

Full cone  
nozzles

# Full cone nozzles

- Absorption
- Chemical process engineering
- Chlorine precipitation
- Cleaning
- Cooling
- Desuperheating
- Dust control
- Fire protection
- Foam control
- Gas treatment
- Spraying onto mats in air washers
- Spraying over packings
- Surface spraying
- Water treatment
- and many others...



## Full cone nozzles

### Axial-flow full cone nozzles

Lechler full cone nozzles have an extraordinarily uniform liquid distribution over the whole circular impact area. The high precision of distribution is achieved by orienting the liquid inlet to the centre of the swirl chamber of the nozzle. The optimized x-style swirl insert ensures a high operating safety due to its large free cross-sections.

Axial-flow full cone nozzles are available with different spray angles and in many flow rates. Therefore, matching to specific service conditions is possible without any difficulties.

- Extremely uniform liquid distribution
- Wide flow rate range
- Large number of available spray angles



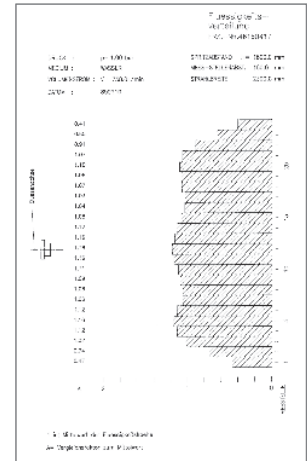
Special design for fire fighting:  
Deflector-plate nozzle

### Tangential flow full cone nozzles

Tangential-flow full cone nozzles are, for instance, particularly suited for closed-circuit spraying of liquids with a high quota of solid matter, or for fire fighting applications. The atomizing fluid is tangentially supplied to a swirl chamber, where it is put into rotation. Tangential-flow full cone nozzles are free of swirl inserts. Hence, they are not at all prone to clogging. The full cone spray is obtained with the aid of specially arranged grooves, milled into the nozzle bottom, which cause an adequate part of the rotating liquid flow to diverge to the center of the

swirl chamber. Thereby, an extremely uniform area distribution of the sprayed liquid is achieved.

- Reliable in service
- Non-clogging
- Stable spray angles, unaffected by transient pressures



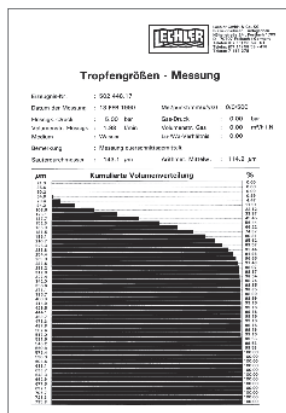
Typical liquid distribution chart

### Cluster Head Nozzles

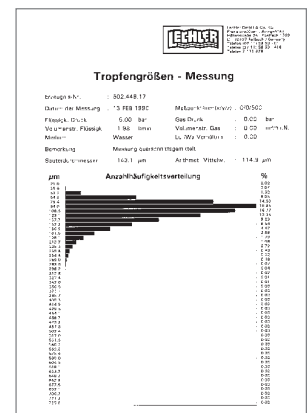
Lechler cluster head nozzles achieve a very large surface of the sprayed liquid by adding various finely atomizing single nozzles. Whenever a fine fog-like full cone atomization with relatively large flow rates is necessary, e.g. gas exchange processes, steam cooling or dust suppression, Lechler cluster head nozzles have decisive advantages: overlapping hollow cones form a fine full cone atomization with an increased droplet surface area. These very fine droplets cannot be achieved by a

single-orifice spray nozzle of the same flow rate size.

The increased droplet surface area of the atomized liquid provides great efficiency in gas treatment and cooling applications.









Cumulated volume distribution



Number distribution











## Full cone nozzles

Axial-flow full cone nozzles	Series		$\dot{V}$ [l/min] at $p = 2$ bar	Connection	Application/ Design	Page
	<b>490</b> <b>491</b>	45° 60° 90° 120°	0.63 – 71.00	1/8 BSPT 1/4 BSPT 3/8 BSPT 1/2 BSPT 3/4 BSPP 1 BSPP	Cleaning and washing processes, surface spraying, Container cleaning, foam precipitation, degassing of liquids. <b>Non-clogging nozzle design.</b>	<b>3.5</b>
	<b>460</b> <b>461</b>	60° 90° 120°	0.40 – 71.00	1/8 BSPT 1/4 BSPT 3/8 BSPT 1/2 BSPT 3/4 BSPP 1 BSPP	Cleaning and washing process, cooling of gaseous fluids and solids, surface spraying, spraying onto mats in air washers, improving on chemical reactions. <b>Large free cross-sections, due to optimized x-style swirl insert.</b>	<b>3.7</b>
	<b>405</b>	60° 90° 120°	100.00 – 315.00	1 1/4 BSPP 1 1/2 BSPP 2 BSPP	Surface spraying, spraying over packings, cleaning and washing process, chemical process engineering, cooling of gaseous fluids and solids, water treatment. <b>Uniform full cone spray.</b>	<b>3.9</b>
	<b>403</b>	90° 120°	400.00 – 1250.00	2 1/2 BSPP 3 BSPP 3 1/2 BSPP 4 BSPP	Surface spraying, spraying over packings, cleaning and washing process, chemical process engineering, cooling of gaseous fluids and solids, water treatment. <b>Uniform full cone spray.</b>	<b>3.10</b>
	<b>468</b>	60° 90° 120°	0.63 – 12.50	Assembly with 3/8" retaining nut	Surface spraying, spraying over packings, chemical process engineering, cleaning and washing processes, cooling of gaseous fluids and solids. <b>Uniform full cone spray.</b>	<b>3.11</b>



## Full cone nozzles

Tangential-flow full cone nozzles	Series		$\dot{V}$ [l/min] at $p = 2$ bar	Connection	Application/ Design	Page
	422	60°	1.00 – 100.00	1/4 BSPT 3/8 BSPT 1/2 BSPT 3/4 BSPT 1 BSPT	Cleaning and washing process, cooling of gaseous fluids and solids, surface spraying, spraying onto mats in air washers, improving on chemical reactions, continuous casting. <b>Without swirl inserts, non-clogging.</b>	3.12
	423	90° 120°				3.13 3.14
	422 <b>Bayonet quick-release system</b>	60° 90° 120°	1.00 – 4.00	Assembly with bayonet quick-release system	Cleaning problems, cooling process, foam control. <b>Quick and safe assembly, without tools.</b> <b>Space-saving installation.</b>	3.15
Cluster head nozzles	Series		$\dot{V}$ [l/min] at $p = 2$ bar	Connection	Application/ Design	Page
	502	70°	1.25 – 60.00	1/2 BSPP 3/4 BSPP	Cooling of gaseous and solid material, desuperheating, chlorine precipitation, absorption as well as for improvement of chemical reaction by enlarging the contact area. <b>Fine full cone atomization with the aid of several hollow cones spraying into one another.</b>	3.16
	503	130°				
	520 523	130°	8.50 – 90.00	1 BSPP	Fire fighting, cooling of gaseous and solid material, chlorine precipitation. <b>Extremely fine full cone atomization with the aid of several hollow cones spraying into one another.</b>	<b>On request.</b> For further informations please refer to our brochure »Lechler nozzles for fire fighting«
Deflector-plate nozzle	Series		$\dot{V}$ [l/min] at $p = 2$ bar	Connection	Application/ Design	Page
	524 525	180°	10.0 – 140.00	1/2 BSPP	Fire fighting and broadcast spraying. <b>Non-clogging nozzle without swirl inserts.</b>	3.17



# Axial-flow full cone nozzles

## Series 490 / 491

**NEW Patent pending**



**Non-clogging nozzle design. Stable spray angle. Particularly even liquid distribution.**

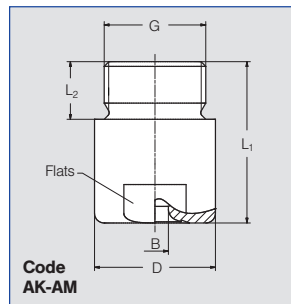
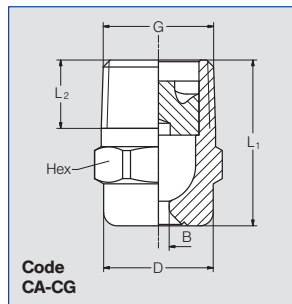
Applications:

Cleaning and washing processes, surface spraying, Container cleaning, foam precipitation, degassing of liquids.



