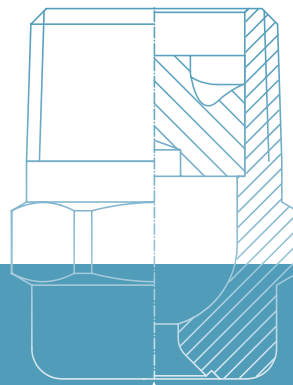
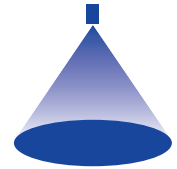




# ➤➤ FULL CONE NOZZLES



# ➤ 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



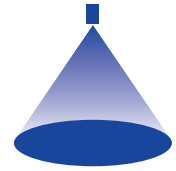
- Axial flow
- Multi-nozzle spray head
- Full surface impact
- Atomized spray – very fine droplets
- Small droplet sizes
- Enlarged droplet surface area
- Standard materials:  
Stainless steel 316Ti/316L, Brass  
(special material available on request)

## 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

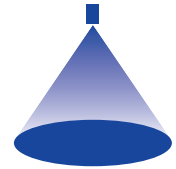


## Axial-flow full cone nozzles

							
Series		460/461	490/491	468	452	405	459
Information on page		169	171	174	175	176	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		Cluster head nozzles	Deflector-plate nozzles
						
403	419	485	422/423	422 with bayonet quick-release system	502/503	524/525
178	179	180	181/184	186	187	188
			•	•	•	
			•		•	•
			•		•	•
	• (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	1/2 NPT

# ➤ Axial-flow full cone nozzles Series 460/461



### Features:

- Extremely uniform liquid distribution

### Applications:

- Cleaning and washing processes
- Cooling
- Surface spraying
- Chemical process engineering



Series 460/461

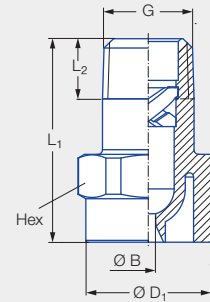


Figure 1

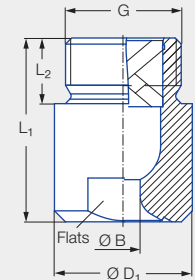


Figure 2

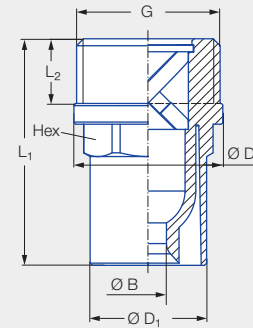
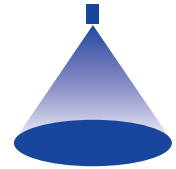


Figure 3

Connection	Figure	G	Dimensions [in]					Weight [lb]
			L <sub>1</sub>	L <sub>2</sub>	Ø D <sub>1</sub>	Ø D <sub>2</sub>	Hex (mm)	
BA	1	1/8 NPT	0.87	0.26	0.51	–	14	0.006
BC	1	1/4 NPT	0.87	0.38	0.51	–	14	0.007
BE	1	3/8 NPT	1.18	0.39	0.67	–	17	0.014
BG	1	1/2 NPT	1.71	0.52	0.87	–	22	0.032
BK	2	3/4 NPT	1.65	0.59	1.24	–	27	0.044
BM	3	1 NPT	2.07	0.59	1.06	1.36	27	0.076

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				H = 10 [in]	H = 20 [in]
															45	60	75	145		
60°	460.524	●	BA						0.063	0.063	0.30	0.41	0.54	2.00	0.63	0.71	0.77	1.01	8	15
	460.644	●		BC					0.094	0.075	0.60	0.81	1.07	4.00	1.26	1.41	1.55	2.01	9	17
	460.724	●		BC					0.110	0.083	0.94	1.28	1.69	6.30	1.98	2.23	2.43	3.17	10	18
	460.964	●					BK		0.228	0.193	3.74	5.07	6.69	25.00	7.87	8.83	9.66	12.57	12	22






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	1/8 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		
		PVDF	BA																BE	BC
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	●			BE	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 <sup>1</sup>		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 <sup>1</sup>		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	● <sup>1</sup>					BK <sup>1</sup>		0.300	0.193	5.98	8.12	10.71	40.00	12.60	14.13	15.45	20.11	34	60

<sup>1</sup> Material PP (mat. no. 53).  
Also available in metric thread.

