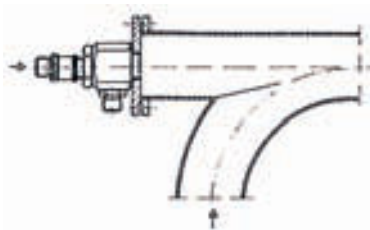
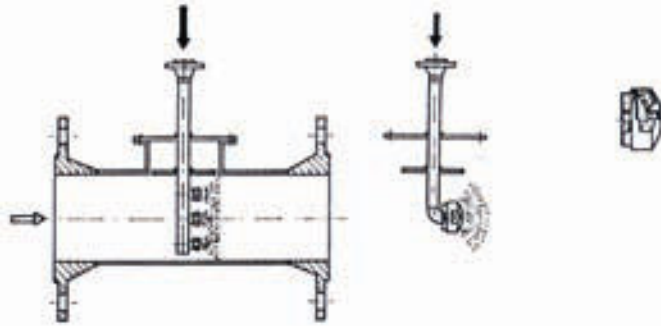


# Desuperheating Steam

Superheated steam is cooled when high steam temperatures are impermissible for processing reasons, or when heated steam has to be saturated or cooled. Steam cooling is possible if superheated steam is available as live steam from a boiler with superheater or as low-pressure steam resulting from a throttling of high-pressure steam.

## A. Unary nozzles

The easiest way to desuperheat steam is by means of unary, full cone or hollow cone nozzles. However, it has to be seen to it that all water evaporates completely and that no droplets reach the pipe walls.

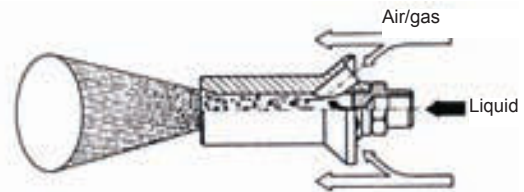


## C. Orifice plate principle

The orifice plate principle is a special form. Through an orifice plate, superheated steam is directed into the nozzle, where water and cold condensate are atomized. In the nozzle's forking section all media are mixed and fog the droplets.

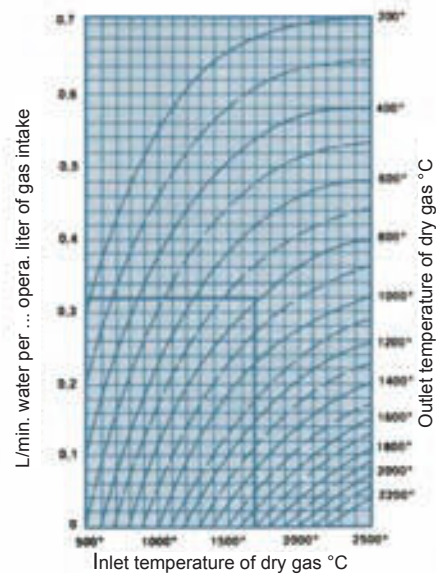
## B. Binary fuel aggregate

Water, or preferably cold condensate, is micro-atomized with the help of atomizing steam. Droplets turn nebular and are smaller than the ones produced by unary nozzles. Heat transfer improves, and condensate generation is prevented.



Temperature and specific gravity of water		
Condensate temperature °C	Specific gravity t/m <sup>3</sup>	Conversion factor
65	0.9806	1,010
80	0.9718	1,015
95	0.9619	1,020
110	0.9510	1,025
130	0.9351	1,030
140	0.9263	1,040
150	0.9172	1,045
160	0.9076	1,050
180	0.8866	1,065
190	0.875	1,070
210	0.850	1,085
230	0.823	1,102
250	0.794	1,122
270	0.765	1,145
290	0.720	1,180
300	0.700	1,200

Amount of water injected at gas in- and outlet temperatures for evaporative cooling



Example: dry gas at ...°C to be cooled to ...°C outlet temperature requires ... l/min. injection amount per ... operating liter of gas intake

# Steam Cooling Nozzles HH

## Characteristics

Steam cooling nozzles **HH** are unary nozzles creating particularly fine droplets, and thus allow for the condensate's complete evaporation and the prevention of corrosion.

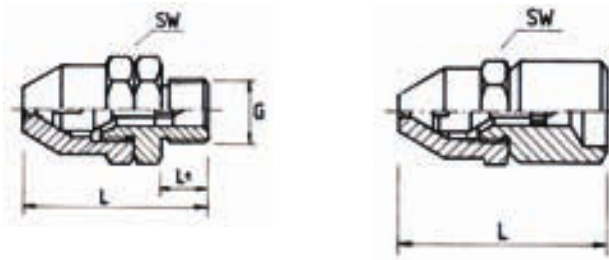
Fine droplets come about by means of high injection pressure, high condensate temperatures and the utilization of many small nozzles with potentially large spray angles.

Minimal pressure: 2-3 bar. Higher pressures allow for better control behavior and adjustment to operating conditions.

Minimal evaporation line: 6-8m.

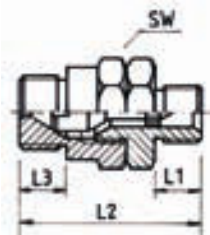
Spray pattern: standard hollow cone; full cone also available.

Material: 1.4404

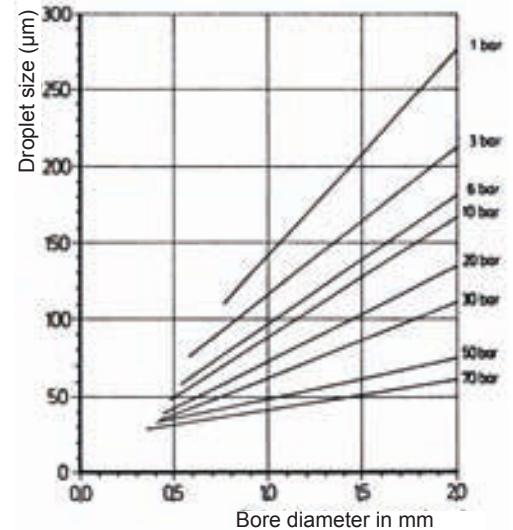


Type **HH**  
with screw-in adapter

Type **HHS**  
with welding adapter



Type **HHK**  
on request  
with head thread



Thread G	L	I1	SW
1/4"	40	10	19
3/8"	48	12	24
1/2"	56	14	27
3/4"	72	16	36

Order example: (Thread - type - material) **G 3/8" - HH 12 - V 2A**, intermediate sizes available on request

