

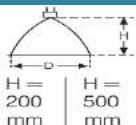
FULL CONE NOZZLES. AXIAL TYPE

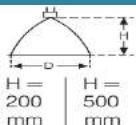
460 series

Appearance		Features and Benefits	Applications				
		<ul style="list-style-type: none"> • Solid cone-shaped spray pattern with round impact area. • Unique vane design minimizes turbulence of the fluid to ensure uniform spray distribution and consistent spray coverage. • Large unobstructed flow passages minimize clogging and increase throughput. • Standard, wide and narrow spray angles. 	<ul style="list-style-type: none"> • Cleaning and washing processes • Surface spraying • Container cleaning • Foam precipitation • Degassing of liquids • Cooling of gaseous fluids and solids • Chemical process engineering 				
Drawing	Spray pattern	Dimensions [mm]					Weight
		G	L ₁	L ₂	D	Hex (mm)	
		1/8 BSPT	18,0	6,5	10,0	11	13 g
		1/4 BSPT	22,0	10,0	13,0	14	16 g
		3/8 BSPT	24,5	10,0	16,0	17	30 g
		1/2 BSPT	32,5	13,0	21,0	22	60 g
		3/4 BSPT	42,0	15,0	32,0	27	190 g
		1 BSPP	56,0	17,0	40,0	36	350 g

Parameters:

Spray angle	Code	Material		Thread size	B Ø [mm]	Flow rate(L/min)							Spray Dia. D at p=2bar	
		303 SS	316 SS			0.5 bar	1 bar	2 bar	3 bar	5 bar	7 bar	10 bar		
45°	460.403	•	•	1/8 BSPT	1,25	0,57	0,76	1,00	1,18	1,44	1,65	1,90	160	400
	460.523	•	•	1/8 BSPT	1,70	1,15	1,52	2,00	2,35	2,89	3,30	3,81	160	400
	460.603	•	•	1/4 BSPT	2,00	1,81	2,39	3,15	3,70	4,54	5,20	6,00	160	400
	460.643	•	•	1/4 BSPT	2,45	2,30	3,03	4,00	4,70	5,77	6,60	7,61	160	400
	460.683	•	•	1/4 BSPT	2,55	2,87	3,79	5,00	5,88	7,21	8,25	9,52	160	400
	460.703	•	•	1/4 BSPT	2,65	3,22	4,24	5,60	6,59	8,08	9,24	10,66	160	400
	460.723	•	•	1/4 BSPT	2,85	3,62	4,77	6,30	7,41	9,09	10,40	11,99	160	400
	460.783	•	•	3/8 BSPT	3,45	5,17	6,82	9,00	10,58	12,98	14,85	17,12	160	400
	460.843	•	•	1/2 BSPT	3,80	7,18	9,47	12,50	14,70	18,03	20,63	23,80	160	400