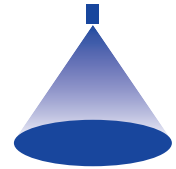
Conversion formula for this series:  $\dot{V}_2 = \dot{V}_1 \cdot \left(\frac{p_2}{p_1}\right)^{0.4}$   
(≤ 10 bar)

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

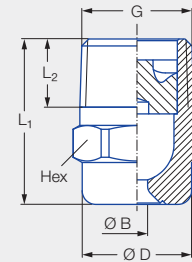


Figure 1

Series 490/491

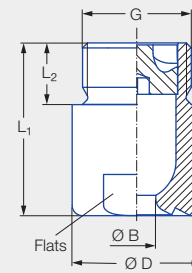


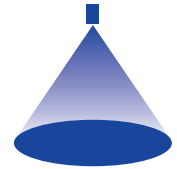
Figure 2

Connection	Figure	G	Dimensions [in]				Weight [lb] (brass)
			L <sub>1</sub>	L <sub>2</sub>	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]								H = 10 [in]	H = 20 [in]	
		1Y	30	Stainless steel 316L	Brass	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
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 <sup>1</sup>				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 <sup>1</sup>				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

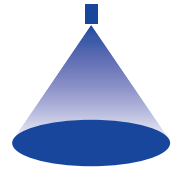
<sup>1</sup> Only available in material 30.






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]							H = 10 [in]	H = 20 [in]		
		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	
		Stainless steel 316L	Brass																			
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	






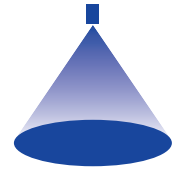
Spray angle	Ordering number										Bore diameter B [in]	Narrowest free cross sections Ø [in]	V̇ water [gal/min]								Spray diameter D [in] (at p = 30 psi)									
	Type	Mat. no.		Connection									p [psi]																	
		1Y	30																											
		Stainless steel 316L	Brass																		1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT	7	15	30	Liters per min. 2 bar
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



### Features:

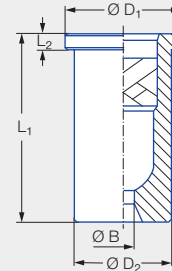
- Extremely uniform liquid distribution
- Assembly with retaining nut

### Applications:

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



Series 468



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

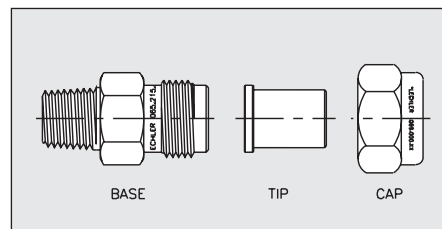
Spray angle	Ordering number				Bore diameter B [in]	Narrowest free cross sections Ø [in]	L <sub>1</sub> [in]	V̇ water [gal/min]						Spray diameter D [mm] (at p = 30 psi)		
	Type	Material number						p [psi]						 H = 10 [in]   H = 20 [in]		
		17 <sup>1</sup>	30	5E				7	15	30	Liters per min. 2 bar	45	75			145
60°	468.604	●	●		0.08	0.06	0.71	0.47	0.64	0.84	3.15	0.99	1.22	1.58	11	22
	468.644		●	●	0.09	0.07	0.96	0.60	0.81	1.07	4.00	1.26	1.55	2.01	11	22
	468.684		●		0.10	0.08	0.96	0.75	1.01	1.34	5.00	1.57	1.93	2.51	12	23
	468.724	●	●		0.11	0.08	0.96	0.94	1.28	1.69	6.30	1.98	2.43	3.17	12	23
90°	468.526	●	●	●	0.06	0.05	0.71	0.30	0.41	0.54	2.00	0.62	0.77	1.01	18	31
	468.846	●	●		0.16	0.13	0.96	1.87	2.54	3.35	12.50	3.94	4.83	6.29	20	36
120°	468.368		●		0.04	0.028	0.71	0.09	0.13	0.17	0.63	0.20	0.24	0.32	29	69
	468.408	●	●		0.05	0.033	0.71	0.15	0.20	0.27	1.00	0.31	0.39	0.50	29	69
	468.488	●	●		0.060	0.04	0.71	0.24	0.32	0.43	1.60	0.50	0.62	0.80	29	69
	468.528	●	●		0.065	0.05	0.71	0.30	0.40	0.54	2.00	0.63	0.77	1.01	29	69

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

Also available in metric thread.

