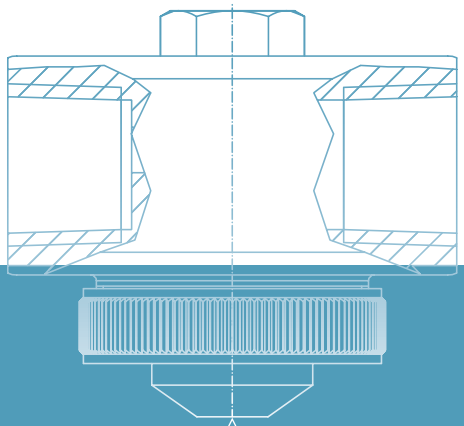
PNEUMATIC ATOMIZING NOZZLES



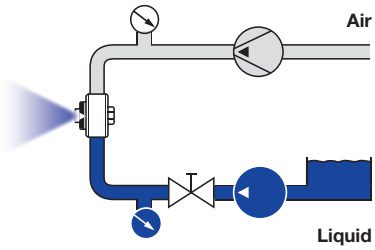
PNEUMATIC ATOMIZING NOZZLES
GENERAL INFORMATION

Pneumatic atomizing nozzles produce extremely fine droplets with a small droplet spectrum. They can be split into two types: Internal mixing (for low viscous fluids) and external mixing (for viscous fluids). Gas and liquid are mixed on the inside or outside of the nozzle. Depending on the actual design of the nozzle, the liquid is self-aspirated or supplied under pressure. Various spray jet shapes can be achieved through the design of the nozzle tip.

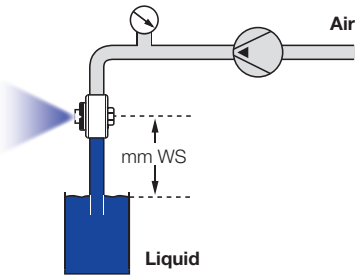
Pneumatic atomizing nozzles

- Produces extremely fine droplets
- Wide range of liquid-supply
- Internal or external mixing
- Suitable for humidification, cooling and the atomization of viscous fluids

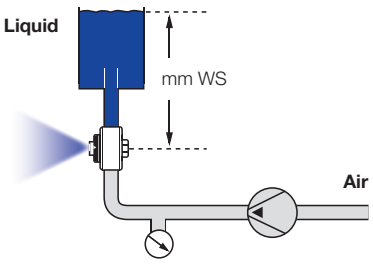
Liquid pressure principle



Siphon principle



Supply principle



PNEUMATIC ATOMIZING NOZZLES
OVERVIEW OF SERIES

		Pneumatic atomizing nozzles				
Series		**140**	**176 ViscoMist**	**170**	**150**	**77X, 78X, 79X**
Information on page		53	54	on request	on request	on request
Spray character	**Full cone spray**	●	●	●	●	●
	Flat fan		●			
	Solid stream		●			
Type of liquid supply	**Pressure principle**		●	●	●	●
	Siphon and/or supply principle	●				
Mixing of media	**Internal mixing**	●		●		
	External mixing		●		●	●
Flow rate	**l/h**	4.50–12.00	7.80–307.00	8.50–290.00 [l/min]	0.15–63.00 [l/min]	3.00–1,164.00
Spray angle	**Small** (15°–30°)	●	●	●	●	●
	Medium (45°)					
	Large (60°–80°)					

Series		**136.1**	**136.2**	**136.3**	**136.4**
Information on page		30	32	33	36
Spray character	**Full cone spray**	●	●	●	
	Flat fan				●
	Solid stream				
Type of liquid supply	**Pressure principle**	●	●		●
	Siphon and/or supply principle			●	
Mixing of media	**Internal mixing**	●	●		●
	External mixing			●	
Flow rate	**l/h**	0.40–93.20	0.40–132.90	0.30–66.72	0.10–76.10
Spray angle	**Small** (15°–30°)	●		●	
	Medium (45°)				●
	Large (60°-80°)		●		●

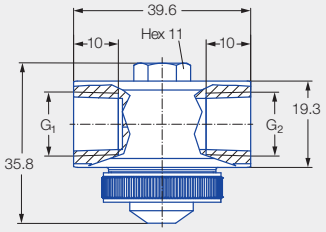
Pneumatic atomizing nozzles

136.5	**136.6**	**166.1**	**166.2**	**166.4**	**166.6**
38	40	44	46	47	49
		●	●		
●	●			●	●
	●	●	●	●	●
●					
●		●	●	●	
	●				●
0.80–3.20	1.68–102.10	0.40–93.20	0.40–132.90	0.10–76.10	1.68–102.10
		●			
	●			●	●
●	●		●	●	●

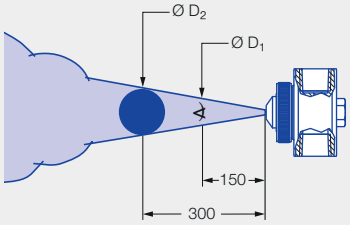
Pneumatic atomizing nozzles, full cone, pressure principle, internal mixing
Series 136.1

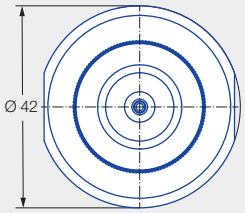
Features:
- Fine full cone atomization
- Liquid pressure principle
- Internal mixing

Applications:
- Humidification of air
- Cooling



Series 136.1





Liquid connection G_1	Air connection G_2	Screw plug thread (size 11)	Weight [g] (Stainless steel 303)
1/4 BSPP	1/4 BSPP	5/16-24 UNF-2A	220

Spray angle	Ordering no.			Narrowest free cross section Ø [mm]	Liquid pressure p [bar]												Spray dimensions			
	Type	Mat. no. 1Y Stainless steel 316L	Mat. no. 16 Stainless steel 303		0.7			1.5			3.0			4.0						
					p air [bar]	V̇ water [l/h]	V̇n air [m³/h]	p air [bar]	V̇ water [l/h]	V̇n air [m³/h]	p air [bar]	V̇ water [l/h]	V̇n air [m³/h]	p air [bar]	V̇ water [l/h]	V̇n air [m³/h]	p air [bar]	p water [bar]	Ø D1 [mm]	Ø D2 [mm]
20°	136.115.xx.A2	●	●	0.5	0.4	**5.9**	0.3	1.4	**5.8**	0.8	2.4	**9.1**	1.1	3.0	**11.0**	1.2	0.8	0.7	60	100
					0.8	**3.8**	0.6	1.8	**4.1**	1.0	2.8	**7.5**	1.2	3.4	**9.6**	1.4	1.8	1.5	60	95
					1.2	**1.7**	0.9	2.2	**2.2**	1.4	3.2	**5.9**	1.5	3.8	**8.2**	1.6	2.6	2.0	60	100
					–	**–**	–	2.6	**1.2**	1.7	3.6	**4.4**	1.8	4.2	**6.8**	1.9	3.2	3.0	55	95
					–	**–**	–	–	**–**	–	4.0	**2.9**	2.1	4.6	**5.5**	2.2	4.4	4.0	55	100
					–	**–**	–	–	**–**	–	4.4	**2.0**	2.5	5.0	**4.1**	2.5	–	–	–	–
					–	**–**	–	–	**–**	–	4.8	**1.1**	2.8	5.4	**2.9**	2.8	–	–	–	–
					–	**–**	–	–	**–**	–	5.2	**0.4**	3.0	5.8	**2.1**	3.1	–	–	–	–
	136.125.xx.A2	●	●	0.5	0.8	**4.7**	1.5	1.2	**7.0**	1.8	2.8	**9.1**	3.3	3.4	**10.6**	3.9	1.4	0.7	55	90
					1.2	**4.4**	1.9	1.6	**6.6**	2.2	3.2	**8.7**	3.7	3.8	**10.3**	4.3	2.2	1.5	55	95
					1.6	**4.0**	2.3	2.0	**6.2**	2.6	3.6	**8.4**	4.1	4.2	**9.9**	4.6	2.8	2.0	55	100
					2.0	**3.5**	2.6	2.4	**5.8**	3.0	4.0	**8.0**	4.5	4.6	**9.6**	5.0	3.4	3.0	60	100
					2.4	**3.0**	3.0	2.8	**5.4**	3.4	4.4	**7.7**	4.8	5.0	**9.3**	5.4	4.2	4.0	60	100
					2.8	**2.7**	3.2	3.2	**4.9**	3.7	4.8	**7.3**	5.2	5.4	**8.9**	5.8	–	–	–	–
					3.2	**2.0**	3.7	3.6	**4.4**	4.1	5.2	**7.0**	5.6	5.8	**8.6**	6.1	–	–	–	–
					3.6	**1.6**	4.1	4.0	**3.9**	4.5	5.6	**6.6**	5.9	–	**–**	–	–	–	–	–
					4.0	**1.3**	4.5	4.4	**3.5**	4.8	6.0	**6.2**	6.3	–	**–**	–	–	–	–	–
					4.4	**1.0**	4.9	4.8	**3.1**	5.2	–	**–**	–	–	**–**	–	–	–	–	–
					4.8	**0.6**	5.2	5.2	**2.7**	5.6	–	**–**	–	–	**–**	–	–	–	–	–
					–	**–**	–	5.6	**2.3**	5.9	–	**–**	–	–	**–**	–	–	–	–	–
						–	–	6.0	**1.9**	6.3	–	**–**	–	–	**–**	–	–	–	–	–

Spray angle	Ordering no.			Narrowest free cross section Ø [mm]	Liquid pressure p [bar]												Spray dimensions			
	Type	Mat. no. 1Y Stainless steel 316L	Mat. no. 16 Stainless steel 303		0.7			1.5			3.0			4.0						
					p air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**p** water [bar]	Ø D_1 [mm]	Ø D_2 [mm]
20°	**136.134.xx.A2**	●	●	0.7	1.2	**13.2**	2.7	2.0	**19.4**	3.9	3.0	**28.3**	5.2	3.8	**32.6**	6.2	1.8	0.7	55	95
					1.6	**12.4**	3.3	2.4	**18.1**	4.4	3.4	**27.5**	5.7	4.2	**32.0**	6.8	2.8	1.5	60	105
					2.0	**11.8**	3.9	2.8	**17.3**	4.9	3.8	**26.7**	6.3	4.6	**31.3**	7.3	3.8	2.0	60	105
					2.4	**11.4**	4.4	3.2	**16.7**	5.5	4.2	**25.9**	6.8	5.0	**30.6**	7.8	5.2	3.0	65	110
					2.8	**11.1**	4.9	3.6	**16.1**	6.0	4.6	**25.0**	7.3	5.4	**29.9**	8.4	6.0	4.0	65	110
					3.2	**10.8**	5.5	4.0	**15.6**	6.5	5.0	**24.2**	7.8	5.8	**29.3**	8.9	–	–	–	–
					3.6	**10.6**	6.0	4.4	**15.2**	7.0	5.4	**23.6**	8.4	–	**–**	–	–	–	–	–
					4.0	**10.4**	6.5	4.8	**15.0**	7.6	5.8	**23.1**	8.9	–	**–**	–	–	–	–	–
					4.4	**10.1**	7.0	5.2	**14.6**	8.1	–	**–**	–	–	**–**	–	–	–	–	–
					4.8	**9.9**	7.6	5.6	**14.1**	8.6	–	**–**	–	–	**–**	–	–	–	–	–
					5.2	**9.5**	8.1	6.0	**13.8**	9.1	–	**–**	–	–	**–**	–	–	–	–	–
					5.6	**9.0**	8.6	–	**–**	–	–	**–**	–	–	**–**	–	–	–	–	–
					6.0	**8.5**	9.2	–	**–**	–	–	**–**	–	–	**–**	–	–	–	–	–
	136.142.xx.A2	●	●	2.5	1.4	**24.2**	5.1	1.6	**53.4**	4.7	3.2	**70.8**	8.0	3.8	**93.2**	9.2	0.8	0.7	60	100
					1.8	**20.4**	6.3	2.0	**42.6**	5.9	3.6	**62.5**	9.2	4.2	**83.1**	10.1	1.6	1.5	65	105
					2.2	**20.0**	7.2	2.4	**35.3**	7.2	4.0	**55.7**	10.6	4.6	**75.3**	11.3	3.0	2.0	60	105
					2.6	**19.3**	8.2	2.8	**30.4**	8.4	4.4	**49.3**	11.7	5.0	**69.0**	12.5	4.0	3.0	65	110
					3.0	**17.6**	9.3	3.2	**28.6**	9.5	4.8	**44.6**	12.9	5.4	**63.4**	13.7	6.0	4.0	65	110
					3.4	**16.5**	10.4	3.6	**28.2**	10.5	5.2	**41.9**	14.1	5.8	**57.5**	14.9	–	–	–	–
					3.8	**17.0**	11.4	4.0	**27.3**	11.5	5.6	**40.4**	15.1	–	**–**	–	–	–	–	–
					4.2	**16.3**	12.4	4.4	**25.9**	12.5	6.0	**39.7**	16.1	–	**–**	–	–	–	–	–
					4.6	**15.1**	13.3	4.8	**24.3**	13.5	–	**–**	–	–	**–**	–	–	–	–	–
					5.0	**14.0**	14.3	5.2	**22.3**	14.6	–	**–**	–	–	**–**	–	–	–	–	–
					5.4	**13.1**	15.3	5.6	**21.8**	15.7	–	**–**	–	–	**–**	–	–	–	–	–
					5.8	**12.4**	16.2	6.0	**21.4**	16.7	–	**–**	–	–	**–**	–	–	–	–	–

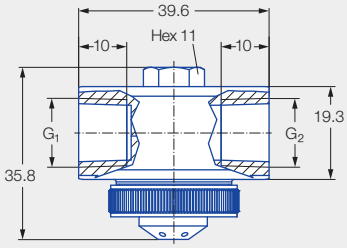
Ordering example:	Type	+	Material no.	=	Ordering no.
	136.134.xx.A2	+	1Y	=	136.134.1Y.A2

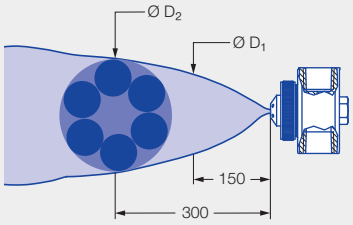
Pneumatic atomizing nozzles, full cone, pressure principle, internal mixing
Series 136.2

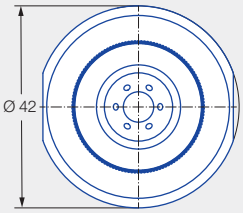
Features:
- Fine full cone atomization
- Liquid pressure principle
- Internal mixing
- Especially wide spray angle of 60°

Applications:
- Humidification of air
- Cooling

Series 136.2







Liquid connection G_1	Air connection G_2	Screw plug thread (size 11)	Weight [g] (Stainless steel 303)
1/4 BSPP	1/4 BSPP	5/16-24 UNF-2A	220

Spray angle	Ordering no. Type	Mat. no. 1Y Stainless steel 316L	Mat. no. 16 Stainless steel 303	Narrowest free cross section Ø [mm]	Liquid pressure p [bar] 0.7 p air [bar]	0.7 $\dot{V}$ water [l/h]	0.7 $\dot{V}_n$ air [m³/h]	1.5 p air [bar]	1.5 $\dot{V}$ water [l/h]	1.5 $\dot{V}_n$ air [m³/h]	3.0 p air [bar]	3.0 $\dot{V}$ water [l/h]	3.0 $\dot{V}_n$ air [m³/h]	4.0 p air [bar]	4.0 $\dot{V}$ water [l/h]	4.0 $\dot{V}_n$ air [m³/h]	Spray dimensions p air [bar]	p water [bar]	Ø D_1 [mm]	Ø D_2 [mm]
60°	136.215.xx.A2	●	●	0.5	1.0	**3.0**	1.3	1.6	**5.8**	1.7	2.8	**8.5**	2.4	3.8	**9.4**	3.1	1.0	0.7	200	330
					1.2	**1.8**	1.5	1.8	**4.9**	1.9	3.2	**7.2**	2.8	4.2	**8.2**	3.5	1.6	1.5	230	380
					1.4	**0.7**	1.8	2.0	**3.8**	2.1	3.6	**5.7**	3.2	4.6	**6.9**	3.9	2.4	2.0	230	385
					–	**–**	–	2.2	**2.8**	2.3	4.0	**4.0**	3.6	5.0	**5.4**	4.2	3.2	3.0	245	390
					–	**–**	–	2.4	**1.7**	2.5	4.4	**2.2**	4.1	5.4	**3.8**	4.7	4.2	4.0	250	410
					–	**–**	–	2.6	**0.8**	2.8	4.8	**0.8**	4.5	5.8	**2.3**	5.2	–	–	–	–
					–	**–**	–	–	**–**	–	5.0	**0.4**	4.6	6.0	**1.4**	5.6	–	–	–	–
	136.222.xx.A2	●	●	1.0	0.8	**17.5**	2.8	1.6	**25.9**	4.0	3.0	**40.4**	5.8	3.8	**54.9**	6.4	0.8	0.7	250	450
					1.0	**6.0**	4.3	1.8	**14.7**	5.3	3.2	**31.5**	6.9	4.0	**45.6**	7.3	1.6	1.5	245	465
					–	**–**	–	2.0	**6.7**	6.7	3.4	**22.2**	8.2	4.2	**37.6**	8.5	2.3	2.0	245	465
					–	**–**	–	2.2	**1.9**	8.1	3.6	**14.6**	9.5	4.4	**29.6**	9.7	3.2	3.0	250	465
					–	**–**	–	–	**–**	–	3.8	**8.5**	11.0	4.6	**21.6**	11.2	4.2	4.0	245	465
					–	**–**	–	–	**–**	–	4.0	**4.5**	12.3	4.8	**15.3**	12.4	–	–	–	–
					–	**–**	–	–	**–**	–	–	**–**	–	5.0	**9.7**	13.8	–	–	–	–
					–	**–**	–	–	**–**	–	–	**–**	–	5.2	**6.0**	15.2	–	–	–	–
					–	**–**	–	–	**–**	–	–	**–**	–	5.4	**2.9**	16.5	–	–	–	–
	136.231.xx.A2	●	●	1.4	1.6	**25.6**	5.1	2.6	**44.2**	7.0	3.6	**93.7**	7.9	4.2	**132.9**	7.3	2.0	0.7	235	380
					2.0	**17.8**	6.2	3.0	**33.0**	8.2	4.0	**78.3**	9.3	4.6	**117.2**	9.0	2.6	1.5	245	415
					2.4	**11.3**	7.2	3.4	**24.7**	9.2	4.4	**65.8**	10.6	5.0	**101.1**	10.4	2.4	2.0	255	420
					2.8	**6.9**	8.1	3.8	**18.1**	10.2	4.8	**54.9**	11.9	5.4	**87.9**	11.8	3.6	3.0	255	425
					–	**–**	–	4.2	**13.2**	11.2	5.2	**45.6**	13.0	5.8	**76.6**	13.2	4.2	4.0	265	430
					–	**–**	–	4.6	**9.3**	12.0	5.6	**38.0**	14.1	6.0	**71.2**	13.8	–	–	–	–
					–	**–**	–	–	**–**	–	6.0	**36.1**	14.4	–	**–**	–	–	–	–	–