Thread G ISO 228	Type	Bore- Ø (mm)	Flow rate $\dot{V}$ (l/min.) at pressure p (bar)																
			1	2	3	4	6	8	10	12	14	16	18	20	22	24	26	28	30
G 1/4"	HH 0,5	1.1	0.27	0.38	0.47	0.54	0.66	0.77	0.86	0.94	1.02	1.09	1.16	1.22	1.28	1.34	1.39	1.45	1.50
	HH 1	1.6	0.58	0.81	1.00	1.16	1.43	1.64	1.83	1.99	2.15	2.30	2.44	2.57	2.70	2.82	2.93	3.04	3.15
	HH 2	2.3	1.19	1.68	2.06	2.38	2.92	3.37	3.76	4.13	4.45	4.76	5.05	5.33	5.60	5.84	6.07	6.30	6.53
	HH 3	2.8	1.76	2.48	3.05	3.52	4.32	4.98	5.57	6.10	6.60	7.05	7.46	7.87	8.25	8.62	8.97	9.31	9.65
	HH 4	3.2	2.30	3.26	4.00	4.62	5.65	6.52	7.30	8.00	8.65	9.25	9.80	10.32	10.82	11.30	11.80	12.20	12.65
	HH 5	3.6	2.92	4.12	5.05	5.83	7.20	8.30	9.25	10.15	10.90	11.70	12.40	13.10	13.75	14.35	14.90	15.50	16.05
	HH 6	3.9	3.40	4.80	5.90	6.82	8.35	9.63	10.75	11.90	12.85	13.70	14.60	15.35	16.10	16.80	17.50	18.20	18.80
	HH 7	4.2	3.98	5.63	6.90	7.95	9.75	11.30	12.60	13.80	14.90	16.00	16.90	17.80	18.70	19.55	20.35	21.10	21.80
	HH 8	4.5	4.55	6.45	7.90	9.10	11.20	12.90	14.40	15.85	17.10	18.30	19.40	20.50	21.45	22.40	23.35	24.20	25.20
G 3/8"	HH 10	5	5.60	7.95	9.75	11.13	13.80	15.90	17.80	19.50	21.20	22.55	23.90	25.20	26.40	27.60	28.70	29.80	30.80
	HH 12	5.5	6.80	9.65	11.80	13.60	16.70	19.25	21.50	23.70	25.60	27.40	29.00	30.60	32.10	33.60	34.90	36.20	37.50
	HH 14	6	8.10	11.40	14.00	16.20	19.80	22.80	25.80	28.20	30.50	32.60	34.60	36.40	38.20	40.00	41.60	43.20	44.65
G 1/2"	HH 19	7	11.00	15.60	19.10	22.00	27.00	31.20	34.80	38.40	41.50	44.30	47.00	49.60	52.00	54.40	56.50	58.60	60.80
	HH 25	8	14.40	20.40	25.00	28.80	35.40	40.80	45.70	50.00	54.00	57.60	61.25	64.50	67.80	70.70	74.60	76.50	79.20
G 3/4"	HH 39	10	22.50	31.80	39.00	45.00	55.20	63.70	71.50	78.40	84.60	90.50	96.00	101	106	111	115	120	124
	HH 47	11	27.20	38.40	47.00	54.50	66.50	77.00	86.00	94.60	102	109	116	122	128	134	139	145	150

# Binary Fuel Aggregates ZAD

Especially for desuperheating steam

## Characteristics

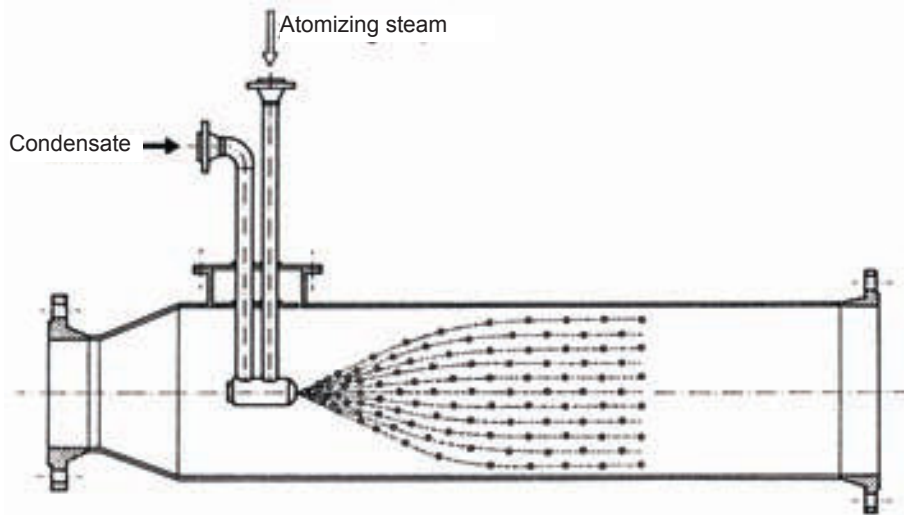
Large control range.  
Atomizing steam pressure remains constant.  
Amount of condensate is adjustable from 0 to maximum.  
Micro-atomization with large control range.  
Intensive cooling also near saturated steam limit.  
Great atomization results at supercritical pressure conditions.  
Finest droplets with large heat transfer capacity allow for a short evaporation distance.

## Application

Desuperheating steam,  
various connection possibilities.

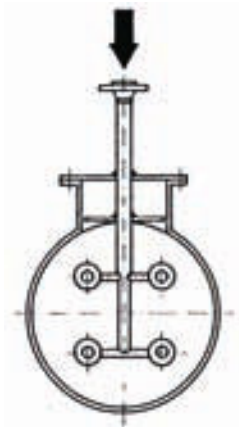
## Material

Stainless steel,  
others on request



Type	Max. Water capacity at medium droplet size of about 50 to 70 $\mu$ Water capacity l/min. at pressure p					
	1	2	3	4	5	6
ZAD 1	0.4	1.0	1.8	2.3	3.1	4.1
ZAD 2	1.2	2.5	4.1	5.8	7.8	10.1
ZAD 3	2.3	4.8	7.5	10.9	15.0	20.0

Type	Atomizing steam consumption (kg/h)									
	1	2	3	4	5	6	7	8	9	10
ZAD 1	15	22	28	35	42	49	57	62	70	78
ZAD 2	34	50	68	83	100	130	150	170	180	190
ZAD 3	67	100	140	170	200	240	270	300	340	380



Multiple nozzle  
with intake

# Return Nozzle HR

## Characteristics

Inside of MC's hollow cone return nozzles **HR** a part of the liquid amount is discharged via a valve in the return, which decreases the liquid outlet of the nozzle without noteworthy fluctuations in spray angle and droplet size.

The atomizing quality depends on nozzle size, control range and special operating conditions. Pressures above 40 bar result in finer droplets than the other way around.

