0.05	0.05	0.71	0.17	0.23	0.27	1.00	0.30	0.35	0.39	0.43	0.50	29	69	
	494.488	●	●		0.06	0.06	0.71	0.27	0.36	0.43	1.60	0.48	0.56	0.63	0.69	0.80	29	69	
	494.528	●	●		0.07	0.07	0.71	0.34	0.45	0.53	2.00	0.60	0.70	0.79	0.86	1.00	29	69	

¹ We reserve the right to supply material 316Ti or 316L under material no. 17.
Bases and Caps for Mounting

Also available in metric thread.

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	Other materials available.
3/8"	3/8 BSPP	065. 215. XX. 12	
Caps			Other materials available.
To fit 11/16x16		069. 000. XX. 00	
To fit 3/8 BSPP		065. 200. XX. 00	



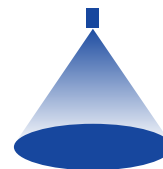
Conversion formula for this series: $\dot{V}_2 = \dot{V}_1 \cdot \left(\frac{p_2}{p_1}\right)^{0.4}$
(≤ 10 bar)

Ordering Type + Material no. = Ordering no.
example: 468.604 + 17 = 468.604.17



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

Full cone nozzle Injector narrow angle nozzle Series 452



Features:

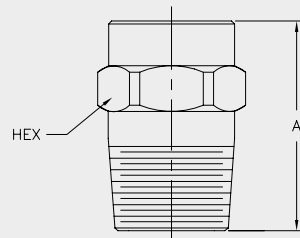
- Narrow spray angle
- High impact

Applications:

- Cleaning and washing processes
- Surface spraying



Series 452



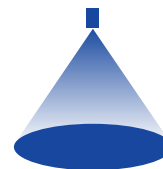
G (Male NPT)	Dimensions [in]		Weight [lb.]
	A	Hex (mm)	
1/4	1.81	18	0.16
3/8	2.31	24	0.20

Spray angle	Ordering number					V̇ water [gal/min]								Spray diameter D [in] (at p = 30 psi)
	Type	Material No.		Connection		P [psi]								
		16	30	1/4 NPT	3/8 NPT	10	20	30	Liters per min.	40	60	80	100	
		303 stainless steel	Brass						2 bar					
15°	452.661	●	●	BC	-	0.74	0.98	1.15	4.30	1.29	1.52	1.70	1.86	2
	452.791	●	●	BC	-	1.59	2.09	2.46	9.20	2.76	3.25	3.65	3.99	2
	452.881	●	●	-	BE	2.64	3.48	4.10	15.30	4.60	5.41	6.06	6.63	2
30°	452.442	●	●	BC	-	0.22	0.29	0.34	1.27	0.38	0.45	0.50	0.55	5
	452.542	●	●	BC	-	0.37	0.49	0.58	2.15	0.65	0.76	0.85	0.93	5
	452.502	●	●	BC	-	0.55	0.72	0.85	3.16	0.95	1.12	1.25	1.37	5
	452.672	●	●	-	BE	0.83	1.10	1.29	4.83	1.45	1.71	1.91	2.09	5

Conversion formula for this series: $\dot{V}_2 = \dot{V}_1 \cdot \left(\frac{p_2}{p_1}\right)^{0.4}$
 (≤ 10 bar)

Ordering Type + Material no. + Connection = Ordering no.
 example: 452.661 + 16 + BC = 452.661.16.BC

Axial-flow full cone nozzles Series 405



Features:

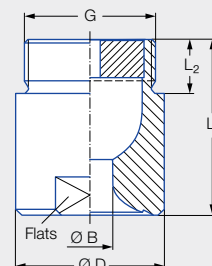
- Extremely uniform liquid distribution

Applications:

- Surface spraying
- Chemical process engineering
- Cleaning and washing processes
- Water treatment



Series 405



Connection	G	Dimensions [in]				Weight [lb] (brass)
		L ₁	L ₂	Ø D	Flats (mm)	
BP	1 1/4 NPT	1.97	0.75	1.93	41	1.1
BR	1 1/2 NPT	2.36	0.75	2.32	50	2.0
BV	2 NPT	3.07	0.94	2.68	60	3.5

Spray angle	Ordering number						Bore diameter B [in]	Narrowest free cross sections Ø [in]	V̇ water [gal/min]								Spray diameter D [in] (at p = 30 psi)	
	Type	Mat. no.		Connection					p [psi]									
		1Y	30	1 1/4 NPT	1 1/2 NPT	2 NPT			5	10	20	30	Liters per min. 2 bar	40	60	H = 20 [in]	H = 40 [in]	
																		Stainless steel 316L
60°	405.204	●	●	BP			0.44	0.23	13.08	17.25	22.76	26.77	100	30.04	35.33	24	45	
	405.284	●	●		BR		0.56	0.28	20.92	27.60	36.42	42.84	160	48.06	56.53	25	48	
	405.324	●	●			BV	0.65	0.30	26.15	34.05	45.53	53.55	200	60.08	70.66	26	49	
	405.364	●	●			BV	0.72	0.33	32.69	43.13	56.91	66.94	250	75.10	88.32	26	49	
	405.404	●				BV	0.79	0.28	41.19	54.35	71.71	84.34	315	94.62	111.29	26	49	
90°	405.206	●	●	BP			0.47	0.20	13.08	17.25	22.76	26.77	100	30.04	35.33	44	83	
	405.286	●	●		BR		0.60	0.24	20.92	27.60	36.42	42.84	160	48.06	56.53	44	83	
	405.326	●				BV	0.68	0.30	26.15	34.05	45.53	53.55	200	60.08	70.66	44	83	
	405.366	●				BV	0.77	0.34	32.69	43.13	56.91	66.94	250	75.10	88.32	44	83	
	405.406	●	●			BV	0.87	0.37	41.19	54.35	71.71	84.34	315	94.62	111.29	44	83	
120°	405.208	●	●	BP			0.50	0.20	13.08	17.25	22.76	26.77	100	30.04	35.33	73	120	
	405.288	●	●		BR		0.63	0.26	20.92	27.60	36.42	42.84	160	48.06	56.53	75	124	
	405.328	●				BV	0.70	0.31	26.15	34.05	45.53	53.55	200	60.08	70.66	75	126	
	405.368	●	●			BV	0.79	0.35	32.69	43.13	56.91	66.94	250	75.10	88.32	75	126	
	405.408	●	●			BV	0.88	0.36	41.19	54.35	71.71	84.34	315	94.62	111.29	75	126	

Also available in BSPP metric thread.

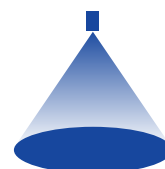
Conversion formula for this series: $\dot{V}_2 = \dot{V}_1 \cdot \left(\frac{p_2}{p_1}\right)^{0.4}$
(≤ 10 bar)

Ordering Type + Material no. + Connection = Ordering no.
example: 405.204 + 1Y + BP = 405.204.1Y.BP



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

Full cone nozzles Axial-flow CenterJet™ Series 459



Features:

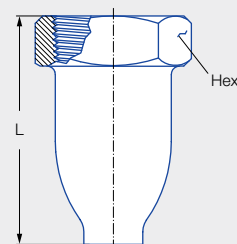
- Turbine-style vane for uniform atomization and distribution

Applications:

- Surface spraying
- Quench cooling
- Fire suppression
- Chemical processing



Series 459



Dimensions (in)			Weight (lb)
Inlet (Female NPT)	L	Hex (mm)	
1-1/2	4.31	56	1.8
2	5.45	70	2.4
2-1/2	6.00	83	4.2
3	6.89	99	6.0