Spray angle	Code	Material		Thread size	B Ø [mm]	Flow rate(L/min)							Spray Dia. D at p=2bar	
		303 SS	316 SS			0.5 bar	1 bar	2 bar	3 bar	5 bar	7 bar	10 bar		
													H = 200 mm	H = 500 mm
60°	460.364	•	•	1/8 BSPT	0,85	0,36	0,48	0,63	0,74	0,91	1,04	1,20	220	560
	460.404	•	•	1/8 BSPT	1,15	0,57	0,76	1,00	1,18	1,44	1,65	1,90	220	560
	460.444	•	•	1/8 BSPT	1,25	0,72	0,95	1,25	1,47	1,80	2,06	2,38	220	560
	460.484	•	•	1/8 BSPT	1,45	0,92	1,21	1,60	1,88	2,31	2,64	3,05	220	560
	460.524	•	•	1/8 BSPT	1,60	1,15	1,52	2,00	2,35	2,89	3,30	3,81	220	560
	460.564	•	•	1/8 BSPT	1,80	1,44	1,89	2,50	2,94	3,61	4,13	4,76	220	560
	460.604	•	•	1/4 BSPT	2,05	1,81	2,39	3,15	3,70	4,54	5,20	6,00	220	560
	460.644	•	•	1/4 BSPT	2,30	2,30	3,03	4,00	4,70	5,77	6,60	7,61	220	560
	460.684	•	•	1/4 BSPT	2,60	2,87	3,79	5,00	5,88	7,21	8,25	9,52	220	560
	460.724	•	•	1/4 BSPT	2,95	3,62	4,77	6,30	7,41	9,09	10,40	11,99	220	560
	460.764	•	•	3/8 BSPT	3,25	4,59	6,06	8,00	9,41	11,54	13,20	15,22	220	560
	460.804	•	•	3/8 BSPT	3,70	5,74	7,58	10,00	11,76	14,43	16,51	19,04	220	560
	460.844	•	•	1/2 BSPT	4,05	7,18	9,47	12,50	14,70	18,03	20,63	23,80	220	560
	460.884	•	•	1/2 BSPT	4,65	9,19	12,13	16,00	18,82	23,08	26,41	30,46	220	560
	460.924	•	•	3/4 BSPP	5,20	11,49	15,16	20,00	23,52	28,85	33,01	38,07	220	560
	460.964	•	•	3/4 BSPP	5,80	14,36	18,95	25,00	29,40	36,07	41,26	47,59	220	560
	461.044	•	•	1 BSPP	7,25	22,97	30,31	40,00	47,04	57,71	66,02	76,15	220	560
461.084	•	•	1 BSPP	8,15	28,72	37,89	50,00	58,80	72,14	82,53	95,18	220	560	
80°	460.405	•	•	1/8 BSPT	1,20	0,57	0,76	1,00	1,18	1,44	1,65	1,90	320	760
90°	460.446	•	•	1/8 BSPT	1,30	0,72	0,95	1,25	1,47	1,80	2,06	2,38	380	860
	460.486	•	•	1/8 BSPT	1,45	0,92	1,21	1,60	1,88	2,31	2,64	3,05	380	860
	460.526	•	•	1/8 BSPT	1,70	1,15	1,52	2,00	2,35	2,89	3,30	3,81	380	860
	460.566	•	•	1/8 BSPT	1,90	1,44	1,89	2,50	2,94	3,61	4,13	4,76	380	860
	460.606	•	•	1/4 BSPT	2,10	1,81	2,39	3,15	3,70	4,54	5,20	6,00	380	860
	460.646	•	•	1/4 BSPT	2,40	2,30	3,03	4,00	4,70	5,77	6,60	7,61	390	960
	460.686	•	•	1/4 BSPT	2,70	2,87	3,79	5,00	5,88	7,21	8,25	9,52	390	960
	460.726	•	•	1/4 BSPT	3,20	3,62	4,77	6,30	7,41	9,09	10,40	11,99	390	960
	460.746	•	•	3/8 BSPT	3,15	4,08	5,38	7,10	8,35	10,24	11,72	13,52	390	960
	460.766	•	•	3/8 BSPT	3,40	4,59	6,06	8,00	9,41	11,54	13,20	15,22	390	960
	460.806	•	•	3/8 BSPT	3,90	5,74	7,58	10,00	11,76	14,43	16,51	19,04	390	960
	460.846	•	•	3/8 BSPT	4,65	7,18	9,47	12,50	14,70	18,03	20,63	23,80	390	960
	460.886	•	•	1/2 BSPT	5,45	9,19	12,13	16,00	18,82	23,08	26,41	30,46	390	960
	460.926	•	•	1/2 BSPT	5,90	11,49	15,16	20,00	23,52	28,85	33,01	38,07	390	960
	461.966	•	•	3/4 BSPP	6,55	14,36	18,95	25,00	29,40	36,07	41,26	47,59	390	960
	461.006	•	•	3/4 BSPP	7,55	18,09	23,87	31,50	37,05	45,45	51,99	59,97	390	960
	461.046	•	•	3/4 BSPP	8,60	22,97	30,31	40,00	47,04	57,71	66,02	76,15	390	960

