

Hollow spindle system H

The system's clamping is gas- and watertight due to the mutual tightening of nozzle and nut between two polyamid seals.

Max. pressure **10 bar**

Max. temperature **90°**

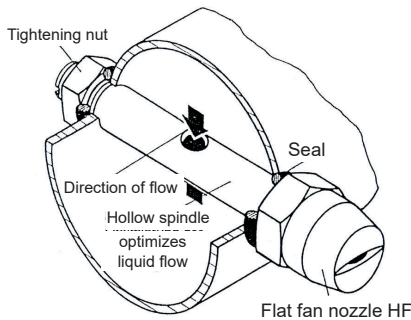
Bore in metal pipe **Ø 10 mm**

Material: Brass
Stainless steel

Seal: Polyamid

Application: Cost-efficient, simple and flexible nozzle installation in metal pipes

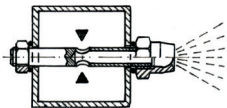
Illu. 1



MC's hollow spindle nozzle system fits the following pipes:

	mm
1/2"	20-22
3/4"	25-27
1"	30-35
1 1/4"	40-45
1 1/2"	45-50
2"	54-60

Illu. 2



Also available for square-cut pipes

Clamping ring system U

By tightening the nozzle, the clamping ring is stretched. The connection is now gas- and waterproof.

Max. pressure **4 bar**

Max. temperature **60°**

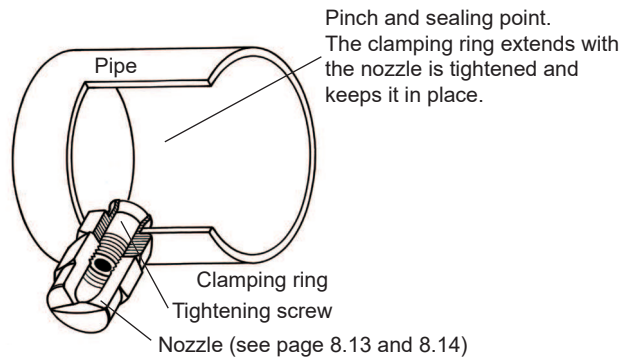
Bore in metal pipe **Ø 12 mm**

Material: Brass
Stainless steel

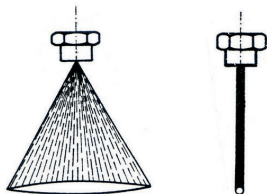
Clamping ring: PVC or PP

Application: Space-saving, simple and cost-efficient nozzle installation in metal pipes

Illu. 3

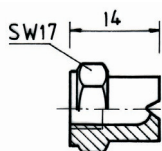


Flat fan hollow spindle nozzle HF



Flat fan and solid stream

Illu. 4

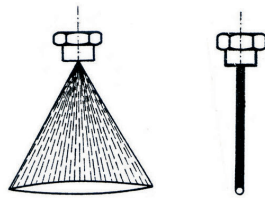


Type	A Ø mm	Flow rate \dot{V} (l/min.) at pressure p (bar)										
		0.35	0.50	0.70	1	1.5	2	3	4	5.5	7	10
HF 1	0.60				0.25	0.30	0.35	0.40	0.45	0.55	0.60	0.70
HF 1.5	0.80				0.35	0.35	0.40	0.50	0.60	0.70	0.90	1.00
HF 2	0.90			0.40	0.45	0.50	0.65	0.80	0.90	1.00	1.20	1.50
HF 3	1.10		0.50	0.60	0.70	0.80	1.00	1.20	1.50	1.70	1.80	2.00
HF 4	1.30		0.60	0.70	0.90	1.00	1.30	1.50	1.80	2.00	2.50	3.00
HF 5	1.50	0.70	0.80	0.90	1.00	1.30	1.50	2.00	2.30	2.50	3.00	3.50
HF 6	1.60	0.80	0.90	1.00	1.30	1.50	2.00	2.30	2.50	3.00	3.50	4.00
HF 8	1.80	1.00	1.30	1.50	1.80	2.00	2.50	3.00	3.50	4.00	5.00	6.00
HF 10	2.00	1.30	1.50	1.80	2.00	2.50	3.00	4.00	4.50	5.00	6.00	7.00
HF 15	2.40	2.00	2.50	3.00	3.50	4.00	5.00	6.00	7.00	8.00	9.00	10.0
HF 20	2.80	2.50	3.50	4.00	4.50	5.00	6.50	8.00	9.00	10.0	12.0	15.0
HF 25	3.20	3.00	4.00	5.00	6.00	6.50	8.00	10.0	12.0	14.0	16.0	18.0
HF 30	3.60	4.00	5.00	6.00	7.00	8.00	10.0	12.0	15.0	17.0	18.0	20.0
HF 40	4.00	5.00	6.50	7.50	9.00	10.0	13.0	15.0	18.0	20.0	25.0	30.0
HF 50	4.40	7.00	8.00	9.50	10.0	13.0	15.0	20.0	23.0	25.0	30.0	35.0
HF 60	4.80	8.00	9.00	10.0	13.0	15.0	20.0	23.0	25.0	30.0	35.0	40.0
HF 70	5.20	9.50	11.0	13.0	15.0	18.0	23.0	26.0	32.0	37.0	42.0	50.0
HF 80	5.60	11.0	13.0	15.0	18.0	22.0	26.0	32.0	37.0	43.0	49.0	58.0