	Spray Angle in degrees at 40 psi (* =15 psi)	Ordering number						Bore diameter (in)	V̇ water [gal/min]								
		Type	Mat. no.	Connection					P [psi]								
				17 ¹ 316SS	1½ NPT	2 NPT	2½ NPT		3 NPT	5	10	20	30	Liters per min. 2 bar	40	60	80
Standard angle	62	459. 244	●	BS	-	-	-	.500	16.21	21.39	28.23	33.20	124	37.25	43.81	49.15	53.74
	62	459. 284	●	BS	-	-	-	.625	21.58	28.47	37.56	44.18	165	49.57	58.29	65.40	71.51
	70	459. 355	●	BS	-	-	-	.687	30.47	40.20	53.05	62.38	233	69.99	82.32	92.36	100.98
	84	459. 356	●	BS	-	-	-	.687	30.47	40.20	53.05	62.38	233	69.99	82.32	92.36	100.98
	43	459. 343	●	-	BW	-	-	.500	29.03	38.30	50.54	59.44	222	66.69	78.43	88.00	96.21
	80*	459. 365	●	-	BW	-	-	.656	30.64	41.75	55.09	64.79	242	72.70	85.50	95.93	104.88
	66	459. 415	●	-	BW	-	-	.796	44.33	58.49	77.18	90.77	339	101.84	119.77	134.37	146.92
	68	459. 455	●	-	BW	-	-	.906	56.75	74.88	98.81	116.20	434	130.38	153.33	172.03	188.09
	83	459. 475	●	-	-	BZ	-	.910	62.11	81.96	108.14	127.18	475	142.69	167.82	188.28	205.86
	67	459. 515	●	-	-	BZ	-	1.06	78.85	104.04	137.28	161.45	603	181.14	213.04	239.02	261.34
	57	459. 584	●	-	-	-	MB	1.31	120.95	159.60	210.59	247.67	925	277.87	326.80	366.66	400.89
Wide angle	120	459. 238	●	BS	-	-	-	.562	16.21	21.39	28.23	33.20	124	37.25	43.81	49.15	53.74
	98	459. 266	●	BS	-	-	-	.500	15.30	20.19	26.64	31.32	117	35.15	41.34	46.38	50.71
	94	459. 286	●	BS	-	-	-	.625	21.58	28.47	37.56	44.18	165	49.57	58.29	65.40	71.51
	120	459. 288	●	BS	-	-	-	.625	21.18	27.95	36.88	43.37	162	48.67	57.23	64.21	70.21
	120	459. 348	●	BS	-	-	-	.781	29.55	38.99	51.45	60.51	226	67.89	79.85	89.58	97.95
	118	459. 378	●	-	BW	-	-	.781	35.70	47.10	62.15	73.10	273	82.01	96.45	108.21	118.32
	*99	459. 386	●	-	BW	-	-	.796	40.67	53.66	70.80	83.27	311	93.43	109.88	123.28	134.79
	118	459. 408	●	-	BW	-	-	.937	43.41	57.28	75.58	88.90	332	99.73	117.30	131.60	143.89
	119	459. 488	●	-	-	BZ	-	1.03	68.13	89.89	118.61	139.50	521	156.51	184.07	206.52	225.80
	*86	459. 496	●	-	-	BZ	-	0.98	71.00	93.69	123.62	145.39	543	163.12	191.84	215.24	235.33
	*90	459. 575	●	-	-	-	MB	1.31	122.65	161.84	213.55	251.15	938	281.78	331.39	371.81	406.52
		120	459. 608	●	-	-	-	MB	1.43	164.10	216.53	285.72	336.02	1255	377.01	443.39	497.46

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

* Nozzles are manufactured to spray performance, not orifice diameter.

Conversion formula for this series: $\dot{V}_2 = \dot{V}_1 \cdot \left(\frac{p_2}{p_1}\right)^{0.4}$
(≤ 10 bar)

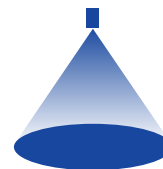
Ordering Type + Material no. + Conn. = Ordering no.
example: 459.455 + 17 + BW = 459.455.17.BW

Notice:

This product line is also available in larger capacities with inlets up to 6" in size.

Please contact Lechler if you have an application requiring a larger size.

Axial-flow full cone nozzles Series 403



Features:

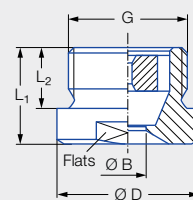
- Extremely uniform liquid distribution

Applications:

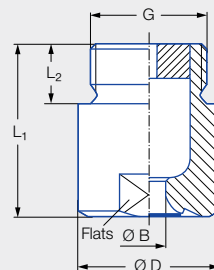
- Surface spraying
- Spraying over packings
- Chemical process engineering
- Cleaning and washing processes
- Cooling



Series 403



90° version



120° version

90° version

Type	G	Connection code	Dimensions [in]				Weight [lb]
			L ₁	L ₂	Ø D	Flats (mm)	
403.446/403.486	2 1/2 NPT	BY	2.05	1.06	3.27	75	2.87
403.526	3 NPT	MA	2.36	1.18	3.86	85	4.41
403.606	3 1/2 NPT	MC	2.76	1.26	4.65	105	7.94

120° version

Type	G	Connection code	Dimensions [in]				Weight [lb]
			L ₁	L ₂	Ø D	Flats (mm)	
403.448/403.488	2 1/2 NPT	BY	4.88	1.06	3.27	75	7.05
403.528	3 NPT	MA	6.02	1.18	3.86	85	11.91
403.608	3 1/2 NPT	MC	6.14	1.26	4.65	105	18.30
403.628	4 NPT	ME	6.50	1.42	5.04	110	21.16

Spray angle	Ordering number		Bore diameter B [in]	Narrowest free cross sections Ø [in]	V̇ water [gal/min]								Spray diameter D [in] (at p = 30 psi)	
	Type	Mat. no.			p [psi]								H = 20 [in]	H = 40 [in]
		1Y												
		Stainless steel 316L												
90°	403.446	●	5.6	2.7	52.30	69.01	91.06	107.10	400	120.16	141.32	158.55	39	70
	403.486	●	6.6	2.7	65.38	86.27	113.83	133.87	500	150.20	176.65	198.19	39	70
	403.526	●	7.2	3.1	82.38	108.70	143.43	168.68	630	189.25	222.58	249.72	39	70
	403.606	●	9.0	3.4	130.76	172.54	227.66	267.75	1,000	300.40	353.30	396.38	39	70
120°	403.448	●	5.7	2.2	52.30	69.01	91.06	107.10	400	120.16	141.32	158.55	67	115
	403.488	●	6.6	2.5	65.38	86.27	113.83	133.87	500	150.20	176.65	198.19	67	115
	403.528	●	7.2	3.4	82.38	108.70	143.43	168.68	630	189.25	222.58	249.72	67	115
	403.608	●	9.4	2.7	130.76	172.54	227.66	267.75	1,000	300.40	353.30	396.38	67	115
	403.628	●	10.1	3.4	163.45	215.67	284.58	334.69	1,250	375.50	441.62	495.48	67	115

Also available in BSPP metric thread.