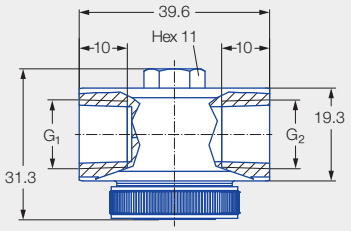
Ordering example:	Type	+	Material no.	=	Ordering no.
	136.215.xx.A2	+	1Y	=	136.215.1Y.A2

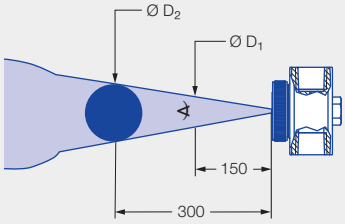
Pneumatic atomizing nozzles, full cone, siphon principle, external mixing
Series 136.3

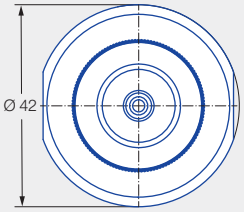
Features:
- Particularly fine full cone atomization
- Siphon principle
- External mixing

Applications:
- Cooling
- Atomization of viscous liquids
- Chemical industry

Series 136.3







Liquid connection G_1	Air connection G_2	Screw plug thread (size 11)	Weight [g] (Stainless steel 303)
1/4 BSPP	1/4 BSPP	5/16-24 UNF-2A	220

Spray angle	Ordering no. Type	Mat. no. 1Y Stainless steel 316L	Mat. no. 16 Stainless steel 303	Narrowest free cross section Ø [mm]	Air p [bar]	Air $\dot{V}_n$ [m³/h]	$\dot{V}$ water [l/h] Water column [mm WS] 150	300	450	Aspiration height [mm WS] 100	200	300	600	900	Spray dimensions p air [bar]	Aspiration height [mm WS]	Ø D_1 [mm]	Ø D_2 [mm]
20°	136.316.xx.A2	●	●	0.40	0.60	0.70	–	1.38	1.32	–	–	–	–	–	1.40	300	60	110
					0.80	0.90	1.29	1.44	1.38	–	–	–	–	–	3.20	300	60	120
					1.20	1.10	1.47	1.62	1.53	1.02	0.84	–	–		4.80	300	80	135
					1.40	1.20	1.50	1.68	1.62	1.14	0.96	0.66	–	–	6.00	300	70	120
					1.80	1.40	1.62	1.80	1.71	1.26	1.11	0.90	–	–	–	–	–	–
					2.00	1.60	1.68	1.86	1.77	1.32	1.17	0.96	–	–	–	–	–	–
					2.40	1.80	1.74	1.92	1.86	1.44	1.32	1.14	0.51	–	–	–	–	–
					2.60	1.90	1.80	1.98	1.89	1.50	1.32	1.20	0.63	–	–	–	–	–
					3.00	2.10	1.92	2.07	1.95	1.59	1.44	1.29	0.84	0.39	–	–	–	–
					3.20	2.20	1.95	2.10	1.98	1.65	1.50	1.35	0.96	0.48	–	–	–	–
					3.60	2.40	2.07	2.19	2.10	1.80	1.65	1.50	1.14	0.72	–	–	–	–
					3.80	2.60	2.13	2.25	2.16	1.83	1.71	1.59	1.23	0.81	–	–	–	–
					4.20	2.80	2.22	2.37	2.28	1.95	1.80	1.68	1.38	1.08	–	–	–	–
					4.40	2.90	2.25	2.40	2.34	1.98	1.89	1.77	1.44	1.14	–	–	–	–
					4.80	3.10	2.25	2.34	2.28	1.92	1.86	1.77	1.50	1.14	–	–	–	–
					5.00	3.20	2.25	2.31	2.22	1.89	1.83	1.71	1.41	0.84	–	–	–	–
					5.40	3.40	2.13	2.25	2.16	1.80	1.68	1.56	1.05	0.30	–	–	–	–
					5.60	3.60	2.07	2.19	2.10	1.74	1.65	1.44	0.72	–	–	–	–	–
					6.00	3.80	1.98	2.10	1.95	1.56	1.50	1.26	–	–	–	–	–	–

Spray angle	Ordering no.			Narrowest free cross section Ø [mm]	Air		V̇ water [l/h]								Spray dimensions			
	Type	Mat. no.					Water column [mm WS]			Aspiration height [mm WS]								
		1Y	16															
		Stainless steel 316L	Stainless steel 303		**p** [bar]	$\dot{V}_n$ [m³/h]	150	300	450	100	200	300	600	900	**p** air [bar]	Aspiration height [mm WS]	Ø D_1 [mm]	Ø D_2 [mm]
20°	**136.324.xx.A2**	●	●	0.70	0.80	0.90	–	–	–	2.49	1.71	–	–	–	1.20	300	60	115
					1.20	1.10	–	–	–	3.12	2.53	1.86	–	–	3.20	300	65	125
					1.40	1.20	–	–	–	3.36	2.78	2.22	–	–	4.80	300	70	135
					1.80	1.50	–	–	–	3.75	3.22	2.67	–	–	6.00	300	80	135
					2.00	1.60	–	–	–	3.96	3.39	2.85	0.66	–	–	–	–	–
					2.40	1.80	–	–	–	4.29	3.73	3.21	1.41	–	–	–	–	–
					2.60	1.90	–	–	–	4.41	3.91	3.39	1.68	–	–	–	–	–
					3.00	2.10	5.43	–	–	4.71	4.18	3.75	2.07	–	–	–	–	–
					3.20	2.20	5.55	–	–	4.80	4.31	3.90	2.25	–	–	–	–	–
					3.60	2.40	5.82	–	–	5.07	4.56	4.20	2.61	–	–	–	–	–
					3.80	2.60	6.03	–	–	5.22	4.72	4.38	2.88	2.10	–	–	–	–
					4.20	2.80	6.30	6.66	–	5.64	5.15	4.71	3.21	2.85	–	–	–	–
					4.40	2.90	6.36	6.72	7.05	5.88	5.38	4.92	3.60	2.97	–	–	–	–
					4.80	3.10	6.27	6.57	6.84	5.97	5.47	5.22	3.93	1.93	–	–	–	–
					5.00	3.20	6.12	6.42	6.75	5.88	5.36	5.10	4.05	–	–	–	–	–
					5.40	3.40	5.82	6.12	6.48	5.49	5.03	4.71	3.81	–	–	–	–	–
					5.60	3.50	5.67	5.97	6.30	5.22	4.84	4.53	3.63	–	–	–	–	–
					6.00	3.80	5.31	5.58	6.00	4.80	4.48	4.08	1.92	–	–	–	–	–
	136.334.xx.A2	●	●	0.70	0.60	1.20	–	–	–	2.19	–	–	–	–	0.80	300	65	120
					0.80	1.40	–	–	–	2.64	2.28	1.44	–	–	3.20	300	65	115
					1.20	1.80	–	–	–	3.39	3.00	2.73	0.78	–	4.80	300	70	115
					1.40	2.00	–	–	–	3.69	3.33	3.06	1.11	–	6.00	300	75	120
					1.80	2.30	5.19	–	–	4.20	3.87	3.51	2.16	–	–	–	–	–
					2.00	2.50	5.43	5.97	6.42	4.47	4.08	3.78	2.58	0.84	–	–	–	–
					2.40	2.80	5.79	6.27	6.72	4.86	4.53	4.20	3.30	1.44	–	–	–	–
					2.60	3.00	6.00	6.48	6.90	4.98	4.68	4.41	3.57	1.77	–	–	–	–
					3.00	3.40	6.30	6.75	7.14	5.37	5.07	4.71	3.87	2.31	–	–	–	–
					3.20	3.50	6.42	6.90	7.29	5.52	5.19	4.89	4.02	2.52	–	–	–	–
					3.60	3.90	6.75	7.17	7.59	5.82	5.55	5.19	4.29	3.42	–	–	–	–
					3.80	4.00	6.87	7.32	7.80	6.03	5.73	5.37	4.47	3.81	–	–	–	–
					4.20	4.40	7.29	7.80	8.34	6.39	6.09	5.79	4.83	4.17	–	–	–	–
					4.40	4.60	7.62	8.16	8.73	6.69	6.39	6.09	5.13	4.38	–	–	–	–
					4.80	4.90	8.37	8.85	9.21	7.32	6.99	6.69	5.76	4.86	–	–	–	–
					5.00	5.10	8.52	8.85	9.15	7.71	7.32	7.05	6.06	5.19	–	–	–	–
					5.40	5.40	8.34	8.64	8.88	7.71	7.53	7.29	6.48	5.67	–	–	–	–
					5.60	5.60	8.19	8.49	8.76	7.59	7.41	7.20	6.45	5.73	–	–	–	–
					6.00	5.90	7.86	8.16	8.43	7.26	7.05	6.84	6.15	5.64	–	–	–	–

Spray angle	Ordering no.			Narrowest free cross section Ø [mm]	Air		V̇ water [l/h]								Spray dimensions			
	Type	Mat. no.					Water column [mm WS]			Aspiration height [mm WS]								
		1Y	16															
		Stainless steel 316L	Stainless steel 303		p [bar]	$\dot{V}_n$ [m³/h]	150	300	450	100	200	300	600	900	p air [bar]	Aspiration height [mm WS]	Ø D_1 [mm]	Ø D_2 [mm]
20°	136.342.xx.A2	●	●	1.50	1.40	3.60	–	–	–	8.82	–	–	3.93	–	1.80	300	70	120
					1.80	4.20	–	–	–	9.45	8.49	7.50	5.22	3.39	3.00	300	70	120
					2.00	4.50	11.97	–	–	9.75	8.91	7.95	5.76	4.05	4.20	300	70	120
					2.40	5.20	12.18	–	–	10.26	9.51	8.73	6.75	5.19	6.00	300	70	120
					2.60	5.50	12.27	13.32	–	10.47	9.75	9.03	7.14	5.58	–	–	–	–
					3.00	6.10	12.27	13.23	14.16	10.65	10.05	9.42	7.74	6.39	–	–	–	–
					3.20	6.40	12.30	13.17	14.07	10.74	10.23	9.63	8.13	6.81	–	–	–	–
					3.60	7.00	12.42	13.20	14.07	11.01	10.53	10.05	8.85	7.86	–	–	–	–
					3.80	7.30	12.54	13.26	14.10	11.28	10.86	10.44	9.30	8.46	–	–	–	–
					4.20	8.00	13.17	13.83	14.49	12.12	11.76	11.40	10.41	9.69	–	–	–	–
					4.40	8.30	13.53	14.13	14.73	12.48	12.15	11.76	10.80	10.08	–	–	–	–
					4.80	8.90	13.98	14.52	15.15	12.99	12.63	12.18	11.19	10.29	–	–	–	–
					5.00	9.20	14.04	14.52	15.15	13.05	12.66	12.30	11.16	10.11	–	–	–	–
					5.40	9.80	13.74	14.31	14.94	12.66	12.24	11.79	10.62	9.21	–	–	–	–
					5.60	10.10	13.35	14.04	14.64	12.27	11.82	11.37	10.08	8.52	–	–	–	–
					6.00	10.80	12.21	12.90	–	10.98	10.50	10.17	8.70	7.05	–	–	–	–
	136.351.xx.A2	●	●	2.50	3.20	11.50	–	–	–	–	38.92	–	–	–	3.80	300	95	135
					3.60	12.50	–	–	–	45.73	41.94	–	33.17	–	4.60	300	95	145
					3.80	13.10	–	–	–	47.81	45.14	42.29	35.36	–	5.40	300	100	150
					4.20	14.20	–	–	–	51.61	49.07	46.46	39.58	29.94	6.00	300	95	150
					4.40	14.80	–	–	–	53.10	50.87	48.30	41.59	31.59	–	–	–	–
					4.80	15.90	–	63.39	–	55.30	53.40	51.26	45.06	34.68	–	–	–	–
					5.00	16.50	–	63.75	66.69	56.05	54.15	52.18	46.29	35.88	–	–	–	–
					5.40	17.60	61.12	64.17	66.72	56.71	55.04	53.17	47.62	37.83	–	–	–	–
					5.60	18.10	60.93	63.87	66.48	56.66	55.04	53.22	47.68	38.43	–	–	–	–
					6.00	19.20	59.89	62.88	65.43	55.69	53.98	52.11	45.78	37.05	–	–	–	–

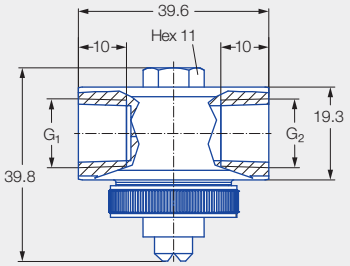
Ordering example:	Type	+	Material no.	=	Ordering no.
	136.342.xx.A2	+	1Y	=	136.342.1Y.A2

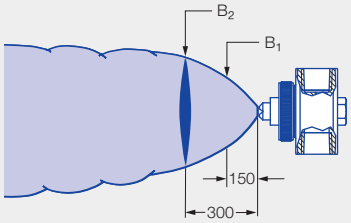
Pneumatic atomizing nozzles, flat fan, pressure principle, internal mixing
Series 136.4

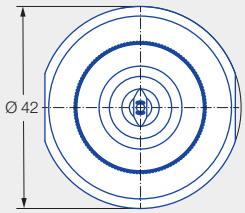
Features:
- Fine flat fan atomization
- Pressure principle
- Internal mixing

Applications:
- Humidification of goods
- Cooling
- Belt humidification

Series 136.4







Liquid connection G_1	Air connection G_2	Screw plug thread (size 11)	Weight [g] (Stainless steel 303)
1/4 BSPP	1/4 BSPP	5/16-24 UNF-2A	220