## Application

Gas treatment  
Desuperheating steam

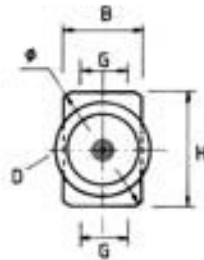
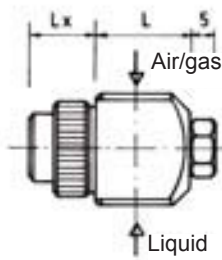
## Material

Stainless steel,  
Acid and heat resistant stainless steels



**Hollow cone spray pattern**

## 1. Dimensions

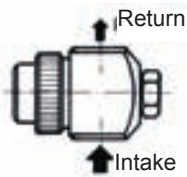


Type	G	L	L1*	H	B	Ø	Varies with air cap L x	D
HR 1-2	1/8" or 1/4"	25	45	30	20	34	17 to 21	24
HR 3-6	3/8" or 1/2"	38	68	50	30	52	20 to 28	33

\* Length of variant 3

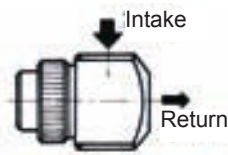
## 2. Connection variants

**Variant 1**  
Standard



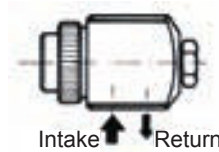
**Variant 2**

Most inexpensive variant; however, no control needle possible



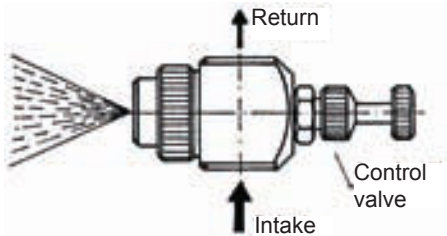
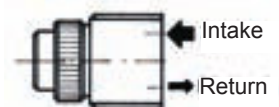
**Variant 3**

Both connections on one side

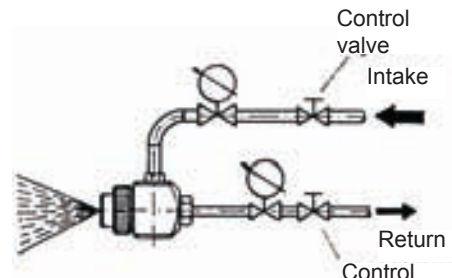


**Variant 4**

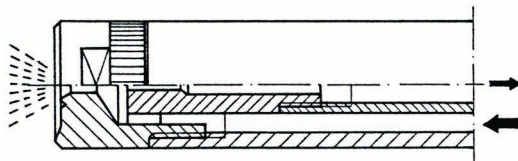
With connections on the backside



HR nozzle with integrated control valve



Rule example without integrated control valve



Rule example with nozzle lance  
**ZL 1/2" - HR-2**  
(other see page 11.1-11.4)

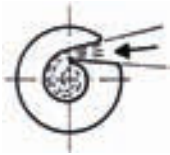
## 3. Dimensioning tool

Type	Flow rate at 42 bar		Control range	Spray angle
	min.	max.		
HR-1	1.13	11.3	10:01	75
HR-2	0.76	11.3	15:01	80
HR-3	1.89	18.9	10:01	85
HR-4	1.21	18.9	15:01	80
HR-5	2.65	26.5	10:01	85
HR-6	2.19	26.5	12:01	80

# Spray-Drying Nozzles ST

## Characteristics

Spray-drying is a process engineering procedure to turn lotions, emulsions and suspensions with solid matter contents in a continuous process into powder, granulates or agglomerates.



Function diagram of swirl chamber

The swirl chamber's tangential conic inlet leads to a free swirling of the liquid. Friction is reduced to a minimum. Thus, atomization is optimized and abrasion reduced.

## Application

Dry atomization of: milk, eggs, extracts, soaps, cleaning detergents, chemicals, food, paint, ceramic compounds

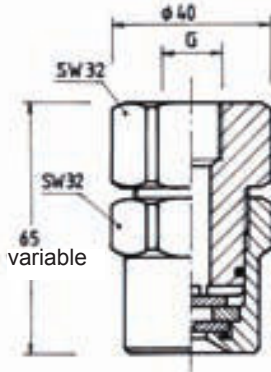
## Material

Basic body made from 1.4404, O-ring NBR or Viton, end plates, swirler and drill plate made from carbide metal

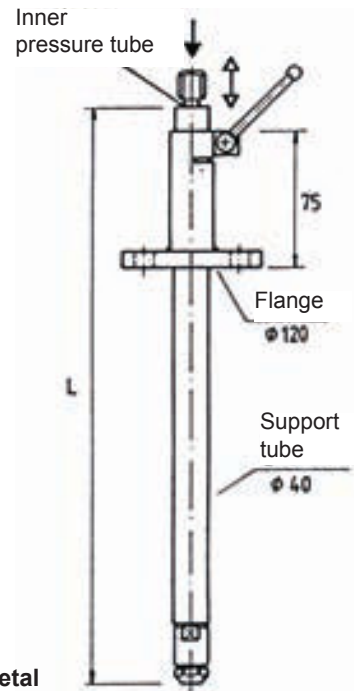


Hollow cone spray pattern

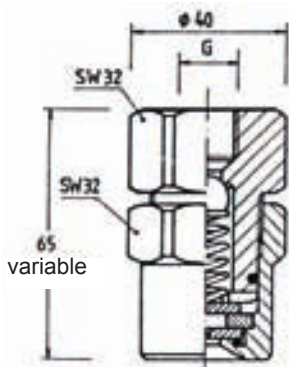
**Type ST - Standard nozzle**  
compact design; no tools needed for installation; O-rings sealed, max. operating pressure: 500 bar, G = 1/4" - 3/8" - 1/2" or 3/4"



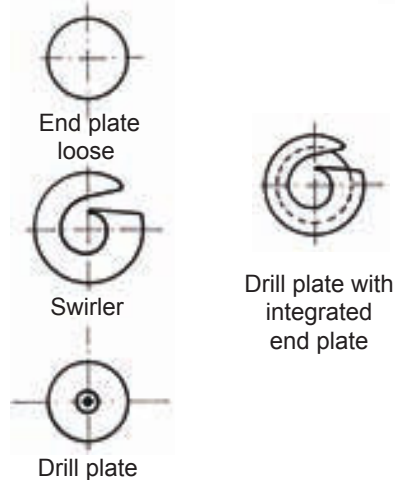
**Examples of nozzles lances**  
for more information see page 10.3