Series 490/491 represents a new generation within the axial-flow full cone nozzles product group. These nozzles were developed using state-of-the-art design and simulation methods (CFD).

Nozzles of series 490/491 replace series 460/461 which are still available on request.



Code	G	Dimensions [mm]			Hex/Flats	Weight Brass
		L <sub>1</sub>	L <sub>2</sub>	D		
CA	1/8 BSPT	18.0	6.5	10.0	11	13 g
CC	1/4 BSPT	22.0	10.0	13.0	14	16 g
CE	3/8 BSPT	24.5	10.0	16.0	17	30 g
CE	3/8 BSPT	30.0	10.0	16.0	17	50 g
CG	1/2 BSPT	32.5	13.0	21.0	22	60 g
CG	1/2 BSPT	43.5	13.0	21.0	22	85 g
AK	3/4 BSPP	42.0	15.0	32.0	27	190 g
AM	1 BSPP	56.0	17.0	40.0	36	350 g

Subject to technical modification. In a critical installation situation, please ask for the exact dimensions.

Spray angle	Ordering no.								B Ø [mm]	E Ø [mm]	V̇ [l/min]								Spray diameter D at p=2 bar			
	Type	Mat. no.		Code							p [bar]								Diagram			
		1Y	30	316L SS	Brass	1/8 BSPT	1/4 BSPT	3/8 BSPT			1/2 BSPT	3/4 BSPP	1 BSPP	0.5	1.0	2.0	3.0	5.0	7.0	10.0	H = 200 mm	H = 500 mm
45°	490.403	○	○	○	○	CA	-	-	-	-	-	1.25	1.25	0.57	0.76	1.00	1.18	1.44	1.65	1.90	160	400
	490.523	○	○	○	○	CA	-	-	-	-	-	1.70	1.70	1.15	1.52	2.00	2.35	2.89	3.30	3.81	160	400
	490.603	○	○	○	○	-	CC	CE*	-	-	-	2.00	2.00	1.81	2.39	3.15	3.70	4.54	5.20	6.00	160	400
	490.643	○	○	○	○	-	-	CE*	-	-	-	2.45	2.45	2.30	3.03	4.00	4.70	5.77	6.60	7.61	160	400
	490.683	-	○	-	-	-	-	CE	-	-	-	2.55	2.55	2.87	3.79	5.00	5.88	7.21	8.25	9.52	160	400
	490.703	-	○	-	-	-	-	CE	-	-	-	2.65	2.65	3.22	4.24	5.60	6.59	8.08	9.24	10.66	160	400
	490.723	○	○	-	-	-	-	CE	-	-	-	2.85	2.85	3.62	4.77	6.30	7.41	9.09	10.40	11.99	160	400
	490.783	-	○	-	-	-	-	-	CG	-	-	3.45	3.45	5.17	6.82	9.00	10.58	12.98	14.85	17.12	160	400
490.843	-	○	-	-	-	-	-	CG	-	-	3.80	3.80	7.18	9.47	12.50	14.70	18.03	20.63	23.80	160	400	
60°	490.404	○	○	○	○	CA	-	-	-	-	-	1.15	1.15	0.57	0.76	1.00	1.18	1.44	1.65	1.90	220	560
	490.444	○	-	○	○	CA	-	-	-	-	-	1.25	1.25	0.72	0.95	1.25	1.47	1.80	2.06	2.38	220	560
	490.484	○	○	○	○	CA	-	-	-	-	-	1.45	1.45	0.92	1.21	1.60	1.88	2.31	2.64	3.05	220	560
	490.524	○	○	○	○	CA	-	-	-	-	-	1.60	1.60	1.15	1.52	2.00	2.35	2.89	3.30	3.81	220	560
	490.564	○	○	○	○	CA	-	-	-	-	-	1.80	1.80	1.44	1.89	2.50	2.94	3.61	4.13	4.76	220	560
	490.604	○	○	○	○	CA	CC	CE	-	-	-	2.05	2.05	1.81	2.39	3.15	3.70	4.54	5.20	6.00	220	560
	490.644	○	○	-	-	-	CC	CE	-	-	-	2.30	2.30	2.30	3.03	4.00	4.70	5.77	6.60	7.61	220	560
	490.684	○	○	-	-	-	CC	CE	-	-	-	2.60	2.60	2.87	3.79	5.00	5.88	7.21	8.25	9.52	220	560
	490.724	○	○	-	-	-	CC	CE	-	-	-	2.95	2.80	3.62	4.77	6.30	7.41	9.09	10.40	11.99	220	560
	490.764	○	○	-	-	-	-	CE	-	-	-	3.25	3.25	4.59	6.06	8.00	9.41	11.54	13.20	15.22	220	560
	490.804	○	○	-	-	-	-	CE	-	-	-	3.70	3.70	5.74	7.58	10.00	11.76	14.43	16.51	19.04	220	560
	490.844	○	○	-	-	-	-	-	CG	-	-	4.05	4.05	7.18	9.47	12.50	14.70	18.03	20.63	23.80	220	560
	490.884	○	○	-	-	-	-	-	CG	-	-	4.65	4.65	9.19	12.13	16.00	18.82	23.08	26.41	30.46	220	560
	490.924	○	○	-	-	-	-	-	-	AK	-	5.20	5.20	11.49	15.16	20.00	23.52	28.85	33.01	38.07	220	560
	490.964	○	○	-	-	-	-	-	-	AK	-	5.80	5.80	14.36	18.95	25.00	29.40	36.07	41.26	47.59	220	560
	491.044	○	○	-	-	-	-	-	-	AM	-	7.25	7.25	22.97	30.31	40.00	47.04	57.71	66.02	76.15	220	560
	491.084	○	○	-	-	-	-	-	-	AM	-	8.15	8.15	28.72	37.89	50.00	58.80	72.14	82.53	95.18	220	560

\*Only available in material 30 · B = bore diameter · E = narrowest free cross section

Continued on next page.

