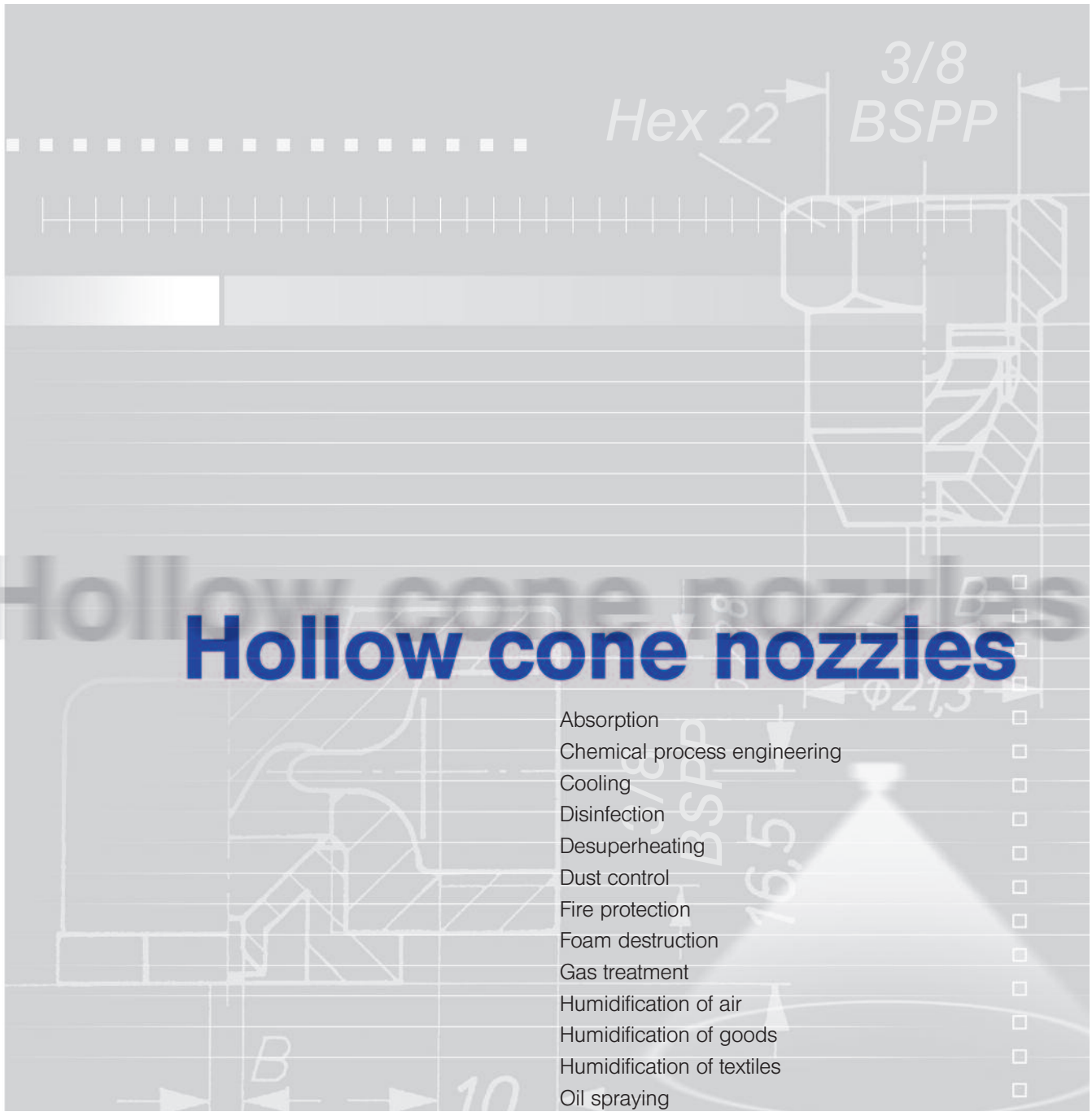


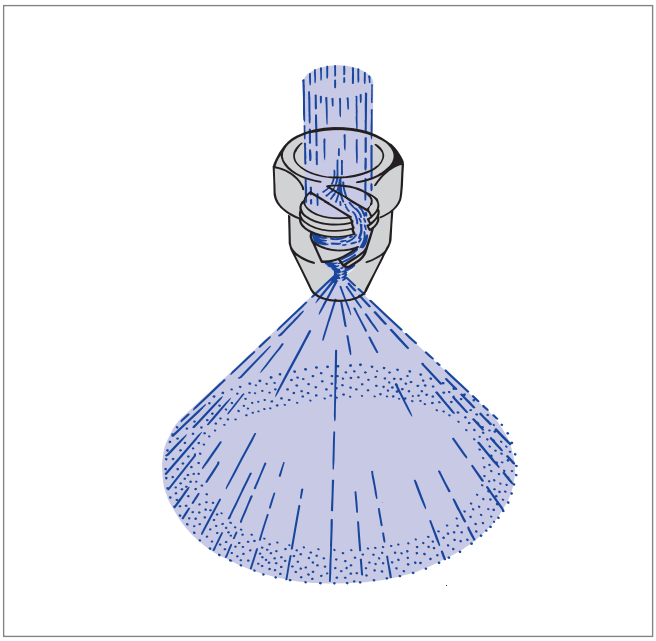
Hollow cone nozzles

- Absorption
- Chemical process engineering
- Cooling
- Disinfection
- Desuperheating
- Dust control
- Fire protection
- Foam destruction
- Gas treatment
- Humidification of air
- Humidification of goods
- Humidification of textiles
- Oil spraying
- Protection of storage tanks
- Spraying onto filters
- Spraying over germinating boxes
- Water recooling
- and many others...