**Nozzle variant with drip-stop**  
for type ST



**Wear parts made from carbide metal**



# Spray-Drying Nozzles ST

## Performance tables

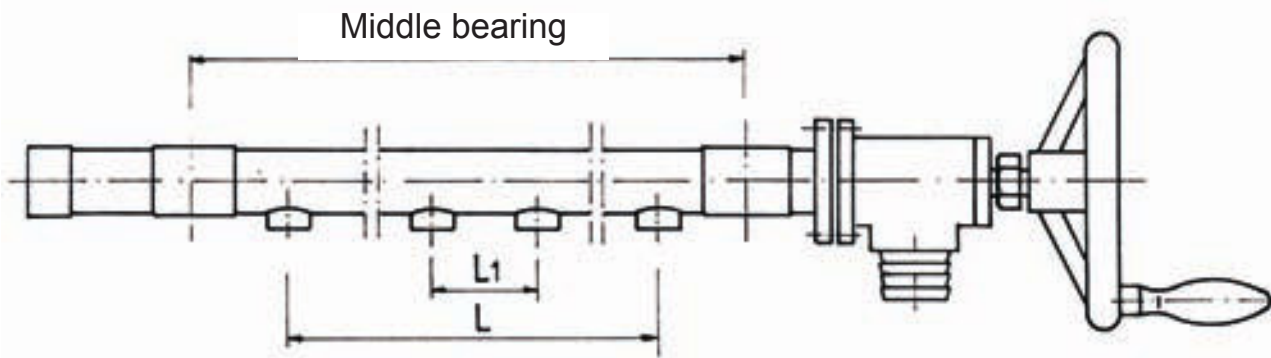
Spray angle	Swirler	Drill plate	Flow rate $\dot{V}$ (l/h) at pressure p (bar)								
			bar	bar	bar	bar	bar	bar	bar	bar	bar
			15	25	50	75	100	125	150	200	300
50°	SB	ST 021	22.06	28.48	40.28	49.33	56.96	63.68	69.76	80.56	98.66
50°	SC	ST 026	34.41	44.43	62.83	76.95	88.85	93.34	108.82	125.66	153.90
50°	SD	ST 028	39.71	51.26	72.50	88.79	102.53	114.63	125.57	144.99	177.58
50°	SE	ST 032	56.47	72.91	103.11	126.28	145.82	163.03	178.59	206.21	252.56
50°	SF	ST 040	88.24	113.92	161.10	197.31	227.83	254.73	279.04	322.21	394.62
50°	SG	ST 050	150.00	193.65	273.87	335.42	387.31	433.03	474.36	547.74	670.84
50°	SH	ST 070	282.36	364.53	515.52	631.38	729.05	815.11	892.91	1,031.04	1,262.76
50°	SI	ST 082	414.72	535.40	757.17	927.34	1,070.80	1,197.19	1,311.46	1,514.34	1,854.68

Spray angle	Swirler	Drill plate	Flow rate $\dot{V}$ (l/h) at pressure p (bar)								
			bar	bar	bar	bar	bar	bar	bar	bar	bar
			15	25	50	75	100	125	150	200	300
60°	SA	ST 020	17.65	22.78	32.22	39.46	45.56	50.94	55.80	64.44	78.92
60°	SB	ST 025	27.36	35.32	49.95	61.17	70.63	78.97	86.51	99.89	122.34
60°	SC	ST 031	42.36	54.68	77.33	94.71	109.36	122.27	133.94	154.66	189.42
60°	SD	ST 034	52.94	68.35	96.66	118.38	136.69	152.83	167.41	193.31	236.76
60°	SE	ST 041	79.42	102.53	144.99	177.58	205.05	229.25	251.14	289.99	355.16
60°	SF	ST 056	141.18	182.26	257.76	315.69	364.53	407.55	446.45	515.52	631.38
60°	SG	ST 073	240.01	309.85	438.19	536.67	619.69	692.84	758.97	876.38	1,073.34
60°	SH	ST 096	441.19	569.57	805.50	986.53	1,139.15	1,273.60	1,395.16	1,611.00	1,973.06

Spray angle	Swirler	Drill plate	Flow rate $\dot{V}$ (l/h) at pressure p (bar)								
			bar	bar	bar	bar	bar	bar	bar	bar	bar
			15	25	50	75	100	125	150	200	300
70°	SA	ST 029	26.47	34.17	48.33	59.19	68.35	76.41	83.71	96.66	118.38
70°	SB	ST 033	34.97	45.15	63.85	78.20	90.30	100.96	110.59	127.70	156.40
70°	SC	ST 039	56.47	72.91	103.11	126.28	145.82	163.03	178.59	206.21	252.56
70°	SD	ST 052	88.24	113.92	161.10	197.31	227.83	254.73	279.04	322.21	394.62
70°	SE	ST 064	141.18	182.26	257.76	315.69	364.53	407.55	446.45	515.52	631.38
70°	SF	ST 083	241.77	312.13	441.41	540.62	624.25	697.94	764.55	882.83	1,081.24
70°	SG	ST 106	402.37	519.45	734.62	899.72	1,038.91	1,161.53	1,272.40	1,469.24	1,799.44
70°	SH	ST 133	705.90	911.32	1,288.80	1,578.45	1,822.64	2,037.77	2,232.27	2,577.60	3,156.90

Spray angle	Swirler	Drill plate	Flow rate $\dot{V}$ (l/h) at pressure p (bar)								
			bar	bar	bar	bar	bar	bar	bar	bar	bar
			15	25	50	75	100	125	150	200	300
80°	SA	ST 038	35.29	45.56	64.44	78.92	91.13	101.89	111.61	128.88	157.84
80°	SB	ST 047	53.83	69.49	98.27	120.36	138.98	155.35	170.21	196.55	240.72
80°	SC	ST 063	93.53	120.75	170.77	209.15	241.51	270.01	295.78	341.54	418.30
80°	SD	ST 076	141.18	182.26	257.76	315.69	364.53	407.55	446.45	515.52	631.38
80°	SE	ST 101	250.60	323.52	457.52	560.35	647.04	723.41	792.45	915.05	1,120.70
80°	SF	ST 127	423.54	546.79	773.28	947.07	1,093.58	1,222.66	1,339.36	1,546.56	1,894.14
80°	SG	ST 153	663.55	856.64	1,211.48	1,483.75	1,713.29	1,915.51	2,098.34	2,422.95	2,967.50
80°	SH	ST 183	1,090.62	1,407.99	1,991.20	2,438.71	2,815.98	3,148.36	3,448.86	3,982.40	4,877.42

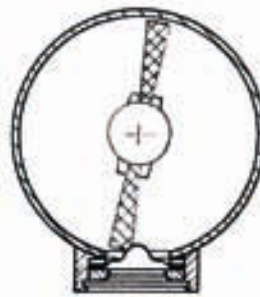
Please request further technical data!