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





# Axial-flow full cone nozzles

Series 490 / 491

**NEW Patent pending**



Spray angle	Ordering no.								B Ø [mm]	E Ø [mm]	V̇ [l/min]								Spray diameter D at p=2 bar	
	Type	Mat. no.		Code							p [bar]								Diagram	
		1Y	30																	
	316L SS	Brass	1/8 BSPT	1/4 BSPT	3/8 BSPT	1/2 BSPT	3/4 BSPT	1 BSPT			0.5	1.0	2.0	3.0	5.0	7.0	10.0	H = 200 mm	H = 500 mm	
90°	490.406	○	○	CA	-	-	-	-	1.20	1.20	0.57	0.76	1.00	1.18	1.44	1.65	1.90	380	860	
	490.446	-	○	CA	-	-	-	-	1.30	1.30	0.72	0.95	1.25	1.47	1.80	2.06	2.38	380	860	
	490.486	○	○	CA	-	-	-	-	1.45	1.45	0.92	1.21	1.60	1.88	2.31	2.64	3.05	380	860	
	490.526	○	○	CA	-	-	-	-	1.70	1.55	1.15	1.52	2.00	2.35	2.89	3.30	3.81	380	860	
	490.566	○	○	CA	-	-	-	-	1.90	1.90	1.44	1.89	2.50	2.94	3.61	4.13	4.76	380	860	
	490.606	○	○	CA	-	CE	-	-	2.10	2.05	1.81	2.39	3.15	3.70	4.54	5.20	6.00	380	860	
	490.646	○	○	-	CC	CE	-	-	2.40	2.40	2.30	3.03	4.00	4.70	5.77	6.60	7.61	390	960	
	490.686	○	○	-	CC	CE	-	-	2.70	2.70	2.87	3.79	5.00	5.88	7.21	8.25	9.52	390	960	
	490.726	○	○	-	CC	CE	-	-	3.20	2.80	3.62	4.77	6.30	7.41	9.09	10.40	11.99	390	960	
	490.746	○	○	-	-	CE	-	-	3.15	3.15	4.08	5.38	7.10	8.35	10.24	11.72	13.52	390	960	
	490.766	○	○	-	-	CE	-	-	3.40	3.40	4.59	6.06	8.00	9.41	11.54	13.20	15.22	390	960	
	490.806	○	○	-	-	CE	-	-	3.90	3.90	5.74	7.58	10.00	11.76	14.43	16.51	19.04	390	960	
	490.846	○	○	-	-	CE	-	-	4.65	4.00	7.18	9.47	12.50	14.70	18.03	20.63	23.80	390	960	
	490.886	○	○	-	-	-	CG	-	5.45	4.50	9.19	12.13	16.00	18.82	23.08	26.41	30.46	390	960	
	490.926	○	○	-	-	-	CG	-	5.90	4.50	11.49	15.16	20.00	23.52	28.85	33.01	38.07	390	960	
	490.966	○	○	-	-	-	CG	AK	6.55	4.85	14.36	18.95	25.00	29.40	36.07	41.26	47.59	390	960	
	491.006	○	○	-	-	-	-	AK	7.55	5.50	18.09	23.87	31.50	37.05	45.45	51.99	59.97	390	960	
	491.046	○	○	-	-	-	-	AK	8.60	6.60	22.97	30.31	40.00	47.04	57.71	66.02	76.15	390	960	
	491.086	○	○	-	-	-	-	AM	9.45	7.25	28.72	37.89	50.00	58.80	72.14	82.53	95.18	390	960	
	491.126	○	○	-	-	-	-	AM	10.40	8.00	36.18	47.75	63.00	74.09	90.89	103.98	119.93	390	960	
491.146	○	-	-	-	-	-	AM	11.00	7.50	40.78	53.81	71.00	83.50	102.43	117.19	135.16	390	960		
120°	490.368	○	○	CA	-	-	-	-	0.85	0.65	0.36	0.48	0.63	0.74	0.91	1.04	1.20	680	1220	
	490.408	○	○	CA	-	-	-	-	1.20	1.20	0.57	0.76	1.00	1.18	1.44	1.65	1.90	680	1220	
	490.448	○	○	CA	-	-	-	-	1.30	1.30	0.72	0.95	1.25	1.47	1.80	2.06	2.38	680	1220	
	490.488	○	○	CA	-	-	-	-	1.45	1.45	0.92	1.21	1.60	1.88	2.31	2.64	3.05	680	1220	
	490.528	○	○	CA	-	-	-	-	1.70	1.70	1.15	1.52	2.00	2.35	2.89	3.30	3.81	680	1220	
	490.568	○	○	CA	-	-	-	-	1.90	1.90	1.44	1.89	2.50	2.94	3.61	4.13	4.76	680	1220	
	490.608	○	○	CA	-	-	-	-	2.10	2.05	1.81	2.39	3.15	3.70	4.54	5.20	6.00	680	1220	
	490.648	○	○	-	CC	CE	-	-	2.40	2.40	2.30	3.03	4.00	4.70	5.77	6.60	7.61	680	1330	
	490.688	○	○	-	CC	CE	-	-	2.75	2.75	2.87	3.79	5.00	5.88	7.21	8.25	9.52	680	1330	
	490.728	○	○	-	CC	CE	-	-	3.20	2.80	3.62	4.77	6.30	7.41	9.09	10.40	11.99	680	1330	
	490.748	○	○	-	-	CE	-	-	3.20	3.20	4.08	5.38	7.10	8.35	10.24	11.72	13.52	680	1330	
	490.768	○	○	-	-	CE	-	-	3.45	3.45	4.59	6.44	8.00	9.41	11.54	13.20	15.22	680	1330	
	490.808	○	○	-	-	CE	-	-	3.90	3.90	5.74	7.58	10.00	11.76	14.43	16.51	19.04	680	1330	
	490.848	○	○	-	-	CE	-	-	4.70	4.00	7.18	9.47	12.50	14.70	18.03	20.63	23.80	680	1330	
	490.888	○	○	-	-	-	CG	-	5.10	4.50	9.19	12.13	16.00	18.82	23.08	26.41	30.46	680	1330	
	490.928	○	○	-	-	-	CG	-	5.80	4.75	11.49	15.16	20.00	23.52	28.85	33.01	38.07	680	1330	
	490.968	○	○	-	-	-	CG	AK	6.65	4.85	14.36	18.95	25.00	29.40	36.07	41.26	47.59	680	1330	
	491.048	○	○	-	-	-	-	AK	9.20	5.85	22.97	30.31	40.00	47.04	57.71	66.02	76.15	680	1330	
	491.128	○	○	-	-	-	-	AM	10.80	7.75	36.18	47.75	63.00	74.09	90.89	103.98	119.93	680	1330	
	491.148	○	-	-	-	-	-	AM	11.40	7.65	40.78	53.81	71.00	83.50	102.43	117.19	135.16	680	1330	

B = bore diameter · E = narrowest free cross section

Other nozzle materials (special alloys, plastics) are available on request.

Example for ordering: Type + Material no. + Code = Ordering no.  
490.406 + 1Y + CA = 490.406.1Y.CA



# Axial-flow full cone nozzles

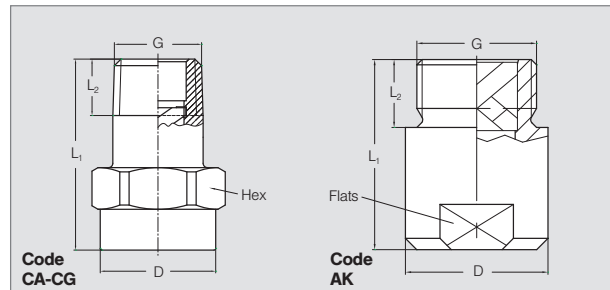
## Series 460 / 461



**Very uniform spray pattern.  
Large free cross-sections,  
due to optimized  
x-style swirl insert.**

Applications:

Cleaning and washing process,  
cooling of gaseous fluids and  
solids, surface spraying, spray-  
ing onto mats in air washers,  
improving of chemical reactions.



Code	Dimensions [mm]				
	G	L <sub>1</sub>	L <sub>2</sub>	D	Hex/Flats
<b>CA</b>	1/8 BSPT	22.0	6.5	13.0	14
<b>CC</b>	1/4 BSPT	22.0	9.7	13.0	14
<b>CE</b>	3/8 BSPT	30.0	10.0	17.0	17
<b>CG</b>	1/2 BSPT	43.5	13.2	22.0	22
<b>AK</b>	3/4 BSPP	42.0	15.0	31.5	27

Subject to technical modifications.  
Please enquire about the exact  
dimensions if the installation situation  
is critical!