### 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.
To fit 11/16x16		069. 000. XX. 00	
To fit 3/8 BSPP		065. 200. XX. 00	

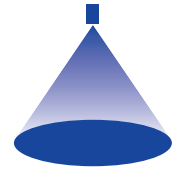


Conversion formula for this series:  $\dot{V}_2 = \dot{V}_1 \cdot \left(\frac{p_2}{p_1}\right)^{0.4}$   
(≤ 10 bar)

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:

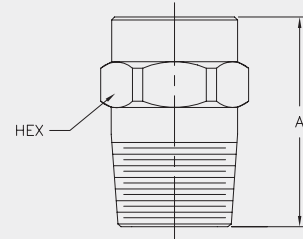
- Narrow spray angle
- High impact

### Applications:

- Cleaning and washing processes
- Surface spraying



Series 452



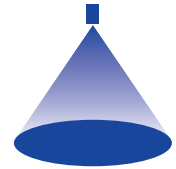
G (Male NPT)	Dimensions [in]		Weight [lb.]
	A	Hex (mm)	
1/4	1.81	18	0.16
3/8	2.31	24	0.20

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:

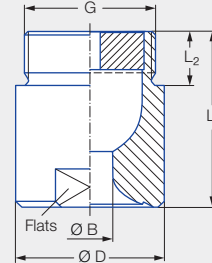
- Extremely uniform liquid distribution

### Applications:


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



Series 405




Connection	G	Dimensions [in]				Weight [lb] (brass)
		L <sub>1</sub>	L <sub>2</sub>	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]						 H = 20 [in]   H = 40 [in]		
		1Y	30	1 1/4 NPT	1 1/2 NPT	2 NPT											
		Stainless steel 316L	Brass						5	7	15	30	Liters per min. 2 bar	45	60		
60°	405.204	●	●	BP			0.44	0.23	13.08	14.96	20.29	26.78	100	31.49	35.33	24	45
	405.284	●	●		BR		0.56	0.28	20.92	23.94	32.47	42.84	160	50.38	56.53	25	48
	405.324	●	●			BV	0.65	0.30	26.15	29.92	40.58	53.55	200	62.98	70.66	26	49
	405.364	●	●			BV	0.72	0.33	32.69	37.40	50.73	66.94	250	78.72	88.32	26	49
	405.404	●				BV	0.79	0.28	41.19	47.12	63.92	84.34	315	99.19	111.29	26	49
90°	405.206	●	●	BP			0.47	0.20	13.08	14.96	20.29	26.78	100	31.49	35.33	44	83
	405.286	●	●		BR		0.60	0.24	20.92	23.94	32.47	42.84	160	50.38	56.53	44	83
	405.326	●				BV	0.68	0.30	26.15	29.92	40.58	53.55	200	62.98	70.66	44	83
	405.366	●				BV	0.77	0.34	32.69	37.40	50.73	66.94	250	78.72	88.32	44	83
	405.406	●	●			BV	0.87	0.37	41.19	47.12	63.92	84.34	315	99.19	111.29	44	83
120°	405.208	●	●	BP			0.50	0.20	13.08	14.96	20.29	26.78	100	31.49	35.33	73	120
	405.288	●	●		BR		0.63	0.26	20.92	23.94	32.47	42.84	160	50.38	56.53	75	124
	405.328	●				BV	0.70	0.31	26.15	29.92	40.58	53.55	200	62.98	70.66	75	126
	405.368	●	●			BV	0.79	0.35	32.69	37.40	50.73	66.94	250	78.72	88.32	75	126
	405.408	●	●			BV	0.88	0.36	41.19	47.12	63.92	84.34	315	99.19	111.29	75	126

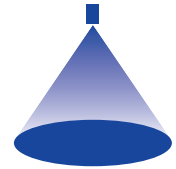
Also available in BSPP metric thread.