High-pressure spray tube



Nozzle plate  
type **PF**

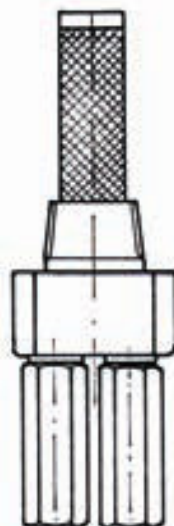


High-pressure spray tube  
with brush cleaning

## Nozzles for paper margin separation



Type **PA**



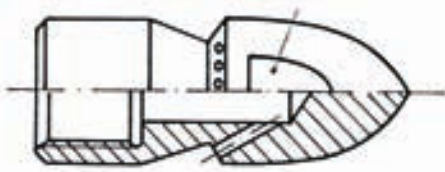
Type **P2**



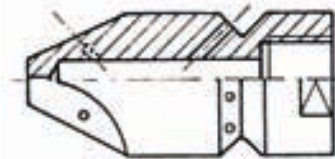
Type **PK**

# Sewer Cleaning Nozzles

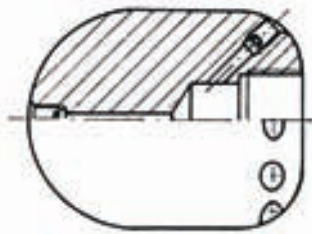
Please request further technical data!



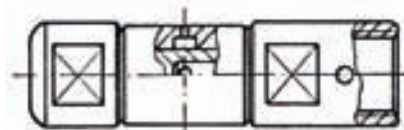
Grenade  
type **GK**  
(see more data on page 5.5)



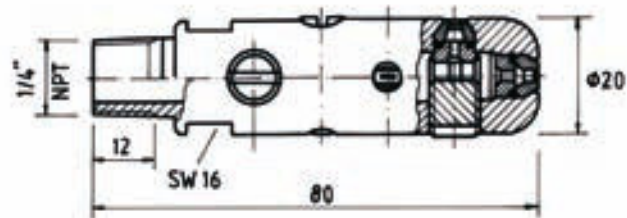
Milling nozzle  
type **GF**



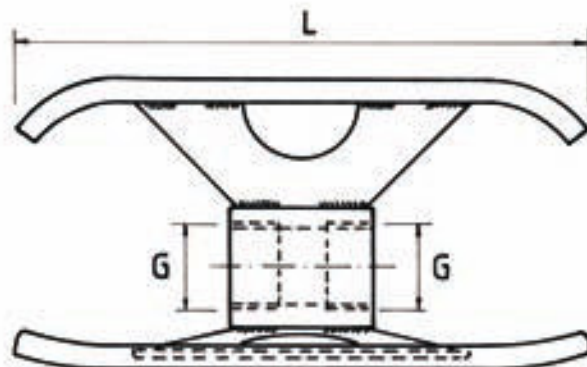
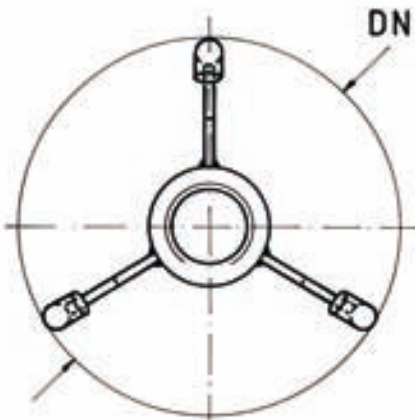
Bombs  
type **GB**



Rotating high-pressure nozzles  
type **GB**



Sewer cleaning nozzle **GHM**  
with 5 screwed-in carbide metal nozzles for cleaning of pipes and sewers



Nozzle slide for sewer cleaning

On request

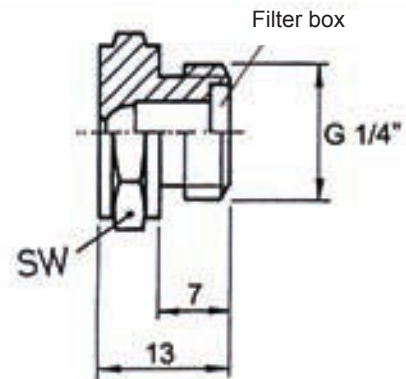


Nozzles for mining are marked with the additional letter B. These nozzles have cylindrical threads and inclusions for dome filters. The nozzles are metered at a pressure of 5 bar.

## Flat fan nozzles FGB

Spray angles are available: **20°-30°-45°-60°-90°-120°**

Type	Equiv. bore (mm)	Flow rate $\dot{V}$ (l/min.) at pressure p (bar)					
		0.5	1	2	3	5	10
FGB 0.6	0.80	0.19	0.27	0.38	0.46	0.60	0.85
FGB 1	1.00	0.32	0.45	0.63	0.77	1.00	1.41
FGB 1.5	1.20	0.47	0.67	0.95	1.16	1.50	2.12
FGB 2	1.35	0.63	0.89	1.26	1.55	2.00	2.83
FGB 2.5	1.50	0.79	1.12	1.58	1.94	2.50	3.54
FGB 3	1.65	0.95	1.34	1.90	2.32	3.00	4.24
FGB 4	2.00	1.26	1.79	2.53	3.10	4.00	5.64
FGB 5	2.20	1.50	2.24	3.16	3.87	5.00	7.07
FGB 6	2.50	1.90	2.68	3.79	4.56	6.00	8.49
FGB 7.5	2.70	2.37	3.35	4.74	5.81	7.50	10.61
FGB 10	3.00	3.16	4.47	6.32	7.75	10.00	14.14
FGB 13	3.50	4.11	5.81	8.22	10.07	13.00	18.38
FGB 16	4.00	5.06	7.16	10.12	12.39	16.00	22.63
FGB 20	4.50	6.32	8.94	12.65	15.49	20.00	28.28
FGB 35	5.00	7.91	11.18	15.81	19.36	25.00	35.36