Conversion formula for this series: $\dot{V}_2 = \dot{V}_1 \cdot \left(\frac{p_2}{p_1}\right)^{0.4}$
(≤ 10 bar)

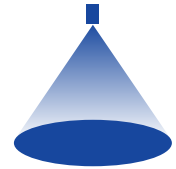
Ordering Type + Material no. = Ordering no.
example: 403.446 + 1Y = 403.446.1Y



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

➤ Axial-flow full cone nozzles

Series 419 FreeFlow



Features:

- Non clogging due to very large free cross sections
- Very stable spray angle
- Uniform liquid distribution

Applications:

- Cleaning and washing processes
- Dust control
- Absorption
- Distillation

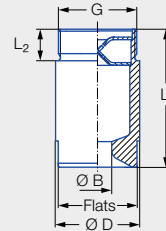


Figure 1

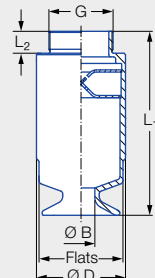


Figure 2

Series 419

Type	Connection	Figure	G	Dimensions [in]				Weight [lb]
				L ₁	L ₂	Ø D	Flats (mm)	
419.3xx	BV	1	2 NPT	4.13	0.94	2.52	60	2.6
419.4xx	BV	2	2 NPT	6.42	0.94	3.15	75	4.4
419.51x	BV	2	2 NPT	7.83	0.94	4.02	95	8.2
419.51x	BY	2	2 1/2 NPT	7.95	1.06	4.02	95	8.4
419.54x	BY	2	2 1/2 NPT	7.95	1.06	4.02	95	8.4
419.57x	BY	2	2 1/2 NPT	9.09	1.06	4.53	105	11.5
419.57x	MA	2	3 NPT	9.17	1.18	4.53	105	11.5
419.6xx	MA	2	3 NPT	9.92	1.18	4.80	115	11.9

Spray angle ¹	Ordering number					Bore diameter B [in]	Narrowest free cross sections Ø [in]	V̇ water gal/min]						Spray diameter D [in] (at p = 30 psi)	
	Type	Mat. no.	Connection					p [psi]						H = 20 [in]	H = 40 [in]
		1Y	2 NPT	2 1/2 NPT	3 NPT										
								Stainless steel 316L							
								5	7	15	Liters per min. 1 bar	30	75		
90°	419.366	●	BV			0.75	0.69	32.61	37.31	50.60	189	66.77	96.33	47	87
	419.396	●	BV			0.83	0.69	39.17	44.81	60.78	227	80.20	115.70	47	87
	419.446	●	BV			0.94	0.81	52.28	59.81	81.13	303	107.05	154.44	47	87
	419.486	●	BV			1.14	0.81	65.39	74.81	101.48	379	133.90	193.18	47	87
	419.516	●	BV	BY		1.15	0.95	78.50	89.81	121.83	455	160.70	231.92	47	87
	419.546	●		BY		1.30	0.95	92.82	106.20	144.05	538	190.08	274.22	47	87
	419.576	●		BY	MA	1.38	1.07	111.11	127.12	172.43	644	277.52	328.25	47	87
	419.606	●			MA	1.48	1.19	130.78	149.62	202.96	758	267.80	386.36	47	87
419.626	●			MA	1.69	1.19	163.39	186.93	253.56	947	334.57	482.69	47	87	
120°	419.368	●	BV			0.87	0.69	32.61	37.31	50.60	189	66.77	96.33	65	114
	419.398	●	BV			0.95	0.69	39.17	44.81	60.78	227	80.20	115.70	65	114
	419.448	●	BV			0.96	0.81	52.28	59.81	81.13	303	107.05	154.44	65	114
	419.488	●	BV			1.16	0.81	65.39	74.81	101.48	379	133.90	193.18	65	114
	419.518	●	BV	BY		1.15	0.95	78.50	89.81	121.83	455	160.70	231.92	65	114
	419.548	●		BY		1.34	0.95	92.82	106.20	144.05	538	190.08	274.22	65	114
	419.578	●		BY	MA	1.38	1.13	111.11	127.12	172.43	644	277.52	328.25	65	114
	419.608	●			MA	1.50	1.27	130.78	149.62	202.96	758	267.80	386.36	65	114
	419.628	●			MA	1.71	1.27	163.39	186.93	253.56	947	334.57	482.69	65	114

¹ Spray angle at 1 bar.

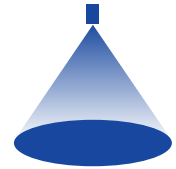
Also available in metric thread.

Conversion formula for this series: $\dot{V}_2 = \dot{V}_1 \cdot \left(\frac{p_2}{p_1}\right)^{0.4}$
(≤ 10 bar)

Ordering Type + Material no. + Connection = Ordering no.
example: 419.366 + 1Y + BV = 419.366.1Y.BV

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

Axial-flow full cone nozzles Series 485



Features:

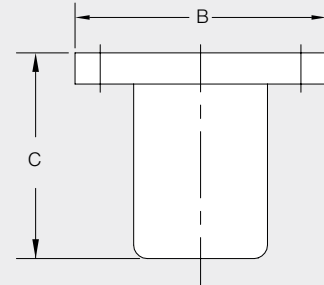
- One piece design
- Generates large droplets and even droplets at a wide a wide range of operating pressures

Applications:

- High volume surface spraying
- Cooling and quenching
- Fire protection
- Chemical processing and scrubbers



Series 485

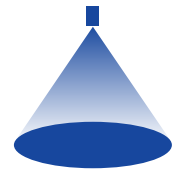


Inlet Flange Connection	Dimensions [in]		Weight [lb.]
	B	C	
4	9.00	6.13	19
5	10.00	8.38	42
6	11.00	10.56	54
8	13.47	12.25	98
10	16.00	17.00	140
12	19.00	20.00	200
16	23.50	22.00	330
18	25.00	28.75	450

Nozzle Inlet Flange Conn. (in)	Ordering no.	Bore diameter [in]	Free Passage (In.)	V̇ water [gal/min]												Spray Angle in degrees at					
	Material number			p [psi]																	
															Liters per min.						
	17 ¹ 316 SS			1	2	3	5	7	10	15	20	2 bar	40	60	3 psi	7 psi	15 psi				
4	485.646.17.04	2.25	1.19	108	143	168	207	236	273	321	360	1581	475	558	77	80	82				
	485.656.17.04	2.50		126	167	196	241	276	318	374	420	1844	554	651	86	90	91				
	485.666.17.04	2.75		152	201	236	290	332	382	450	505	2218	666	783	88	92	94				
	485.676.17.04	3.00		169	223	263	323	369	426	501	562	2468	741	872	91	95	97				
5	485.676.17.05	2.75	.68	169	223	263	323	369	426	501	562	2468	741	872	82	92	92				
	485.686.17.05	2.84		181	239	282	346	395	456	536	602	2644	794	934	85	92	95				
	485.696.17.05	2.95		193	255	299	367	420	485	570	640	2811	844	993	86	93	95				
	485.706.17.05	3.15		214	282	332	407	466	537	632	709	3114	935	1100	88	94	98				
	485.716.17.05	3.32		243	321	377	463	529	611	718	806	3540	1063	1250	84	90	94				
	485.726.17.05	3.50		269	355	417	512	586	676	795	892	3918	1177	1384	86	92	97				
6	485.716.17.06	3.25	.97	243	321	377	463	529	611	718	803	3540	1063	1250	80	86	90				
	485.726.17.06	3.47		269	355	417	512	586	676	795	892	3918	1177	1384	82	88	94				
	485.736.17.06	3.62		295	389	458	562	642	741	872	978	4296	1290	1518	83	89	95				
	485.746.17.06	3.87		323	426	501	614	703	811	954	1070	4700	1412	1660	86	89	98				
	485.756.17.06	4.12		369	488	573	703	805	928	1092	1225	5381	1616	1901	87	94	96				
	485.766.17.06	4.62		400	527	620	761	870	1004	1181	1325	5820	1748	2056	88	94	98				
8	485.736.17.08	3.5	1.31	311	410	482	591	677	780	918	1030	4524	1359	1598	63	70	70				
	485.756.17.08	3.93		397	523	615	755	864	996	1172	1315	5776	1735	2040	80	87	90				
	485.776.17.08	4.43		475	627	737	904	1035	1193	1404	1575	6918	2078	2444	90	100	102				
	485.786.17.08	5.12		543	716	842	1034	1183	1364	1604	1800	7906	2375	2793	82	96	101				
10	485.806.17.10	5.00	1.75	603	796	936	1149	1314	1516	1782	2000	8785	2639	3104	85	87	90				
	485.826.17.10	5.56		739	975	1147	1407	1610	1857	2184	2450	10762	3233	3802	85	87	90				
	485.836.17.10	6.00		884	1166	1372	1683	1925	2220	2611	2930	12870	3866	4547	85	87	90				
12	485.846.17.12	6.21	2.06	941	1242	1461	1792	2050	2364	2781	3120	13705	4117	4842	85	87	90				
	485.856.17.12	6.59		1044	1377	1620	1987	2273	2622	3084	3460	15198	4565	5369	85	87	90				
	485.866.17.12	7.06		1207	1592	1873	2297	2628	3031	3565	4000	17570	5278	6207	85	87	90				
	485.876.17.12	7.40		1321	1744	2051	2516	2878	3319	3904	4380	19240	5780	6797	85	87	90				
16	485.896.17.16	8.00	2.75	1554	2050	2411	2958	2958	3384	4590	5150	22622	6796	7992	85	87	90				
	485.916.17.16	9.25		1985	2620	3081	3779	4324	4987	5865	6580	28904	8683	10212	85	87	90				
18	485.936.17.18	10.7	2.75	2598	3428	4031	4945	5658	6525	7674	8610	37821	11361	13362	85	87	90				