Spray angle	Type	Mat.-no.	Ordering no.					B ∅ [mm]	E ∅ [mm]	V̇ [l/min]							Spray diameter D at p=2 bar		
			PVDF	Code						p [bar]							H = 200 mm	H = 500 mm	
				1/8 BSPT	1/4 BSPT	3/8 BSPT	1/2 BSPT			3/4 BSPP	0.5	1.0	2.0	3.0	5.0	7.0			10.0
60°	460.644	○	-	<b>CC</b>	-	-	-	2.40	1.90	2.30	3.03	4.00	4.70	5.77	6.60	7.61	220	560	
	460.964	○	-	-	-	-	<b>AK</b>	5.80	4.90	14.36	18.95	25.00	29.40	36.07	41.26	47.59	220	560	
90°	460.326	○	<b>CA</b>	-	-	-	-	0.80	0.55	0.23	0.30	0.40	0.47	0.58	0.66	0.76	380	860	
	460.406	○	<b>CA</b>	-	-	-	-	1.20	0.85	0.57	0.76	1.00	1.18	1.44	1.65	1.90	380	860	
	460.486	○	<b>CA</b>	-	-	-	-	1.45	1.20	0.92	1.21	1.60	1.88	2.31	2.64	3.05	380	860	
	460.526	○	<b>CA</b>	-	-	-	-	1.65	1.30	1.15	1.52	2.00	2.35	2.89	3.30	3.81	380	860	
	460.606	○	<b>CA</b>	-	<b>CE</b>	-	-	2.05	1.45	1.81	2.39	3.15	3.70	4.54	5.20	6.00	380	860	
	460.646	○	-	<b>CC</b>	-	-	-	2.30	1.80	2.30	3.03	4.00	4.70	5.77	6.60	7.61	390	960	
	460.726	○	-	-	<b>CE</b>	-	-	2.95	2.00	3.62	4.77	6.30	7.41	9.09	10.40	11.99	390	960	
	460.746	○	-	-	<b>CE</b>	-	-	3.30	1.90	4.08	5.38	7.10	8.35	10.24	11.72	13.52	390	960	
	460.766	○	-	-	<b>CE</b>	-	-	3.30	2.40	4.59	6.06	8.00	9.41	11.54	13.20	15.22	390	960	
	460.806	○	-	-	<b>CE</b>	-	-	3.70	2.70	5.74	7.58	10.00	11.76	14.43	16.51	19.04	390	960	
	460.846	○	-	-	<b>CE</b>	-	-	4.05	3.20	7.18	9.47	12.50	14.70	18.03	20.63	23.80	390	960	
	460.886	○	-	-	-	<b>CG</b>	-	4.70	3.10	9.19	12.13	16.00	18.82	23.08	26.41	30.46	390	960	
	460.966	○	-	-	-	<b>CG</b>	-	5.80	3.80	14.36	18.95	25.00	29.40	36.07	41.26	47.59	390	960	
	461.006	○	-	-	-	<b>CG</b>	-	6.40	3.80	18.09	23.87	31.50	37.05	45.45	51.99	59.97	390	960	
	461.046	⊗	-	-	-	-	<b>AK</b>	7.20	5.30	22.97	30.31	40.00	47.04	57.71	66.02	76.15	390	960	

B = bore diameter · E = narrowest free cross section

⊗ Material PP (Material no. 53), connection 3/4 BSPT (Code CK)

Continued on next page.

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



# Axial-flow full cone nozzles

## Series 460 / 461



Spray angle	Type	Mat.-no. 5E	Ordering no. Code					B ∅ [mm]	E ∅ [mm]	$\dot{V}$ [l/min]								Spray diameter D at p=2 bar		
			PVDf	1/8 BSPT	1/4 BSPT	3/8 BSPT	1/2 BSPT			3/4 BSPT	p [bar]								H = 200 mm	H = 500 mm
											0.5	1.0	2.0	3.0	5.0	7.0	10.0			
120°	460. 408	○	CA	-	-	-	-	1.20	0.85	0.57	0.76	1.00	1.18	1.44	1.65	1.90	680	1220		
	460. 488	○	CA	-	-	-	-	1.50	1.00	0.92	1.21	1.60	1.88	2.31	2.64	3.05	680	1220		
	460. 528	○	CA	-	-	-	-	1.65	1.20	1.15	1.52	2.00	2.35	2.89	3.30	3.81	680	1220		
	460. 608	○	CA	-	-	-	-	2.10	1.40	1.81	2.39	3.15	3.70	4.54	5.20	6.00	680	1220		
	460. 648	○	-	CC	-	-	-	2.45	1.60	2.30	3.03	4.00	4.70	5.77	6.60	7.61	680	1330		
	460. 728	○	-	-	CE	-	-	3.10	1.90	3.62	4.77	6.30	7.41	9.09	10.40	11.99	680	1330		
	460. 748	○	-	-	CE	-	-	3.30	1.90	4.08	5.38	7.10	8.35	10.24	11.72	13.52	680	1330		
	460. 768	○	-	-	CE	-	-	3.50	1.90	4.59	6.44	8.00	9.41	11.54	13.20	15.22	680	1330		
	460. 808	○	-	-	CE	-	-	3.80	2.40	5.74	7.58	10.00	11.76	14.43	16.51	19.04	680	1330		
	460. 848	○	-	-	CE	-	-	4.20	2.70	7.18	9.47	12.50	14.70	18.03	20.63	23.80	680	1330		
	460. 888	○	-	-	-	CG	-	4.60	3.10	9.19	12.13	16.00	18.82	23.08	26.41	30.46	680	1330		
	460. 968	○	-	-	-	CG	-	5.90	4.10	14.36	18.95	25.00	29.40	36.07	41.26	47.59	680	1330		
	461. 048	⊗	-	-	-	-	AK	7.60	4.90	22.97	30.31	40.00	47.04	57.71	66.02	76.15	680	1330		

B = bore diameter · E = narrowest free cross section  
 ⊗ Material PP (Material no. 53), connection 3/4 BSPT (Code CK)

The folded page at the end of the catalogue will give you a survey on the various assembly possibilities. For complete assembly accessories, please refer to »Accessories«.

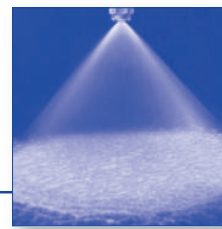
Example    Type    +    Material-no.    +    Code    =    Ordering no.  
 for ordering: 460. 408    +    5E                    +    CA            =    460. 408. 5E. CA





# Axial-flow full cone nozzles

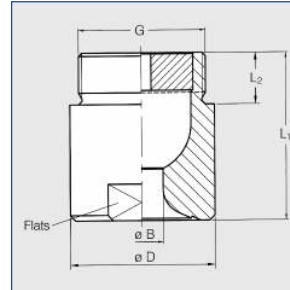
## Series 405



### Very uniform spray pattern.

Applications:

Surface spraying, spraying over packings, cleaning and washing process, chemical process engineering, cooling of gaseous fluids and solids, water treatment.