Hollow cone nozzles

Axial-flow hollow cone nozzles

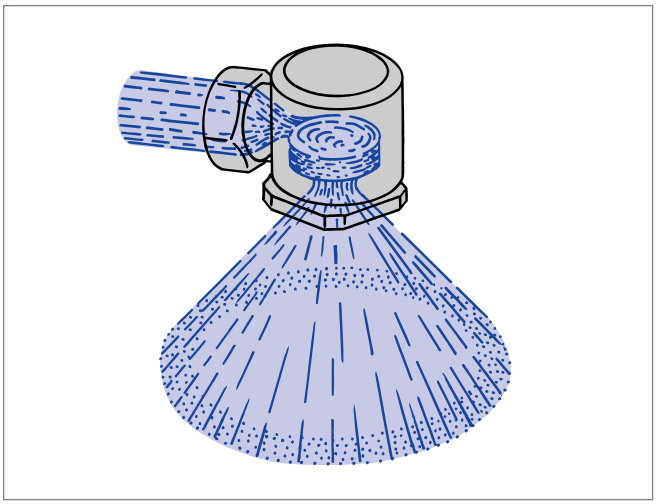
Wherever a fine, uniform hollow cone spray is needed, e.g. for cooling and cleaning of gas, absorption processes, dust control, product dampening, oil spraying and air humidifying, axial-flow hollow cone nozzles have proved very efficient. The spiral grooves in the swirl inserts ensure an efficient whirling of the liquid. As a result, the contact surface of the atomized liquid is significantly increased within a remarkably narrow droplet spectrum. This creates extraordinarily favourable conditions for mass transfer.



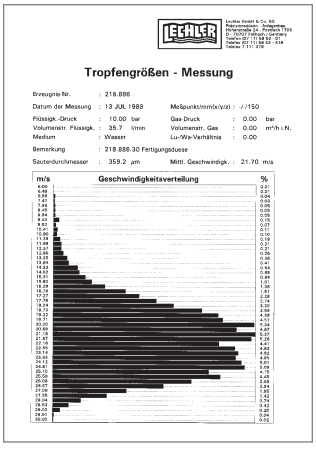
- Finest drop particles
- Narrow free cross-sections
- Maximum spray angle: 90°

Tangential-flow hollow cone nozzles

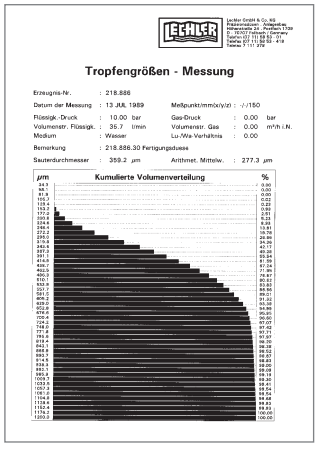
Tangential-flow hollow cone nozzles provide a very uniform hollow cone spray thanks to a particular flow geometry. Liquid is put into rotation by an eccentricity arranged liquid inlet. Thereby a very uniform liquid distribution is achieved with spray angles up to 130°. Tangential-flow hollow cone nozzles are of a self-cleaning design, offering a high operational safety, even at rather poor water conditions. Typical applications for tangential-flow hollow cone nozzles are: air-humidification in air conditioning systems or gas cleaning in chemical and environmental engineering installations.



- Coarser droplets than axial-flow hollow cone nozzles
- Large free cross-sections
- Wide spray angles up to 130°
- Self-cleaning, non-clogging

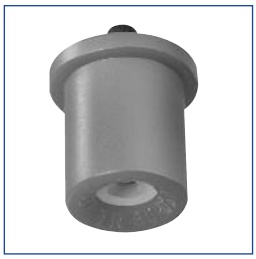


Number/frequency distribution chart



Cumulated volume distribution chart

Hollow cone nozzles

Axial-flow hollow cone nozzles	Series	∢	$\dot{V}$ [l/min] at **p** = 2 bar	Connection	Application/ Design	Page
	**212**	60° 80°	0,015 – 0,46 (at p = 7 bar)	1/4 BSPT 1/4 BSPP	Disinfection, humidification of air, spraying over germinating boxes, product dampening, humidification of textiles, oil spraying, absorption.	**2.5**
	**214**	60° 80°	0,08 – 0,32	1/8 BSPP	Cooling and cleaning of air and gas, dust control, spraying onto filters, spray drying, desuperheating	**2.6**
	216	60° 90°	0,40 – 10,40	3/8 BSPP		
	**2TR**	80°	0,16 – 1,57	Assembly with 3/8" retaining nut	Humidification of air, cooling and cleaning of gases, dust control, spraying onto filters. Fine, uniform hollow cone spray.	**2.7**

Tangential-flow hollow cone nozzles	Series	∢	$\dot{V}$ [l/min] at **p** = 2 bar	Connection	Application/ Design	Page
	**302**	60° 80° 90° 130°	0,40 – 25,00	3/8 BSPP	Humidification of air in air washers, dust control, spraying onto filters, foam control, cooling. **Non-clogging nozzle design, without swirl insert.**	**2.8** **2.9**