* Nozzles are manufactured to spray performance, not orifice diameter

Tangential-flow full cone nozzles stainless steel/brass version Series 422/423



Features:

- Tangentially arranged supply of liquid
- Without swirl inserts
- Non-clogging
- Stable spray angle
- Uniform liquid distribution

Applications:

- Surface spraying
- Cooling
- Cleaning and washing processes
- Foam control

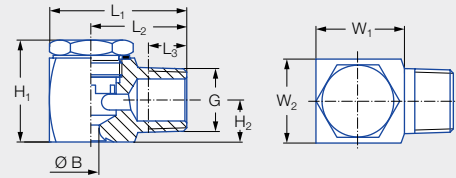
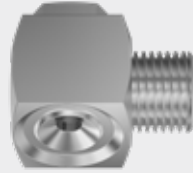


Figure 1

Series 422/423

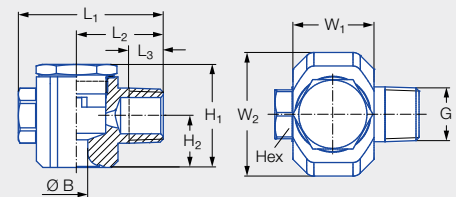
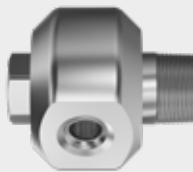


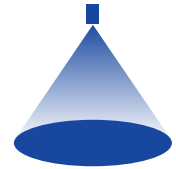
Figure 2

Connection	Figure	G	Dimensions [in]								Weight [lb] (stainless steel 316L)
			H ₁	H ₂	L ₁	L ₂	L ₃	W ₁	W ₂	Hex (mm)	
BC	1	1/4 NPT	0.83	0.31	1.10	0.79	0.38	0.61	0.61	–	0.1
BE	1	3/8 NPT	1.05	0.43	1.42	0.98	0.40	0.91	0.91	–	0.22
BG	2	1/2 NPT	1.57	0.79	2.20	1.32	0.52	1.26	1.26	19	0.82
BK	2	3/4 NPT	2.24	0.93	2.58	1.52	0.57	1.57	1.57	27	1.83
BM	2	1 NPT	2.60	1.07	3.35	1.91	0.66	2.17	2.17	36	3.49

Spray angle	Ordering Number									Bore diameter [in]	Narrowest free cross sections Ø [in]	V̇ water gal/min]								Spray diameter D [in] (at p = 30 psi) 		
	Type	Material number		Connection								p [psi]										
		1Y	30	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT	1-1/4 NPT			2 NPT	10	20	30	Liters per min.	40	60	80			100
																2 bar						
		316L SS	Brass															H =10 [in]	H =20 [in]			
30°	422.882	●				BE					0.193	0.193	2.48	3.51	4.30	16.00	4.96	6.08	7.02	7.85	6	15
	423.082	●					BK				0.323	0.323	7.76	10.97	13.43	50.00	15.51	19.00	21.94	24.53	6	15
	423.202	●							BP		0.472	0.472	15.51	21.94	26.87	100.00	31.03	38.00	43.88	49.06	6	15
60°	422.364	●			BC						0.045	0.043	0.09	0.13	0.16	0.60	0.19	0.23	0.26	0.29	10	20
	422.484	●			BC						0.071	0.071	0.25	0.35	0.43	1.60	0.50	0.61	0.70	0.78	10	20
	422.524	●				BE					0.079	0.079	0.31	0.44	0.54	2.00	0.62	0.76	0.88	0.98	10	20
	422.564	●				BE					0.089	0.089	0.39	0.55	0.67	2.50	0.78	0.95	1.10	1.23	10	20
	422.644	●	●			BE					0.118	0.118	0.62	0.88	1.07	4.00	1.24	1.52	1.76	1.96	10	20
	422.724	●				BE					0.142	0.142	0.98	1.38	1.69	6.30	1.95	2.39	2.76	3.09	10	20
	422.784	●					BG				0.163	0.163	1.40	1.97	2.42	9.00	2.79	3.42	3.95	4.42	10	20
	422.884	●					BG				0.252	0.252	2.48	3.51	4.30	16.00	4.96	6.08	7.02	7.85	15	25
	423.124	●						BK			0.441	0.441	9.77	13.82	16.93	63.00	19.55	23.94	27.65	30.91	15	25
	423.174	●							BM		0.500	0.500	13.19	18.65	22.84	85.00	26.37	32.30	37.30	41.70	15	25
	423.414	●								BV	0.969	0.969	51.97	73.50	90.00	335.00	103.95	127.31	147.00	164.30	15	25

Also available in metric thread.