Dimensions [mm]					Weight Brass
G	L <sub>1</sub>	L <sub>2</sub>	D	Flats	
1 1/4 BSPP	50	19	49	41	525 g
1 1/2 BSPP	60	19	59	50	920 g
2 BSPP	78	24	68	60	1550 g

Spray angle	Ordering no.						B ∅ [mm]	E ∅ [mm]	V̇ [l/min]						Spray diameter D at p=2 bar	
	Type	Mat.-no.		Code		p [bar]						H = 0.5 m	H = 1 m			
		1Y	30			0.3			0.5	1.0	2.0			3.0	5.0	
60°	405.204	●	●	AP	-	-	11.20	5.80	47	57	76	100	118	144	560	1040
	405.284	●	●	-	AR	-	14.30	7.00	75	92	121	160	188	231	580	1080
	405.324	●	●	-	-	AV	16.40	7.50	94	115	152	200	235	289	580	1080
	405.364	●	●	-	-	AV	18.40	8.50	117	144	189	250	294	361	580	1080
	405.404	●	●	-	-	AV	20.00	7.00	147	181	239	315	370	454	580	1100
90°	405.206	●	●	AP	-	-	12.00	5.00	47	57	76	100	118	144	780	1450
	405.286	●	●	-	AR	-	15.20	6.20	75	92	121	160	188	231	800	1550
	405.326	●	●	-	-	AV	17.20	7.70	94	115	152	200	235	289	850	1600
	405.366	●	●	-	-	AV	19.50	8.70	117	144	189	250	294	361	850	1600
	405.406	●	●	-	-	AV	22.00	9.50	147	181	239	315	370	454	850	1600
120°	405.208	●	●	AP	-	-	12.70	5.00	47	57	76	100	118	144	1450	2600
	405.288	●	●	-	AR	-	16.00	6.60	75	92	121	160	188	231	1500	2700
	405.328	●	●	-	-	AV	17.80	7.90	94	115	152	200	235	289	1500	2800
	405.368	●	●	-	-	AV	20.10	8.80	117	144	189	250	294	361	1500	2800
	405.408	●	●	-	-	AV	22.40	9.10	147	181	239	315	370	454	1500	2800

B = bore diameter · E = narrowest free cross section

<b>Example</b>	Type	+	Material-no.	+	Code	=	Ordering no.
for Ordering:	405.204	+	1Y	+	AP	=	405.204.1Y.AP

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



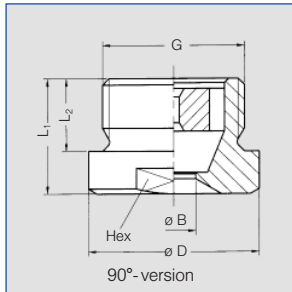
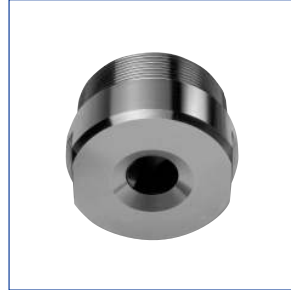
# Axial-flow full cone nozzles

## Series 403



### Very uniform spray pattern.

Applications:  
Surface spraying, spraying over packings, chemical process engineering, cooling of gaseous fluids and solids.

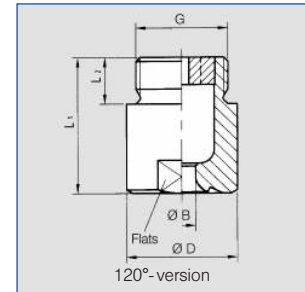


#### 90°-version

Dimensions [mm]						
Type	G ISO 228	L <sub>1</sub>	L <sub>2</sub>	D	Hex	Weight
403.446/403.486	G 2 1/2 A	52	27	83	75	1300 g
403.526	G 3 A	60	30	98	85	2000 g
403.606	G 3 1/2 A	70	32	118	105	3600 g

#### 120°-version

Dimensions [mm]						
Type	G ISO 228	L <sub>1</sub>	L <sub>2</sub>	D	Flats	Weight
403.448/403.488	G 2 1/2 A	124	27	83	75	3200 g
403.528	G 3 A	153	30	98	85	5400 g
403.608	G 3 1/2 A	156	32	118	105	8300 g
403.628	G 4 A	165	36	128	110	9600 g



Spray angle	Ordering no.	Type	Mat-no. <b>1Y</b> 316L SS	B ø [mm]	E ø [mm]	V̇ [l/min]						Spray diameter D at p=2 bar		
						p [bar]								
						0.3	0.5	1.0	2.0	3.0	5.0	7.0	H = 0.5 m	H = 1 m
90°	<b>403.446</b>	○		25.00	12.00	187	230	303	400	470	577	660	900	1700
	<b>403.486</b>	○		29.50	12.00	234	287	379	500	588	721	825	900	1700
	<b>403.526</b>	○		32.00	13.80	295	362	477	630	741	909	1040	900	1700
	<b>403.606</b>	○		40.00	15.00	468	574	758	1000	1176	1443	1651	980	1750
120°	<b>403.448</b>	○		25.50	10.00	187	230	303	400	470	577	660	1500	2850
	<b>403.488</b>	○		29.50	11.00	234	287	379	500	588	721	825	1500	2850
	<b>403.528</b>	○		32.00	15.00	295	362	477	630	741	909	1040	1500	2850
	<b>403.608</b>	○		42.00	12.00	469	574	758	1000	1176	1443	1651	1500	2850
	<b>403.628</b>	○		45.00	15.00	585	718	947	1250	1470	1903	2063	1600	2900

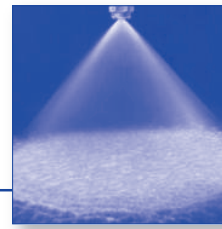
B = bore diameter · E = narrowest free cross section

<b>Example for ordering:</b>	<b>Type</b>	<b>+</b>	<b>Material-no.</b>	<b>=</b>	<b>Ordering no.</b>
	<b>403.446</b>	<b>+</b>	<b>1Y</b>	<b>=</b>	<b>403.446.1Y</b>



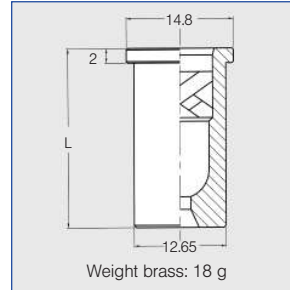
# Axial-flow full cone nozzles for retaining nut

## Series 468



### Full cone nozzle for assembly with retaining nut. Uniform full cone spray.

Applications:  
Surface spraying, spraying over packings, chemical process engineering, cleaning and washing processes, cooling of gaseous fluids and solids.

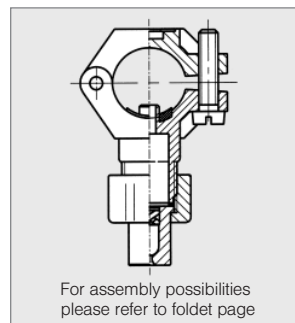


Spray angle	Ordering no.				B Ø [mm]	E Ø [mm]	V̇ [l/min]						L [mm]	Spray diameter D at p = 2 bar		
	Type	Mat.-no.					p [bar]									
		17 <sup>1)</sup>	30	5E			0.5	1.0	2.0	3.0	5.0	10.0				H = 200 mm
		316Ti SS/316L SS	Brass	PVDF					[US gal./min] at 40 psi							
60°	468. 604	○	○	-	2.05	1.40	1.81	2.39	3.15	0.98	3.70	4.54	6.00	18	220	560
	468. 644	-	○	-	2.40	1.90	2.30	3.03	4.00	1.20	4.70	5.77	7.61	24.5	220	560
	468. 684	-	○	-	2.60	2.00	2.87	3.79	5.00	1.55	5.88	7.21	9.52	24.5	220	560
	468. 724	○	○	-	2.90	2.00	3.62	4.77	6.30	1.89	7.41	9.09	11.99	24.5	220	560
90°	468. 526	○	○	○	1.65	1.30	1.15	1.52	2.00	0.60	2.35	2.89	3.81	18	380	860
	468. 846	○	○	-	4.05	3.20	7.18	9.47	12.50	3.75	14.70	18.03	23.80	24.5	380	960
120°	468. 368	-	○	-	0.95	0.70	0.36	0.48	0.63	0.20	0.74	0.91	1.20	18	680	1540
	468. 408	○	○	-	1.20	0.85	0.57	0.76	1.00	0.30	1.18	1.44	1.90	18	680	1540
	468. 488	○	○	-	1.50	1.00	0.92	1.21	1.60	0.48	1.88	2.31	3.05	18	680	1540
	468. 528	○	○	-	1.65	1.20	1.15	1.52	2.00	0.60	2.35	2.89	3.81	18	680	1540

<sup>1)</sup> We reserve the right to deliver 316Ti SS or 316L SS under the material no. 17.  
B = bore diameter · E = narrowest free cross section

The folded page at the end of the catalogue will give you a survey on the various assembly possibilities. For complete assembly accessories, please refer to »Accessories«.