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:

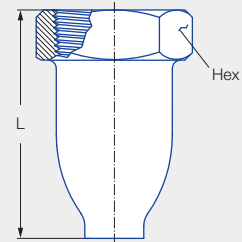
- Turbine-style vane for uniform atomization and distribution

## 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 <sup>1</sup> 316SS	1½ NPT	2 NPT	2½ NPT		3 NPT	5	10	15	20	Liters per min. 2 bar	40	60	80
Standard angle	62	459.244	●	BS	-	-	-	.500	16.21	21.39	25.16	28.23	124	37.25	43.81	49.15	53.74
	62	459.284	●	BS	-	-	-	.625	21.58	28.47	33.48	37.56	165	49.57	58.29	65.40	71.51
	70	459.355	●	BS	-	-	-	.687	30.47	40.20	47.28	53.05	233	69.99	82.32	92.36	100.98
	84	459.356	●	BS	-	-	-	.687	30.47	40.20	47.28	53.05	233	69.99	82.32	92.36	100.98
	43	459.343	●	-	BW	-	-	.500	29.03	38.30	45.05	50.54	222	66.69	78.43	88.00	96.21
	80*	459.365	●	-	BW	-	-	.656	30.64	41.75	49.11	55.09	242	72.70	85.50	95.93	104.88
	66	459.415	●	-	BW	-	-	.796	44.33	58.49	68.79	77.18	339	101.84	119.77	134.37	146.92
	68	459.455	●	-	BW	-	-	.906	56.75	74.88	88.07	98.81	434	130.38	153.33	172.03	188.09
	83	459.475	●	-	-	BZ	-	.910	62.11	81.96	96.39	108.14	475	142.69	167.82	188.28	205.86
	67	459.515	●	-	-	BZ	-	1.06	78.85	104.04	122.36	137.28	603	181.14	213.04	239.02	261.34
57	459.584	●	-	-	-	MB	1.31	120.95	159.60	187.70	210.59	925	277.87	326.80	366.66	400.89	
Wide angle	120	459.238	●	BS	-	-	-	.562	16.21	21.39	25.16	28.23	124	37.25	43.81	49.15	53.74
	98	459.266	●	BS	-	-	-	.500	15.30	20.19	23.74	26.64	117	35.15	41.34	46.38	50.71
	94	459.286	●	BS	-	-	-	.625	21.58	28.47	33.48	37.56	165	49.57	58.29	65.40	71.51
	120	459.288	●	BS	-	-	-	.625	21.18	27.95	32.87	36.88	162	48.67	57.23	64.21	70.21
	120	459.348	●	BS	-	-	-	.781	29.55	38.99	45.86	51.45	226	67.89	79.85	89.58	97.95
	118	459.378	●	-	BW	-	-	.781	35.70	47.10	55.40	62.15	273	82.01	96.45	108.21	118.32
	*99	459.386	●	-	BW	-	-	.796	40.67	53.66	63.11	70.80	311	93.43	109.88	123.28	134.79
	118	459.408	●	-	BW	-	-	.937	43.41	57.28	67.37	75.58	332	99.73	117.30	131.60	143.89
	119	459.488	●	-	-	BZ	-	1.03	68.13	89.89	105.72	118.61	521	156.51	184.07	206.52	225.80
	*86	459.496	●	-	-	BZ	-	0.98	71.00	93.69	110.18	123.62	543	163.12	191.84	215.24	235.33
	*90	459.575	●	-	-	-	MB	1.31	122.65	161.84	190.34	213.55	938	281.78	331.39	371.81	406.52
	120	459.608	●	-	-	-	MB	1.43	164.10	216.53	254.66	285.72	1255	377.01	443.39	497.46	543.91

<sup>1</sup> 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)

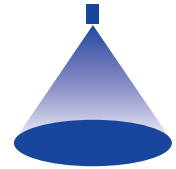
Ordering    Type    + Material no.    + Conn.    = Ordering no.  
example: 459.455    + 17                    + BW        = 459.455.17.BW

## 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:

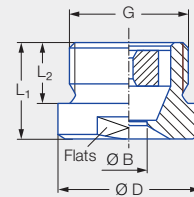
- Extremely uniform liquid distribution

### Applications:

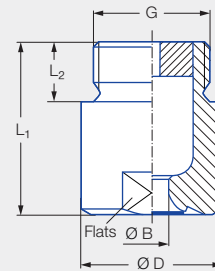
- Surface spraying
- Spraying over packings
- Chemical process engineering
- Cleaning and washing processes
- Cooling