Spray angle	Ordering Number												Bore diameter [in]	Narrowest free cross sections Ø [in]									Spray diameter D [in] (at p = 30 psi)		
	Type	Material number		Connection											10	20	30	Liters per min. 2 bar	40	60	80	100		H =10 [in]	H =20 [in]
		1Y	30	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT	1-1/4 NPT	2 NPT	2-1/2 NPT	3 NPT													
		316L SS	Brass																						
90°	422.286	●		BC									0.027	0.027	0.04	0.05	0.07	0.25	0.08	0.09	0.11	0.12	20	35	
	422.326	●		BC									0.033	0.031	0.06	0.09	0.11	0.40	0.12	0.15	0.18	0.20	20	35	
	422.346	●		BC									0.037	0.035	0.08	0.11	0.13	0.50	0.16	0.19	0.22	0.25	20	35	
	422.366	●		BC									0.043	0.043	0.09	0.13	0.16	0.60	0.19	0.23	0.26	0.29	20	35	
	422.406	●	●	BC									0.059	0.057	0.16	0.22	0.27	1.00	0.31	0.38	0.44	0.49	20	35	
	422.446	●		BC									0.065	0.063	0.20	0.29	0.35	1.30	0.40	0.49	0.57	0.64	20	35	
	422.486	●		BC									0.075	0.071	0.25	0.35	0.43	1.60	0.50	0.61	0.70	0.78	20	35	
	422.506	●		BC									0.079	0.079	0.28	0.39	0.48	1.80	0.56	0.68	0.79	0.88	20	36	
	422.526	●		BC									0.083	0.083	0.31	0.44	0.54	2.00	0.62	0.76	0.88	0.98	20	36	
	422.566	●	●	BC									0.091	0.087	0.39	0.55	0.67	2.50	0.78	0.95	1.10	1.23	20	36	
	422.606	●	●		BE								0.102	0.099	0.49	0.69	0.85	3.15	0.98	1.20	1.38	1.55	20	36	
	422.646	●	●		BE								0.118	0.114	0.62	0.88	1.07	4.00	1.24	1.52	1.76	1.96	20	36	
	422.686	●	●		BE								0.130	0.126	0.78	1.10	1.34	5.00	1.55	1.90	2.20	2.45	20	36	
	422.706	●			BE								0.138	0.134	0.87	1.23	1.50	5.60	1.74	2.13	2.46	2.75	20	38	
	422.726	●	●		BE								0.146	0.142	0.98	1.38	1.69	6.30	1.95	2.39	2.76	3.09	20	38	
	422.766	●			BE								0.163	0.161	1.24	1.76	2.15	8.00	2.48	3.04	3.51	3.92	20	38	
	422.786	●			BE								0.173	0.169	1.40	1.97	2.42	9.00	2.79	3.42	3.95	4.42	20	38	
	422.806	●	●		BE								0.183	0.181	1.55	2.19	2.69	10.00	3.10	3.80	4.39	4.91	20	38	
	422.846	●	●		BE								0.205	0.201	1.94	2.74	3.36	12.50	3.88	4.75	5.49	6.13	20	38	
	422.886	●	●		BE								0.229	0.225	2.48	3.51	4.30	16.00	4.96	6.08	7.02	7.85	20	40	
	422.926	●				BG							0.287	0.287	3.10	4.39	5.37	20.00	6.21	7.60	8.78	9.81	20	40	
	422.966	●				BG							0.315	0.315	3.88	5.49	6.72	25.00	7.76	9.50	10.97	12.27	20	40	
	423.006	●				BG							0.343	0.343	4.81	6.80	8.33	31.00	9.62	11.78	13.60	15.21	20	40	
	423.046	●					BK						0.426	0.402	6.21	8.78	10.75	40.00	12.41	15.20	17.55	19.62	20	40	
	423.086	●					BK						0.449	0.433	7.76	10.97	13.43	50.00	15.51	19.00	21.94	24.53	20	40	
	423.126	●					BK						0.500	0.485	9.77	13.82	16.93	63.00	19.55	23.94	27.65	30.91	20	40	
	423.146	●						BM					0.552	0.532	11.02	15.58	19.07	71.00	22.03	26.98	31.16	34.83	20	40	
	423.206	●						BM					0.670	0.630	15.51	21.94	26.87	100.00	31.03	38.00	43.88	49.06	20	40	
	423.286	●							BP				0.748	0.748	24.82	35.11	42.98	160.00	49.63	60.79	70.19	78.48	20	40	
	423.406	●								BV			0.965	0.965	48.87	69.11	84.63	315.00	97.72	119.68	138.19	154.50	20	40	
	423.486	●									BY		1.240	1.240	77.57	109.70	134.33	500.00	155.11	189.97	219.35	245.25	20	40	
	423.526	●									MA		1.398	1.398	97.74	138.23	169.25	630.00	195.43	239.36	276.39	309.01	20	40	

Also available in metric thread.

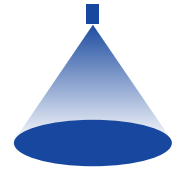


Conversion formula for this series: $\dot{V}_2 = \dot{V}_1 \cdot \sqrt{\frac{p_2}{p_1}}$

Ordering Type + Material no. + Connection = Ordering no.
example: 422.488 + 30 + CC = 422.488.30.CC



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



Spray angle	Ordering Number											Bore diameter [in]	Narrowest free cross sections Ø [in]	V̇ water [gal/min]								Spray diameter D [in] (at p = 30 psi)	
	Type	Material number		Connection										p [psi]									
		1Y	30	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT	1-1/4 NPT	2 NPT	2-1/2 NPT			10	20	30	Liters per min. 2 bar	40	60	80	100		
		316L SS	Brass																				
120°	422.368	●		BC								0.047	0.047	0.09	0.13	0.16	0.60	0.19	0.23	0.26	0.29	26	47
	422.408	●		BC								0.059	0.057	0.16	0.22	0.27	1.00	0.31	0.38	0.44	0.49	26	47
	422.448	●		BC								0.065	0.063	0.19	0.27	0.34	1.25	0.39	0.47	0.55	0.61	26	47
	422.488	●	●	BC								0.075	0.071	0.25	0.35	0.43	1.60	0.50	0.61	0.70	0.78	26	47
	422.508	●		BC								0.079	0.075	0.28	0.39	0.48	1.80	0.56	0.68	0.79	0.88	26	47
	422.528	●		BC								0.083	0.079	0.31	0.44	0.54	2.00	0.62	0.76	0.88	0.98	26	47
	422.568	●	●	BC								0.091	0.087	0.39	0.55	0.67	2.50	0.78	0.95	1.10	1.23	26	47
	422.608	●	●		BE							0.102	0.098	0.49	0.69	0.85	3.15	0.98	1.20	1.38	1.55	26	47
	422.648	●			BE							0.118	0.114	0.62	0.88	1.07	4.00	1.24	1.52	1.76	1.96	26	47
	422.688	●			BE							0.130	0.126	0.78	1.10	1.34	5.00	1.55	1.90	2.19	2.45	26	47
	422.708	●			BE							0.138	0.134	0.87	1.23	1.50	5.60	1.74	2.13	2.46	2.75	26	47
	422.728	●	●		BE							0.146	0.142	0.98	1.38	1.69	6.30	1.95	2.39	2.76	3.09	30	55
	422.768	●			BE							0.163	0.161	1.24	1.76	2.15	8.00	2.48	3.04	3.51	3.92	30	55
	422.788	●			BE							0.173	0.169	1.40	1.97	2.42	9.00	2.79	3.42	3.95	4.42	30	55
	422.808	●			BE							0.183	0.181	1.55	2.19	2.69	10.00	3.10	3.80	4.39	4.91	33	58
	422.848	●	●		BE							0.205	0.201	1.94	2.74	3.36	12.50	3.88	4.75	5.49	6.13	33	58
	422.888	●	●		BE							0.228	0.224	2.48	3.51	4.30	16.00	4.96	6.08	7.02	7.85	33	58
	422.928	●				BG						0.287	0.287	3.10	4.39	5.37	20.00	6.21	7.60	8.78	9.81	35	63
	422.968	●	●			BG						0.315	0.315	3.88	5.49	6.72	25.00	7.76	9.50	10.97	12.27	35	63
	422.988	●				BG						0.331	0.331	4.34	6.14	7.52	28.00	8.69	10.64	12.29	13.74	35	63
	423.008	●				BG						0.343	0.343	4.89	6.91	8.46	31.50	9.77	11.97	13.82	15.45	35	63
	423.048	●					BK					0.426	0.402	6.21	8.78	10.75	40.00	12.41	15.20	17.55	19.62	35	63
	423.088	●					BK					0.449	0.433	7.76	10.97	13.43	50.00	15.51	19.00	21.94	24.53	35	63
	423.128	●					BK					0.500	0.485	9.77	13.82	16.93	63.00	19.55	23.94	27.65	30.91	35	63
	423.148	●						BM				0.552	0.532	11.02	15.58	19.07	71.00	22.03	26.98	31.16	34.83	35	63
	423.208	●						BM				0.670	0.630	15.51	21.94	26.87	100.00	31.03	38.00	43.88	49.06	35	63
	423.288	●							BP			0.748	0.748	24.82	35.11	42.98	160.00	49.63	60.79	70.19	78.48	35	63
	423.368	●								BR		0.875	0.875	38.79	54.85	67.16	250.00	77.55	94.98	109.68	122.62	35	63
	423.448	●									BV	1.220	1.161	62.06	87.76	107.46	400.00	124.09	151.97	175.48	196.20	35	63

Also available in metric thread.