Hollow cone nozzles

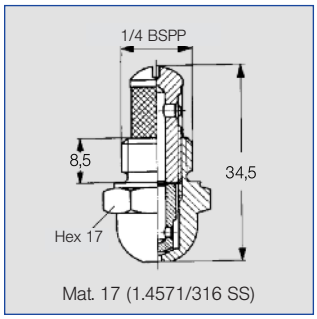
Tangential-flow hollow cone nozzles	Series	∢	$\dot{V}$ [l/min] at **p** = 2 bar	Connection	Application/ Design	Page
	**308**	90°	0,63 – 3,15	3/8 BSPP	Foam destruction, dust control. **Flow rate adjustable.**	**2.8**
	**302 with bayonet-quick-release system**	45° 60° 80° 90° 130°	0,40 – 3,15	Assembly with bayonet quick-release system.	Humidification of air in air washers, dust control, spraying onto filters, foam control, cooling. **Quick and safe assembly with the aid of a bayonet quick-lock system. Automatic setting of spray plane. A time-saving alternative to threaded nozzle designs.**	**2.10**
	**350**	130°	0,63 – 3,15	3/8 BSPP or quick-lock	Humidification of air in air washers, dust control, spraying onto filters, foam control. **Extremely fine atomization with a narrow droplet distribution.**	**2.11**
	**304 306 307**	90° 130°	5,60 – 33,50	1/2 BSPP 3/4 BSPP	Fire fighting, protection of storage tanks, foam control. **Non-clogging nozzle design, without swirl insert.**	**2.12**
	**373 „Ramp Bottom“**	70° 80° 90°	63,00 – 227,00	1 BSPP 1 1/4 BSPP 1 1/2 BSPP	Cooling and cleaning of gas, dust control, water recooling, chemical process engineering. **Longer service life thanks to the patented „ramp bottom“ design of the mixing chamber.**	**2.13**
	309	90°	118,00 – 160,00	1 1/4 BSPP	**Less expensive design in plastic material.**	

Axial-flow hollow cone nozzles

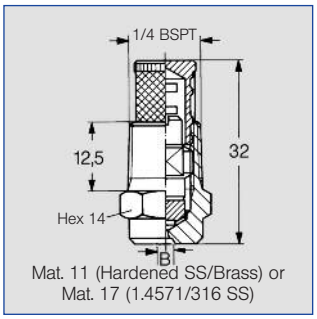
Series 212

Extremely fine, fog-like hollow cone spray.
Applications:
Disinfection, humidification of air, spraying over germinating boxes, product humidification, humidification of textiles, spraying of oil, absorption.

60° 80°



Mat. 17 (1.4571/316 SS)



Mat. 11 (Hardened SS/Brass) or
Mat. 17 (1.4571/316 SS)

Spray angle	Ordering no. Type	Mat. no. 11 1.4104/Brass	Mat. no. 17 1.4571/316 SS	Code 1/4 BSPP	Code 1/4 BSPT	B Ø [mm]	E Ø [mm]	V̇ [l/min] p [bar] 2,0	3,0	5,0	7,0	10,0	20,0	Spray diameter D at p = 7 bar H = 100 mm
60°	212. 004	-	○	AC	-	0,10	0,10	-	-	0,013	0,015	0,018	0,025	80
	212. 014	-	○	AC	-	0,15	0,15	-	-	0,019	0,023	0,027	0,039	80
	212. 054	-	○	AC	-	0,20	0,15	-	-	0,027	0,033	0,039	0,057	80
80°	212. 085	○	-	-	CC	0,25	0,25	-	-	0,040	0,047	0,057	0,080	140
	212. 125	○*	○**	AC	CC	0,35	0,25	-	0,048	0,062	0,073	0,088	0,124	140
	212. 145	○	-	-	CC	0,40	0,30	-	0,063	0,082	0,097	0,116	0,164	140
	212. 165	○	-	-	CC	0,45	0,30	-	0,080	0,103	0,122	0,146	0,206	140
	212. 185	○	-	-	CC	0,50	0,35	-	0,101	0,130	0,154	0,184	0,260	140
	212. 205	○	-	-	CC	0,60	0,30	0,107	0,131	0,168	0,199	0,238	0,336	140
	212. 245	○	-	-	CC	0,70	0,45	0,166	0,202	0,261	0,310	0,370	0,522	140
	212. 285	○	○	AC	CC	0,90	0,60	0,262	0,320	0,390	0,460	0,550	0,770	140

B = bore diameter · E = narrowest free cross section
* Only available with code CC
** Only available with code AC

Example for Ordering:	Type	+	Material no.	+	Code	=	Ordering no.
	212. 004	+	17	+	AC	=	212. 004. 17. AC

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“.

The integrated strainer avoids clogging of the nozzle and increases its service life.

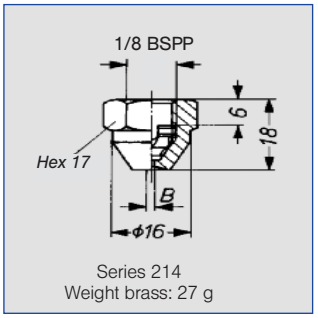
Materials			
Material no.	Nozzle	Strainer holder	Strainer
11	1.404 (hardened SS)	Brass	Monel
17	1.4571/316 SS	1.4571/316 SS	1.4571/316 SS

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

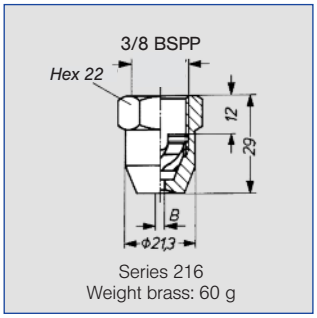
Axial-flow hollow cone nozzles

Series 214 / 216

Fine, uniform hollow cone spray.
Applications:
Cooling and cleaning of air and gas, dust control, spraying onto filters, spray drying, desuperheating.