A = equivalent bore diameter

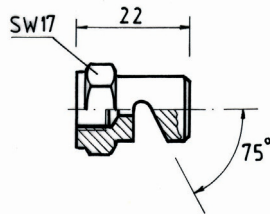
Spray angle **0°-15°-25°-40°-60°-90°-120°**, others on request

Tongue-shaped hollow spindle HZ



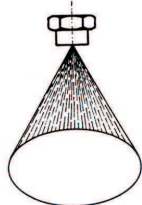
Flat fan and solid stream

Illu. 1



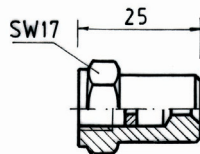
Type	Bore (mm)	Flow rate \dot{V} (l/min.) at pressure p (bar)								Angle at p				
		bar		bar		bar		bar		bar		bar	bar	bar
		0.30	0.50	1	1.5	2	3	4	0.5	1.5	4			
HZ 0.5	0.60			0.20	0.25	0.30	0.40	0.50			90°	120°		
HZ 0.7	0.70			0.35	0.40	0.50	0.60	0.75			105°	125°		
HZ 1	0.80			0.45	0.50	0.60	0.75	1.00			110°	130°		
HZ 1.5	1.00		0.50	0.70	0.80	1.00	1.20	1.50	75°	110°	130°	130°		
HZ 2	1.20		0.60	0.90	1.00	1.30	1.50	2.00	85°	115°	130°	130°		
HZ 2.5	1.30	0.70	0.80	1.20	1.30	1.60	2.00	2.50	85°	120°	135°	135°		
HZ 3	1.40	0.80	0.90	1.40	1.60	2.00	2.30	3.00	85°	110°	125°	125°		
HZ 4	1.60	1.00	1.20	1.90	2.20	2.60	3.00	4.00	95°	125°	130°	130°		
HZ 5	1.80	1.30	1.60	2.30	2.70	3.30	3.80	4.50	115°	130°	140°	140°		
HZ 7.5	2.30	2.00	2.50	3.50	4.00	5.00	5.50	7.00	100°	120°	135°	135°		
HZ 10	2.60	2.50	3.00	4.50	5.00	6.50	7.50	9.50	115°	135°	145°	145°		
HZ 12	2.90	3.00	4.00	5.50	6.50	8.00	9.00	11.0	130°	140°	155°	155°		
HZ 15	3.30	4.00	5.00	7.00	8.00	10.0	11.0	14.0	100°	115°	125°	125°		
HZ 18	3.60	4.50	5.50	8.00	9.50	11.0	14.0	16.0	105°	120°	130°	130°		
HZ 20	3.80	5.00	6.50	9.00	10.5	13.0	15.0	18.0	110°	120°	135°	135°		
HZ 22	3.90	6.00	7.00	10.0	12.0	14.0	17.0	20.0	110°	125°	135°	135°		
HZ 24	4.00	6.50	7.50	11.0	13.0	16.0	18.0	22.0	115°	130°	145°	145°		
HZ 27	4.40	7.00	8.50	12.0	14.0	17.0	21.0	25.0	120°	135°	150°	150°		

Full cone hollow spindle HV



Full cone spray pattern

Illu. 2



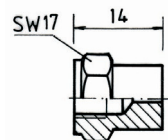
B = outlet bore, E = smallest section, drillings slightly vary with different spray angles