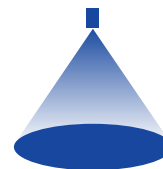
Conversion formula for this series: $\dot{V}_2 = \dot{V}_1 \cdot \sqrt{\frac{p_2}{p_1}}$

Ordering Type + Material no. + Connection = Ordering no.
example: 422.888 + 1Y + BE = 422.888.1Y.BE



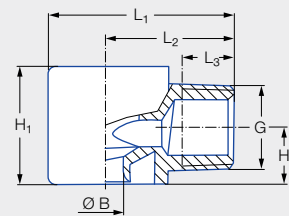
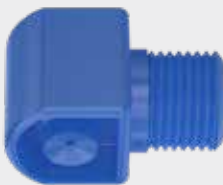
Assembly accessories can be found in Chapter 12 "Accessories".

Tangential-flow full cone nozzles, plastic version Series 422/423



Features:

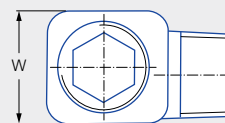
- Tangentially arranged supply of liquid
- Without swirl inserts
- Non-clogging
- Stable spray angle
- Uniform liquid distribution
- High chemical resistance



Applications:

- Surface spraying
- Cooling
- Cleaning and washing processes
- Foam control

Series 422/423

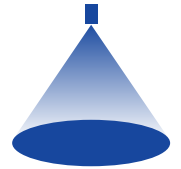


Connection	G	Dimensions [in]						Weight [lb]
		H ₁	H ₂	L ₁	L ₂	L ₃	Hex (mm)	
BC	1/4 NPT	0.63	0.31	1.10	0.79	0.39	16	0.02
BE	3/8 NPT	0.91	0.44	1.42	0.98	0.40	22	0.04
BG	1/2 NPT	1.50	0.76	1.95	1.32	0.52	32	0.09
CG	1/2 BSPT	1.50	0.76	1.95	1.32	0.52	32	0.09
CK	3/4 BSPT	1.97	0.96	2.30	1.52	0.73	41	0.11

Spray angle	Ordering number						Bore diameter B [in]	Narrowest free cross sections Ø [in]	V̇ water [gal/min]							Spray diameter D [in] (at p = 30 psi)	
	Type	Mat. no.	Connection						p [psi]							H = 10 [in]	H = 20 [in]
		5E	1/4 NPT	3/8 NPT	1/2 BSPT	3/4 BSPT			7	15	30	Liters per min. 2 bar	45	75	145		
		PVDF															
60°	422.724	●		BE			0.142	0.142	0.82	1.20	1.69	6.30	2.07	2.68	3.72	10	20
90°	422.406	●	BC				0.059	0.057	0.13	0.19	0.27	1.00	0.33	0.42	0.59	20	35
	422.566	●	BC				0.091	0.087	0.32	0.47	0.67	2.50	0.82	1.06	1.48	20	36
	422.606	●		BE			0.102	0.098	0.41	0.60	0.85	3.15	1.04	1.34	1.86	20	36
	422.646	●		BE			0.118	0.114	0.52	0.76	1.07	4.00	1.32	1.70	2.36	20	36
	422.726	●		BE			0.146	0.142	0.82	1.20	1.69	6.30	2.07	2.68	3.72	20	38
	422.806	●		BE			0.183	0.181	1.30	1.90	2.69	10.00	3.29	4.25	5.90	20	38
	422.846	●		BE			0.209	0.209	1.62	2.37	3.36	12.50	4.11	5.31	7.38	20	38
	422.886	●		BE			0.228	0.228	2.08	3.04	4.30	16.00	5.26	6.80	9.45	20	40
	422.926	●			*BG		0.287	0.287	2.60	3.80	5.37	20.00	6.58	8.50	11.81	20	40
	422.966	●			CG		0.315	0.315	3.24	4.75	6.72	25.00	8.23	10.62	14.77	20	40
	423.006	●			CG		0.343	0.343	4.09	5.98	8.46	31.50	10.36	13.38	18.60	20	40
	423.126	●				CK	0.472	0.472	8.18	11.97	16.93	63.00	20.73	26.76	37.21	20	40

*only available in NPT





Spray angle	Ordering number						Bore diameter B [in]	Narrowest free cross sections Ø [in]	V̇ water [gal/min]							Spray diameter D [in] (at p = 30 psi)	
	Type	Mat. no.	Connection						p [psi]								
		5E															
		PVDF													1/4 NPT		3/8 NPT
									7	15	30	Liters per min. 2 bar	45	75	145	H = 10 [in]	H = 20 [in]
120°	422.408	●	BC				0.059	0.057	0.13	0.19	0.33	1.00	0.33	0.42	0.59	26	47
	422.448	●	BC				0.065	0.063	0.16	0.24	0.34	1.25	0.41	0.53	0.74	26	47
	422.488	●	BC				0.075	0.075	0.21	0.30	0.43	1.60	0.53	0.68	0.95	26	47
	422.568	●	BC				0.094	0.094	0.32	0.47	0.67	2.50	0.82	1.06	1.48	26	47
	422.728	●		BE			0.157	0.154	0.82	1.20	1.69	6.30	2.07	2.68	3.72	30	55
	422.888	●		BE			0.260	0.236	2.08	3.04	4.30	16.00	5.26	6.80	9.45	33	58
	422.968	●			CG		0.315	0.315	3.24	4.75	6.72	25.00	8.23	10.62	14.77	35	63
	423.008	●			CG		0.343	0.343	4.09	5.98	8.46	31.50	10.36	13.38	18.60	35	63
	423.128	●				CK	0.500	0.484	8.18	11.97	16.93	63.00	20.73	26.76	37.21	35	63

Also available in metric thread.

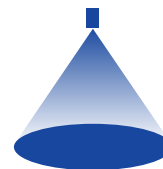
Conversion formula for this series: $\dot{V}_2 = \dot{V}_1 \cdot \sqrt{\frac{p_2}{p_1}}$

Ordering Type + Material no. + Connection = Ordering no.
example: 422.408 + 5E + BC = 422.408.5E.BC



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

Tangential-flow full cone nozzles, plastic version with bayonet quick-release system Series 422



Features:

- Without swirl inserts
- Non-clogging
- Stable spray angle
- Simple and quick assembly
- Uniform liquid distribution
- High chemical resistance

Applications:

- Surface spraying
- Cooling
- Cleaning and washing processes
- Foam control



Series 422

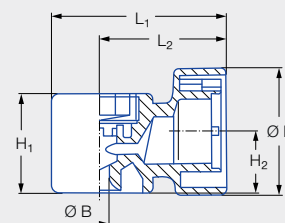


Figure 1

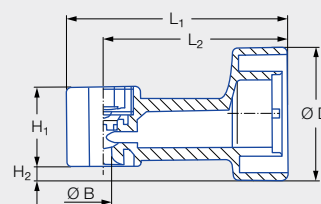


Figure 2

Type	Connection	Figure	Dimensions [in]					Weight [lb] (PVDF)
			H ₁	H ₂	L ₁	L ₂	Ø D	
422.644/422.606/422.608	KB	1	0.91	0.55	1.57	1.14	1.16	0.04
422.406/422.408/422.528	KB	2	0.69	0.14	1.89	1.57	1.16	0.03