Series 214
Weight brass: 27 g



Series 216
Weight brass: 60 g

Spray angle	Ordering no. Type	Mat. no. 17 1.4571/316 SS	Mat. no. 30 Brass	G BSPP	B Ø [mm]	E Ø [mm]	V̇ [l/min] p [bar] 0,5	1,0	2,0	3,0	5,0	10,0	20,0	Spray diameter D at p = 3 bar H = 250 mm
60°	214. 184	○	○	1/8"	0,50	0,50	-	-	0,08	0,10	0,13	0,18	0,25	200
80°	214. 245	○	○	1/8"	1,00	0,50	-	-	0,16	0,20	0,25	0,36	0,51	450
	214. 305	○	○	1/8"	1,80	0,50	-	0,23	0,32	0,39	0,51	0,72	1,01	450
60°	216. 324	○	○	3/8"	1,00	1,00	-	0,28	0,40	0,49	0,63	0,89	1,26	200
	216. 364	○	○	3/8"	1,40	1,40	-	0,45	0,63	0,77	1,00	1,41	1,99	200
	216. 404	○	○	3/8"	2,00	2,00	-	0,71	1,00	1,22	1,58	2,24	3,16	200
90°	216. 496	○	○	3/8"	3,00	2,00	-	1,20	1,70	2,08	2,69	3,80	5,38	500
	216. 566	○	○	3/8"	4,00	2,00	-	1,77	2,50	3,06	3,95	5,59	7,91	500
	216. 646	○	○	3/8"	3,50	2,00	2,00	2,83	4,00	4,90	6,32	8,94	12,65	500
	216. 686	○	○	3/8"	4,00	2,00	2,50	3,54	5,00	6,12	7,91	11,18	15,81	500
	216. 726	○	○	3/8"	5,00	2,00	3,15	4,45	6,30	7,72	9,96	14,09	19,92	500
	216. 776	○	○	3/8"	6,00	2,00	4,30	6,00	8,50	10,40	13,40	19,00	26,90	500

B = bore diameter · E = narrowest free cross section

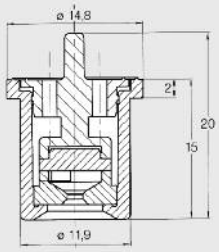
Example for ordering:	Type	+	Material no.	=	Ordering no.
	214. 184	+	17	=	214. 184. 17

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

Axial-flow hollow cone nozzles for retaining nut Series 2TR

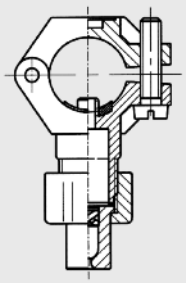
Hollow con nozzle with ceramic insert. Assembly with retaining nut. Fine, uniform hollow cone spray.
Applications:
Humidification of air, cooling and cleaning of gases, dust control, spraying onto filters.



Material: Housing POM
Insert: Ceramic, weight: 3 g

Spray angle	Ordering no. / Type	Colour	B Ø [mm]	E Ø [mm]	V̇ [l/min] p [bar] [pmax = 20 bar] 1,0	2,0	3,0	5,0	7,0	10,0	Spray diameter D at p = 3 bar H = 250 mm
80°	**2TR. 245. C8**	lilac	0,65	0,55	-	0,16	0,20	0,25	0,30	0,36	450
	2TR. 275. C6	black	0,80	0,70	0,16	0,22	0,27	0,35	0,41	0,49	450
	2TR. 305. C6	orange	0,90	0,80	0,23	0,32	0,39	0,51	0,60	0,72	450
	2TR. 345. C6	green	1,10	0,90	0,34	0,48	0,59	0,76	0,90	1,07	450
	2TR. 365. C6	yellow	1,40	0,95	0,45	0,63	0,78	1,01	1,19	1,42	450
	2TR. 405. C6	blue	1,70	1,10	0,68	0,96	1,17	1,52	1,79	2,14	450
	2TR. 445. C6	red	2,00	1,20	0,89	1,26	1,55	2,02	2,37	2,83	450
	2TR. 485. C6	brown	2,20	1,30	1,11	1,57	1,94	2,50	2,96	3,54	450

B = bore diameter · E = narrowest free cross section

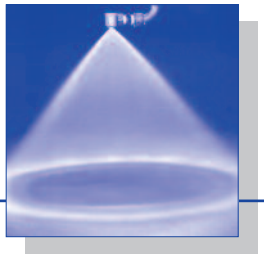


For assembly possibilities please refer to folded page.

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“.

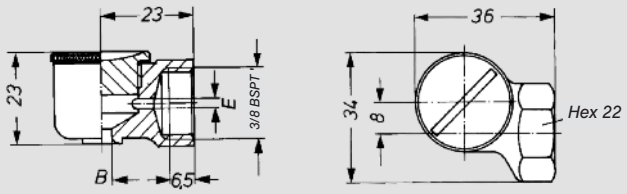
Conversion formula for the above series: $\dot{V}_2 = \dot{V}_1 * \sqrt{\frac{p_2}{p_1}}$

Tangential-flow hollow cone nozzles
Brass versions
Series 302/308



Uniform hollow cone spray. Non-clogging nozzle, without swirl insert.
Applications:
Humidification of air in air washers, dust control, spraying onto filters, foam control, cooling.