<b>Example for ordering</b>	<b>Type</b>	<b>+</b>	<b>Material-no.</b>	<b>=</b>	<b>Ordering no.</b>
	468. 604	+	17	=	468. 604. 17



Conversion formula for the above series:  $\dot{V}_2 = \dot{V}_1 * \left( \frac{p_2}{p_1} \right)^{0,4}$  ( $\leq 10$  bar)



# Tangential-flow full cone nozzles

## Series 422 / 423



(Mat. no. 1Y)

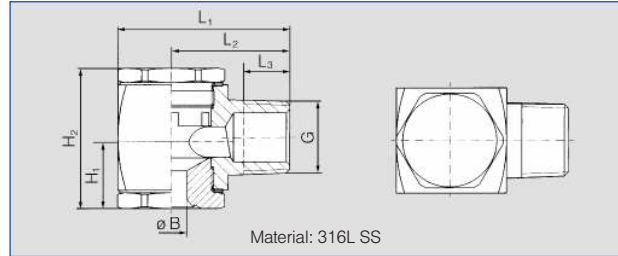
**Tangentially arranged liquid supply. Without swirl inserts. Non-clogging. Stable spray angle. Uniform spray.**

Applications:

Cleaning and washing process, cooling of gaseous fluids and solids, surface spraying, spraying onto mats in air washers, improving on chemical reactions, continuous casting, foam control.



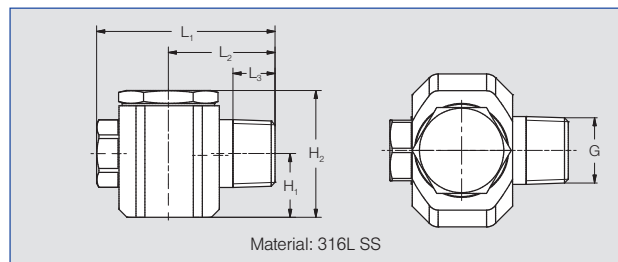
1/4" - 3/8" version



Material: 316L SS



1/2" - 1" version



Material: 316L SS

G	Dimensions [mm]					Weight
	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	H <sub>1</sub>	H <sub>2</sub>	
1/4 BSPT	28.0	20.0	10.0	8.0	20.5	40 g
3/8 BSPT	36.0	25.0	10.0	11.0	26.5	100 g
1/2 BSPT	56.0	33.5	13.0	20.0	39.8	235 g
3/4 BSPT	65.5	38.0	14.5	23.5	57.0	620 g
1 BSPT	85.0	48.5	17.0	27.5	66.0	1250 g

Spray angle	Ordering no.							B Ø [mm]	E Ø [mm]	V̇ [l/min]						Spray diameter D at p=1-10 bar			
	Type	Mat.-no.		Code						p [bar]						H = 200 mm		H = 500 mm	
		30	1Y	1/4 BSPT	3/8 BSPT	1/2 BSPT	3/4 BSPT			1 BSPT	0.5	1.0	2.0	3.0	5.0	10.0	D	H	D
60°	422. 644	○	○	-	CE	-	-	-	3.00	3.00	2.00	2.83	4.00	4.90	6.32	8.94	225	510	
90°	422. 406	○	○	CC	-	-	-	-	1.50	1.45	0.50	0.71	1.00	1.22	1.58	2.24	380	860	
	422. 486	-	○	CC	-	-	-	-	1.90	1.80	0.80	1.13	1.60	1.96	2.53	3.58	380	860	
	422. 566	○	○	CC	-	-	-	-	2.30	2.20	1.25	1.77	2.50	3.06	3.95	5.59	380	860	
	422. 606	○	○	-	CE	-	-	-	2.60	2.50	1.57	2.23	3.15	3.86	4.98	7.04	380	860	
	422. 646	○	○	-	CE	-	-	-	3.00	2.90	2.00	2.83	4.00	4.90	6.32	8.94	390	960	
	422. 726	○	-	-	CE	-	-	-	3.70	3.60	3.15	4.45	6.30	7.72	9.96	14.09	390	960	
	422. 766	-	○	-	CE	-	-	-	4.15	4.10	4.00	5.66	8.00	9.80	12.65	17.89	390	960	
	422. 806	○	○	-	CE	-	-	-	4.65	4.60	5.00	7.07	10.00	12.25	15.81	22.36	390	960	
	422. 846	○	○	-	CE	-	-	-	5.20	5.10	6.25	8.84	12.50	15.31	19.76	27.95	390	960	
	422. 886	○	○	-	CE	-	-	-	5.80	5.70	8.00	11.31	16.00	19.60	25.30	35.78	390	960	
422. 966	-	○	-	-	CG	-	-	8.00	8.00	12.50	17.68	25.00	30.62	39.53	55.90	390	960		

B = Bore diameter · E = Narrowest free cross section

Continued on next page.

**Example** Type + Material-no. + Code = Ordering no.  
**for ordering:** 422. 644 + 30 + CE = 422. 644. 30. CE

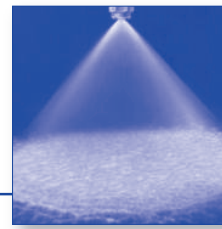


$$\dot{V}_2 = \dot{V}_1 * \sqrt{\frac{p_2}{p_1}}$$



# Tangential-flow full cone nozzles

## Series 422 / 423



Spray angle	Ordering no.								B Ø [mm]	E Ø [mm]	V̇ [l/min]						Spray diameter D at p=1-10 bar	
	Type	Mat.-no.		Code				p [bar]						 H = 200 mm    H = 500 mm				
		30	1Y															
	Brass	316L SS	1/4 BSPT	3/8 BSPT	1/2 BSPT	3/4 BSPT	1 BSPT			0.5	1.0	2.0	3.0	5.0	10.0			
120°	422.488	○	-	CC	-	-	-	-	1.90	1.80	0.80	1.13	1.60	1.96	2.53	3.58	680	1220
	422.568	○	○	CC	-	-	-	-	2.30	2.20	1.25	1.77	2.50	3.06	3.95	5.59	680	1220
	422.608	○	-	-	CE	-	-	-	2.60	2.50	1.57	2.23	3.15	3.86	4.98	7.04	680	1600
	422.728	○	○	-	CE	-	-	-	3.70	3.60	3.15	4.45	6.30	7.72	9.96	14.09	680	1600
	422.808	-	○	-	CE	-	-	-	4.65	4.60	5.00	7.07	10.00	12.25	15.81	22.36	680	1600
	422.848	○	○	-	CE	-	-	-	5.20	5.10	6.25	8.84	12.50	15.31	19.76	27.95	680	1600
	422.888	○	○	-	CE	-	-	-	5.80	5.70	8.00	11.31	16.00	19.60	25.30	35.78	680	1600
	422.928	-	○	-	-	CG	-	-	7.30	7.30	10.00	14.14	20.00	24.49	31.62	44.72	680	1600
	422.968	○	○	-	-	CG	-	-	8.00	8.00	12.50	17.68	25.00	30.62	39.53	55.90	680	1600
	423.008	-	○	-	-	CG	-	-	8.70	8.70	15.75	22.27	31.50	38.88	49.81	70.44	680	1600
	423.128	-	○	-	-	-	-	CK	12.70	12.30	31.50	44.55	63.00	77.16	99.61	140.87	680	1600
	423.208	-	○	-	-	-	-	CM	19.00	16.00	50.00	70.71	100.00	122.47	158.11	223.61	680	1600

B = Bore diameter · E = Narrowest free cross section

**Example**    Type    +    Material-no.    +    Code    =    Ordering no.  
**for ordering:**    422.488    +    30    +    CC    =    422.488.30.CC