Optionally with dome filter

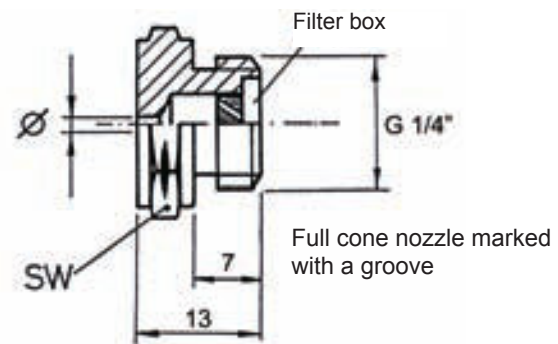


**Material:** Brass or stainless steel

## Full cone nozzles VGR

Spray angles are available: **45°-60°-90°**

Type	Flow rate $\dot{V}$ (l/min.) at pressure p (bar)					
	0.5	1	2	3	5	10
VGR 0.6	0.19	0.27	0.38	0.47	0.60	0.85
VGR 1	0.32	0.45	0.64	0.78	1.00	1.42
VGR 1.5	0.47	0.67	0.95	1.16	1.50	2.12
VGR 2	0.63	0.89	1.26	1.54	2.00	2.31
VGR 2.5	0.79	1.12	1.58	1.94	2.50	3.54
VGR 3	0.95	1.34	1.90	2.32	3.00	4.24
VGR 4	1.27	1.79	2.53	3.10	4.00	5.66
VGR 5	1.58	2.24	3.17	3.88	5.00	7.08
VGR 6	1.90	2.68	3.79	4.64	6.00	8.47



Full cone nozzle marked with a groove

Optionally with dome filter



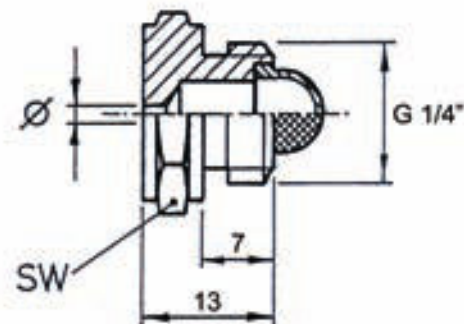
**Material:** Brass or stainless steel

Standard: Stainless steel with brass swirler

## Solid stream nozzles GGB

Type	Bore B (mm)	Flow rate $\dot{V}$ (l/min.) at pressure p (bar)					
		0.5	1	2	3	5	10
GGB 0.3	0.50	0.09	0.13	0.18	0.23	0.30	0.41
GGB 0.4	0.59	0.13	0.18	0.25	0.31	0.40	0.57
GGB 0.6	0.70	0.19	0.27	0.38	0.47	0.60	0.85
GGB 1	0.85	0.32	0.45	0.64	0.78	1.00	1.42
GGB 1.5	1.00	0.47	0.67	0.95	1.16	1.50	2.12
GGB 2.5	1.40	0.79	1.12	1.58	1.94	2.50	3.54
GGB 4	1.70	1.27	1.79	2.53	3.10	4.00	5.66
GGB 6	2.20	1.90	2.68	3.79	4.64	6.00	8.47
GGB 8	2.45	2.53	3.58	5.06	6.20	8.00	11.32
GGB 10	2.75	3.16	4.47	6.32	7.74	10.00	14.14
GGB 16	3.20	5.06	7.16	10.13	12.40	16.00	22.64
GGB 25	4.30	7.91	11.18	15.81	19.36	25.00	35.35
GGB 40	5.50	12.65	17.89	25.30	30.99	40.00	56.57

This solid stream nozzle is displayed with dome filter.



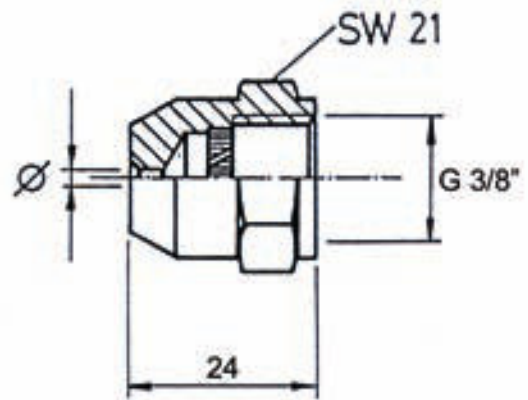
**Material:** Brass or stainless steel

# Nozzles for Mining

## Hollow cone nozzles HGB

Spray angles are available: **60°-90°**

Type	Bore (mm)	Flow rate $\dot{V}$ (l/min.) at pressure p (bar)					
		0.5	1	2	3	5	10
HGB 0.5	1.0	0.16	0.22	0.32	0.39	0.50	0.71
HGB 0.8	1.2	0.18	0.36	0.51	0.62	0.80	1.13
HGB 1	1.3	0.32	0.45	0.63	0.77	1.00	1.41
HGB 1.5	1.7	0.47	0.67	0.95	1.16	1.50	2.12
HGB 2	1.9	0.63	0.89	1.26	1.55	2.00	2.83
HGB 3	3.3	0.95	1.34	1.90	2.32	3.00	4.24
HGB 4	3.5	1.26	1.79	2.53	3.10	4.00	5.66
HGB 6	4.0	1.90	2.68	3.79	4.65	6.00	8.49
HGB 8	4.4	2.53	3.58	5.06	6.20	8.00	11.32

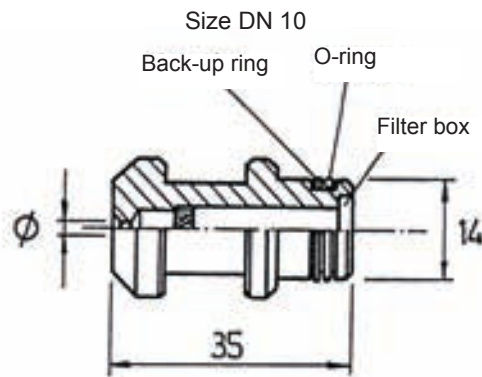


**Material:** Brass or stainless steel

## Full cone nozzles Stecko VSB

Spray angles are available: **45°-60°-90°**

Type	Flow rate $\dot{V}$ (l/min.) at pressure p (bar)					
	0.5	1	2	3	5	10
VSB 0.6	0.19	0.27	0.38	0.47	0.60	0.85
VSB 1	0.32	0.45	0.64	0.78	1.00	1.42
VSB 1.5	0.47	0.67	0.95	1.16	1.50	2.12
VSB 2	0.63	0.89	1.26	1.54	2.00	2.81
VSB 2.5	0.79	1.12	1.58	1.94	2.50	3.54
VSB 3	0.95	1.34	1.90	2.32	3.00	4.24
VSB 4	1.27	1.79	2.53	3.10	4.00	5.66
VSB 5	1.58	2.24	3.17	3.88	5.00	7.08
VSB 6	1.90	2.68	3.79	4.64	6.00	8.47