Spray angle	Ordering no. Type	Mat. no. 1Y Stainless steel 316L	Mat. no. 16 Stainless steel 303	Narrowest free cross section Ø [mm]	Liquid pressure p [bar] 0.7 p air [bar]	0.7 V̇ water [l/h]	0.7 V̇n air [m³/h]	1.5 p air [bar]	1.5 V̇ water [l/h]	1.5 V̇n air [m³/h]	3.0 p air [bar]	3.0 V̇ water [l/h]	3.0 V̇n air [m³/h]	4.0 p air [bar]	4.0 V̇ water [l/h]	4.0 V̇n air [m³/h]	Spray dimensions p air [bar]	p water [bar]	B_1 [mm]	B_2 [mm]
45°	136.414.xx.A2	●	●	0.7	1.0	**7.7**	1.3	1.4	**14.3**	1.5	2.2	**22.4**	2.0	3.0	**25.1**	2.5	1.4	0.7	85	125
					1.2	**6.0**	1.5	1.6	**13.0**	1.6	2.6	**20.0**	2.3	3.4	**23.0**	2.8	2.4	1.5	100	145
					1.4	**4.2**	1.7	1.8	**11.6**	1.8	3.0	**17.7**	2.6	3.8	**20.9**	3.1	3.2	2.0	105	155
					1.6	**2.7**	1.9	2.0	**10.2**	2.0	3.4	**15.5**	3.0	4.2	**18.9**	3.5	3.8	3.0	120	170
					1.8	**1.3**	2.1	2.2	**8.9**	2.2	3.8	**13.3**	3.4	4.6	**16.9**	3.8	4.6	4.0	130	210
					–	**–**	–	2.4	**7.4**	2.4	4.2	**11.0**	3.7	5.0	**14.9**	4.2	–	–	–	–
					–	**–**	–	2.6	**5.9**	2.6	4.6	**8.8**	4.1	5.4	**12.8**	4.6	–	–	–	–
					–	**–**	–	2.8	**4.6**	2.8	5.0	**6.6**	4.5	5.8	**10.8**	5.0	–	–	–	–
					–	**–**	–	3.0	**3.2**	3.0	5.4	**4.3**	4.9	6.0	**9.8**	5.2	–	–	–	–
					–	**–**	–	3.2	**2.1**	3.2	5.8	**2.5**	5.3	–	**–**	–	–	–	–	–
					–	**–**	–	3.4	**1.1**	3.4	6.0	**1.6**	5.5	–	**–**	–	–	–	–	–
	136.443.xx.A2	●	●	1.0	1.2	**13.9**	1.5	1.6	**26.6**	1.6	3.0	**37.1**	2.6	3.6	**45.6**	2.9	1.2	0.7	110	165
					1.4	**11.9**	1.7	1.8	**24.3**	1.8	3.4	**33.1**	3.0	4.0	**41.9**	3.3	2.0	1.5	115	190
					1.6	**9.5**	1.9	2.0	**22.0**	2.0	3.8	**29.5**	3.4	4.4	**38.3**	3.7	2.8	2.0	145	190
					1.8	**7.8**	2.1	2.2	**19.9**	2.2	4.2	**26.2**	3.8	4.8	**35.0**	4.0	3.8	3.0	150	210
					–	**–**	–	2.4	**18.0**	2.4	4.6	**23.0**	4.2	5.2	**31.8**	4.5	4.8	4.0	160	230
					–	**–**	–	2.6	**16.2**	2.6	5.0	**20.2**	4.6	5.6	**29.0**	4.9	–	–	–	–
					–	**–**	–	2.8	**14.4**	2.8	5.4	**17.6**	4.9	6.0	**26.2**	5.2	–	–	–	–
					–	**–**	–	3.0	**12.8**	3.0	5.8	**14.9**	5.3	–	**–**	–	–	–	–	–
					–	**–**	–	3.2	**11.3**	3.2	6.0	**14.1**	5.5	–	**–**	–	–	–	–	–
					–	**–**	–	3.4	**9.9**	3.4	–	**–**	–	–	**–**	–	–	–	–	–
					–	**–**	–	3.6	**8.8**	3.6	–	**–**	–	–	**–**	–	–	–	–	–

Spray angle	Ordering no.			Narrowest free cross section Ø [mm]	Liquid pressure p [bar]												Spray dimensions			
	Type	Mat. no. 1Y Stainless steel 316L	Mat. no. 16 Stainless steel 303		0.7			1.5			3.0			4.0						
					p air [bar]	V̇ water [l/h]	V̇n air [m³/h]	p air [bar]	V̇ water [l/h]	V̇n air [m³/h]	p air [bar]	V̇ water [l/h]	V̇n air [m³/h]	p air [bar]	V̇ water [l/h]	V̇n air [m³/h]	p air [bar]	p water [bar]	B1 [mm]	B2 [mm]
45°	136.462.xx.A2	●	●	1.5	1.2	**19.0**	2.6	2.0	**22.0**	2.0	3.0	**61.8**	4.0	3.8	**76.1**	4.6	1.2	0.7	120	140
					1.6	**12.2**	3.4	2.4	**18.0**	2.4	3.4	**51.9**	4.8	4.0	**70.4**	5.1	2.4	1.5	120	170
					2.0	**9.4**	4.1	2.8	**14.4**	2.8	3.8	**44.6**	5.8	4.2	**65.6**	5.5	3.2	2.0	120	175
					2.4	**7.1**	4.8	3.2	**11.3**	3.2	4.2	**39.0**	6.6	4.4	**61.3**	5.9	3.8	3.0	140	205
					2.8	**5.7**	5.4	3.6	**8.8**	3.6	4.6	**33.4**	7.4	4.6	**57.3**	6.4	6.0	4.0	145	205
					3.2	**5.0**	6.0	4.0	**8.1**	3.9	5.0	**29.4**	8.1	4.8	**54.1**	6.7	–	–	–	–
					3.6	**3.6**	6.6	4.4	**6.2**	4.3	5.4	**25.5**	8.9	5.0	**51.3**	7.2	–	–	–	–
					4.0	**3.2**	7.2	4.8	**4.6**	4.6	5.8	**22.0**	9.6	5.2	**49.3**	7.7	–	–	–	–
					4.4	**2.2**	7.8	5.2	**3.2**	4.9	6.0	**20.6**	9.9	5.4	**46.5**	8.2	–	–	–	–
					–	**–**	–	5.6	**1.6**	5.3	–	**–**	–	5.6	**43.7**	8.6	–	–	–	–
					–	**–**	–	5.8	**0.8**	5.4	–	**–**	–	5.8	**41.3**	8.9	–	–	–	–
					–	**–**	–	–	**–**	–	–	**–**	–	6.0	**39.0**	9.3	–	–	–	–
60°	136.425.xx.A2	●	●	0.5	0.8	**6.5**	1.2	1.4	**9.4**	1.7	2.4	**13.2**	2.5	2.4	**16.1**	2.5	1.2	0.7	155	195
					1.2	**5.5**	1.6	1.8	**8.7**	2.1	2.6	**12.9**	2.7	2.8	**15.5**	2.9	2.2	1.5	165	255
					1.6	**4.7**	1.9	2.2	**7.9**	2.4	3.0	**12.3**	3.0	3.2	**15.0**	3.2	3.0	2.0	170	265
					2.0	**4.0**	2.3	2.6	**7.2**	2.7	3.4	**11.8**	3.4	3.6	**14.5**	3.5	3.4	3.0	200	330
					2.4	**3.2**	2.6	3.0	**6.4**	3.1	3.8	**11.1**	3.7	4.0	**13.9**	3.8	5.6	4.0	200	330
					2.8	**2.6**	2.9	3.4	**5.7**	3.4	4.2	**10.4**	4.0	4.4	**13.4**	4.1	–	–	–	–
					3.0	**2.2**	3.1	3.8	**5.1**	3.7	4.6	**9.8**	4.3	4.8	**12.8**	4.5	–	–	–	–
					–	**–**	–	4.0	**4.8**	3.9	5.0	**9.2**	4.6	5.2	**12.2**	4.8	–	–	–	–
					–	**–**	–	4.4	**4.2**	4.2	5.4	**8.6**	5.0	5.6	**11.7**	5.1	–	–	–	–
					–	**–**	–	4.8	**3.6**	4.5	5.8	**8.1**	5.3	6.0	**11.2**	5.4	–	–	–	–
					–	**–**	–	5.2	**2.8**	4.8	6.0	**7.8**	5.4	–	**–**	–	–	–	–	–
					–	**–**	–	5.6	**2.2**	5.1	–	**–**	–	–	**–**	–	–	–	–	–
					–	**–**	–	6.0	**1.6**	5.5	–	**–**	–	–	**–**	–	–	–	–	–
	136.452.xx.A2	●	●	1.5	1.0	**18.8**	3.9	1.8	**31.0**	5.3	3.2	**50.1**	7.7	3.8	**70.7**	8.2	1.0	0.7	130	185
					1.4	**8.6**	5.7	2.0	**25.4**	6.3	3.6	**39.5**	9.4	4.2	**58.6**	9.6	1.8	1.5	150	240
					1.8	**7.4**	7.0	2.2	**20.1**	7.2	4.0	**31.3**	11.2	4.6	**48.6**	11.2	2.6	2.0	155	245
					2.2	**4.1**	8.4	2.4	**15.5**	8.0	4.4	**24.0**	12.9	5.0	**41.2**	13.1	3.6	3.0	175	280
					2.6	**1.0**	9.8	2.6	**12.4**	8.9	4.8	**17.7**	14.5	5.4	**33.6**	14.8	5.0	4.0	180	285
					2.8	**0.1**	10.3	2.8	**10.4**	9.6	5.2	**13.4**	16.0	5.8	**27.5**	16.4	–	–	–	–
					–	**–**	–	–	**–**	–	5.6	**10.6**	17.5	6.0	**24.4**	17.2	–	–	–	–
					–	**–**	–	–	**–**	–	6.0	**8.6**	18.8	–	**–**	–	–	–	–	–
80°	136.433.xx.A2	●	●	0.4	1.0	**11.6**	2.0	1.8	**18.3**	2.8	3.0	**31.0**	3.7	3.8	**37.5**	4.4	1.4	0.7	150	210
					1.2	**8.1**	2.4	2.0	**15.3**	3.2	3.4	**25.4**	4.4	4.2	**32.4**	5.0	2.2	1.5	185	255
					1.4	**5.3**	2.8	2.2	**12.2**	3.6	3.8	**20.6**	5.1	4.6	**27.7**	5.7	3.0	2.0	205	300
					1.6	**3.7**	3.2	2.4	**9.8**	4.0	4.2	**16.3**	5.9	5.0	**23.4**	6.5	3.8	4.0	300	485
					–	**–**	–	2.6	**7.6**	4.3	4.6	**12.5**	6.6	5.4	**19.4**	7.2	5.2	4.0	260	395
					–	**–**	–	2.8	**5.9**	4.7	5.0	**9.3**	7.3	5.8	**15.9**	7.9	–	–	–	–
					–	**–**	–	3.0	**4.4**	5.0	5.4	**6.5**	8.0	6.0	**14.2**	8.3	–	–	–	–

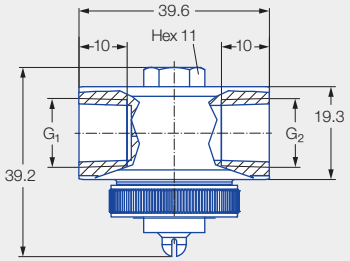
Ordering example:	Type	+	Material no.	=	Ordering no.
	136.462.xx.A2	+	1Y	=	136.462.1Y.A2

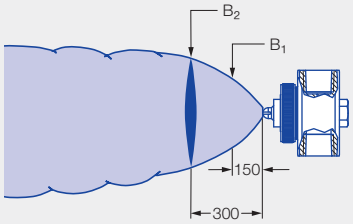
Pneumatic atomizing nozzles, flat fan, siphon principle, internal mixing
Series 136.5

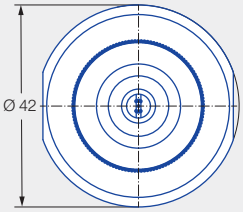
Features:
- Particularly fine flat fan atomization
- Siphon principle
- Internal mixing

Applications:
- Humidification of goods
- Cooling
- Belt humidification

Series 136.5







Liquid connection G_1	Air connection G_2	Screw plug thread (size 11)	Weight [g] (Stainless steel 303 SS)
1/4 BSPP	1/4 BSPP	5/16-24 UNF-2A	220

Spray angle	Ordering no.			Narrowest free cross section Ø [mm]	Air		V̇ water [l/h]								Spray dimensions			
	Type	Mat. no. 1Y	Mat. no. 16				Water column [mm WS]			Aspiration height [mm WS]								
		Stainless steel 316L	Stainless steel 303		p [bar]	$\dot{V}_n$ [m³/h]	150	300	450	100	200	300	600	900	p air [bar]	Aspiration height [mm WS]	B_1 [mm]	B_2 [mm]
60°	136.516.xx.A2	●	●	0.40	0.80	1.80	–	–	–	1.62	1.53	–	1.17	0.88	1.00	300	130	165
					1.20	2.20	1.89	2.13	2.19	1.80	1.77	1.68	1.41	1.16	3.00	300	150	200
					1.40	2.50	1.95	2.16	2.25	1.86	1.80	1.68	1.47	1.21	4.60	300	170	225
					1.80	2.90	1.98	2.22	2.34	1.89	1.86	1.77	1.53	1.26	6.00	300	180	240
					2.00	3.10	1.95	2.19	2.31	1.89	1.80	1.68	1.50	1.26	–	–	–	–
					2.40	3.50	1.89	2.25	2.25	1.83	1.71	1.68	1.47	1.22	–	–	–	–
					2.60	3.70	1.83	2.25	2.25	1.74	1.71	1.59	1.44	1.18	–	–	–	–
					3.00	4.20	1.74	2.01	2.22	1.71	1.62	1.56	1.44	1.28	–	–	–	–
					3.20	4.40	1.71	1.92	2.16	1.65	1.62	1.59	1.59	1.38	–	–	–	–
					3.60	4.80	1.74	1.83	2.10	1.80	1.77	1.74	1.68	1.47	–	–	–	–
					3.80	5.00	1.92	1.80	2.10	1.86	1.86	1.80	1.71	1.49	–	–	–	–
					4.20	5.50	1.98	2.04	2.19	1.92	1.83	1.83	1.68	1.70	–	–	–	–
					4.40	5.70	1.95	2.04	2.19	1.89	1.86	1.80	1.74	1.77	–	–	–	–
					4.80	6.10	2.01	2.04	2.16	2.01	2.01	2.04	2.04	1.98	–	–	–	–
					5.00	6.30	2.10	2.13	2.22	2.19	2.19	2.16	2.10	1.93	–	–	–	–
					5.40	6.80	2.31	2.34	2.28	2.25	2.22	2.16	2.04	1.86	–	–	–	–
					5.60	7.00	2.31	2.28	2.25	2.19	2.16	2.10	2.01	1.80	–	–	–	–
					6.00	7.40	2.22	2.22	2.22	2.10	2.10	2.04	1.92	1.79	–	–	–	–

Spray angle	Ordering no.			Narrowest free cross section Ø [mm]	Air		V̇ water [l/h]								Spray dimensions			
	Type	Mat. no.					Water column [mm WS]			Aspiration height [mm WS]								
		1Y	16															
		Stainless steel 316L	Stainless steel 303		p [bar]	$\dot{V}_n$ [m³/h]	150	300	450	100	200	300	600	900	p air [bar]	Aspiration height [mm WS]	B_1 [mm]	B_2 [mm]
60°	136.525.xx.A2	●	●	0.50	0.60	1.60	–	–	–	2.00	–	–	–	–	1.00	300	155	240
					0.80	1.90	–	–	–	2.21	2.10	1.98	–	–	3.00	300	200	295
					1.20	2.30	2.75	2.84	–	2.53	2.39	2.33	2.04	1.69	4.60	300	215	325
					1.40	2.60	2.84	2.90	3.05	2.63	2.51	2.42	2.14	1.82	6.00	300	250	400
					1.80	3.00	2.96	3.01	3.16	2.78	2.64	2.56	2.20	1.88	–	–	–	–
					2.00	3.30	2.94	3.02	3.16	2.73	2.69	2.58	2.18	1.82	–	–	–	–
					2.40	3.70	2.87	2.97	3.10	2.59	2.50	2.38	2.01	1.68	–	–	–	–
					2.60	3.90	2.82	2.86	3.04	2.49	2.46	2.29	1.91	1.62	–	–	–	–
					3.00	4.40	2.59	2.71	2.85	2.23	2.11	2.04	1.73	1.72	–	–	–	–
					3.20	4.60	2.48	2.51	2.71	2.09	1.96	1.91	1.74	1.87	–	–	–	–
					3.60	5.10	2.37	2.31	2.51	2.25	2.18	2.19	1.98	1.90	–	–	–	–
					3.80	5.30	2.34	2.37	2.52	2.22	2.23	2.15	1.99	1.85	–	–	–	–
					4.20	5.70	2.35	2.35	2.43	2.20	2.13	2.11	1.94	1.82	–	–	–	–
					4.40	6.00	2.30	2.32	2.44	2.20	2.07	2.05	1.96	1.83	–	–	–	–
					4.80	6.40	2.25	2.24	2.41	2.12	2.03	2.08	1.90	2.12	–	–	–	–
					5.00	6.60	2.20	2.21	2.37	2.09	2.03	1.98	2.25	2.27	–	–	–	–
					5.40	7.10	2.52	2.23	2.36	2.60	2.55	2.49	2.26	2.08	–	–	–	–
					5.60	7.30	2.50	2.45	2.58	2.57	2.54	2.39	2.16	2.02	–	–	–	–
					6.00	7.80	2.57	2.61	2.76	2.37	2.40	2.18	1.94	1.80	–	–	–	–

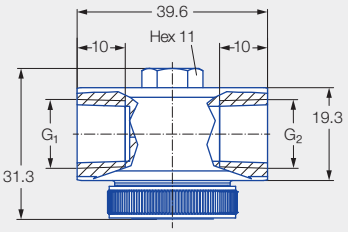
Ordering example:	Type	+	Material no.	=	Ordering no.
	136.525.xx.A2	+	1Y	=	136.525.1Y.A2

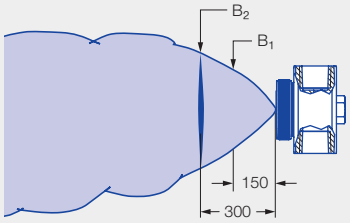
Pneumatic atomizing nozzles, flat fan, pressure principle, external mixing
Series 136.6

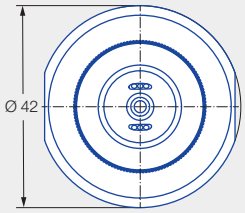
Features:
- Fine flat fan atomization
- Liquid pressure principle
- External mixing

Applications:
- Humidification of goods
- Cooling
- Belt humidification
- Atomization of viscous liquids

Series 136.6







Liquid connection G_1	Air connection G_2	Screw plug thread (size 11)	Weight [g] (Stainless steel 303)
1/4 BSPP	1/4 BSPP	5/16-24 UNF-2A	220