Umrechnungsformel für diese Baureihe:  $\dot{V}_2 = \dot{V}_1 * \sqrt{\frac{p_2}{p_1}}$





# Tangential-flow full cone nozzles

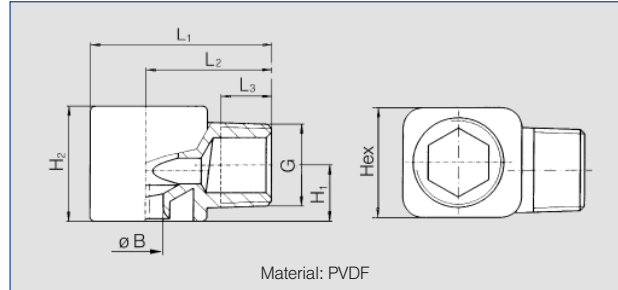
## Plastic version

### Series 422 / 423



**Tangentially arranged liquid supply. Without swirl inserts. Non-clogging. Stable spray angle. Uniform spray.**

Applications:  
Cleaning and washing process, cooling of gaseous fluids and solids, surface spraying, spraying onto mats in air washers, improving on chemical reactions, foam control.



Dimensions [mm]							Weight PVDF
G	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	H <sub>1</sub>	H <sub>2</sub>	Hex	
1/4 BSPT	28.0	20.0	9.8	8.0	16.0	16.0	7 g
3/8 BSPT	36.0	25.0	10.1	11.2	23.0	22.0	16 g
1/2 BSPT	49.5	33.5	13.2	19.2	38.0	32.0	40 g
3/4 BSPT	58.5	38.5	18.5	24.5	50.0	41.0	50 g

Spray angle	Ordering no.						B Ø [mm]	E Ø [mm]	V̇ [l/min]							Spray diameter D at p=1-10 bar		
	Type	Mat.-no. 5E	Code						p [bar]									
			PVDF	1/4 BSPT	3/8 BSPT	1/2 BSPT			3/4 BSPT	[US gal/min] at 40 psi								
										0.5	1.0	2.0	3.0	5.0	10.0	H = 200 mm	H = 500 mm	
60°	422. 724	○	-	CE	-	-	3.60	3.60	3.15	4.45	6.30	1.95	7.72	9.96	14.09	225	510	
	90°	422. 406	○	CC	-	-	-	1.50	1.45	0.50	0.71	1.00	0.31	1.22	1.58	2.24	380	860
		422. 566	○	CC	-	-	-	2.30	2.20	1.25	1.77	2.50	0.78	3.06	3.95	5.59	380	860
		422. 606	○	-	CE	-	-	2.60	2.50	1.57	2.23	3.15	0.98	3.86	4.98	7.04	380	860
		422. 646	○	-	CE	-	-	3.00	2.90	2.00	2.83	4.00	1.24	4.90	6.32	8.94	390	960
		422. 726	○	-	CE	-	-	3.70	3.60	3.15	4.45	6.30	1.95	7.72	9.96	14.09	390	960
		422. 806	○	-	CE	-	-	4.65	4.60	5.00	7.07	10.00	3.10	12.25	15.81	22.36	390	960
		422. 846	○	-	CE	-	-	5.30	5.30	6.25	8.84	12.50	3.88	15.31	19.76	27.95	390	960
		422. 886	○	-	CE	-	-	5.80	6.00	8.00	11.31	16.00	4.96	19.60	25.30	35.78	390	960
		422. 926	○	-	-	CG	-	7.30	7.30	10.00	14.14	20.00	6.20	24.49	31.62	44.72	390	960
422. 966		○	-	-	CG	-	8.00	8.00	12.50	17.68	25.00	7.75	30.62	39.53	55.90	390	960	
423. 006	○	-	-	CG	-	8.70	8.70	15.75	22.27	31.50	9.77	38.58	49.81	70.44	390	960		
423. 126	○	-	-	-	CK	12.00	12.00	31.50	44.55	63.00	19.54	77.16	99.61	140.87	390	960		
120°	422. 408	○	CC	-	-	-	1.50	1.45	0.50	0.71	1.00	0.31	1.22	1.58	2.24	680	1220	
	422. 448	○	CC	-	-	-	1.65	1.60	0.62	0.88	1.25	0.39	1.53	1.98	2.80	680	1220	
	422. 488	○	CC	-	-	-	1.90	1.90	0.80	1.13	1.60	0.50	1.96	2.53	3.58	680	1220	
	422. 568	○	CC	-	-	-	2.40	2.40	1.25	1.77	2.50	0.78	3.06	3.95	5.59	680	1220	
	422. 728	○	-	CE	-	-	4.00	3.90	3.15	4.45	6.30	1.95	7.72	9.96	14.09	680	1600	
	422. 888	○	-	CE	-	-	6.60	6.00	8.00	11.31	16.00	4.96	19.60	25.30	35.78	680	1600	
	422. 968	○	-	-	CG	-	8.00	8.00	12.50	17.68	25.00	7.75	30.62	39.53	55.90	680	1600	
	423. 008	○	-	-	CG	-	8.70	8.70	15.75	22.27	31.50	9.77	38.58	49.81	70.44	680	1600	
	423. 128	○	-	-	-	CK	12.70	12.30	31.50	44.55	63.00	19.54	77.16	99.61	140.87	680	1600	

B = bore diameter · E = narrowest free cross section

The folded page at the end of the catalogue will give you a survey on the various assembly possibilities. For complete assembly accessories, please refer to »Accessories«.

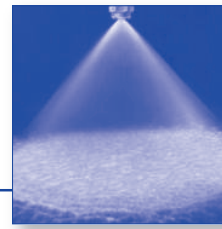
Example    Type    +    Material-no.    +    Code    =    Ordering no.  
of ordering: 422. 724    +    5E                    +    CE            =    422. 724. 5E. CE



# Tangential-flow full cone nozzles

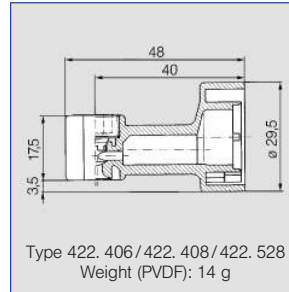
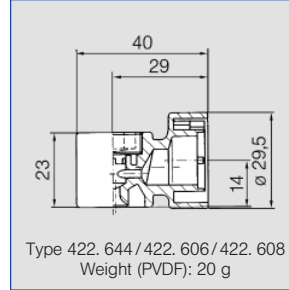
## Bayonet quick-release system

### Series 422

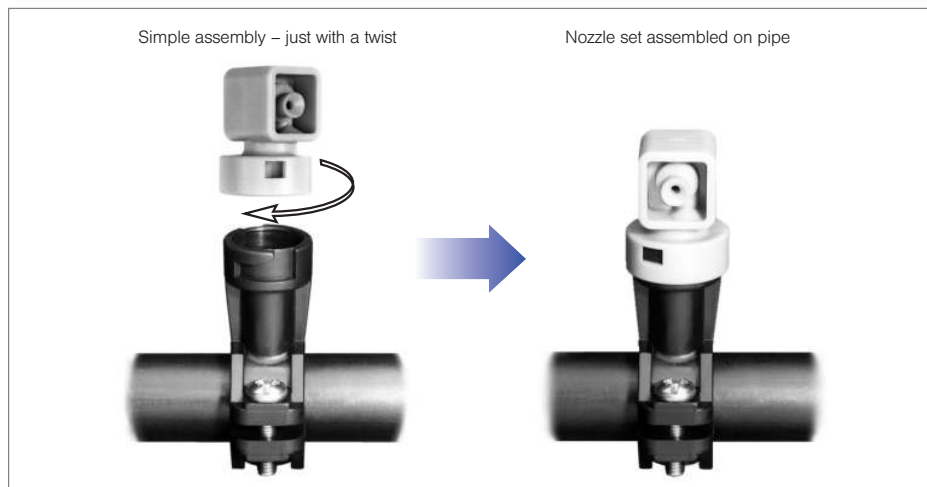


**Quick and safe assembly, without tool. Space-saving installation. Non-clogging and maintenance-free. High resistance to temperatures and chemicals.**

Applications:  
Cleaning problems, cooling process, foam control.