Spray angle	Code	Material		Thread size	B Ø [mm]	Flow rate(L/min)							Spray Dia. D at p=2bar	
		303 SS	316 SS			0.5 bar	1 bar	2 bar	3 bar	5 bar	7 bar	10 bar		
													680	1220
90°	461.086	•	•	1 BSPP	9,45	28,72	37,89	50,00	58,80	72,14	82,53	95,18	390	960
	461.126	•	•	1 BSPP	10,4	36,18	47,75	63,00	74,09	90,89	103,98	119,93	390	960
	461.146	•	•	1 BSPP	11,0	40,78	53,81	71,00	83,50	102,43	117,19	135,16	390	960
120°	460.488	•	•	1/8 BSPT	1,45	0,92	1,21	1,60	1,88	2,31	2,64	3,05	680	1220
	460.528	•	•	1/8 BSPT	1,70	1,15	1,52	2,00	2,35	2,89	3,30	3,81	680	1220
	460.568	•	•	1/8 BSPT	1,90	1,44	1,89	2,50	2,94	3,61	4,13	4,76	680	1220
	460.608	•	•	1/4 BSPT	2,10	1,81	2,39	3,15	3,70	4,54	5,20	6,00	680	1220
	460.648	•	•	1/4 BSPT	2,40	2,30	3,03	4,00	4,70	5,77	6,60	7,61	680	1330
	460.688	•	•	1/4 BSPT	2,75	2,87	3,79	5,00	5,88	7,21	8,25	9,52	680	1330
	460.728	•	•	1/4 BSPT	3,20	3,62	4,77	6,30	7,41	9,09	10,40	11,99	680	1330
	460.748	•	•	3/8 BSPT	3,20	4,08	5,38	7,10	8,35	10,24	11,72	13,52	680	1330
	460.768	•	•	3/8 BSPT	3,45	4,59	6,44	8,00	9,41	11,54	13,20	15,22	680	1330
	460.808	•	•	3/8 BSPT	3,90	5,74	7,58	10,00	11,76	14,43	16,51	19,04	680	1330
	460.848	•	•	3/8 BSPT	4,70	7,18	9,47	12,50	14,70	18,03	20,63	23,80	680	1330
	460.888	•	•	1/2 BSPT	5,10	9,19	12,13	16,00	18,82	23,08	26,41	30,46	680	1330
	460.928	•	•	1/2 BSPT	5,80	11,49	15,16	20,00	23,52	28,85	33,01	38,07	680	1330
	461.968	•	•	3/4 BSPP	6,65	14,36	18,95	25,00	29,40	36,07	41,26	47,59	680	1330
	461.048	•	•	3/4 BSPP	9,20	22,97	30,31	40,00	47,04	57,71	66,02	76,15	680	1330
	461.128	•	•	1 BSPP	10,8	36,18	47,75	63,00	74,09	90,89	103,98	119,93	680	1330
461.148	•	•	1 BSPP	11,4	40,78	53,81	71,00	83,50	102,43	117,19	135,16	680	1330	

B – orifice diameter nom. (mm)

Other nozzle materials (brass, plastics) are available on request

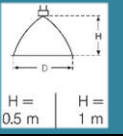
FULL CONE NOZZLES. AXIAL TYPE. LARGE FLOW RATE

405 series

Appearance		Features and Benefits				Applications	
		<ul style="list-style-type: none"> • Solid cone-shaped spray pattern with round impact area. • Unique vane design minimizes turbulence of the fluid to ensure uniform spray distribution and consistent spray coverage. • Large unobstructed flow passages minimize clogging and increase throughput. • Standard, wide and narrow spray angles. 				<ul style="list-style-type: none"> • Cleaning and washing processes • Surface spraying • Spraying over packings • Water treatment • Degassing of liquids • Cooling of gaseous fluids and solids • Chemical process engineering 	
Drawing	Spray pattern	Dimensions [mm]					Weight
		G	L ₁	L ₂	D	Hex (mm)	
		1-1/4 BSPP	50,0	19,0	49,0	41	450 g
		1-1/2 BSPP	60,0	19,0	59,0	50	520 g
		2 BSPP	78,0	24,0	68,0	60	600 g

Parameters:

Spray angle	Code	Material		Thread size	B Ø [mm]	Flow rate (l/min)						Spray Dia. D at p=2bar	
		303 SS	316L SS			0,3 bar	0,5 bar	1 bar	2 bar	3 bar	5 bar		
												H=0.5 m	H=1 m
60°	405.204	•	•	1-1/4 BSPP	11,2	47	57	76	100	118	144	560	1040
	405.284	•	•	1-1/2 BSPP	14,3	75	92	121	160	188	231	580	1080
	405.324	•	•	2 BSPP	16,4	94	115	152	200	235	289	580	1080
	405.364	•	•	2 BSPP	18,4	117	144	189	250	294	361	580	1080
	405.404	•	•	2 BSPP	20,0	147	181	239	315	370	454	580	1100

Spray angle	Code	Material		Thread size	B Ø [mm]	Flow rate (l/min)						Spray Dia. D at p=2bar	
		303 SS	316L SS			0,3 bar	0,5 bar	1 bar	2 bar	3 bar	5 bar		
												H = 0,5 m	H = 1 m
90°	405.206	•	•	1-1/4 BSPP	12,0	47	57	76	100	118	144	780	1450
	405.286	•	•	1-1/2 BSPP	15,2	75	92	121	160	188	231	800	1550
	405.326	•	•	2 BSPP	17,2	94	115	152	200	235	289	850	1600
	405.366	•	•	2 BSPP	19,5	117	144	189	250	294	361	850	1600
	405.406	•	•	2 BSPP	22,0	147	181	239	315	370	454	850	1600
120°	405.208	•	•	1-1/4 BSPP	12,7	47	57	76	100	118	144	1450	2600
	405.288	•	•	1-1/2 BSPP	16,0	75	92	121	160	188	231	1500	2700
	405.328	•	•	2 BSPP	17,8	94	115	152	200	235	289	1500	2800
	405.368	•	•	2 BSPP	20,1	117	144	189	250	294	361	1500	2800
	405.408	•	•	2 BSPP	22,4	147	181	239	315	370	454	1500	2800

B – orifice diameter nom. (mm)

403 series

Appearance		Features and Benefits		Applications			
		<ul style="list-style-type: none"> • Solid cone-shaped spray pattern with round impact area. • Unique vane design minimizes turbulence of the fluid to ensure uniform spray distribution and consistent spray coverage. • Large unobstructed flow passages minimize clogging and increase throughput. • Standard, wide and narrow spray angles. 		<ul style="list-style-type: none"> • Cleaning and washing processes • Surface spraying • Spraying over packings • Water treatment • Degassing of liquids • Cooling of gaseous fluids and solids • Chemical process engineering 			
Drawing for 90° version	Drawing for 120° version	Dimensions [mm]					
		Type	G	L ₁	L ₂	D	Hex (mm)
		403.446/403.486	2-1/2 BSPP	52	27	83	75
		403.526	3 BSPP	60	30	98	85
		403.606	3-1/2 BSPP	70	32	118	105
		403.448/403.488	2-1/2 BSPP	124	27	83	75
		403.528	3 BSPP	153	30	98	85
		403.608	3-1/2 BSPP	156	32	118	105
		403.628	4 BSPP	165	36	128	110

Parameters:

Spray angle	Code	Material		Thread size	B Ø [mm]	Flow rate (l/min)						Spray Dia. D at p=2bar	
		303 SS	316L SS			0,3 bar	0,5 bar	1 bar	2 bar	3 bar	5 bar		
												900	1700
90°	403.446	•	•	2-1/2 BSPP	25,0	187	230	303	400	470	577	900	1700
	403.486	•	•	2-1/2 BSPP	29,5	234	287	379	500	588	721	900	1700
	403.526	•	•	3 BSPP	32,0	295	362	477	630	741	909	900	1700
	403.606	•	•	3-1/2 BSPP	40,0	468	574	758	1000	1176	1443	980	1750
120°	403.448	•	•	2-1/2 BSPP	25,5	187	230	303	400	470	577	1500	2850
	403.488	•	•	2-1/2 BSPP	29,5	234	287	379	500	588	721	1500	2850
	403.528	•	•	3 BSPP	32,00	295	362	477	630	741	909	1500	2850
	403.608	•	•	3-1/2 BSPP	42,00	469	574	758	1000	1176	1443	1500	2850
	403.628	•	•	4 BSPP	45,00	585	718	947	1250	1470	1903	1600	2900

B – orifice diameter nom. (mm)