Spray angle	Ordering no.			Narrowest free cross section Ø [mm]	Liquid pressure p [bar]												Spray dimensions			
	Type	Mat. no.			0.07			0.15			0.30			0.35						
		1Y	16																	
		Stainless steel 316L	Stainless steel 303		**p** air [bar]	**V̇** water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**V̇** water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**V̇** water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**V̇** water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**p** water [bar]	B_1 [mm]	B_2 [mm]
45°	**136.616.xx.A2**	●	●	0.40	0.80	**1.68**	2.50	0.80	**2.43**	2.40	0.80	**3.42**	2.50	1.00	**3.69**	2.80	1.40	0.07	80	115
					1.20	**1.80**	3.10	1.00	**2.46**	2.90	1.20	**3.48**	3.10	1.40	**3.81**	3.40	2.20	0.15	90	130
					1.60	**1.92**	3.70	1.40	**2.58**	3.60	1.60	**3.51**	3.70	1.80	**3.87**	4.00	3.20	0.20	90	135
					2.00	**2.10**	4.30	1.80	**2.61**	4.20	2.00	**3.63**	4.30	2.20	**3.84**	4.60	4.00	0.30	95	145
					2.40	**2.07**	4.90	2.20	**2.76**	4.80	2.40	**3.63**	4.90	2.60	**3.90**	5.20	5.00	0.35	100	145
					2.80	**2.19**	5.50	2.60	**2.73**	5.40	2.80	**3.63**	5.50	3.00	**3.93**	5.80	–	–	–	–
					3.20	**2.19**	6.10	3.00	**2.73**	6.00	3.20	**3.63**	6.10	3.40	**3.90**	6.40	–	–	–	–
					3.60	**2.22**	6.70	3.60	**2.76**	6.70	3.60	**3.66**	6.70	3.80	**3.93**	7.00	–	–	–	–
					4.00	**2.22**	7.30	4.00	**2.76**	7.30	4.00	**3.69**	7.30	4.20	**3.96**	7.60	–	–	–	–
					4.40	**2.22**	7.90	4.40	**2.76**	7.90	4.40	**3.69**	7.90	4.60	**3.93**	8.20	–	–	–	–
					4.80	**2.22**	8.50	4.80	**2.76**	8.50	4.80	**3.69**	8.40	5.00	**3.93**	8.80	–	–	–	–
					5.20	**2.22**	9.10	5.20	**2.76**	9.10	5.20	**3.66**	9.10	5.40	**3.93**	9.40	–	–	–	–
					5.60	**2.22**	9.60	5.60	**2.76**	9.70	5.60	**3.66**	9.60	5.80	**3.87**	10.00	–	–	–	–
					6.00	**2.22**	10.20	6.00	**2.73**	10.20	6.00	**3.66**	10.20	6.00	**3.87**	10.20	–	–	–	–

Spray angle	Ordering no.			Narrowest free cross section Ø [mm]	Liquid pressure p [bar]												Spray dimensions			
	Type	Mat. no.			0.07			0.15			0.30			0.35						
		1Y	16																	
		Stainless steel 316L	Stainless steel 303		**p** air [bar]	$\dot{\mathbf{V}}$ water [l/h]	$\dot{\mathbf{V}}_n$ air [m³/h]	**p** air [bar]	$\dot{\mathbf{V}}$ water [l/h]	$\dot{\mathbf{V}}_n$ air [m³/h]	**p** air [bar]	$\dot{\mathbf{V}}$ water [l/h]	$\dot{\mathbf{V}}_n$ air [m³/h]	**p** air [bar]	$\dot{\mathbf{V}}$ water [l/h]	$\dot{\mathbf{V}}_n$ air [m³/h]	**p** air [bar]	**p** water [bar]	B_1 [mm]	B_2 [mm]
45°	**136.635.xx.A2**	●	●	0.50	0.80	**2.37**	2.50	0.80	**3.45**	2.40	0.80	**4.80**	2.40	1.00	**5.34**	2.80	1.40	0.07	85	120
					1.20	**2.61**	3.10	1.20	**3.54**	3.10	1.20	**5.10**	3.10	1.40	**5.37**	3.40	2.20	0.15	95	130
					1.60	**2.85**	3.70	1.60	**3.66**	3.70	1.60	**5.01**	3.70	1.80	**5.46**	4.00	3.20	0.20	95	135
					2.00	**3.03**	4.30	2.00	**3.72**	4.30	2.10	**5.10**	4.30	2.20	**5.46**	4.60	4.00	0.30	100	140
					2.40	**3.12**	4.90	2.40	**3.90**	4.90	2.40	**5.13**	4.90	2.60	**5.58**	5.20	5.00	0.35	100	145
					2.80	**3.15**	5.50	2.80	**3.87**	5.50	2.80	**5.16**	5.50	3.00	**5.58**	5.80	–	–	–	–
					3.20	**3.21**	6.10	3.20	**3.96**	6.10	3.20	**5.22**	6.10	3.40	**5.58**	6.40	–	–	–	–
					3.60	**3.18**	6.70	3.60	**3.96**	6.70	3.60	**5.25**	6.70	3.80	**5.58**	7.00	–	–	–	–
					4.00	**3.21**	7.30	4.00	**3.96**	7.20	4.00	**5.22**	7.30	4.20	**5.58**	7.60	–	–	–	–
					4.40	**3.21**	7.90	4.40	**3.96**	7.90	4.40	**5.22**	7.90	4.60	**5.58**	8.10	–	–	–	–
					4.80	**3.21**	8.40	4.80	**3.96**	8.40	4.80	**5.22**	8.40	5.00	**5.58**	8.70	–	–	–	–
					5.20	**3.21**	9.00	5.20	**3.96**	9.00	5.20	**5.22**	9.00	5.40	**5.58**	9.30	–	–	–	–
					5.60	**3.12**	9.60	5.60	**3.90**	9.60	5.60	**5.22**	9.60	5.80	**5.58**	9.90	–	–	–	–
					6.00	**3.18**	10.20	6.00	**3.84**	10.20	6.00	**5.16**	10.20	6.00	**5.58**	10.20	–	–	–	–
	136.654.xx.A2	●	●	0.70	0.80	**5.25**	2.40	0.80	**7.29**	2.40	1.20	**10.11**	3.10	1.60	**11.07**	3.70	1.40	0.07	95	135
					1.20	**5.64**	3.10	1.20	**7.44**	3.10	1.60	**10.23**	3.70	2.00	**11.22**	4.30	2.20	0.15	100	150
					1.60	**5.79**	3.70	1.60	**7.62**	3.70	2.00	**10.38**	4.30	2.40	**11.28**	4.90	3.20	0.20	105	160
					2.00	**6.18**	4.30	2.00	**7.86**	4.30	2.40	**10.47**	4.90	2.80	**11.31**	5.50	4.00	0.30	105	160
					2.40	**6.24**	4.90	2.40	**7.92**	4.90	2.80	**10.59**	5.50	3.20	**11.43**	6.10	5.00	0.35	105	160
					2.80	**6.27**	5.50	2.80	**8.04**	5.50	3.20	**10.59**	6.10	3.60	**11.46**	6.60	–	–	–	–
					3.20	**6.39**	6.10	3.20	**8.13**	6.10	3.60	**10.62**	6.70	4.00	**11.43**	7.20	–	–	–	–
					3.60	**6.42**	6.60	3.60	**8.13**	6.70	4.00	**10.62**	7.20	4.40	**11.37**	7.80	–	–	–	–
					4.00	**6.45**	7.20	4.00	**8.13**	7.20	4.40	**10.62**	7.80	4.80	**11.37**	8.40	–	–	–	–
					4.40	**6.42**	7.80	4.40	**8.07**	7.80	4.80	**10.59**	8.40	5.20	**11.34**	9.00	–	–	–	–
					4.80	**6.30**	8.40	4.80	**8.04**	8.40	5.20	**10.56**	9.00	5.60	**11.22**	9.60	–	–	–	–
					5.20	**6.24**	9.00	5.20	**7.86**	9.00	5.60	**10.50**	9.60	6.00	**11.16**	10.10	–	–	–	–
					5.60	**6.09**	9.60	5.60	**7.83**	9.60	6.00	**10.35**	10.20	–	**–**	–	–	–	–	–
					6.00	**5.85**	10.20	6.00	**7.59**	10.20	–	**–**	–	–	**–**	–	–	–	–	–
60°	**136.626.xx.A2**	●	●	0.40	0.80	**1.83**	2.80	0.80	**2.49**	2.80	0.80	**3.48**	2.80	0.80	**3.78**	2.80	1.60	0.07	85	135
					1.20	**1.98**	3.60	1.20	**2.58**	3.50	1.20	**3.60**	3.50	1.20	**3.87**	3.60	2.40	0.15	90	140
					1.60	**2.10**	4.30	1.60	**2.70**	4.20	1.60	**3.66**	4.30	1.60	**3.90**	4.20	3.20	0.20	90	140
					2.00	**2.16**	4.90	2.00	**2.82**	4.90	2.00	**3.69**	4.90	2.00	**3.96**	4.90	4.00	0.30	100	145
					2.40	**2.25**	5.60	2.40	**2.85**	5.60	2.40	**3.69**	5.60	2.40	**3.96**	5.60	5.20	0.35	105	150
					2.80	**2.34**	6.30	2.80	**2.88**	6.30	2.80	**3.72**	6.30	2.80	**4.02**	6.30	–	–	–	–
					3.20	**2.31**	7.00	3.20	**2.88**	7.00	3.20	**3.78**	7.00	3.20	**3.99**	7.00	–	–	–	–
					3.60	**2.34**	7.60	3.60	**2.88**	7.70	3.60	**3.78**	7.60	3.60	**4.02**	7.70	–	–	–	–
					4.00	**2.40**	8.40	4.00	**2.94**	8.40	4.00	**3.81**	8.30	4.00	**4.05**	8.30	–	–	–	–
					4.40	**2.40**	9.00	4.40	**2.91**	9.00	4.40	**3.81**	9.00	4.40	**4.02**	9.00	–	–	–	–
					4.80	**2.40**	9.70	4.80	**2.97**	9.70	4.80	**3.81**	9.70	4.80	**4.08**	9.70	–	–	–	–
					5.20	**2.43**	10.40	5.20	**2.97**	10.40	5.20	**3.81**	10.40	5.20	**4.05**	10.40	–	–	–	–
					5.60	**2.43**	11.20	5.60	**2.97**	11.10	5.60	**3.81**	11.10	5.60	**4.05**	11.00	–	–	–	–
					6.00	**2.43**	11.80	6.00	**2.97**	11.80	6.00	**3.81**	11.80	6.00	**4.05**	11.80	–	–	–	–

Spray angle	Ordering no.			Narrowest free cross section Ø [mm]	Liquid pressure p [bar]												Spray dimensions			
	Type	Mat. no.			0.07			0.15			0.30			0.35						
		1Y	16																	
		Stainless steel 316L	Stainless steel 303		**p** air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**p** water [bar]	B_1 [mm]	B_2 [mm]
60°	**136.645.xx.A2**	●	●	0.50	0.80	**2.73**	2.80	0.80	**3.69**	2.80	1.00	**5.16**	3.20	1.00	**5.55**	3.10	1.60	0.07	100	140
					1.20	**2.82**	3.50	1.20	**3.87**	3.50	1.40	**5.31**	3.90	1.40	**5.64**	3.90	2.40	0.15	110	150
					1.60	**3.09**	4.20	1.60	**3.99**	4.20	1.80	**5.37**	4.60	1.80	**5.67**	4.60	3.20	0.20	115	155
					2.00	**3.27**	4.90	2.00	**4.11**	4.90	2.20	**5.37**	5.20	2.20	**5.76**	5.20	4.00	0.30	125	160
					2.40	**3.36**	5.60	2.40	**4.17**	5.60	2.60	**5.43**	5.90	2.60	**5.82**	5.90	5.20	0.35	130	165
					2.80	**3.39**	6.20	2.80	**4.20**	6.30	3.00	**5.49**	6.60	3.00	**5.82**	6.60	–	–	–	–
					3.20	**3.45**	7.00	3.20	**4.26**	7.00	3.40	**5.49**	7.20	3.40	**5.88**	7.30	–	–	–	–
					3.60	**3.48**	7.60	3.60	**4.29**	7.60	3.80	**5.55**	8.00	3.80	**5.88**	8.00	–	–	–	–
					4.00	**3.51**	8.30	4.00	**4.32**	8.30	4.20	**5.55**	8.60	4.20	**5.88**	8.70	–	–	–	–
					4.40	**3.54**	9.00	4.40	**4.35**	9.00	4.60	**5.58**	9.30	4.60	**5.94**	9.30	–	–	–	–
					4.80	**3.57**	9.70	4.80	**4.38**	9.70	5.00	**5.55**	10.00	5.00	**5.94**	10.10	–	–	–	–
					5.20	**3.57**	10.40	5.20	**4.35**	10.40	5.40	**5.61**	10.70	5.40	**5.94**	10.70	–	–	–	–
					5.60	**3.60**	11.00	5.60	**4.35**	11.10	5.80	**5.61**	11.40	5.80	**5.94**	11.40	–	–	–	–
					6.00	**3.60**	11.70	6.00	**4.38**	11.70	6.00	**5.61**	11.80	6.00	**5.97**	11.80	–	–	–	–
	136.664.xx.A2	●	●	0.70	0.80	**5.46**	2.80	1.00	**7.68**	3.20	1.00	**10.50**	3.20	1.00	**11.28**	3.20	1.60	0.07	110	140
					1.20	**5.91**	3.50	1.40	**7.95**	3.90	1.40	**10.71**	3.90	1.40	**11.52**	3.90	2.40	0.15	130	160
					1.60	**6.15**	4.20	1.80	**8.13**	4.60	1.80	**10.83**	4.60	1.80	**11.58**	4.50	3.20	0.20	140	170
					2.00	**6.42**	4.90	2.20	**8.34**	5.30	2.20	**11.01**	5.30	2.20	**11.70**	5.20	4.00	0.30	150	180
					2.40	**6.63**	5.60	2.60	**8.46**	5.90	2.60	**11.07**	5.90	2.60	**11.79**	5.90	5.20	0.35	155	200
					2.80	**6.75**	6.30	3.00	**8.58**	6.60	3.00	**11.16**	6.60	3.00	**11.88**	6.60	–	–	–	–
					3.20	**6.93**	6.90	3.40	**8.67**	7.30	3.40	**11.19**	7.30	3.40	**11.94**	7.30	–	–	–	–
					3.60	**6.99**	7.60	3.80	**8.73**	8.00	3.80	**11.25**	8.00	3.80	**12.00**	8.00	–	–	–	–
					4.00	**7.05**	8.30	4.20	**8.76**	8.70	4.20	**11.28**	8.60	4.20	**12.03**	8.70	–	–	–	–
					4.40	**7.11**	9.00	4.60	**8.82**	9.30	4.60	**11.34**	9.40	4.60	**12.06**	9.40	–	–	–	–
					4.80	**7.11**	9.70	5.00	**8.82**	10.10	5.00	**11.37**	10.00	5.00	**12.06**	10.10	–	–	–	–
					5.20	**7.17**	10.40	5.40	**8.82**	10.70	5.40	**11.37**	10.70	5.40	**12.09**	10.70	–	–	–	–
					5.60	**7.11**	11.10	5.80	**8.85**	11.40	5.80	**11.40**	11.40	5.80	**12.12**	11.40	–	–	–	–
					6.00	**7.20**	11.80	6.00	**8.85**	11.80	6.00	**11.40**	11.70	6.00	**12.15**	11.80	–	–	–	–
	136.673.xx.A2	●	●	1.00	0.60	**13.89**	5.60	1.00	**18.51**	7.60	1.60	**24.81**	10.20	2.00	**26.61**	11.80	1.60	0.07	115	160
					1.00	**14.28**	7.60	1.40	**18.51**	9.30	2.00	**24.66**	11.70	2.40	**26.31**	13.50	2.40	0.15	120	160
					1.40	**14.28**	9.40	1.80	**18.33**	11.00	2.40	**24.42**	13.30	2.80	**25.65**	15.10	3.20	0.20	120	160
					1.80	**14.10**	11.00	2.20	**17.91**	12.70	2.80	**23.52**	15.10	3.20	**24.57**	16.60	4.00	0.30	120	165
					2.20	**13.68**	12.60	2.60	**17.37**	14.20	3.20	**22.47**	16.60	3.60	**23.28**	18.30	5.20	0.35	120	170
					2.60	**13.62**	14.20	3.00	**16.65**	15.90	3.60	**21.30**	18.40	4.00	**21.93**	19.90	–	–	–	–
					3.00	**13.29**	18.90	3.40	**15.93**	17.30	4.00	**20.10**	19.80	4.40	**20.34**	21.50	–	–	–	–
					3.40	**12.87**	17.40	3.80	**15.06**	19.00	4.40	**18.78**	21.50	4.80	**19.20**	23.10	–	–	–	–
					3.80	**12.57**	19.10	4.20	**14.58**	20.80	4.80	**17.52**	23.20	5.20	**18.06**	24.70	–	–	–	–
					4.20	**12.18**	20.80	4.60	**13.83**	22.30	5.20	**16.71**	24.80	5.60	**17.01**	26.30	–	–	–	–
					4.60	**11.79**	22.40	5.00	**13.08**	24.00	5.60	**15.63**	26.40	6.00	**15.87**	28.00	–	–	–	–
					5.00	**10.95**	24.00	5.40	**12.30**	25.60	5.80	**15.12**	27.30	–	**–**	–	–	–	–	–
					5.40	**10.44**	25.60	5.80	**11.52**	27.20	6.00	**14.76**	28.00	–	**–**	–	–	–	–	–
					5.80	**9.57**	27.20	6.00	**11.04**	28.10	–	**–**	–	–	**–**	–	–	–	–	–
					6.00	**8.97**	28.10	–	**–**	–	–	**–**	–	–	**–**	–	–	–	–	–