Spray angle	Ordering no.			B Ø [mm]	E Ø [mm]	V̇ [l/min]						Spray diameter D at p=1-10 bar			
	Type	Mat.-no.				Code	p [bar]						 H = 200 mm   H = 500 mm		
		5E	53				[US gal./mm] at 40 psi								
		PVDF	RP	Bayonet quick-release	0.5	1.0	2.0	3.0	5.0	10.0					
60°	422. 644	-	○	KB	2.90	2.90	2.00	2.83	4.00	1.24	4.90	6.32	8.94	225	510
	422. 406	○	-	KB	1.50	1.45	0.50	0.71	1.00	0.31	1.22	1.58	2.24	380	860
90°	422. 606	○	-	KB	2.60	2.50	1.57	2.23	3.15	0.98	3.86	4.98	7.04	380	860
	422. 408	○	-	KB	1.50	1.45	0.50	0.71	1.00	0.31	1.22	1.58	2.24	680	1220
120°	422. 528	○	-	KB	2.10	2.00	1.00	1.41	2.00	0.62	2.45	3.16	4.47	680	1220
	422. 608	○	-	KB	2.60	2.50	1.57	2.23	3.15	0.98	3.86	4.98	7.04	680	1600



B = bore diameter  
E = narrowest free cross section

**The folded page at the end of the catalogue will give you a survey on the various assembly possibilities. For complete assembly accessories, please refer to »Accessories«.**

Conversion formula for the above series:  $\dot{V}_2 = \dot{V}_1 * \sqrt{\frac{p_2}{p_1}}$



# Cluster head nozzles

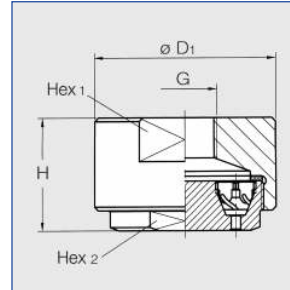
## Series 502 / 503



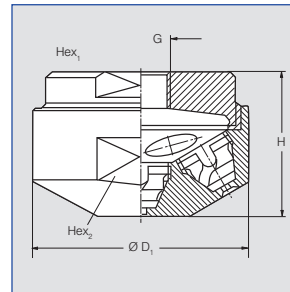
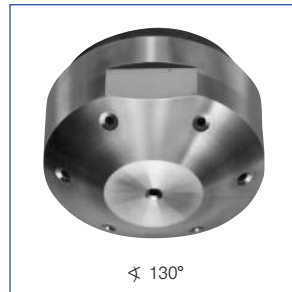
**Fine full cone atomization with the aid of several hollow cones spraying into one another.**

Applications:

Cooling of gaseous and solid material, desuperheating, chlorine precipitation, absorption as well as for improvement of chemical reaction by enlarging the contact area.



Dimensions		
	1/2"	3/4"
Hex <sub>1</sub>	46	65
Hex <sub>2</sub>	38	55
H	25	46
D <sub>1</sub>	50	75
Weight (Brass)	250 g	870 g



Dimensions		
	1/2"	3/4"
Hex <sub>1</sub>	27	50
Hex <sub>2</sub>	36	55
H	28	53
D <sub>1</sub>	40	60
Weight (Brass)	150 g	410 g

Spray angle	Ordering no.		G	B Ø [mm]	E Ø [mm]	V̇ [l/min]						Spray diameter D at p = 2 bar	
	Type	Mat.-no.				p [bar]						H =	
						0.5	1.0	2.0	[US gal/min] at 40 psi	5.0	10.0	1000 mm	2000 mm
70°	502.445	17 <sup>1)</sup> 30	1/2"	0.90	0.50	-	-	1.25	0.39	1.98	2.80	400	400
	502.985	30	3/4"	3.30	2.00	14.00	19.80	28.00	8.68	44.30	62.60	1200	1500
	503.065	30	3/4"	4.90	2.00	22.10	31.80	45.00	13.96	71.10	100.60	1200	1800
130°	502.448	30	1/2"	0.90	0.50	-	-	1.25	0.39	1.98	2.80	500	500
	502.548	30	1/2"	1.80	0.50	-	1.58	2.24	0.69	3.54	5.01	700	700
	502.748	30	3/4"	1.90	2.00	3.50	5.00	7.10	2.20	11.20	15.90	1100	1200
	502.838	30	3/4"	2.90	2.00	4.60	8.30	11.80	3.66	18.70	26.40	1400	1600
	502.908	30	3/4"	4.00	2.00	8.80	12.70	18.00	5.58	28.40	40.20	1500	1800
	503.028	30	3/4"	4.20	2.00	17.70	25.10	35.50	11.01	56.10	79.40	1600	1800
503.118	30	3/4"	6.50	2.00	30.00	42.00	60.00	18.61	95.00	134.00	2000	3000	

<sup>1)</sup>We reserve the right to deliver 316Ti SS or 316L SS under the material no. 17.  
B = bore diameter · E = narrowest free cross section

The folded page at the end of the catalogue will give you a survey on the various assembly possibilities. For complete assembly accessories, please refer to »Accessories«.

<b>Example for ordering:</b>	<b>Type</b>	<b>+</b>	<b>Material-no.</b>	<b>=</b>	<b>Ordering no.</b>
	502.445		30		502.445.30

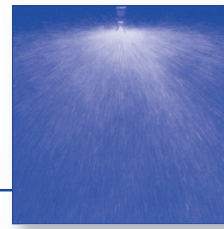






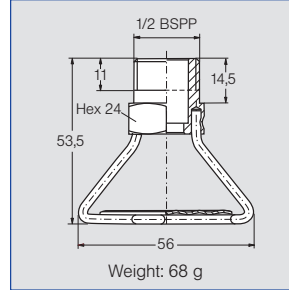
# Deflector-plate nozzle

## Series 525



**Full cone spray. Non clogging nozzle without swirl insert.**

Applications:  
Fire fighting and broadcast spraying, wide area spray.



Spray angle	Ordering no.		B Ø mm	$\dot{V}$ [l/min]						Spray diameter [D] at p=3bar ca.		
	Type	Mat.-no.		p [bar]								
		30		17 <sup>1)</sup>	0.5	1.0	[US gal/min] at 40 psi	3.0	5.0			10.0
180°	524. 809	○	○	4.00	5.00	7.10	3.10	12.20	15.80	22.40	5.60 m	6.40 m
	525. 049	○	○	8.00	20.00	28.30	12.41	49.00	63.20	89.40	10.00 m	13.20 m
	525. 109	○	-	9.30	28.00	40.00	17.37	69.00	89.00	125.00	10.20 m	13.40 m
	525. 169	○	-	10.90	40.00	57.00	24.81	98.00	126.00	179.00	10.60 m	13.60 m
	525. 229	○	-	12.20	56.00	79.00	34.73	137.00	177.00	250.00	6.80 m	10.40 m
	525. 269	○	○	12.30	70.00	99.00	43.42	171.00	221.00	313.00	5.20 m	10.20 m

<sup>1)</sup>We reserve the right to deliver 316Ti SS or 316L SS under the material no. 17.  
B = bore diameter

<b>Example for ordering:</b>	<b>Type</b>	<b>+</b>	<b>Material-no.</b>	<b>=</b>	<b>Ordering no.</b>
	525.809	+	30	=	525. 809. 30

Version with dust protection cap on request.