Series 302



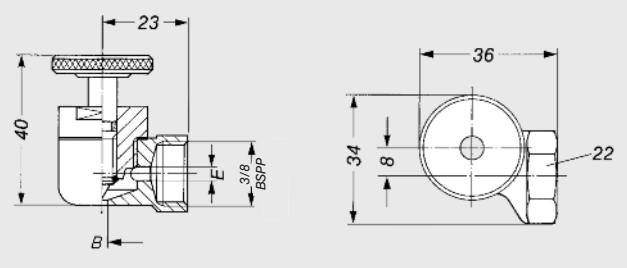
Material: Brass · Weight: 90 g

Spray angle	Ordering no. Type	Mat. no. 30 Brass	B Ø [mm]	E Ø [mm]	V̇ [l/min] p [bar] 0,5	1,0	2,0	3,0	5,0	7,0	10,0	Spray diameter D at p = 2 bar H = 250 mm	H = 500 mm
60°	302. 364	○	1,50	1,50	0,31	0,45	0,63	0,77	1,00	1,18	1,41	200	350
	302. 464	○	2,00	2,00	0,70	0,99	1,40	1,71	2,21	2,62	3,13	200	350
80°	302. 545	○	2,90	2,90	1,12	1,58	2,24	2,74	3,54	4,19	5,01	410	730
90°	302. 606	○	4,60	4,00	1,57	2,23	3,15	3,86	4,98	5,89	7,04	480	900
130°	302. 368	○	3,00	1,00	0,31	0,45	0,63	0,77	1,00	1,18	1,41	1400	1700
	302. 468	○	5,00	1,70	0,70	0,99	1,40	1,71	2,21	2,62	3,13	1400	1700
	302. 548	○	5,00	2,50	1,12	1,58	2,24	2,74	3,54	4,19	5,01	1400	1800
	302. 608	○	5,00	3,50	1,57	2,23	3,15	3,86	4,98	5,89	7,04	1400	1800
	302. 668	○	7,50	3,60	2,25	3,18	4,50	5,51	7,12	8,42	10,06	1500	2000
	302. 748	○	7,50	4,80	3,55	5,02	7,10	8,70	11,23	13,28	15,88	1500	2000

B = bore diameter · E = narrowest free cross section

Flow rate adjustable. Decrease in flow rate causes narrower spray angle.
Applications:
Dust control, foam control.

Series 308



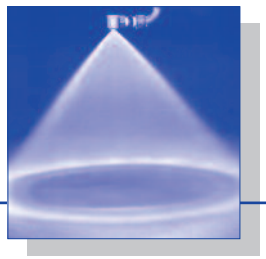
Strahlwinkel	Bestell-Nr. Type	Mat.-Nr. 30 Ms	B Ø [mm]	E Ø [mm]	V̇max [l/min] p [bar] 0,3	0,5	1,0	2,0	5,0	10,0	Spray diameter D at p = 2 bar H = 250 mm	H = 500 mm
90°	308. 466	○	2,0	2,0	0,54	0,70	1,00	1,40	2,21	3,13	400	880
	308. 606	○	4,0	4,0	1,22	1,58	2,23	3,15	4,98	7,04	450	950

B = bore diameter · E = narrowest free cross section

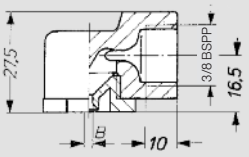
Example for ordering	Type	+	Material no.	=	Ordering no.
	308. 466	+	30	=	308. 466. 30

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

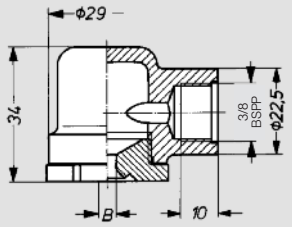
Tangential-flow hollow cone nozzles
Plastic version
Series 302



Uniform hollow cone spray. Non-clogging nozzle, without swirl insert.
Applications:
Humidification of air in air washers, dust control, spraying onto filters, foam control, cooling.



Type 302.32X – 302.48X
Weight: 13 g



Type 302.52X – 302.99X
Weight: 18 g

Spray angle	Ordering no. Type	Mat. no. 5E PVDF	51 PA	53 PP	B Ø [mm]	E Ø [mm]	V̇ [l/min] p [bar] 0,5	1,0	2,0	[US gal./min] at 40 psi	3,0	5,0	10,0	Spray diameter D at p = 2 bar H = 250 mm	H = 500 mm
60°	302. 364	-	○	○	1,50	1,50	0,31	0,45	0,63	0,20	0,77	1,00	1,41	200	350
	302. 464	○	○	○	3,80	1,95	0,70	0,99	1,40	0,43	1,71	2,21	3,13	300	560
80°	302. 545	○	○	-	4,90	2,30	1,12	1,58	2,24	0,69	2,74	3,54	5,01	400	700
90°	302. 326	○	○	-	1,20	0,90	0,20	0,28	0,40	0,12	0,49	0,63	0,89	400	700
	302. 346	○	○	-	2,10	1,30	0,25	0,35	0,50	0,16	0,61	0,79	1,12	400	880
	302. 366	○	○	-	2,10	1,30	0,31	0,45	0,63	0,20	0,77	1,00	1,41	400	880
	302. 406	○	○	○	2,60	1,40	0,50	0,71	1,00	0,31	1,22	1,58	2,24	400	880
	302. 486	-	○	○	2,60	2,60	0,80	1,13	1,60	0,50	1,96	2,53	3,58	400	880
	302. 526	-	○	○	5,00	2,00	1,00	1,41	2,00	0,62	2,45	3,16	4,47	400	880
	302. 546	-	○	○	4,50	2,60	1,12	1,58	2,24	0,69	2,74	3,54	5,01	400	880
	302. 566	-	○	○	5,00	2,40	1,25	1,77	2,50	0,78	3,06	3,95	5,59	400	880
	302. 606	-	○	○	5,00	3,20	1,57	2,23	3,15	0,98	3,86	4,98	7,04	450	950
	302. 686	-	○	○	7,50	3,40	2,50	3,45	5,00	1,55	6,12	7,91	11,18	500	1050
	302. 766	-	○	-	9,00	4,30	4,00	5,66	8,00	2,48	9,80	12,65	17,89	500	1050
	302. 846	-	○	○	11,00	5,20	6,25	8,84	12,50	3,88	15,31	19,67	27,95	550	1130
	302. 886	○	○	○	11,00	6,40	8,00	11,31	16,00	4,96	19,60	25,30	35,78	550	1130
	302. 966	-	○	○	11,00	8,60	12,50	17,68	25,00	7,75	30,62	39,53	55,90	550	1130
130°	302. 328	○	-	-	1,35	0,80	0,20	0,28	0,40	0,12	0,49	0,63	0,89	700	1380
	302. 368	○	○	-	1,85	1,10	0,31	0,45	0,63	0,20	0,77	1,00	1,41	700	1380
	302. 408	○	○	-	3,65	1,30	0,50	0,71	1,00	0,31	1,22	1,58	2,24	700	1380
	302. 468	○	○	-	5,00	1,60	0,70	0,99	1,40	0,43	1,71	2,21	3,13	700	1380
	302. 488	-	○	○	5,20	1,60	0,80	1,13	1,60	0,50	1,96	2,53	3,58	700	1380
	302. 528	-	○	-	5,00	2,00	1,00	1,41	2,00	0,62	2,45	3,16	4,47	700	1380
	302. 568	-	○	○	5,00	2,40	1,25	1,77	2,50	0,78	3,06	3,95	5,59	780	1520
	302. 608	○	○	○	5,00	3,20	1,57	2,23	3,15	0,98	3,86	4,98	7,04	780	1520
	302. 648	-	○	-	7,50	3,00	2,00	2,83	4,00	1,20	4,90	6,32	8,94	950	1850
	302. 688	-	○	-	7,50	3,40	2,50	3,54	5,00	1,55	6,12	7,91	11,18	950	1850
	302. 728	-	○	○	7,50	4,10	3,15	4,45	6,30	1,89	7,72	9,96	14,09	950	1850
	302. 768	-	○	○	9,00	4,30	4,00	5,66	8,00	2,48	9,80	12,65	17,89	950	1850
	302. 848	-	○	○	11,00	5,20	6,25	8,84	12,50	3,88	15,31	19,76	27,95	950	1850
	302. 888	-	○	○	11,00	6,40	8,00	11,31	16,00	4,96	19,60	25,30	35,78	950	1850
	302. 968	○	○	-	11,00	8,60	12,50	17,68	25,00	7,75	30,62	39,53	55,90	950	1850