**Material:** Brass or stainless steel

Optionally with dome filter

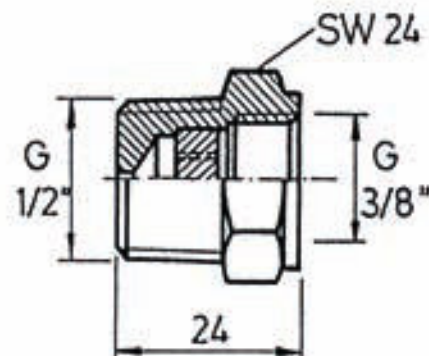


## Full cone nozzles VDB

With male and female thread

Spray angles are available: **45°-60°-90°**

Type	Flow rate $\dot{V}$ (l/min.) at pressure p (bar)					
	0.5	1	2	3	5	10
VDB 2.5	0.79	1.12	1.58	1.94	2.50	3.54
VDB 5	1.58	2.24	3.17	3.88	5.00	7.08
VDB 7.5	2.37	3.35	4.47	5.80	7.50	10.59
VDB 10	3.16	4.47	6.32	7.74	10.00	14.14
VDB 13	4.11	5.81	8.22	10.06	13.00	18.37



**Material:** Brass or stainless steel

# Fountain Nozzle Type B

## Characteristics

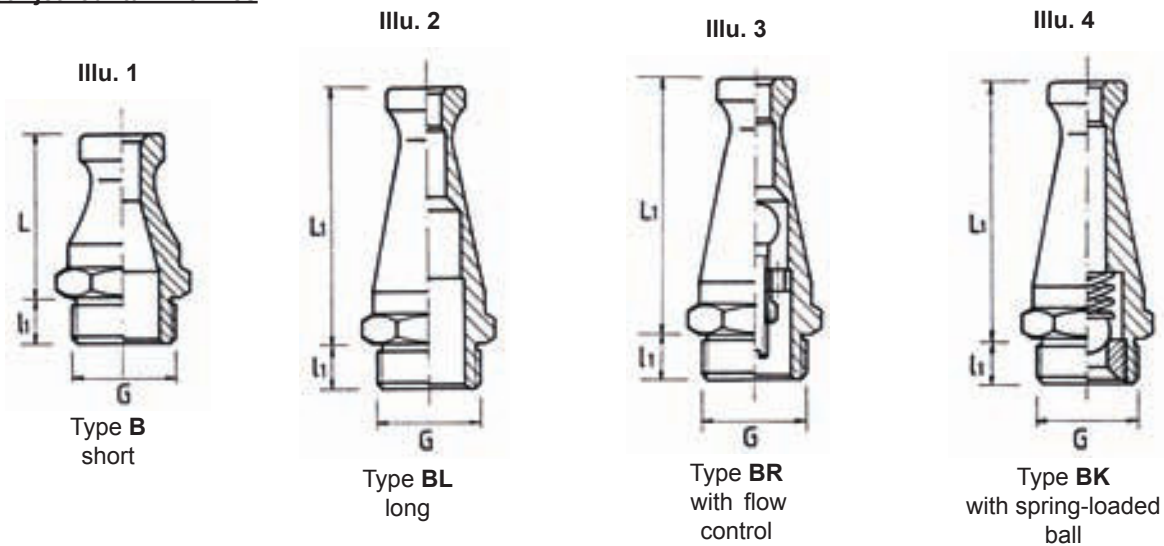
Different fountain nozzles are manufactured which can be used for various effects:

1. Smooth jet fountain nozzles type **B + BL**, short or long design
2. Smooth jet fountain nozzles type **BR** with internal regulation of different heights
3. Smooth jet fountain nozzles type **BK** with spring-loaded ball, keeping the pressure inside of the distribution pipe constant
4. Shaping nozzles **BH** or balls **BD**
5. Other shaping nozzles type **Z** (see catalog page 2.5)  
type **L** (see catalog page 2.4)
6. Walk-in nozzles (security nozzles) **BG**
7. Energy-saving nozzles **BJ** and **BJL**

## Material

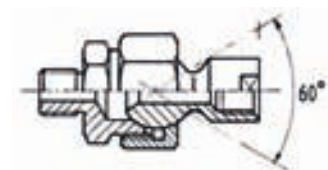
Brass  
Stainless steel

## Smooth jet fountain nozzles



Type Bore- Ø (mm)	Flow rate $\dot{V}$ (l/min.) at pressure p (bar)									Thread connection			
	bar 0.03	bar 0.05	bar 0.1	bar 0.15	bar 0.2	bar 0.3	bar 0.5	bar 0.7	bar 1.0	1/4"	3/8"	1/2"	3/4"
<b>B 3.0</b>	0.98	1.27	1.85	2.25	2.6	3.17	4.1	4.85	5.77	*	*		
<b>B 3.5</b>	1.32	1.71	2.49	3.04	3.51	4.28	5.51	6.54	7.79	*	*		
<b>B 4.0</b>	1.73	2.24	3.21	3.98	4.59	5.61	7.24	8.57	10.2	*	*		
<b>B 4.5</b>	2.21	2.86	4.16	5.07	5.85	7.15	9.23	10.9	13.0	*	*	*	
<b>B 5.0</b>	2.72	3.52	5.12	6.24	7.2	8.8	11.4	13.5	16.0		*	*	
<b>B 5.5</b>	3.28	4.25	6.18	7.53	8.69	10.6	13.7	16.2	19.3		*	*	
<b>B 6.0</b>	3.93	5.08	7.39	9.01	10.4	12.7	16.4	19.4	23.1			*	*
<b>B 7.0</b>	5.3	6.86	9.98	12.2	14.0	17.2	22.1	26.2	31.2			*	*
<b>B 8.0</b>	6.97	9.02	13.1	16.0	18.5	22.6	29.1	34.4	41.0			*	*
<b>B 9.0</b>	8.82	11.4	16.6	20.2	23.4	28.6	36.9	43.6	51.9			*	*
<b>B 10</b>	10.9	14.1	20.5	25.0	28.8	35.2	45.4	53.8	64.0				*
<b>B 11</b>	13.1	16.1	24.7	30.1	34.8	42.5	54.9	65.0	77.3				*
<b>B 12</b>	15.6	20.1	29.3	42.3	41.3	50.0	65.1	77.0	91.7				*
<b>B 13</b>	18.4	23.8	34.6	42.1	48.6	59.4	76.7	90.7	108				*
<b>B 14</b>	21.2	27.5	40.0	48.8	56.2	68.8	88.7	105	125				*

Thread G	L	L1	l1	SW	Sizes available					
					B	BL	BR	BK	BJ	BJL
1/4"	22	40	7	17	*	*			*	*
3/8"	30	50	10	19	*	*				
1/2"	36	60	12	24	*	*				
3/4"	40	80	15	30	*	*	*	*		



Ball joint **K**  
for nozzle orientation  
(see catalog page 8.2)

**Shaping fountain nozzles**

Illu. 5



Type **BH** with deflector cap  
Mushroom-shaped water distribution

Illu. 6



Type **BH** with deflector cap  
Trumpet-shaped water distribution

Illu. 7



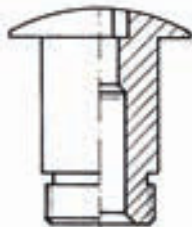
Type **BD**  
Ball with multiple jet, varies with request

**Walk-in fountain nozzles BG**

Walk-in nozzles are produced according to their surroundings. Water is distributed underneath a cap, and are engulfed to prevent accidents. All fountain nozzles BG come with or without flow regulation and spring-loaded ball (see Illu. 3 and 4).