Spray angle	Ordering no.			Narrowest free cross section Ø [mm]	Liquid pressure p [bar]												Spray dimensions			
	Type	Mat. no.			0.07			0.15			0.30			0.35						
		1Y	16																	
		Stainless steel 316L	Stainless steel 303		**p** air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**p** water [bar]	B_1 [mm]	B_2 [mm]
60°	136.682.xx.A2	●	●	1.50	1.00	**22.41**	7.50	1.40	**28.95**	9.30	1.80	**41.22**	11.10	2.00	**44.04**	11.80	1.60	0.07	110	155
					1.40	**20.19**	9.30	1.80	**26.07**	10.90	2.20	**34.92**	12.60	2.40	**39.09**	13.40	2.40	0.15	120	155
					1.80	**18.75**	11.00	2.20	**23.94**	12.50	2.60	**33.18**	14.20	2.80	**35.16**	15.10	3.20	0.20	120	160
					2.20	**17.88**	12.50	2.60	**22.23**	14.30	3.00	**30.45**	15.90	3.20	**32.22**	16.70	4.00	0.30	120	165
					2.60	**17.10**	14.20	3.00	**21.12**	15.90	3.40	**28.29**	17.50	3.60	**30.18**	18.30	5.20	0.35	120	175
					3.00	**16.47**	15.90	3.40	**20.10**	17.50	3.80	**26.64**	19.10	4.00	**28.32**	19.90	–	–	–	–
					3.40	**16.08**	17.50	3.80	**19.44**	19.10	4.20	**25.35**	20.70	4.40	**26.94**	21.50	–	–	–	–
					3.80	**15.90**	19.10	4.20	**18.99**	20.70	4.60	**24.24**	22.30	4.80	**25.59**	23.10	–	–	–	–
					4.20	**15.90**	20.70	4.60	**18.45**	22.30	5.00	**23.13**	24.00	5.20	**24.36**	24.80	–	–	–	–
					4.60	**15.81**	22.30	5.00	**18.18**	24.00	5.40	**22.14**	25.50	5.60	**23.28**	26.40	–	–	–	–
					5.00	**15.21**	23.90	5.40	**17.25**	25.40	5.80	**21.12**	27.20	6.00	**22.17**	28.00	–	–	–	–
					5.40	**13.92**	25.50	5.80	**15.72**	27.20	6.00	**20.67**	28.00	–	**–**	–	–	–	–	–
					5.80	**12.09**	27.20	6.00	**14.91**	28.00	–	**–**	–	–	**–**	–	–	–	–	–
					6.00	**11.07**	28.00	–	**–**	–	–	**–**	–	–	**–**	–	–	–	–	–
	136.691.xx.A2	●	●	2.50	1.40	**52.00**	13.80	2.00	**67.30**	17.50	2.60	**92.30**	21.20	2.60	**102.10**	21.20	1.60	0.07	150	200
					1.80	**50.00**	16.30	2.40	**64.60**	20.10	3.00	**87.70**	23.60	3.00	**97.20**	23.70	2.40	0.15	160	205
					2.20	**48.60**	18.80	2.80	**62.00**	22.50	3.40	**84.30**	26.00	3.40	**92.50**	26.10	3.20	0.20	160	205
					2.60	**47.50**	21.30	3.20	**60.40**	24.90	3.80	**80.70**	28.50	3.80	**88.40**	28.50	4.00	0.30	160	210
					3.00	**46.50**	23.70	3.60	**58.00**	27.30	4.20	**77.00**	30.90	4.20	**85.20**	31.00	5.20	0.35	150	210
					3.40	**45.40**	26.10	4.00	**56.20**	29.80	4.60	**74.40**	33.40	4.60	**81.30**	33.40	–	–	–	–
					3.80	**44.40**	28.60	4.40	**54.20**	32.10	5.00	**71.10**	35.90	5.00	**78.20**	35.80	–	–	–	–
					4.20	**42.90**	31.00	4.80	**52.40**	34.70	5.40	**68.10**	38.30	5.40	**74.30**	38.20	–	–	–	–
					4.60	**41.50**	33.40	5.20	**49.90**	37.10	5.80	**64.30**	40.80	5.80	**71.10**	40.70	–	–	–	–
					5.00	**39.90**	35.80	5.60	**48.10**	39.50	6.00	**63.20**	42.00	6.00	**68.90**	41.90	–	–	–	–
					5.40	**38.90**	38.30	6.00	**46.40**	42.00	–	**–**	–	–	**–**	–	–	–	–	–
					5.60	**38.50**	39.40	–	**–**	–	–	**–**	–	–	**–**	–	–	–	–	–

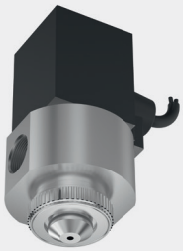
Ordering example:	Type	+	Material no.	=	Ordering no.
	136.682.xx.A2	+	1Y	=	136.682.1Y.A2

Pneumatic atomizing nozzles, full cone, pressure principle, internal mixing
Series 166.1

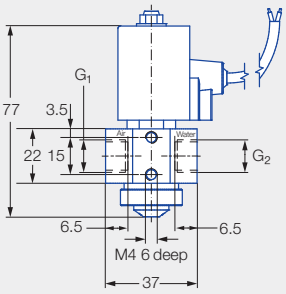
Features:
- Version with magnetic valve
- Fine full cone atomization
- Liquid pressure principle
- Internal mixing

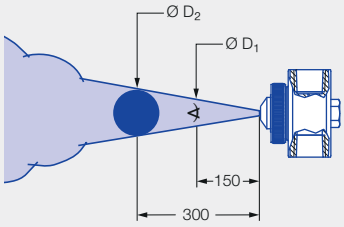
Applications:
- Humidification of air
- Cooling

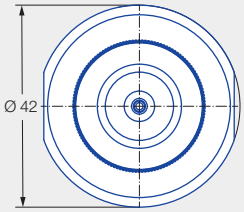
Technical data:
- Operating pressure: 0–6 bar
- Voltage: 24 V DC
- Power: 8 W
- Switching frequency: Approx. 500/min
- Protective system: IP 67
- Ambient temperature: +10 °C/+50 °C
- Cable length: 1,000 mm
- Material of gasket: EPDM



Series 166.1







Air connection G_1	Water connection G_2	Weight [g]
1/4 BSPP	1/4 BSPP	410

Spray angle	Ordering no. Type	Mat. no. 16 Stainless steel 303	Narrowest free cross section Ø [mm]	Liquid pressure p [bar] 0.7 p air [bar]	0.7 V̇ water [l/h]	0.7 V̇n air [m³/h]	1.5 p air [bar]	1.5 V̇ water [l/h]	1.5 V̇n air [m³/h]	3.0 p air [bar]	3.0 V̇ water [l/h]	3.0 V̇n air [m³/h]	4.0 p air [bar]	4.0 V̇ water [l/h]	4.0 V̇n air [m³/h]	Spray dimensions p air [bar]	p water [bar]	Ø D1 [mm]	Ø D2 [mm]
20°	166.115.xx.A2	●	0.5	0.4	**5.9**	0.3	1.4	**5.8**	0.8	2.4	**9.1**	1.1	3.0	**11.0**	1.2	0.8	0.7	60	100
				0.8	**3.8**	0.6	1.8	**4.1**	1.0	2.8	**7.5**	1.2	3.4	**9.6**	1.4	1.8	1.5	60	95
				1.2	**1.7**	0.9	2.2	**2.2**	1.4	3.2	**5.9**	1.5	3.8	**8.2**	1.6	2.6	2.0	60	100
				–	**–**	–	2.6	**1.2**	1.7	3.6	**4.4**	1.8	4.2	**6.8**	1.9	3.2	3.0	55	95
				–	**–**	–	–	**–**	–	4.0	**2.9**	2.1	4.6	**5.5**	2.2	4.4	4.0	55	100
				–	**–**	–	–	**–**	–	4.4	**2.0**	2.5	5.0	**4.1**	2.5	–	–	–	–
				–	**–**	–	–	**–**	–	4.8	**1.1**	2.8	5.4	**2.9**	2.8	–	–	–	–
				–	**–**	–	–	**–**	–	5.2	**0.4**	3.0	5.8	**2.1**	3.1	–	–	–	–
	166.125.xx.A2	●	0.5	0.8	**4.7**	1.5	1.2	**7.0**	1.8	2.8	**9.1**	3.3	3.4	**10.6**	3.9	1.4	0.7	55	90
				1.2	**4.4**	1.9	1.6	**6.6**	2.2	3.2	**8.7**	3.7	3.8	**10.3**	4.3	2.2	1.5	55	95
				1.6	**4.0**	2.3	2.0	**6.2**	2.6	3.6	**8.4**	4.1	4.2	**9.9**	4.6	2.8	2.0	55	100
				2.0	**3.5**	2.6	2.4	**5.8**	3.0	4.0	**8.0**	4.5	4.6	**9.6**	5.0	3.4	3.0	60	100
				2.4	**3.0**	3.0	2.8	**5.4**	3.4	4.4	**7.7**	4.8	5.0	**9.3**	5.4	4.2	4.0	60	100
				2.8	**2.7**	3.2	3.2	**4.9**	3.7	4.8	**7.3**	5.2	5.4	**8.9**	5.8	–	–	–	–
				3.2	**2.0**	3.7	3.6	**4.4**	4.1	5.2	**7.0**	5.6	5.8	**8.6**	6.1	–	–	–	–
				3.6	**1.6**	4.1	4.0	**3.9**	4.5	5.6	**6.6**	5.9	–	**–**	–	–	–	–	–
				4.0	**1.3**	4.5	4.4	**3.5**	4.8	6.0	**6.2**	6.3	–	**–**	–	–	–	–	–
				4.4	**1.0**	4.9	4.8	**3.1**	5.2	–	**–**	–	–	**–**	–	–	–	–	–
				4.8	**0.6**	5.2	5.2	**2.7**	5.6	–	**–**	–	–	**–**	–	–	–	–	–
				–	**–**	–	5.6	**2.3**	5.9	–	**–**	–	–	**–**	–	–	–	–	–
				–	**–**	–	6.0	**1.9**	6.3	–	**–**	–	–	**–**	–	–	–	–	–

Spray angle	Ordering no.		Narrowest free cross section Ø [mm]	Liquid pressure p [bar]												Spray dimensions			
	Type	Mat. no. 16		0.7			1.5			3.0			4.0						
		Stainless steel 303		**p** air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	$\dot{V}$ water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**p** water [bar]	Ø D_1 [mm]	Ø D_2 [mm]
20°	166.134.xx.A2	●	0.7	1.2	**13.2**	2.7	2.0	**19.4**	3.9	3.0	**28.3**	5.2	3.8	**32.6**	6.2	1.8	0.7	55	95
				1.6	**12.4**	3.3	2.4	**18.1**	4.4	3.4	**27.5**	5.7	4.2	**32.0**	6.8	2.8	1.5	60	105
				2.0	**11.8**	3.9	2.8	**17.3**	4.9	3.8	**26.7**	6.3	4.6	**31.3**	7.3	3.8	2.0	60	105
				2.4	**11.4**	4.4	3.2	**16.7**	5.5	4.2	**25.9**	6.8	5.0	**30.6**	7.8	5.2	3.0	65	110
				2.8	**11.1**	4.9	3.6	**16.1**	6.0	4.6	**25.0**	7.3	5.4	**29.9**	8.4	6.0	4.0	65	110
				3.2	**10.8**	5.5	4.0	**15.6**	6.5	5.0	**24.2**	7.8	5.8	**29.3**	8.9	–	–	–	–
				3.6	**10.6**	6.0	4.4	**15.2**	7.0	5.4	**23.6**	8.4	–	**–**	–	–	–	–	–
				4.0	**10.4**	6.5	4.8	**15.0**	7.6	5.8	**23.1**	8.9	–	**–**	–	–	–	–	–
				4.4	**10.1**	7.0	5.2	**14.6**	8.1	–	**–**	–	–	**–**	–	–	–	–	–
				4.8	**9.9**	7.6	5.6	**14.1**	8.6	–	**–**	–	–	**–**	–	–	–	–	–
				5.2	**9.5**	8.1	6.0	**13.8**	9.1	–	**–**	–	–	**–**	–	–	–	–	–
				5.6	**9.0**	8.6	–	**–**	–	–	**–**	–	–	**–**	–	–	–	–	–
				6.0	**8.5**	9.2	–	**–**	–	–	**–**	–	–	**–**	–	–	–	–	–
	166.142.xx.A2	●	2.5	1.4	**24.2**	5.1	1.6	**53.4**	4.7	3.2	**70.8**	8.0	3.8	**93.2**	9.2	0.8	0.7	60	100
				1.8	**20.4**	6.3	2.0	**42.6**	5.9	3.6	**62.5**	9.2	4.2	**83.1**	10.1	1.6	1.5	65	105
				2.2	**20.0**	7.2	2.4	**35.3**	7.2	4.0	**55.7**	10.6	4.6	**75.3**	11.3	3.0	2.0	60	105
				2.6	**19.3**	8.2	2.8	**30.4**	8.4	4.4	**49.3**	11.7	5.0	**69.0**	12.5	4.0	3.0	65	110
				3.0	**17.6**	9.3	3.2	**28.6**	9.5	4.8	**44.6**	12.9	5.4	**63.4**	13.7	6.0	4.0	65	110
				3.4	**16.5**	10.4	3.6	**28.2**	10.5	5.2	**41.9**	14.1	5.8	**57.5**	14.9	–	–	–	–
				3.8	**17.0**	11.4	4.0	**27.3**	11.5	5.6	**40.4**	15.1	–	**–**	–	–	–	–	–
				4.2	**16.3**	12.4	4.4	**25.9**	12.5	6.0	**39.7**	16.1	–	**–**	–	–	–	–	–
				4.6	**15.1**	13.3	4.8	**24.3**	13.5	–	**–**	–	–	**–**	–	–	–	–	–
				5.0	**14.0**	14.3	5.2	**22.3**	14.6	–	**–**	–	–	**–**	–	–	–	–	–
				5.4	**13.1**	15.3	5.6	**21.8**	15.7	–	**–**	–	–	**–**	–	–	–	–	–
				5.8	**12.4**	16.2	6.0	**21.4**	16.7	–	**–**	–	–	**–**	–	–	–	–	–

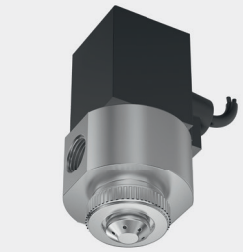
Ordering example:	Type	+	Material no.	=	Ordering no.
	166.134.xx.A2	+	16	=	166.134.16.A2

Pneumatic atomizing nozzles, full cone, pressure principle, internal mixing
Series 166.2

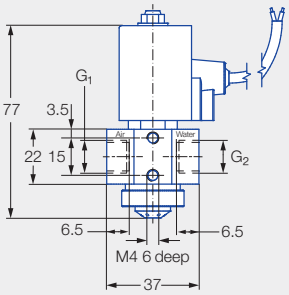
Features:
- Version with magnetic valve
- Fine full cone atomization
- Pressure principle
- Internal mixing
- Espacially wide spray angle of 60°

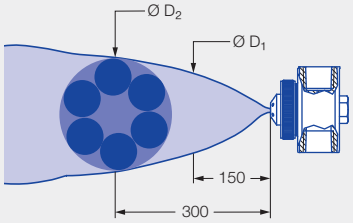
Applications:
- Humidification of air
- Cooling

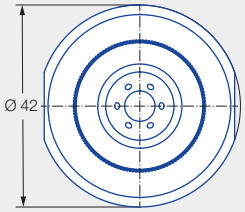
Technical data:
- Operating pressure: 0–6 bar
- Voltage: 24 V DC
- Power: 8 W
- Switching frequency: Approx. 500/min
- Protective system: IP 67
- Ambient temperature: +10 °C /+50 °C
- Cable length: 1,000 mm
- Material of gasket: EPDM