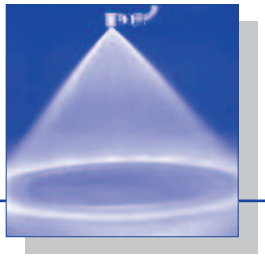
B = bore diameter · E = narrowest free cross section

Example for ordering	Type	+	Material no.	=	Ordering no.
	302. 406	+	51	=	302. 406. 51

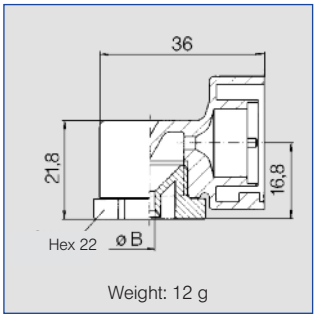
The folded page at the end of the catalogue will give you a survey on the various assembly possibilities.
For complete assembly accessories, please refer to „Accessories“.

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

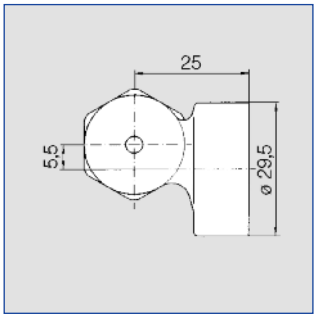
Tangential-flow hollow cone nozzles
Bayonet quick-release system
Series 302



A time-saving alternative to threaded design. Quick and secure assembling. Automatic setting of spray direction.
Applications:
Humidification of air in air washers, dust control, spraying onto filters, foam control.



Weight: 12 g



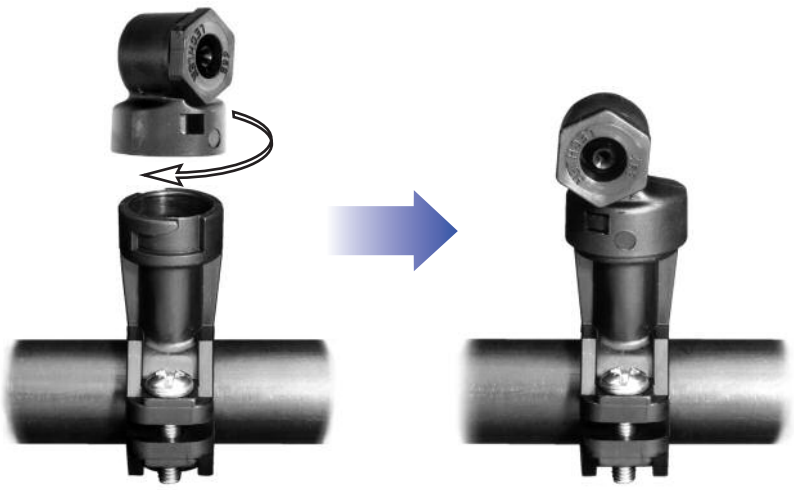
Spray angle	Ordering no. Type	Mat. no. 51 PA	Mat. no. 56 POM	Code Bayonet-quick-release	B Ø [mm]	E Ø [mm]	V̇ [l/min] p [bar] 0,5	1,0	2,0	US [gal./min] at 40 psi	3,0	5,0	10,0	Spray diameter D at p = 2 bar H = 250 mm	H = 500 mm
45°	302. 503	○	-	KB	4,90	2,05	0,90	1,27	1,80	0,56	2,20	2,85	4,02	220	560
60°	302. 464	-	○	KB	3,80	1,95	0,70	0,99	1,40	0,43	1,71	2,21	3,13	300	560
80°	302. 545	-	○	KB	4,90	2,30	1,12	1,58	2,24	0,69	2,74	3,54	5,01	400	700
90°	302. 326	○	○	KB	1,40	1,05	0,20	0,28	0,40	0,12	0,49	0,63	0,89	400	700
	302. 406	○	○	KB	3,80	1,55	0,50	0,71	1,00	0,31	1,22	1,58	2,24	400	880
	302. 486	○	-	KB	3,80	2,10	0,80	1,13	1,60	0,50	1,96	2,53	3,58	400	880
	302. 606	○	-	KB	5,30	2,95	1,58	2,23	3,15	0,98	3,86	4,98	7,04	450	880
130°	302. 368	-	○	KB	2,10	1,30	0,31	0,45	0,63	0,20	0,77	1,00	1,41	700	1380
	302. 408	○	○	KB	2,10	2,00	0,50	0,71	1,00	0,31	1,22	1,58	2,24	700	1380
	302. 468	○	-	KB	2,80	2,40	0,70	0,99	1,40	0,43	1,71	2,21	3,13	700	1380
	302. 488	○	-	KB	2,80	2,75	0,80	1,13	1,60	0,50	1,96	2,53	3,58	700	1380