Spray angle	Ordering number				Bore diameter B [in]	Narrowest free cross sections Ø [in]	V̇ water [gal/min]							Spray diameter D [in] (at p = 30 psi)	
	Type	Mat. no.		Connection			p [psi]								
		5E	53												
		PVDF	PP												
60°	422.644		●	KB	0.114	0.114	0.52	0.76	1.07	4.00	1.32	1.70	2.36	10	20
90°	422.406	●		KB	0.059	0.057	0.13	0.19	0.27	1.00	0.33	0.42	0.59	20	35
	422.606	●		KB	0.098	0.098	0.41	0.60	0.85	3.15	1.04	1.34	1.86	20	36
120°	422.408	●		KB	0.059	0.057	0.13	0.19	0.27	1.00	0.33	0.42	0.59	26	47
	422.528	●		KB	0.083	0.079	0.26	0.38	0.54	2.00	0.66	0.85	1.18	26	47
	422.608	●		KB	0.102	0.098	0.41	0.60	0.85	3.15	1.04	1.34	1.86	26	47

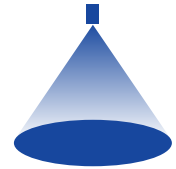
Conversion formula for this series: $\dot{V}_2 = \dot{V}_1 \cdot \sqrt{\frac{p_2}{p_1}}$

Ordering Type + Material no. + Connection = Ordering no.
 example: 422.644 + 53 + KB = 422.644.53.KB



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

HelixFlow Full cone nozzles Series 4Fx



Features:

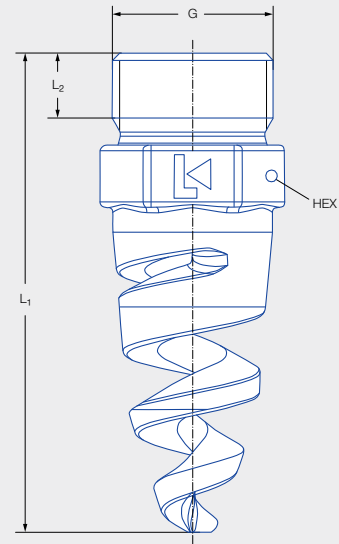
- Fine droplet sizes
- Low weight
- Robust design
- Maintenance free

Applications:

- General Industry
- Flue gas desulphurization (special material)
- General cooling
- General gas humidification



Series 4Fx



Male thread

Connection	G	Dimensions [in]		
		L ₁	L ₂	Flat
BG	1/2 NPT	2.56	0.39	22
BK	3/4 NPT	3.74	0.46	27
BM	1 NPT	4.84	0.50	34
BR	1 1/2 NPT	6.02	0.65	50
BV	2 NPT	8.00	0.73	60

Spray angle	Ordering no.						Narrowest free cross section Ø [in]	V̇ water [gal/min]								Weight [lb]	Spray width [ft]		
		1Y	Connection					p [psi]											
		Stainless steel 316L	3/4 NPT	1 NPT	1 1/2 NPT	2 NPT		5	10	20	30	2.0 bar	40	60	80	145	H = 1640	H = 3280	
 60°	4F5.254	●	BK				0.24	14.47	20.47	28.95	35.46	132	40.94	50.15	57.91	77.96	.23	0.6	0.8
	4F5.334	●		BM			0.28	23.25	32.88	46.50	56.95	212	65.76	80.54	93.00	125.21	.47	0.6	1.0
	4F5.354	●		BM			0.28	25.88	36.60	51.77	63.40	236	73.21	89.66	103.53	139.39	.47	0.6	1.0
	4F5.394	●		BM			0.28	32.90	46.53	65.80	80.60	300	93.06	113.98	131.61	177.19	.41	0.6	1.0
	4F5.454	●			BR		3.54	46.61	65.92	93.22	114.18	425	131.84	161.47	186.45	251.02	1.26	0.8	1.2
	4F5.504	●			BR		0.39	61.42	86.86	122.84	150.45	560	173.72	212.76	245.68	330.75	1.16	0.6	1.0
	4F5.524	●			BR		0.43	69.10	97.71	138.19	169.25	630	195.43	239.36	276.38	372.10	1.16	0.8	1.2
	4F5.584	●				BV	0.79	98.71	139.59	197.42	241.79	900	279.19	341.94	394.84	531.57	2.11	0.8	1.2
	4F5.614	●				BV	0.94	122.84	173.72	245.67	300.89	1120	347.44	425.52	491.35	661.50	1.96	0.8	1.2



Spray angle	Ordering no.							Narrowest free cross section Ø [in]	V̇ water [gal/min]									Weight [lb]	Spray width [ft]	
		1Y	Connection						p [psi]										H = 1640	H = 3280
		Stainless steel 316L	1/2 NPT	3/4 NPT	1 NPT	1 1/2 NPT	2 NPT		5	10	20	30	2.0 bar	40	60	80	145			
 90°	4F5.166	●	BG					0.18	8.77	12.41	17.55	21.49	80	24.82	30.39	35.09	47.25	.17	2.95	4.59
	4F5.216	●	BG					0.18	11.62	16.44	23.25	28.48	106	32.88	40.27	46.50	62.60	.16	2.62	1.6
	4F5.256	●		BK				0.28	14.47	20.47	28.95	35.46	132	40.95	50.15	57.91	77.96	.23	2.95	4.59
	4F5.336	●			BM			0.28	23.25	32.88	46.50	56.95	212	65.76	80.54	93.00	125.21	237	3.28	6.56
	4F5.396	●			BM			0.31	32.90	46.53	65.80	80.60	300	93.06	113.98	131.61	177.19	.52	3.28	6.56
	4F5.456	●				BR		0.43	46.61	65.92	93.22	114.18	425	131.84	161.47	186.45	251.02	1.05	2.95	4.59
	4F5.506	●				BR		0.47	61.42	86.86	122.84	150.45	560	173.72	212.76	245.67	330.75	.97	3.28	5.25
	4F5.526	●				BR		0.47	69.09	97.71	138.19	169.25	630	195.43	239.36	276.38	372.09	.93	2.62	4.59
	4F5.586	●					BV	0.59	98.71	139.59	197.42	241.79	900	279.19	341.94	394.84	531.56	2.15	3.93	7.21
	4F5.616	●					BV	0.59	122.84	173.72	245.67	300.89	1120	347.44	425.52	491.35	661.50	1.98	3.93	6.56
 120°	4F5.218	●	BG					0.20	11.62	16.44	23.25	28.48	106	32.88	40.27	46.50	62.60	.11	4.59	7.87
	4F5.258	●		BK				0.24	14.47	20.47	28.95	35.46	132	40.95	50.15	57.91	77.96	.24	5.25	8.53
	4F5.338	●			BM			0.28	23.25	32.88	46.50	56.95	212	65.76	80.54	93.00	125.21	.54	5.25	10.50
	4F5.398	●			BM			0.35	32.90	46.53	65.80	80.60	300	93.06	113.98	131.61	177.19	.50	5.90	8.53
	4F5.458	●				BR		0.47	46.61	65.92	93.22	114.18	425	131.84	161.47	186.45	251.02	1.23	4.59	7.87
	4F5.508	●				BR		0.47	61.42	86.86	122.84	150.45	560	173.72	212.76	245.67	330.75	1.17	6.56	9.84
	4F5.528	●				BR		0.47	69.09	97.71	138.19	169.25	630	195.43	239.36	276.38	372.09	1.12	5.25	8.53
	4F7.588	●					BV	0.47	98.71	139.59	197.42	241.79	900	279.19	341.94	394.84	531.56	2.33	5.25	9.20
	4F7.618	●					BV	0.51	122.84	173.72	245.67	300.89	1120	347.44	425.52	491.35	661.50	2.17	5.90	9.20
 150°	4F7.339	●			BM			0.31	23.25	32.88	46.50	56.95	212	65.76	80.54	93.00	125.21	.57	7.21	13.78
	4F7.399	●			BM			0.31	32.90	46.53	65.80	80.60	300	93.06	113.98	131.61	177.19	.52	7.21	13.78
 170°	4F7.250	●		BK				0.24	14.47	20.47	28.95	35.46	132	40.95	50.15	57.91	77.96	.26	9.84	17.71
	4F7.330	●			BM			0.31	23.25	32.88	46.50	56.95	212	65.76	80.54	93.00	125.21	.60	13.12	19.68
	4F7.390	●			BM			0.31	32.90	46.53	65.80	80.60	300	93.06	113.98	131.61	177.19	.55	13.12	19.68
	4F7.450	●				BR		0.39	46.61	65.92	93.22	114.18	425	131.84	161.47	186.45	251.02	1.41	9.18	14.43
	4F7.500	●				BR		0.39	61.42	86.86	122.84	150.45	560	173.72	212.76	245.67	330.75	1.33	11.15	15.75
	4F7.520	●				BR		0.39	69.09	97.71	138.19	169.25	630	195.43	239.36	276.38	372.09	1.29	11.15	14.43