Series 403



90° version




120° version

### 90° version

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

### 120° version

Type	G	Dimensions [in]				Weight [lb]
		L <sub>1</sub>	L <sub>2</sub>	Ø D	Flats (mm)	
403.448/403.488	2 1/2 NPT	4.88	1.06	3.27	75	7.05
403.528	3 NPT	6.02	1.18	3.86	85	11.91
403.608	3 1/2 NPT	6.14	1.26	4.65	105	18.30
403.628	4 NPT	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			5	7	15	30	Liters per min. 2 bar	45	60	75		
90°	403.446	●	5.6	2.7	52.30	59.84	81.17	107.10	400	125.96	141.32	154.51	39	70
	403.486	●	6.6	2.7	65.38	74.80	101.46	133.88	500	157.45	176.65	193.14	39	70
	403.526	●	7.2	3.1	82.38	94.25	127.84	168.68	630	198.38	222.58	243.36	39	70
	403.606	●	9.0	3.4	130.76	149.60	202.92	267.75	1,000	314.90	353.30	386.28	39	70
120°	403.448	●	5.7	2.2	52.30	59.84	81.17	107.10	400	125.96	141.32	154.51	67	115
	403.488	●	6.6	2.5	65.38	74.80	101.46	133.88	500	157.45	176.65	193.14	67	115
	403.528	●	7.2	3.4	82.38	94.25	127.84	168.68	630	198.38	222.58	243.36	67	115
	403.608	●	9.4	2.7	130.76	149.60	202.92	267.75	1,000	314.90	353.30	386.28	67	115
	403.628	●	10.1	3.4	163.45	187.00	253.65	324.69	1,250	393.62	441.62	482.86	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)

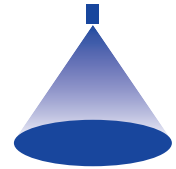
Ordering Type + Material no. = Ordering no.  
example: 403.446 + 1Y = 403.446.1Y



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

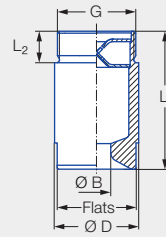


Figure 1

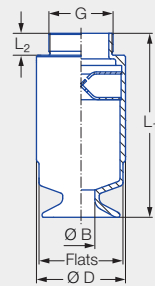



Figure 2

Series 419

Type	Connection	Figure	G	Dimensions [in]				Weight [lb]
				L <sub>1</sub>	L <sub>2</sub>	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 <sup>1</sup>	Ordering number				Bore diameter B [in]	Narrowest free cross sections Ø [in]	V water gal/min						Spray diameter D [in] (at p = 30 psi)		
	Type	Mat. no.	Connection				p [psi]								
			1Y	2 NPT			2 1/2 NPT	3 NPT	5	7	15	Liters per min. 1 bar			30
													Stainless steel 316L	H = 20 [in]	
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	

<sup>1</sup> Spray angle at 1 bar.

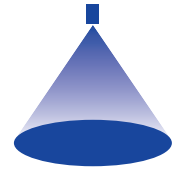
Also available in metric thread.

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:

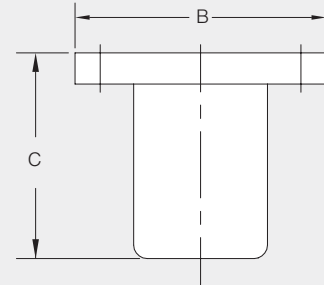
- One piece design
- Generates large droplets and even droplets at a wide range of operating pressures

### Applications:

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



Series 485

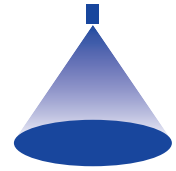


Inlet Flange Connection	Dimensions [in]		Weight [lb.]
	B	C	
4	9.00	6.13	19
5	10.00	8.38	42
6	11.00	10.56	54
8	13.47	12.25	98
10	16.00	17.00	140
12	19.00	20.00	200
16	23.50	22.00	330
18	25.00	28.75	450