Series 166.2







Air connection G_1	Water connection G_2	Weight [g]
1/4 BSPP	1/4 BSPP	410

Spray angle	Ordering no. Type	Mat. no. 16 Stainless steel 303	Narrowest free cross section Ø [mm]	Liquid pressure p [bar] 0.7 p air [bar]	0.7 V̇ water [l/h]	0.7 V̇n air [m³/h]	1.5 p air [bar]	1.5 V̇ water [l/h]	1.5 V̇n air [m³/h]	3.0 p air [bar]	3.0 V̇ water [l/h]	3.0 V̇n air [m³/h]	4.0 p air [bar]	4.0 V̇ water [l/h]	4.0 V̇n air [m³/h]	Spray dimensions p air [bar]	p water [bar]	Ø D1 [mm]	Ø D2 [mm]
60°	166.215.xx.A2	●	0.5	1.0	**3.0**	1.3	1.6	**5.8**	1.7	2.8	**8.5**	2.4	3.8	**9.4**	3.1	1.0	0.7	200	330
				1.2	**1.8**	1.5	1.8	**4.9**	1.9	3.2	**7.2**	2.8	4.2	**8.2**	3.5	1.6	1.5	230	380
				1.4	**0.7**	1.8	2.0	**3.8**	2.1	3.6	**5.7**	3.2	4.6	**6.9**	3.9	2.4	2.0	230	385
				–	**–**	–	2.2	**2.8**	2.3	4.0	**4.0**	3.6	5.0	**5.4**	4.2	3.2	3.0	245	390
				–	**–**	–	2.4	**1.7**	2.5	4.4	**2.2**	4.1	5.4	**3.8**	4.7	4.2	4.0	250	410
				–	**–**	–	2.6	**0.8**	2.8	4.8	**0.8**	4.5	5.8	**2.3**	5.2	–	–	–	–
				–	**–**	–	–	**–**	–	5.0	**0.4**	4.6	6.0	**1.4**	5.6	–	–	–	–
	166.222.xx.A2	●	1.0	0.8	**17.5**	2.8	1.6	**25.9**	4.0	3.0	**40.4**	5.8	3.8	**54.9**	6.4	0.8	0.7	250	450
				1.0	**6.0**	4.3	1.8	**14.7**	5.3	3.2	**31.5**	6.9	4.0	**45.6**	7.3	1.6	1.5	245	465
				–	**–**	–	2.0	**6.7**	6.7	3.4	**22.2**	8.2	4.2	**37.6**	8.5	2.3	2.0	245	465
				–	**–**	–	2.2	**1.9**	8.1	3.6	**14.6**	9.5	4.4	**29.6**	9.7	3.2	3.0	250	465
				–	**–**	–	–	**–**	–	3.8	**8.5**	11.0	4.6	**21.6**	11.2	4.2	4.0	245	465
				–	**–**	–	–	**–**	–	4.0	**4.5**	12.3	4.8	**15.3**	12.4	–	–	–	–
				–	**–**	–	–	**–**	–	–	**–**	–	5.0	**9.7**	13.8	–	–	–	–
				–	**–**	–	–	**–**	–	–	**–**	–	5.2	**6.0**	15.2	–	–	–	–
				–	**–**	–	–	**–**	–	–	**–**	–	5.4	**2.9**	16.5	–	–	–	–
	166.231.xx.A2	●	1.4	1.6	**25.6**	5.1	2.6	**44.2**	7.0	3.6	**93.7**	7.9	4.2	**132.9**	7.3	2.0	0.7	235	380
				2.0	**17.8**	6.2	3.0	**33.0**	8.2	4.0	**78.3**	9.3	4.6	**117.2**	9.0	2.6	1.5	245	415
				2.4	**11.3**	7.2	3.4	**24.7**	9.2	4.4	**65.8**	10.6	5.0	**101.1**	10.4	2.4	2.0	255	420
				2.8	**6.9**	8.1	3.8	**18.1**	10.2	4.8	**54.9**	11.9	5.4	**87.9**	11.8	3.6	3.0	255	425
				–	**–**	–	4.2	**13.2**	11.2	5.2	**45.6**	13.0	5.8	**76.6**	13.2	4.2	4.0	265	430
				–	**–**	–	4.6	**9.3**	12.0	5.6	**38.0**	14.1	6.0	**71.2**	13.8	–	–	–	–
				–	**–**	–	–	**–**	–	6.0	**36.1**	14.4	–	**–**	–	–	–	–	–

Ordering example:	Type	+	Material no.	=	Ordering no.
	166.215.xx.A2	+	16	=	166.215.16.A2

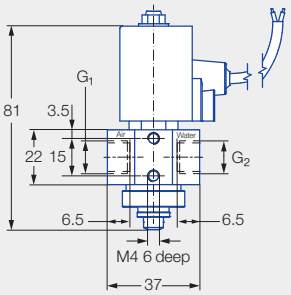
Pneumatic atomizing nozzles, flat fan, pressure principle, internal mixing
Series 166.4

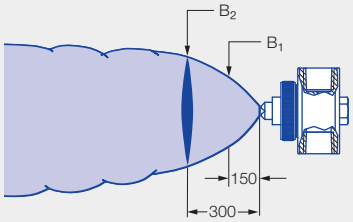
Features:
- Version with magnetic valve
- Fine flat fan atomization
- Liquid pressure principle
- Internal mixing

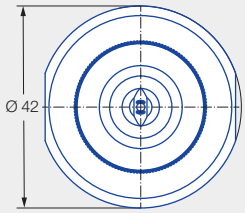
Applications:
- Belt humidification
- Cooling
- Humidification of goods

Technical data:
- Operating pressure: 0–6 bar
- Voltage: 24 V DC
- Power: 8 W
- Switching frequency: Approx. 500/min
- Protective system: IP 67
- Ambient temperature: +10 °C /+50 °C
- Cable length: 1,000 mm
- Material of gasket: EPDM

Series 166.4







Air connection G_1	Water connection G_2	Weight [g]
1/4 BSPP	1/4 BSPP	410

Spray angle	Ordering no. Type	Mat. no. 16 Stainless steel 303	Narrowest free cross section Ø [mm]	Liquid pressure p [bar] 0.7 p air [bar]	0.7 V̇ water [l/h]	0.7 V̇n air [m³/h]	1.5 p air [bar]	1.5 V̇ water [l/h]	1.5 V̇n air [m³/h]	3.0 p air [bar]	3.0 V̇ water [l/h]	3.0 V̇n air [m³/h]	4.0 p air [bar]	4.0 V̇ water [l/h]	4.0 V̇n air [m³/h]	Spray dimensions p air [bar]	p water [bar]	B1 [mm]	B2 [mm]
45°	166.414.xx.A2	●	0.7	1.0	**7.7**	1.3	1.4	**14.3**	1.5	2.2	**22.4**	2.0	3.0	**25.1**	2.5	1.4	0.7	85	125
				1.2	**6.0**	1.5	1.6	**13.0**	1.6	2.6	**20.0**	2.3	3.4	**23.0**	2.8	2.4	1.5	100	145
				1.4	**4.2**	1.7	1.8	**11.6**	1.8	3.0	**17.7**	2.6	3.8	**20.9**	3.1	3.2	2.0	105	155
				1.6	**2.7**	1.9	2.0	**10.2**	2.0	3.4	**15.5**	3.0	4.2	**18.9**	3.5	3.8	3.0	120	170
				1.8	**1.3**	2.1	2.2	**8.9**	2.2	3.8	**13.3**	3.4	4.6	**16.9**	3.8	4.6	4.0	130	210
				–	**–**	–	2.4	**7.4**	2.4	4.2	**11.0**	3.7	5.0	**14.9**	4.2	–	–	–	–
				–	**–**	–	2.6	**5.9**	2.6	4.6	**8.8**	4.1	5.4	**12.8**	4.6	–	–	–	–
				–	**–**	–	2.8	**4.6**	2.8	5.0	**6.6**	4.5	5.8	**10.8**	5.0	–	–	–	–
				–	**–**	–	3.0	**3.2**	3.0	5.4	**4.3**	4.9	6.0	**9.8**	5.2	–	–	–	–
				–	**–**	–	3.2	**2.1**	3.2	5.8	**2.5**	5.3	–	**–**	–	–	–	–	–
				–	**–**	–	3.4	**1.1**	3.4	6.0	**1.6**	5.5	–	**–**	–	–	–	–	–
	166.462.xx.A2	●	1.5	1.2	**19.0**	2.6	2.0	**22.0**	2.0	3.0	**61.8**	4.0	3.8	**76.1**	4.6	1.2	0.7	120	140
				1.6	**12.2**	3.4	2.4	**18.0**	2.4	3.4	**51.9**	4.8	4.0	**70.4**	5.1	2.4	1.5	120	170
				2.0	**9.4**	4.1	2.8	**14.4**	2.8	3.8	**44.6**	5.8	4.2	**65.6**	5.5	3.2	2.0	120	175
				2.4	**7.1**	4.8	3.2	**11.3**	3.2	4.2	**39.0**	6.6	4.4	**61.3**	5.9	3.8	3.0	140	205
				2.8	**5.7**	5.4	3.6	**8.8**	3.6	4.6	**33.4**	7.4	4.6	**57.3**	6.4	6.0	4.0	145	205
				3.2	**5.0**	6.0	4.0	**8.1**	3.9	5.0	**29.4**	8.1	4.8	**54.1**	6.7	–	–	–	–
				3.6	**3.6**	6.6	4.4	**6.2**	4.3	5.4	**25.5**	8.9	5.0	**51.3**	7.2	–	–	–	–
				4.0	**3.2**	7.2	4.8	**4.6**	4.6	5.8	**22.0**	9.6	5.2	**49.3**	7.7	–	–	–	–
				4.4	**2.2**	7.8	5.2	**3.2**	4.9	6.0	**20.6**	9.9	5.4	**46.5**	8.2	–	–	–	–
				–	**–**	–	5.6	**1.6**	5.3	–	**–**	–	5.6	**43.7**	8.6	–	–	–	–
				–	**–**	–	5.8	**0.8**	5.4	–	**–**	–	5.8	**41.3**	8.9	–	–	–	–
				–	**–**	–	–	**–**	–	–	**–**	–	6.0	**39.0**	9.3	–	–	–	–

Spray angle	Ordering no.		Narrowest free cross section Ø [mm]	Liquid pressure p [bar]												Spray dimensions			
	Type	Mat. no. 16		0.7			1.5			3.0			4.0						
		Stainless steel 303		**p** air [bar]	**V̇** water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**V̇** water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**V̇** water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**V̇** water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**p** water [bar]	B_1 [mm]	B_2 [mm]
60°	**166.425.xx.A2**	●	0.5	0.8	**6.5**	1.2	1.4	**9.4**	1.7	2.4	**13.2**	2.5	2.4	**16.1**	2.5	1.2	0.7	155	195
				1.2	**5.5**	1.6	1.8	**8.7**	2.1	2.6	**12.9**	2.7	2.8	**15.5**	2.9	2.2	1.5	165	255
				1.6	**4.7**	1.9	2.2	**7.9**	2.4	3.0	**12.3**	3.0	3.2	**15.0**	3.2	3.0	2.0	170	265
				2.0	**4.0**	2.3	2.6	**7.2**	2.7	3.4	**11.8**	3.4	3.6	**14.5**	3.5	3.4	3.0	200	330
				2.4	**3.2**	2.6	3.0	**6.4**	3.1	3.8	**11.1**	3.7	4.0	**13.9**	3.8	5.6	4.0	200	330
				2.8	**2.6**	2.9	3.4	**5.7**	3.4	4.2	**10.4**	4.0	4.4	**13.4**	4.1	–	–	–	–
				3.0	**2.2**	3.1	3.8	**5.1**	3.7	4.6	**9.8**	4.3	4.8	**12.8**	4.5	–	–	–	–
				–	**–**	–	4.0	**4.8**	3.9	5.0	**9.2**	4.6	5.2	**12.2**	4.8	–	–	–	–
				–	**–**	–	4.4	**4.2**	4.2	5.4	**8.6**	5.0	5.6	**11.7**	5.1	–	–	–	–
				–	**–**	–	4.8	**3.6**	4.5	5.8	**8.1**	5.3	6.0	**11.2**	5.4	–	–	–	–
				–	**–**	–	5.2	**2.8**	4.8	6.0	**7.8**	5.4	–	**–**	–	–	–	–	–
				–	**–**	–	5.6	**2.2**	5.1	–	**–**	–	–	**–**	–	–	–	–	–
				–	**–**	–	6.0	**1.6**	5.5	–	**–**	–	–	**–**	–	–	–	–	–
	166.452.xx.A2	●	1.5	1.0	**18.8**	3.9	1.8	**31.0**	5.3	3.2	**50.1**	7.7	3.8	**70.7**	8.2	1.0	0.7	130	185
				1.4	**8.6**	5.7	2.0	**25.4**	6.3	3.6	**39.5**	9.4	4.2	**58.6**	9.6	1.8	1.5	150	240
				1.8	**7.4**	7.0	2.2	**20.1**	7.2	4.0	**31.3**	11.2	4.6	**48.6**	11.2	2.6	2.0	155	245
				2.2	**4.1**	8.4	2.4	**15.5**	8.0	4.4	**24.0**	12.9	5.0	**41.2**	13.1	3.6	3.0	175	280
				2.6	**1.0**	9.8	2.6	**12.4**	8.9	4.8	**17.7**	14.5	5.4	**33.6**	14.8	5.0	4.0	180	285
				2.8	**0.1**	10.3	2.8	**10.4**	9.6	5.2	**13.4**	16.0	5.8	**27.5**	16.4	–	–	–	–
				–	**–**	–	–	**–**	–	5.6	**10.6**	17.5	6.0	**24.4**	17.2	–	–	–	–
				–	**–**	–	–	**–**	–	6.0	**8.6**	18.8	–	**–**	–	–	–	–	–
80°	**166.433.xx.A2**	●	0.4	1.0	**11.6**	2.0	1.8	**18.3**	2.8	3.0	**31.0**	3.7	3.8	**37.5**	4.4	1.4	0.7	150	210
				1.2	**8.1**	2.4	2.0	**15.3**	3.2	3.4	**25.4**	4.4	4.2	**32.4**	5.0	2.2	1.5	185	255
				1.4	**5.3**	2.8	2.2	**12.2**	3.6	3.8	**20.6**	5.1	4.6	**27.7**	5.7	3.0	2.0	205	300
				1.6	**3.7**	3.2	2.4	**9.8**	4.0	4.2	**16.3**	5.9	5.0	**23.4**	6.5	3.8	4.0	300	485
				–	**–**	–	2.6	**7.6**	4.3	4.6	**12.5**	6.6	5.4	**19.4**	7.2	5.2	4.0	260	395
				–	**–**	–	2.8	**5.9**	4.7	5.0	**9.3**	7.3	5.8	**15.9**	7.9	–	–	–	–
				–	**–**	–	3.0	**4.4**	5.0	5.4	**6.5**	8.0	6.0	**14.2**	8.3	–	–	–	–

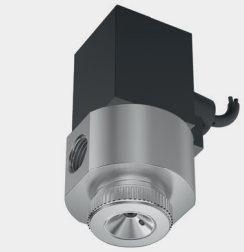
Ordering example:	Type	+	Material no.	=	Ordering no.
	166.425.xx.A2	+	16	=	166.425.16.A2

Pneumatic atomizing nozzles, flat fan, pressure principle, external mixing
Series 166.6

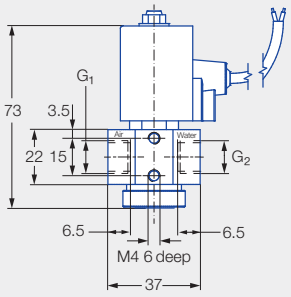
Features:
- Version with magnetic valve
- Fine flat fan atomization
- Liquid pressure principle
- External mixing

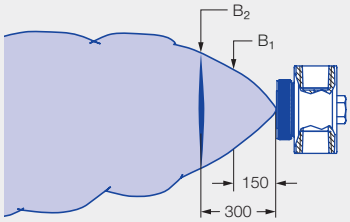
Applications:
- Belt humidification
- Cooling
- Humidification of goods
- Atomization of viscous liquids

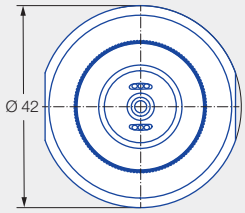
Technical data:
- Operating pressure: 0–6 bar
- Voltage: 24 V DC
- Power: 8 W
- Switching frequency: Approx. 500/min
- Protective system: IP 67
- Ambient temperature: +10 °C /+50 °C
- Cable length: 1,000 mm
- Material of gasket: EPDM