B = bore diameter · E = narrowest free cross section

Example for ordering:	Type	+	Material no.	+	Code	=	Ordering no.
	302. 464	+	56	+	KB	=	302. 464. 56. KB

Simple assembling – just with a twist

Nozzle set assembled on pipe



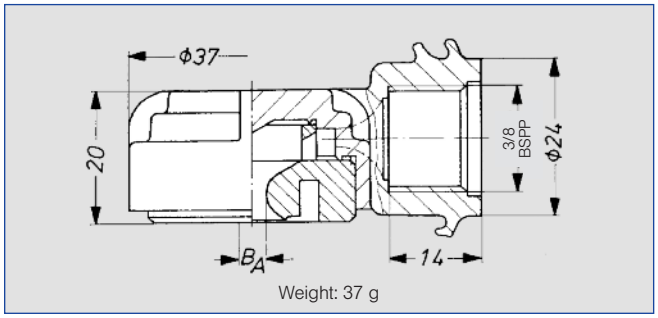
The folded page at the end of the catalogue will give you a survey on the various assembly possibilities. For complete assembly accessories, please refer to „Accessories“.

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

Tangential-flow hollow cone nozzles

Series 350

High-performance eccentric spray nozzles for air-conditioning. Narrow drop spectrum and extremely uniform distribution of liquid over the entire spray pattern.
Applications:
Humidification of air in air washers, dust control, spraying onto filters, foam control.



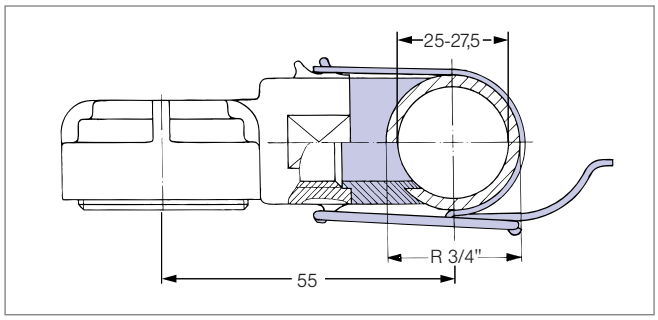
Weight: 37 g

Spray angle	Ordering no. Type	Mat. no. 56 POM	B Ø [mm]	E Ø [mm]	V̇ [l/min] p [bar] pmax: 20 bar 0,5	1,0	2,0	3,0	5,0	7,0	10,0	Spray diameter D at p = 2 bar H = 250 mm	H = 500 mm
130°	350. 368	○	1,55	0,70	0,32	0,45	0,63	0,77	1,00	1,18	1,41	1120	2000
	350. 608	○	5,00	1,40	1,58	2,23	3,15	3,86	4,98	5,89	7,04	1140	2100

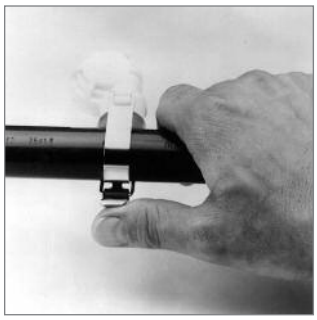
B = bore diameter · E = narrowest free cross section

Example for ordering	Type	+	Material no.	=	Ordering no.
	350. 368	+	56	=	350. 368. 56

Accessories



Quick snap clamp unit · **Ord.-no.: 035. 030. 15. 05. 00. 0**
consisting of: Stainless steel clamp and polyurethan gasket

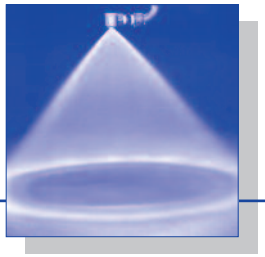


Bore-ø: 18 mm

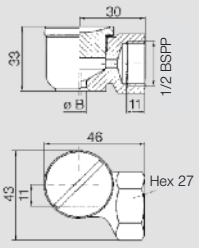
Conversion formula for the above series: $\dot{V}_2 = \dot{V}_1 * \sqrt{\frac{p_2}{p_1}}$

Tangential-flow hollow cone nozzles

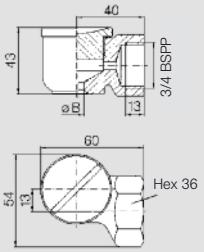
Series 304/306/307



Uniform hollow cone spray.
Non-clogging nozzle,
without from swirl insert.
Applications:
Fire fighting, protection of storage tanks, foam control.