Nozzle Inlet Flange Conn. (in)	Ordering no. Material number	Bore diameter [in]	Free Passage (In.)	V̇ water [gal/min]											Spray Angle in degrees at		
				p [psi]											3 psi	7 psi	15 psi
				1	2	3	5	7	10	15	20	Liters per min. 2 bar	40	60			
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
	485.736.17.08	3.5		311	410	482	591	677	780	918	1030	4524	1359	1598	63	70	70
8	485.756.17.08	3.93	1.31	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
	485.806.17.10	5.00		603	796	936	1149	1314	1516	1782	2000	8785	2639	3104	85	87	90
10	485.826.17.10	5.56	1.75	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
	485.846.17.12	6.21		941	1242	1461	1792	2050	2364	2781	3120	13705	4117	4842	85	87	90
12	485.856.17.12	6.59	2.06	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
	485.896.17.16	8.00		1554	2050	2411	2958	2958	3384	4590	5150	22622	6796	7992	85	87	90
16	485.916.17.16	9.25	2.75	1985	2620	3081	3779	4324	4987	5865	6580	28904	8683	10212	85	87	90
	485.936.17.18	10.7		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

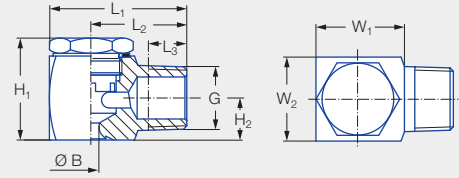
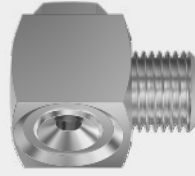


Figure 1

Series 422/423

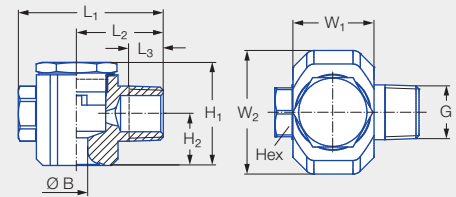
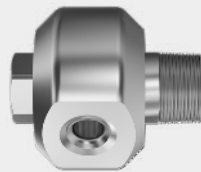


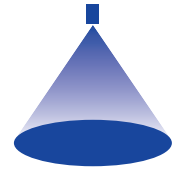
Figure 2

Connection	Figure	G	Dimensions [in]								Hex (mm)	Weight [lb] (stainless steel 316L)
			H <sub>1</sub>	H <sub>2</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	W <sub>1</sub>	W <sub>2</sub>			
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]							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			10	20	30	Liters per min.			80	100		
		316L SS	Brass													2					4	
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
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.

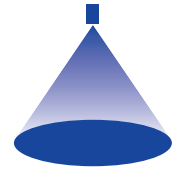


Conversion formula for this series:  $\dot{V}_2 = \dot{V}_1 \cdot \sqrt{\frac{p_2}{p_1}}$

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

Also available in metric thread.

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

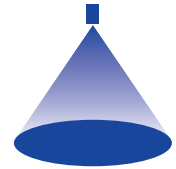
Ordering Type + Material no. + Connection = Ordering no.  
example: 422.888 + 1Y + BE = 422.888.1Y.BE

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



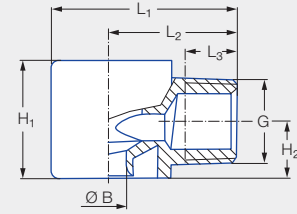
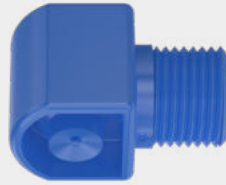
# ➤ Tangential-flow full cone nozzles, plastic version

## Series 422/423



### Features:

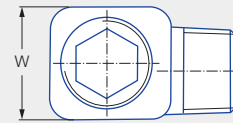
- Tangentially arranged supply of liquid
- Without swirl inserts
- Non-clogging
- Stable spray angle
- Uniform liquid distribution
- High chemical resistance




### Applications:

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

Series 422/423

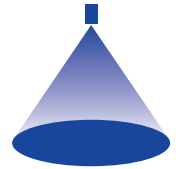


Connection	G	Dimensions [in]						Weight [lb]
		H <sub>1</sub>	H <sub>2</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	Hex (mm)	
BC	1/4 NPT	0.63	0.31	1.10	0.79	0.39	16	0.02
BE	3/8 NPT	0.91	0.44	1.42	0.98	0.40	22	0.04
BG	1/2 NPT	1.50	0.76	1.95	1.32	0.52	32	0.09
CG	1/2 BSPT	1.50	0.76	1.95	1.32	0.52	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]									
		5E	PVDF	1/4 NPT	3/8 NPT			1/2 BSPT	3/4 BSPT	7	15	30	Liters per min. 2 bar	45			75
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]							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															
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	

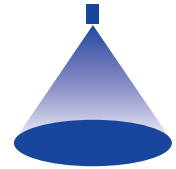
Also available in metric thread.