Series 166.6







Air connection G_1	Water connection G_2	Weight [g]
1/4 BSPP	1/4 BSPP	410

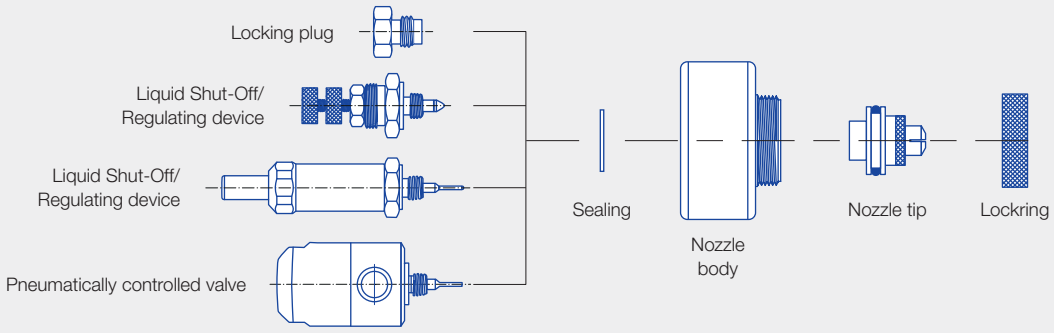
Spray angle	Ordering no. Type	Mat. no. 16 Stainless steel 303	Narrowest free cross section Ø [mm]	Liquid pressure p [bar] 0.07 p air [bar]	0.07 V̇ water [l/h]	0.07 V̇n air [m³/h]	0.15 p air [bar]	0.15 V̇ water [l/h]	0.15 V̇n air [m³/h]	0.30 p air [bar]	0.30 V̇ water [l/h]	0.30 V̇n air [m³/h]	0.35 p air [bar]	0.35 V̇ water [l/h]	0.35 V̇n air [m³/h]	Spray dimensions p air [bar]	p water [bar]	B1 [mm]	B2 [mm]
45°	166.616.xx.A2	●	0.40	0.80	**1.68**	2.50	0.80	**2.43**	2.40	0.80	**3.42**	2.50	1.00	**3.69**	2.80	1.40	0.07	80	115
				1.20	**1.80**	3.10	1.00	**2.46**	2.90	1.20	**3.48**	3.10	1.40	**3.81**	3.40	2.20	0.15	90	130
				1.60	**1.92**	3.70	1.40	**2.58**	3.60	1.60	**3.51**	3.70	1.80	**3.87**	4.00	3.20	0.20	90	135
				2.00	**2.10**	4.30	1.80	**2.61**	4.20	2.00	**3.63**	4.30	2.20	**3.84**	4.60	4.00	0.30	95	145
				2.40	**2.07**	4.90	2.20	**2.76**	4.80	2.40	**3.63**	4.90	2.60	**3.90**	5.20	5.00	0.35	100	145
				2.80	**2.19**	5.50	2.60	**2.73**	5.40	2.80	**3.63**	5.50	3.00	**3.93**	5.80	–	–	–	–
				3.20	**2.19**	6.10	3.00	**2.73**	6.00	3.20	**3.63**	6.10	3.40	**3.90**	6.40	–	–	–	–
				3.60	**2.22**	6.70	3.60	**2.76**	6.70	3.60	**3.66**	6.70	3.80	**3.93**	7.00	–	–	–	–
				4.00	**2.22**	7.30	4.00	**2.76**	7.30	4.00	**3.69**	7.30	4.20	**3.96**	7.60	–	–	–	–
				4.40	**2.22**	7.90	4.40	**2.76**	7.90	4.40	**3.69**	7.90	4.60	**3.93**	8.20	–	–	–	–
				4.80	**2.22**	8.50	4.80	**2.76**	8.50	4.80	**3.69**	8.40	5.00	**3.93**	8.80	–	–	–	–
				5.20	**2.22**	9.10	5.20	**2.76**	9.10	5.20	**3.66**	9.10	5.40	**3.93**	9.40	–	–	–	–
				5.60	**2.22**	9.60	5.60	**2.76**	9.70	5.60	**3.66**	9.60	5.80	**3.87**	10.00	–	–	–	–
				6.00	**2.22**	10.20	6.00	**2.73**	10.20	6.00	**3.66**	10.20	6.00	**3.87**	10.20	–	–	–	–
	166.654.xx.A2	●	0.70	0.80	**5.25**	2.40	0.80	**7.29**	2.40	1.20	**10.11**	3.10	1.60	**11.07**	3.70	1.40	0.07	95	135
				1.20	**5.64**	3.10	1.20	**7.44**	3.10	1.60	**10.23**	3.70	2.00	**11.22**	4.30	2.20	0.15	100	150
				1.60	**5.79**	3.70	1.60	**7.62**	3.70	2.00	**10.38**	4.30	2.40	**11.28**	4.90	3.20	0.20	105	160
				2.00	**6.18**	4.30	2.00	**7.86**	4.30	2.40	**10.47**	4.90	2.80	**11.31**	5.50	4.00	0.30	105	160
				2.40	**6.24**	4.90	2.40	**7.92**	4.90	2.80	**10.59**	5.50	3.20	**11.43**	6.10	5.00	0.35	105	160
				2.80	**6.27**	5.50	2.80	**8.04**	5.50	3.20	**10.59**	6.10	3.60	**11.46**	6.60	–	–	–	–
				3.20	**6.39**	6.10	3.20	**8.13**	6.10	3.60	**10.62**	6.70	4.00	**11.43**	7.20	–	–	–	–
				3.60	**6.42**	6.60	3.60	**8.13**	6.70	4.00	**10.62**	7.20	4.40	**11.37**	7.80	–	–	–	–
				4.00	**6.45**	7.20	4.00	**8.13**	7.20	4.40	**10.62**	7.80	4.80	**11.37**	8.40	–	–	–	–
				4.40	**6.42**	7.80	4.40	**8.07**	7.80	4.80	**10.59**	8.40	5.20	**11.34**	9.00	–	–	–	–
				4.80	**6.30**	8.40	4.80	**8.04**	8.40	5.20	**10.56**	9.00	5.60	**11.22**	9.60	–	–	–	–
				5.20	**6.24**	9.00	5.20	**7.86**	9.00	5.60	**10.50**	9.60	6.00	**11.16**	10.10	–	–	–	–
				5.60	**6.09**	9.60	5.60	**7.83**	9.60	6.00	**10.35**	10.20	–	–	–	–	–	–	–
				6.00	**5.85**	10.20	6.00	**7.59**	10.20	–	–	–	–	–	–	–	–	–	–

Spray angle	Ordering no. Type	Mat. no. 16 Stainless steel 303	Narrowest free cross section Ø [mm]	Liquid pressure p [bar]												Spray dimensions			
				0.07			0.15			0.30			0.35						
				p air [bar]	**V̇** water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**V̇** water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**V̇** water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**V̇** water [l/h]	$\dot{V}_n$ air [m³/h]	**p** air [bar]	**p** water [bar]	B_1 [mm]	B_2 [mm]
60°	**166.626.xx.A2**	●	0.40	0.80	**1.83**	2.80	0.80	**2.49**	2.80	0.80	**3.48**	2.80	0.80	**3.78**	2.80	1.60	0.07	85	135
				1.20	**1.98**	3.60	1.20	**2.58**	3.50	1.20	**3.60**	3.50	1.20	**3.87**	3.60	2.40	0.15	90	140
				1.60	**2.10**	4.30	1.60	**2.70**	4.20	1.60	**3.66**	4.30	1.60	**3.90**	4.20	3.20	0.20	90	140
				2.00	**2.16**	4.90	2.00	**2.82**	4.90	2.00	**3.69**	4.90	2.00	**3.96**	4.90	4.00	0.30	100	145
				2.40	**2.25**	5.60	2.40	**2.85**	5.60	2.40	**3.69**	5.60	2.40	**3.96**	5.60	5.20	0.35	105	150
				2.80	**2.34**	6.30	2.80	**2.88**	6.30	2.80	**3.72**	6.30	2.80	**4.02**	6.30	–	–	–	–
				3.20	**2.31**	7.00	3.20	**2.88**	7.00	3.20	**3.78**	7.00	3.20	**3.99**	7.00	–	–	–	–
				3.60	**2.34**	7.60	3.60	**2.88**	7.70	3.60	**3.78**	7.60	3.60	**4.02**	7.70	–	–	–	–
				4.00	**2.40**	8.40	4.00	**2.94**	8.40	4.00	**3.81**	8.30	4.00	**4.05**	8.30	–	–	–	–
				4.40	**2.40**	9.00	4.40	**2.91**	9.00	4.40	**3.81**	9.00	4.40	**4.02**	9.00	–	–	–	–
				4.80	**2.40**	9.70	4.80	**2.97**	9.70	4.80	**3.81**	9.70	4.80	**4.08**	9.70	–	–	–	–
				5.20	**2.43**	10.40	5.20	**2.97**	10.40	5.20	**3.81**	10.40	5.20	**4.05**	10.40	–	–	–	–
				5.60	**2.43**	11.20	5.60	**2.97**	11.10	5.60	**3.81**	11.10	5.60	**4.05**	11.00	–	–	–	–
				6.00	**2.43**	11.80	6.00	**2.97**	11.80	6.00	**3.81**	11.80	6.00	**4.05**	11.80	–	–	–	–
	166.682.xx.A2	●	1.50	1.00	**22.41**	7.50	1.40	**28.95**	9.30	1.80	**41.22**	11.10	2.00	**44.04**	11.80	1.60	0.07	110	155
				1.40	**20.19**	9.30	1.80	**26.07**	10.90	2.20	**34.92**	12.60	2.40	**39.09**	13.40	2.40	0.15	120	155
				1.80	**18.75**	11.00	2.20	**23.94**	12.50	2.60	**33.18**	14.20	2.80	**35.16**	15.10	3.20	0.20	120	160
				2.20	**17.88**	12.50	2.60	**22.23**	14.30	3.00	**30.45**	15.90	3.20	**32.22**	16.70	4.00	0.30	120	165
				2.60	**17.10**	14.20	3.00	**21.12**	15.90	3.40	**28.29**	17.50	3.60	**30.18**	18.30	5.20	0.35	120	175
				3.00	**16.47**	15.90	3.40	**20.10**	17.50	3.80	**26.64**	19.10	4.00	**28.32**	19.90	–	–	–	–
				3.40	**16.08**	17.50	3.80	**19.44**	19.10	4.20	**25.35**	20.70	4.40	**26.94**	21.50	–	–	–	–
				3.80	**15.90**	19.10	4.20	**18.99**	20.70	4.60	**24.24**	22.30	4.80	**25.59**	23.10	–	–	–	–
				4.20	**15.90**	20.70	4.60	**18.45**	22.30	5.00	**23.13**	24.00	5.20	**24.36**	24.80	–	–	–	–
				4.60	**15.81**	22.30	5.00	**18.18**	24.00	5.40	**22.14**	25.50	5.60	**23.28**	26.40	–	–	–	–
				5.00	**15.21**	23.90	5.40	**17.25**	25.40	5.80	**21.12**	27.20	6.00	**22.17**	28.00	–	–	–	–
				5.40	**13.92**	25.50	5.80	**15.72**	27.20	6.00	**20.67**	28.00	–	**–**	–	–	–	–	–
				5.80	**12.09**	27.20	6.00	**14.91**	28.00	–	**–**	–	–	**–**	–	–	–	–	–
				6.00	**11.07**	28.00	–	**–**	–	–	**–**	–	–	**–**	–	–	–	–	–
	166.691.xx.A2	●	2.50	1.40	**52.00**	13.80	2.00	**67.30**	17.50	2.60	**92.30**	21.20	2.60	**102.10**	21.20	1.60	0.07	150	200
				1.80	**50.00**	16.30	2.40	**64.60**	20.10	3.00	**87.70**	23.60	3.00	**97.20**	23.70	2.40	0.15	160	205
				2.20	**48.60**	18.80	2.80	**62.00**	22.50	3.40	**84.30**	26.00	3.40	**92.50**	26.10	3.20	0.20	160	205
				2.60	**47.50**	21.30	3.20	**60.40**	24.90	3.80	**80.70**	28.50	3.80	**88.40**	28.50	4.00	0.30	160	210
				3.00	**46.50**	23.70	3.60	**58.00**	27.30	4.20	**77.00**	30.90	4.20	**85.20**	31.00	5.20	0.35	150	210
				3.40	**45.40**	26.10	4.00	**56.20**	29.80	4.60	**74.40**	33.40	4.60	**81.30**	33.40	–	–	–	–
				3.80	**44.40**	28.60	4.40	**54.20**	32.10	5.00	**71.10**	35.90	5.00	**78.20**	35.80	–	–	–	–
				4.20	**42.90**	31.00	4.80	**52.40**	34.70	5.40	**68.10**	38.30	5.40	**74.30**	38.20	–	–	–	–
				4.60	**41.50**	33.40	5.20	**49.90**	37.10	5.80	**64.30**	40.80	5.80	**71.10**	40.70	–	–	–	–
				5.00	**39.90**	35.80	5.60	**48.10**	39.50	6.00	**63.20**	42.00	6.00	**68.90**	41.90	–	–	–	–
				5.40	**38.90**	38.30	6.00	**46.40**	42.00	–	**–**	–	–	**–**	–	–	–	–	–
				5.60	**38.50**	39.40	–	**–**	–	–	**–**	–	–	**–**	–	–	–	–	–

Ordering example:	Type	+	Material no.	=	Ordering no.
	166.626.xx.A2	+	16	=	166.626.16.A2

Accessories for pneumatic atomizing nozzles
Series 136.1 to 136.6

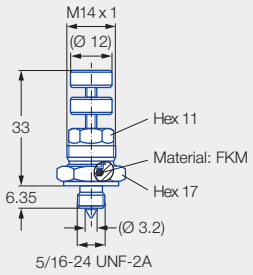
Overview of accessories



Regulating device and shut-off needle

Enables manual regulation of the flow rate and closing of the nozzle.

Material: Stainless steel 303
Weight: 33 g

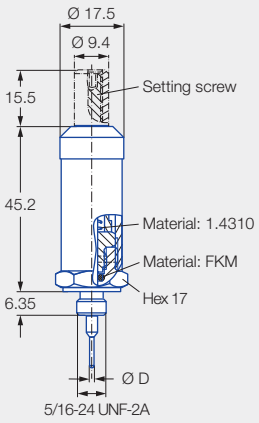


Ordering no. Type	Suitable for all nozzles of series 136
013.600.16	

Regulating device with quick-cleaning needle

Enables manual regulation of the flow rate and cleaning of the nozzle orifice.

Material: Stainless steel 303
Weight: 75 g

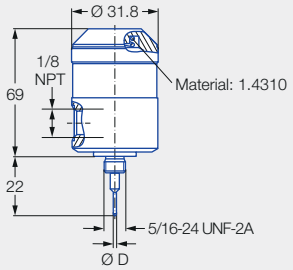


Ordering no. Type	For nozzles	Needle diameter D [mm]
013.601.16.30	136.xx1	2.1
013.602.16.30	136.xx2	1.2
013.603.16.30	136.xx3	0.8
013.604.16.30	136.xx4	0.6
013.605.16.30	136.xx5	0.4
013.606.16.30	136.xx6	0.3

Pneumatically controlled valve. Opening pressure 2.1 bar, max. 180 cycles/min.

External control system via separate compressed air connection for switching the nozzle on and off.

Material: Stainless steel 303
Weight: 230 g

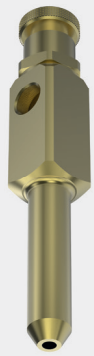


Ordering no. Type	For nozzles	Needle diameter D [mm]
013.601.16.10	136.xx1	2.1
013.602.16.10	136.xx2	1.2
013.603.16.10	136.xx3	0.8
013.604.16.10	136.xx4	0.6
013.605.16.10	136.xx5	0.4
013.606.16.10	136.xx6	0.3

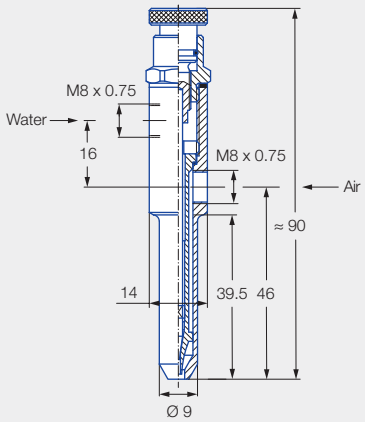
Pneumatic atomizing nozzles, full cone, siphon principle, internal mixing
Series 140

Features:
- Particularly fine full cone atomization
- Siphon principle
- Internal mixing
- Integrated regulating device
- Material: Brass

Applications:
- Lubrication
- Cooling
- Humidification of air



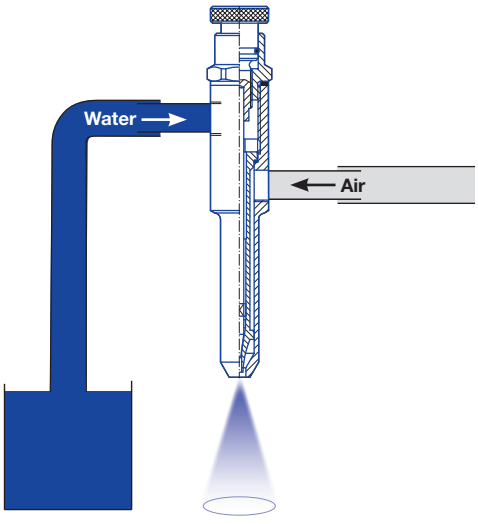
Series 140



Mat. no.	Weight [g]
30	70

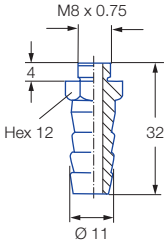
Spray angle	Ordering no. Type	Narrowest free cross section Ø [mm]		Hs Aspiration height [mm WS]	Flow rate $\dot{V}$ W = water $\dot{V}_n$ L = air **p** [bar] air pressure							
					0.5		1.0		2.0		3.0	
		Water	Air		$\dot{V}$ W [l/h]	$\dot{V}_n$ L [m³/h]	$\dot{V}$ W [l/h]	$\dot{V}_n$ L [m³/h]	$\dot{V}$ W [l/h]	$\dot{V}_n$ L [m³/h]	$\dot{V}$ W [l/h]	$\dot{V}_n$ L [m³/h]
20°–30°	**140.252.30.01**	0.50	0.75	500	**–**	–	**4.50**	4.00	**8.00**	6.00	**10.50**	8.00
		0.50	0.75	200	**4.50**	2.50	**7.00**	4.00	**10.00**	6.00	**12.00**	8.00

Assembly scheme/Accessories



Accessories:
- Gasket
  014.040.72
  7.8 x 12 x 1 (EWP 210)

- Nipple
  014.010.30.04
  (Material: Brass)
  Weight: 17 g

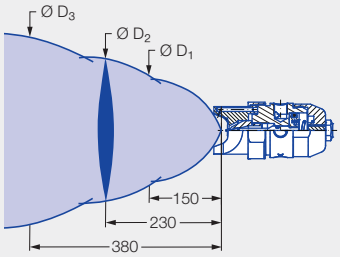


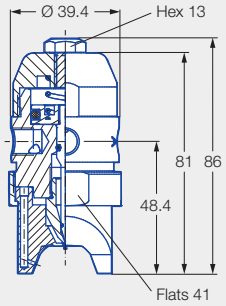
Pneumatic atomizing nozzles for atomizing viscous media
Series 176 ViscoMist

The ViscoMist series enables the independent regulation of both atomizing air and fan air. Spray angle and droplet size can thus be individually adjusted.