Series 304
Weight brass: 205 g



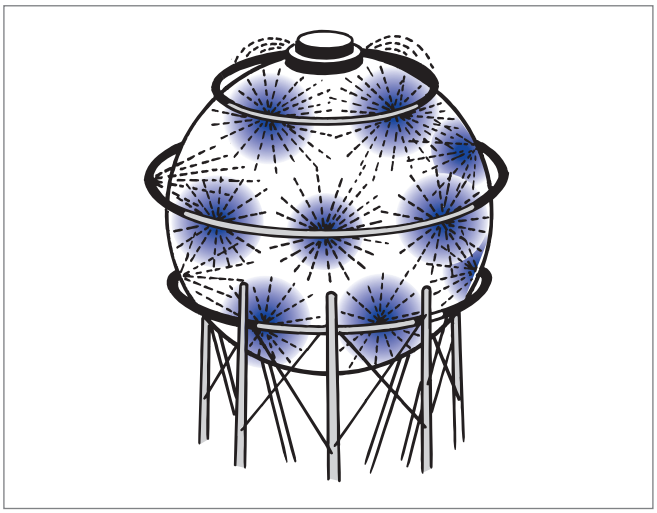
Series 306/307
Weight brass: 410 g

Spray angle	Ordering no. Type	Mat. no. 30 Brass	G BSPP	B Ø [mm]	E Ø [mm]	V̇ [l/min] p [bar] 0,5	1,0	2,0	3,0	5,0	7,0	10,0	Spray diameter D at p = 2 bar H = 250 mm	H = 500 mm
90°	**304. 706**	○	1/2"	5,10	5,10	2,80	3,96	5,60	6,86	8,85	10,47	12,52	450	750
	304. 796	○	1/2"	8,90	6,00	4,75	6,72	9,50	11,64	15,02	17,77	21,24	450	750
	306. 906	○	3/4"	9,00	9,00	9,00	12,73	18,00	22,05	28,46	33,68	40,25	470	850
	306. 976	○	3/4"	13,50	10,00	13,25	18,74	26,50	32,46	41,90	49,58	59,26	470	850
130°	**304. 818**	○	1/2"	12,00	5,00	5,30	7,50	10,60	12,98	16,76	19,83	23,70	1400	1800
	304. 898	○	1/2"	12,00	7,00	8,50	12,02	17,00	20,82	26,88	31,80	38,01	1400	1800
	306. 978	○	3/4"	19,00	7,30	13,25	18,74	26,50	32,46	41,90	49,58	59,25	1450	2400
	307. 018	○	3/4"	19,00	8,60	16,75	23,69	33,50	41,03	52,97	62,67	74,91	1450	2400

B = bore diameter · E = narrowest free cross section

Example for ordering	Type	+	Material no.	=	Ordering no.
	304. 706	+	**30**	=	**304. 706. 30**

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".



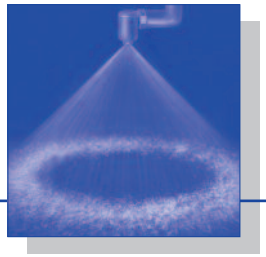
Fire protection on spherical storage tank.

For further informations please ask for our brochure about fire protection.

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

Tangential-flow hollow cone nozzles

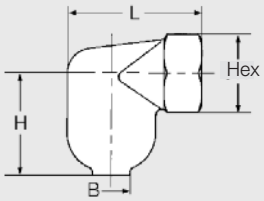
Series 373 „Ramp Bottom“/309

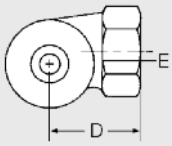


Fine, uniform hollow cone spray, also at low pressures.
Applications:
cooling and cleaning of gas, water re-cooling, dust control, chemical process engineering.

Sectional view of a series 373 „Ramp Bottom“ nozzle

„Ramp Bottom“ design offering a longer service life, due to the patented „sloping“ bottom of mixing chamber.



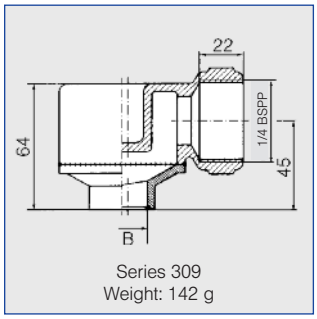


Series 373 „Ramp Bottom“

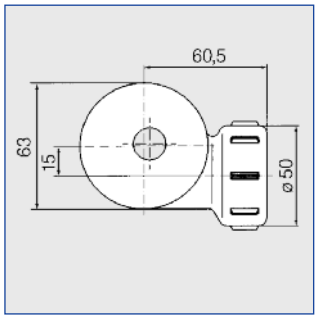
Dimensions

BSPP	L [mm]	D [mm]	H [mm]	E [mm]	Hex	Weight bronze [g]
1	67	45	52	6,3	41	300
1 1/4	77	51	65	7,9	48	600
1 1/2	97	65	81	7,9	58	950

Less expensive plastic version, with low requirements on temperature and scuff resistance.



Series 309
Weight: 142 g



Spray angle	Type	Ordering no. Mat. no. 32 Bronze	Mat. no. 17 1.4571/316 SS	Code 1 BSPP	Code 1¼ BSPP	Code 1½ BSPP	B Ø [mm]	V̇ [l/min] p [bar] 0,3	0,5	1,0	2,0	5,0	10,0	Spray diameter D at p = 2 bar H = 500 mm	H = 1000 mm
70°	373. 115	○	○	AN	-	-	11,40	24,40	31,50	44,5	63,00	99,60	141,00	650	1300
80°	373. 175	○	○	AN	-	-	12,90	31,00	40,00	56,60	80,00	126,00	179,00	800	1550
	373. 235	○	○	-	AQ	-	16,20	45,70	59,00	83,40	118,00	187,00	264,00	700	1350
	373. 285	○	○	-	AQ	-	20,50	62,00	80,00	113,00	160,00	253,00	358,00	800	1550
	373. 325	○	○	-	-	AS	22,20	77,50	100,00	141,00	200,00	316,00	447,00	800	1550
	373. 365	○	○	-	-	AS	23,60	67,90	114,00	161,00	227,00	359,00	508,00	700	1400
Plastic version:															
90°	309. 236. 5E	(Material PVDF)					20,00	45,70	59,00	83,40	118,00	187,00	264,00	850	1500
	309. 286. 5E	(Material PVDF)					24,00	62,00	80,00	113,00	160,00	253,00	358,00	750	1400

B = bore diameter

Example for ordering:	Type	+	Material no.	+	Code	=	Ordering no
	373. 115	+	32	+	AN	=	373. 115. 32. AN

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