Ordering example: 4F5.334 + 1Y + BM = 4F5.334.1Y.BM

Conversion formula for this series: $\dot{V}_2 = \dot{V}_1 \cdot \sqrt{\frac{P_2}{P_1}}$

Cluster head nozzles

Series 502/503

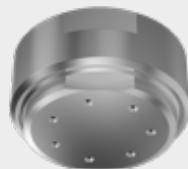


Features:

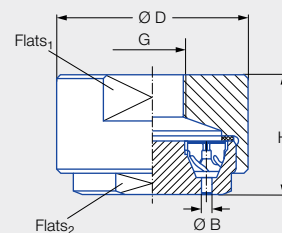
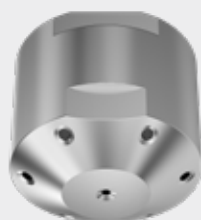
- Fine, uniform atomization
- Stable spray angle
- Space-saving installation
- Maintenance-friendly design
- High temperature and chemical resistance

Applications:

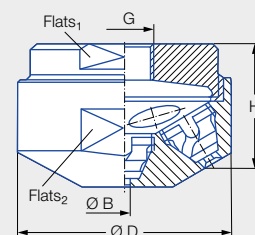
- Chlorine precipitation
- Absorption
- Dust suppression
- Degassing of liquids
- Desuperheating



Series 502/503



70° version



130° version

70° version

G	Dimensions [in]				Weight [lb] (brass)
	H	Ø D	Flats ₁ (mm)	Flats ₂ (mm)	
1/2 NPT	0.98	1.97	46	38	0.55
3/4 NPT	1.81	2.95	65	55	1.92

130° version

G	Dimensions [in]				Weight [lb] (brass)
	H	Ø D	Flats ₁ (mm)	Flats ₂ (mm)	
1/2 NPT	1.10	1.57	27	36	0.33
3/4 NPT	2.09	2.36	50	55	0.90

Spray angle	Ordering number					Bore diameter B [in]	Narrowest free cross sections Ø [in]	V̇ water [gal/min]						Spray diameter D [in] (at p = 30 psi) 	
	Type	Mat. no.		Connection				p [psi]							
		17 ¹	30	1/2 NPT	3/4 NPT			7	15	30	Liters per min.	75	145	H = 20 [in]	H = 40 [in]
		Stainless steel 316Ti/ Stainless steel 316L	Brass								2 bar				
70°	502.445		●	BH		0.035	0.020	–	–	0.34	1.25	0.53	0.74	10	14
	502.985	●			BL	0.130	0.079	3.63	5.32	7.52	28.00	11.89	16.54	24	39
	503.065	●			BL	0.193	0.079	5.84	8.55	12.09	45.00	19.12	26.58	36	60
	503.115	●	●		BL	0.236	0.079	7.79	11.40	16.12	60.00	25.49	35.44	51	78
130°	502.448	●	●	BH		0.035	0.020	–	–	0.34	1.25	0.53	0.74	12	14
	502.548	●	●	BH		0.071	0.020	–	0.43	0.60	2.24	0.95	1.32	18	22
	502.588	●	●		BL	0.039	0.039	0.36	0.53	0.75	2.80	1.19	1.65	32	35
	502.748	●	●		BL	0.075	0.079	0.92	1.35	1.91	7.10	3.02	4.19	43	55
	502.798	●	●		BL	0.114	0.079	1.23	1.80	2.55	9.50	4.04	5.61	47	51
	502.838	●	●		BL	0.114	0.079	1.53	2.24	3.17	11.80	5.01	6.97	59	81
	502.908	●	●		BL	0.157	0.079	2.34	3.42	4.84	18.00	7.65	10.63	70	104
	503.028	●	●		BL	0.165	0.079	4.61	6.74	9.54	35.50	15.08	20.97	81	124
	503.118	●	●		BL	0.256	0.079	7.79	11.40	16.12	60.00	25.49	35.44	91	140

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

Also available in metric thread.

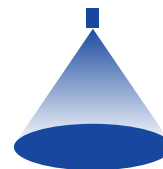
Conversion formula for this series: $\dot{V}_2 = \dot{V}_1 \cdot \sqrt{\frac{p_2}{p_1}}$

Ordering Type + Material no. + Connection = Ordering no.
example: 502.445 + 30 + BH = 502.445.30.BH



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

Deflector-plate nozzles Series 524/525

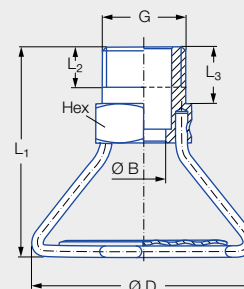


Features:

- Full cone atomization
- Large impact area
- Non-clogging

Applications:

- Fire fighting
- Sprinkling
- Dust suppression



Series 524/525

G	Dimensions [in]					Weight [lb] (brass)
	L ₁	L ₂	L ₃	Ø D	Hex (mm)	
1/2 NPT	2.11	0.43	0.57	2.2	24	0.15

Spray angle	Ordering number					Bore diameter B [in]	V̇ water [gal/min]							Spray diameter D [in] (at p = 30 psi)	
	Type	Mat. no.		Connection			p [psi]							H = 40 [in]	H = 120 [in]
		17'	30	1/2 Male NPT	BSPP		Liters per min.								
		Stainless steel 316Ti/ Stainless steel 316L	Brass				7	15	30	2 bar	45	75	145		
180°	524.809	●	●	BG	00	0.157	1.30	1.90	2.69	10.00	3.29	4.25	5.91	150	169
	525.049	●	●	BG	00	0.315	5.19	7.60	10.75	40.00	13.16	16.99	23.63	394	453
	525.109		●	BG	00	0.366	7.27	10.64	15.04	56.00	18.43	23.79	33.08	413	502
	525.169		●	BG	00	0.429	10.38	15.20	21.49	80.00	26.32	33.98	47.25	413	571
	525.229		●	BG	00	0.480	14.53	21.28	30.09	112.00	36.85	47.58	66.15	295	453
	525.269	●	●	BG	00	0.484	18.17	26.60	37.61	140.00	46.06	59.47	82.69	276	472

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

Also available in metric thread.

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

Ordering Type + Material no. + Connection = Ordering no.
example: 524.809 + 17 + BG = 524.809.17.BG



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