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

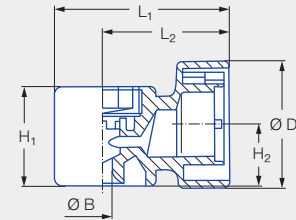
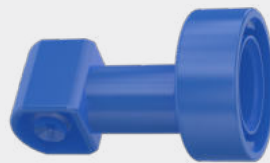


Figure 1

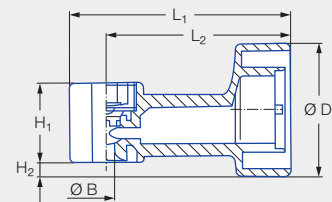


Figure 2

Type	Connection	Figure	Dimensions [in]					Weight [lb] (PVDF)
			H <sub>1</sub>	H <sub>2</sub>	L <sub>1</sub>	L <sub>2</sub>	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				liters per minute									
		PVDF	PP				Bayonet quick-release system	7	15	30	2 bar	45	75	145	H = 10 [in]	H = 20 [in]
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:  $\dot{V}_2 = \dot{V}_1 \cdot \sqrt{\frac{p_2}{p_1}}$

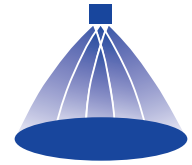
Ordering Type + Material no. + Connection = Ordering no.  
example: 422.644 + 53 + KB = 422.644.53.KB



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



# Cluster head nozzles Series 502/503

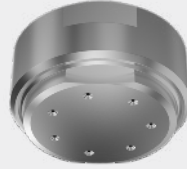


### Features:

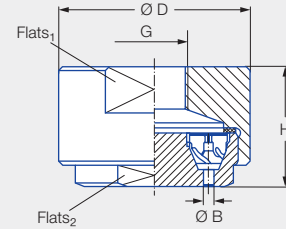
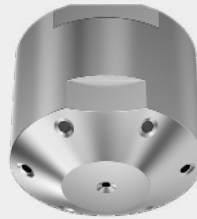
- Fine, uniform atomization
- Stable spray angle
- Space-saving installation
- Maintenance-friendly design
- High temperature and chemical resistance

### Applications:

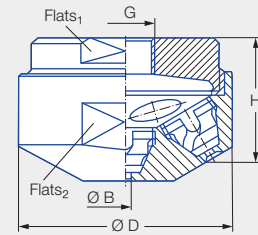
- Chlorine precipitation
- Absorption
- Dust suppression
- Degassing of liquids
- Desuperheating



Series 502/503



70° version



130° version

70° version

G	Dimensions [in]				Weight [lb] (brass)
	H	Ø D	Flats <sub>1</sub> (mm)	Flats <sub>2</sub> (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 <sub>1</sub> (mm)	Flats <sub>2</sub> (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 <sup>1</sup>	30	1/2 NPT	3/4 NPT			Liters per min.		bar		75	145		
		Stainless steel 316Ti/ Stainless steel 316L	Brass					7	15	30	2			7.5	
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

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

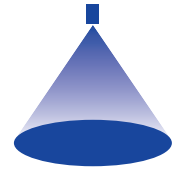
Also available in metric thread.

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

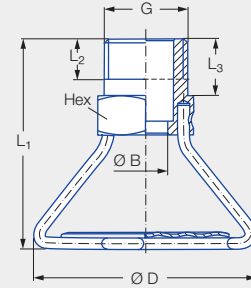


### Features:

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

### Applications:

- Fire fighting
- Sprinkling
- Dust suppression



Series 524/525

G	Dimensions [in]					Weight [lb] (brass)
	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	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]									
		17 <sup>1</sup>	30	1/2 Male NPT		BSPP	Liters per min.	2 bar	45	75	145			H = 40 [in]	H = 120 [in]
		Stainless steel 316Ti/ Stainless steel 316L	Brass									7	15		
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

<sup>1</sup> 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".