Spray angle 30°-45°-60°-90°-120°, others on request

Code resp. size	B \varnothing (mm)	E \varnothing (mm)	Flow rate \dot{V} (l/min.) at pressure p (bar)											
			bar		bar		bar		bar		bar		bar	
			0.3	0.5	1	1.5	2	3	4	5	6	7	10	
HV 1	0.6	0.5			0.45	0.53	0.59	0.73	0.82	0.91	0.98	1.00	1.20	
HV 2	0.8	0.5			0.65	0.79	0.90	0.99	1.10	1.20	1.30	1.40	1.70	
HV 3	1.3	0.8		0.63	0.87	0.99	1.10	1.40	1.60	1.80	1.90	2.10	2.50	
HV 4	1.8	1.0		0.95	1.10	1.40	1.60	2.00	2.30	2.60	2.80	3.10	3.70	
HV 5	2.1	1.0		1.20	1.70	2.00	2.20	2.70	3.10	3.40	3.70	3.90	4.60	
HV 6	2.3	1.0		1.40	1.90	2.30	2.60	3.00	3.50	3.80	4.30	4.50	5.00	
HV 7	2.5	1.0	1.30	1.50	2.10	2.60	3.00	3.60	4.10	4.50	5.00	5.40	6.30	
HV 8	2.8	1.2	1.60	2.00	2.60	3.10	3.50	4.10	4.60	5.00	5.50	5.90	6.80	
HV 9	3.0	1.2	1.80	2.20	2.90	3.50	4.00	4.70	5.40	6.00	6.50	7.00	8.30	
HV 10	3.2	1.2	2.40	2.90	3.60	4.50	5.00	5.80	6.50	7.00	7.50	8.00	9.50	
HV 11	3.4	1.5	2.70	3.10	4.50	5.30	6.00	7.20	8.30	9.10	10.0	10.8	12.5	

Solid stream hollow spindle air/steam nozzle HD

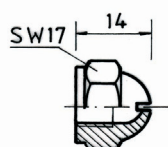
Illu. 3



Type bore- \varnothing (mm)	Compressed air capacity in (Nm ³ /h) 20°C at pressure p (bar)				Saturated steam capacity in kg/h at pressure p (bar)			
	bar		bar		bar		bar	
	1	2	4	7	1	2	4	7
HD 0.5	0.27	0.40	0.67	1.08	0.21	0.31	0.53	0.84
HD 0.8	0.69	1.03	1.72	2.76	0.54	0.80	1.35	2.16
HD 1.0	1.07	1.61	2.67	4.30	0.84	1.26	2.10	3.36
HD 1.5	2.42	3.64	6.05	9.70	1.90	2.85	4.75	7.60
HD 2.0	4.30	6.45	10.7	17.2	3.36	5.05	8.40	13.5
HD 2.5	6.72	10.1	16.8	27.0	5.28	7.90	13.2	21.2
HD 3.0	9.70	14.5	24.2	38.8	7.60	11.4	19.0	30.4
HD 3.5	13.2	19.8	33.0	53.0	10.3	15.5	25.7	41.2
HD 4.0	17.2	25.8	43.0	69.0	13.5	20.3	33.7	54.0
HD 4.5	21.7	32.5	54.2	86.0	17.1	25.6	42.7	68.5
HD 5.0	26.8	40.2	63.5	107	21.0	31.5	52.5	84.0

Flat fan hollow spindle air/steam nozzle HDF

Illu. 4



Type	Slot width	p (bar)								Spray angle at pressure bar	
		Compressed air capacity (l/min.)				Steam capacity (kg/h)					
		1	2	4	7	1	2	4	7	1	4
HDF 1	0.2	21.0	38.0	65.0	101	0.70	1.40	2.20	3.60	65	85
HDF 2	0.3	40.0	60.0	100	152	1.50	2.00	3.50	5.50	70	80
HDF 3	0.6	77.0	110	190	305	2.80	4.10	6.70	11.5	80	80
HDF 4	1.0	131	199	345	540	4.50	7.20	12.3	19.4	70	70
HDF 5	1.6	210	335	570	881	7.50	12.0	20.3	32.1	60	70
HDF 6	2.3	430	700	1150	1724	15.5	25.0	42.0	63.0	60	70