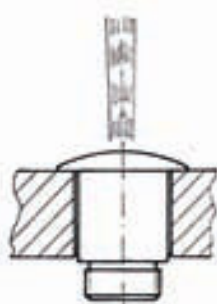
They are available in single or multiple jet design, according to the effect wanted.

Illu. 8

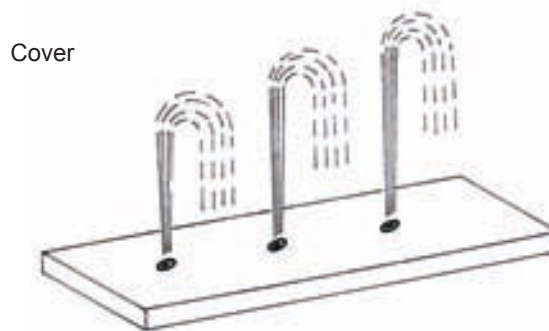


Type **BG**

Illu. 9

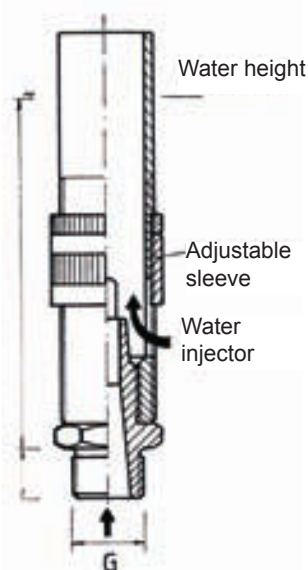


Illu. 10



**Energy-saving nozzles BJ and BJL**

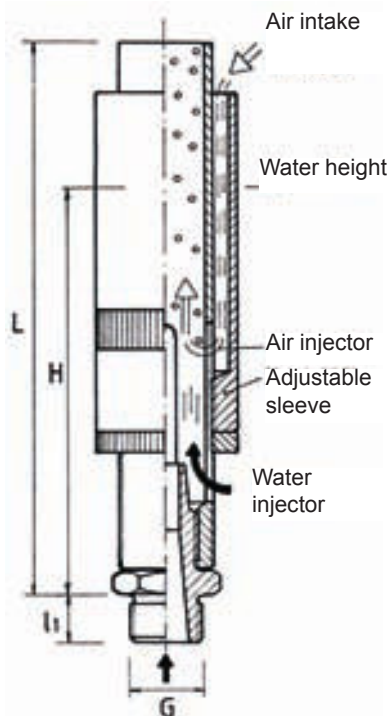
Illu. 11



Type **BJ** is an energy-saving nozzle which effects can be controlled easily and individually. The injector effect allows for a suction of up to the 4-fold of the pump capacity. The more the injector is closed, the less well water is sucked in; the fountain height increases and vice versa.

The design has to be arranged!

Illu. 12

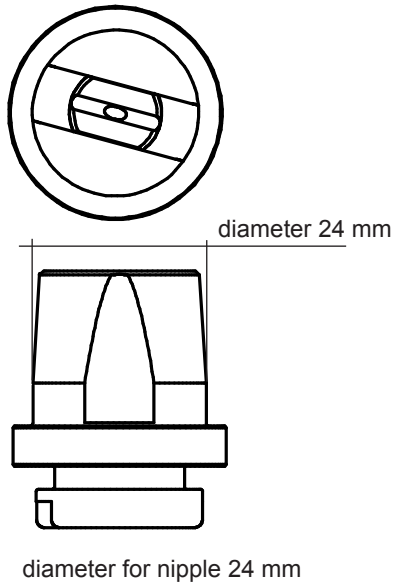


Type **BJL** is an energy-saving nozzle as type BJ, yet features an additional injector to take in air. This results in a strong, opaque and lively fountain jet.

The design has to be arranged!

# Descaling nozzles EFG and EFK

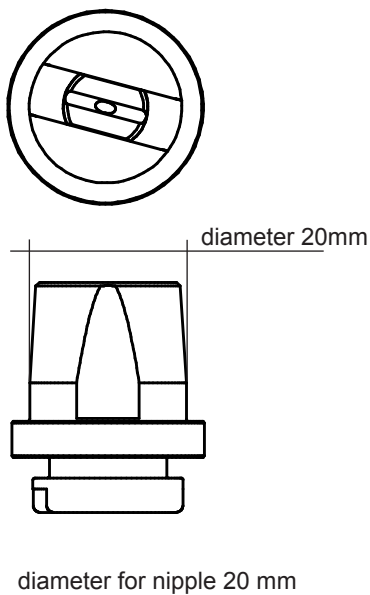
## Descaling nozzle EFG



**Materials:** Tips: Stainless steel and tungsten carbide inserts  
 Filter: Brass  
 Gasket: Copper  
 Welding nipple: 1.4301  
 Cap nut: 1.4305 G 1" SW 46 mm  
 Plug: Steel  
 Spray angle: 22° - 26° - 30° - 40° (other on request)

Type	Size	Flow (lpm) at pressure (bar)	
		100 bar	200 bar
EFG	6	12	18
	7	15	21
	8	18	25
	9	23	36
	10	28	40
	15	36	51
	20	45	64
	25	58	82
	30	72	102
	35	89	126
	45	112	158
	55	125	177
60	134	190	

## Descaling nozzle EFK



**Materials:** Tips: Stainless steel and tungsten carbide inserts  
 Filter: Brass  
 Gasket: Copper  
 Welding nipple: 1.4301  
 Cap nut: 1.4305 G 3/4" (SW 32 mm)  
 Plug: Steel

Type	Size	Flow (lpm) at pressure (bar)		
		100 bar	200 bar	400 bar
EFK	6	12	18	24
	7	15	21	30
	8	18	25	36
	9	23	36	46
	10	28	40	56
	15	36	51	72
	20	45	64	90
	25	58	82	116
	30	72	102	144
	35	89	126	178
	45	112	158	224
	55	125	177	250
60	134	190	268	

order example: type- size- spray angle

Nozzle supply includes gasket, nozzle tip, strainer/filter

Welding nipple length: 39 - 73 - 100 - 120 - 160 mm (other on request)

order example: S 3 E - length

Welding support / plug: (for spray pattern offset): - 15° 0° +15°

order example: C 3 P - angle