The integrated, pneumatically controlled shut-off/clean-out needle opens and closes the liquid orifice and also cleans it during each closing procedure. This is of particular advantage when spraying viscous liquids. Thanks to their modular design, the nozzles of the ViscoMist series can be optimally adapted to the respective spraying process. To do this, it is simply enough to replace the nozzle components relevant for the flow rate and spray pattern. The housing stays the same.

Series 176 ViscoMist





External mixing nozzle for viscous liquids, e.g. for:
- Coating processes
- Moisturising
- Lubrication
- Glazing
- Disinfection

One nozzle – several spray characters:
- Spray characters
  – Solid stream
  – Full cone
  – Flat fan
- Independent regulation of liquid, atomizing air and fan air
- Fluid circulation possible (nozzle body with five connections)

Nozzle sizes:
- Ø 0.38 mm to 2.54 mm

Valve position:
- Normally closed, fail-safe with loss of air

Signal air pressure:
- Min. 2 bar, max. 3 bar

Cycles per minute:
- 180 cycles/min (short term)

Connection thread:
- 1/8 BSPP
- NPT thread available on request

Weight:
- 550 g

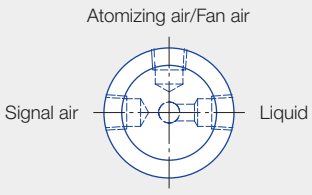
Material:
- 1Y (stainless steel 316L)

Flow rate range:
- Water: 7.8 to 307.0 l/h, at 2 bar
- Air 7.5 to 28.4 m^3/h in normal condition, at 2 bar

Atomizing air/Signal air/Fan air:
- The atomizing air causes the liquid to atomize at the nozzle orifice. The fan air allows the spray characteristics to be adapted to the application. The nozzle is activated by the signal air.

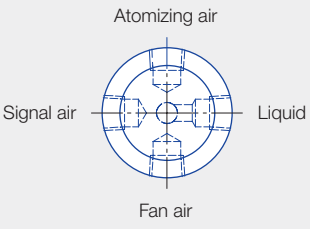
Nozzle body configurations

Nozzle body configuration 2



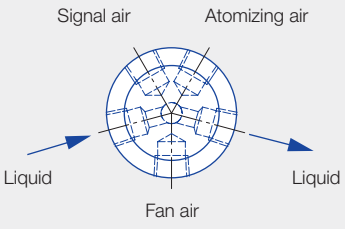
Version with three connections

Nozzle body configuration 4



Version with four connections

Nozzle body configuration 5



Version with five connections

Ordering no. / Type	Narrowest free cross section Ø [mm]	Liquid		Air			Spray dimensions [mm] at distance D_1, D_2 and D_3																	
									Fan air [bar]															
									0.00*			0.35			0.70			1.00			1.50		
		Liquid pressure **p** [bar]	**V̇** water [l/h]	Air pressure **p** air [bar]	Atomizing air [m³/h]	Fan air [m³/h]	Atomizing air [bar]	Liquid pressure **p** [bar]	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm
176.201.1Y.11.00 **176.401.1Y.11.00** **176.501.1Y.11.00**	0.38	0.15	1.89	0.15	0.75	1.00	0.30	0.35	40	60	100	150	180	200	180	230	290	180	230	250	180	230	280
		0.30	2.80	0.30	1.09	1.44		0.70	40	50	80	150	200	280	200	270	330	230	280	330	230	280	330
								1.00	–	–	–	170	200	280	200	300	380	230	300	360	250	300	380
		0.70	4.39	0.70	1.63	2.28		1.50	–	–	–	170	200	360	200	250	340	250	300	360	280	320	380
		1.00	5.49	1.00	2.02	2.89	1.00	0.35	40	60	100	100	130	170	130	180	230	150	230	280	170	220	300
								0.70	40	60	100	80	110	180	130	180	230	150	200	230	180	230	280
		1.35	6.40	1.35	2.38	3.45		1.00	30	40	80	80	130	180	130	180	250	150	230	280	180	230	330
		1.70	7.19	1.70	2.77	3.99		1.50	–	–	–	100	150	200	150	190	250	180	250	360	190	270	360
		2.00	7.91	2.00	3.11	4.55	2.00	0.35	40	60	100	50	80	110	90	130	150	100	150	190	150	200	240
								0.70	40	60	90	60	90	140	80	100	140	110	180	230	150	200	250
		2.40	8.63	2.40	3.48	5.11		1.00	40	60	90	70	90	140	100	130	190	130	200	250	150	200	250
		2.75	9.24	2.75	3.87	5.67		1.50	–	–	–	60	80	130	110	140	180	140	190	230	180	230	300
		3.15	9.80	3.15	4.23	6.24	2.75	0.35	40	60	90	50	60	90	50	90	110	80	130	180	170	150	180
								0.70	40	70	110	40	70	110	70	100	130	90	130	170	130	170	190
		3.50	10.33	3.50	4.60	6.78		1.00	40	60	100	50	80	100	80	100	130	100	140	170	130	150	200
		4.00	11.17	4.00	5.22	7.70		1.50	30	40	80	50	70	110	70	100	150	100	140	180	110	170	230
176.202.1Y.11.00 **176.402.1Y.11.00** **176.502.1Y.11.00**	0.58	0.15	4.05	0.15	0.78	1.00	0.30	0.35	40	60	100	140	190	270	220	250	300	190	240	280	200	230	300
		0.30	5.90	0.30	1.10	1.44		0.70	–	–	–	180	240	250	230	300	360	280	330	410	300	340	410
								1.00	–	–	–	150	200	230	250	290	430	300	340	460	300	370	560
		0.70	9.27	0.70	1.67	2.28		1.50	–	–	–	–	–	–	250	290	360	280	340	430	360	410	480
		1.00	11.47	1.00	2.06	2.89	1.00	0.35	40	50	90	110	140	150	130	170	230	150	180	230	180	220	250
								0.70	40	60	90	110	130	190	140	180	240	170	220	250	200	230	280
		1.35	13.32	1.35	2.43	3.45		1.00	–	–	–	100	140	200	170	200	280	190	230	330	200	250	330
		1.70	14.99	1.70	2.79	3.99		1.50	–	–	–	–	–	–	170	200	300	200	250	360	250	300	380
		2.00	16.43	2.00	3.14	4.55	2.00	0.35	40	50	80	60	80	110	90	130	170	110	150	180	130	200	230
								0.70	40	40	80	70	100	130	110	140	170	140	180	190	150	200	250
		2.40	17.90	2.40	3.52	5.11		1.00	30	50	90	70	100	130	100	150	180	130	180	230	150	200	250
		2.75	19.23	2.75	3.91	5.67		1.50	–	–	–	70	100	150	110	150	230	130	180	240	170	230	300
		3.15	20.44	3.15	4.28	6.24	2.75	0.35	40	40	80	60	80	100	80	100	120	100	140	180	130	150	180
								0.70	30	60	90	60	80	100	100	100	130	100	140	180	130	150	200
		3.50	21.57	3.50	4.66	6.78		1.00	40	50	70	60	90	110	100	130	150	120	140	190	150	200	240
		4.00	23.32	4.00	5.22	7.70		1.50	40	60	90	60	90	140	100	120	180	120	170	230	150	190	290
176.203.1Y.11.00 **176.403.1Y.11.00** **176.503.1Y.11.00**	0.79	0.15	8.36	0.15	0.48	1.00	0.30	0.35	–	–	–	230	300	410	330	410	480	330	410	510	300	380	460
		0.30	12.38	0.30	0.71	1.44		0.70	–	–	–	230	280	330	300	360	510	410	480	610	430	580	740
								1.00	–	–	–	–	–	–	330	410	530	410	460	640	460	530	710
		0.70	19.19	0.70	1.16	2.28		1.50	–	–	–	–	–	–	280	360	460	380	460	610	410	510	580
		1.00	23.77	1.00	1.46	2.89	1.00	0.35	40	60	100	150	200	270	170	230	280	230	300	380	280	360	410
								0.70	–	–	–	150	200	250	230	300	380	300	360	460	330	380	430
		1.35	27.59	1.35	1.65	3.45		1.00	–	–	–	–	–	–	230	280	410	300	380	510	300	410	480
		1.70	31.04	1.70	1.89	3.99		1.50	–	–	–	–	–	–	230	280	380	280	380	510	330	430	530

* A cone-shaped spray pattern is produced without fan air.

Ordering no. / Type	Narrowest free cross section Ø [mm]	Liquid		Air			Spray dimensions [mm] at distance D_1, D_2 and D_3																	
									Fan air [bar]															
									0.00*			0.35			0.70			1.00			1.50		
		Liquid pressure **p** [bar]	$\dot{V}$ water [l/h]	Air pressure **p** air [bar]	Atomizing air [m³/h]	Fan air [m³/h]	Atomizing air [bar]	Liquid pressure **p** [bar]	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm
176.203.1Y.11.00 **176.403.1Y.11.00** **176.503.1Y.11.00**	0.79	2.00	33.99	2.00	2.14	4.55	2.00	0.35	30	60	80	100	140	180	150	200	240	190	230	300	200	230	280
		2.40	36.75	2.40	2.40	5.11		0.70	–	–	–	130	150	200	170	230	330	230	300	380	250	300	360
		2.75	39.44	2.75	2.65	5.67		1.00	–	–	–	130	180	200	180	230	330	230	300	410	250	320	410
		3.15	41.98	3.15	2.94	6.24	2.75	1.50	–	–	–	–	–	–	180	230	330	240	300	430	250	330	430
		3.50	44.32	3.50	3.16	6.78		0.35	40	60	90	100	130	180	140	180	230	170	200	280	190	230	300
		4.00	47.92	4.00	3.65	7.70		0.70	–	–	–	110	150	200	150	200	250	180	230	300	230	280	380
								1.00	–	–	–	–	–	–	180	230	300	200	250	360	230	280	380
								1.50	–	–	–	–	–	–	180	230	330	230	280	380	230	290	410
176.204.1Y.11.00 **176.404.1Y.11.00** **176.504.1Y.11.00**	1.07	0.15	16.88	0.15	2.34	2.04	0.30	0.35	–	–	–	150	200	300	300	410	460	330	410	560	300	410	510
		0.30	24.38	0.30	3.47	2.94		0.70	–	–	–	–	–	–	300	380	1,040	360	430	530	410	480	640
		0.70	37.28	0.70	5.59	4.60		1.00	–	–	–	–	–	–	250	380	510	360	460	580	410	510	690
		1.00	45.80	1.00	7.32	5.81	1.00	1.50	–	–	–	–	–	–	250	380	480	330	380	530	410	510	660
		1.35	52.91	1.35	8.83	6.90		0.35	40	60	80	110	140	190	150	200	250	200	250	330	250	300	430
		1.70	59.20	1.70	10.19	7.99		0.70	–	–	–	100	140	230	170	200	270	220	270	380	250	330	430
		2.00	64.99	2.00	11.55	9.06		1.00	–	–	–	100	130	180	150	190	300	220	250	380	250	300	480
		2.40	70.55	2.40	12.91	10.13	2.00	1.50	–	–	–	–	–	–	150	200	280	200	250	410	240	300	460
		2.75	75.51	2.75	14.31	11.21		0.35	40	60	90	80	100	140	100	130	180	110	170	230	150	190	280
		3.15	80.28	3.15	15.63	12.27		0.70	–	–	–	80	100	150	100	130	200	130	170	230	150	200	280
		3.50	84.90	3.50	17.11	13.32		1.00	–	–	–	70	100	150	100	140	200	130	180	250	150	200	280
		4.00	91.56	4.00	19.49	15.12	2.75	1.50	–	–	–	70	100	150	110	140	230	130	170	250	150	200	300
								0.35	50	70	100	70	90	140	90	120	180	110	140	200	140	180	250
								0.70	40	70	100	60	90	140	100	130	180	110	150	230	140	190	250
								1.00	–	–	–	70	90	140	100	120	190	110	160	250	150	180	280
								1.50	–	–	–	70	100	150	100	120	180	110	150	230	140	190	300
176.205.1Y.11.00 **176.405.1Y.11.00** **176.505.1Y.11.00**	1.32	0.15	24.60	0.15	2.17	2.04	0.30	0.35	–	–	–	230	330	460	360	460	530	410	530	640	460	530	660
		0.30	35.35	0.30	3.23	2.94		0.70	–	–	–	–	–	–	330	460	580	410	510	660	410	480	610
		0.70	54.31	0.70	5.16	4.60		1.00	–	–	–	–	–	–	330	410	480	360	460	560	430	560	740
		1.00	66.62	1.00	6.75	5.81	1.00	1.50	–	–	–	–	–	–	–	–	–	380	510	660	460	580	810
		1.35	76.46	1.35	8.00	6.90		0.35	–	–	–	130	170	230	180	230	380	230	290	430	190	360	510
		1.70	86.18	1.70	9.17	7.99		0.70	–	–	–	110	170	230	180	230	330	220	290	410	190	360	510
		2.00	94.81	2.00	10.35	9.06		1.00	–	–	–	–	–	–	190	240	360	230	300	430	270	340	480
		2.40	102.95	2.40	11.55	10.13	2.00	1.50	–	–	–	–	–	–	170	220	300	220	300	410	250	330	480
		2.75	110.48	2.75	12.78	11.21		0.35	40	60	90	80	100	150	110	140	200	140	180	250	170	220	330
		3.15	117.52	3.15	14.00	12.27		0.70	–	–	–	70	100	150	110	150	230	130	180	280	170	230	360
		3.50	124.15	3.50	15.10	13.32		1.00	–	–	–	80	100	150	110	140	220	140	190	280	170	230	360
		4.00	134.14	4.00	17.23	15.12	2.75	1.50	–	–	–	70	100	150	110	150	200	140	190	300	170	230	360
								0.35	40	60	100	80	100	150	90	130	200	110	150	230	140	180	280
								0.70	–	–	–	60	90	140	100	130	200	110	170	250	150	200	300
								1.00	–	–	–	60	90	130	100	130	200	120	170	240	150	200	300
								1.50	–	–	–	60	90	150	100	130	200	110	180	250	150	200	300

* A cone-shaped spray pattern is produced without fan air.

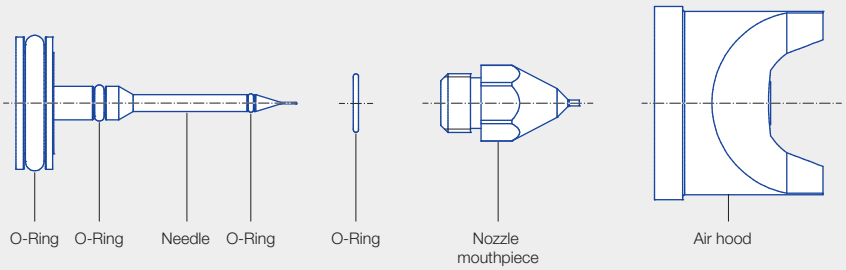
Ordering no.	Narrowest free cross section Ø [mm]	Liquid		Air			Spray dimensions [mm] at distance D_1, D_2 and D_3																	
									Fan air [bar]															
									0.70			1.00			1.40			1.75			2.00		
Type		Liquid pressure **p** [bar]	**V̇** water [l/h]	Air pressure **p** air [bar]	Atomizing air [m³/h]	Fan air [m³/h]	Atomizing air [bar]	Liquid pressure **p** [bar]	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm
176.206.1Y.11.00 **176.406.1Y.11.00** **176.506.1Y.11.00**	1,70	0.15	41.71	0.15	1.53	2.04	1.00	0.35	220	330	510	280	410	610	360	460	660	–	–	–	–	–	–
		0.30	59.54	0.30	2.24	2.94		0.70	240	360	530	330	430	660	360	510	760	–	–	–	–	–	–
		0.70	90.88	0.70	3.47	4.60		1.00	250	360	510	300	430	610	360	510	690	–	–	–	–	–	–
								1.50	–	–	–	300	380	560	330	460	610	–	–	–	–	–	–
		1.00	111.73	1.00	4.35	5.81	2.00	0.35	150	230	330	200	280	410	230	300	460	230	330	460	250	330	430
		1.35	128.99	1.35	5.15	6.90		0.70	180	230	300	200	250	380	230	300	460	250	360	480	280	360	510
								1.00	150	230	330	180	250	380	230	300	430	250	330	480	280	360	530
		1.70	144.21	1.70	5.95	7.99		1.50	–	–	–	180	250	360	230	280	430	250	330	510	280	360	510
		2.00	157.91	2.00	6.71	9.06	2.75	0.35	140	180	280	180	230	300	180	250	360	200	280	410	200	280	430
		2.40	170.48	2.40	7.53	10.13		0.70	150	200	300	180	230	330	180	250	380	200	280	410	230	300	410
								1.00	140	180	280	180	230	330	190	230	380	200	280	410	230	300	430
		2.75	182.25	2.75	8.27	11.21		1.50	130	180	250	150	200	330	180	250	380	200	280	430	230	330	480
		3.15	193.26	3.15	9.07	12.27	4.00	0.35	130	180	250	150	200	300	170	230	330	180	230	360	180	230	360
		3.50	203.52	3.50	9.91	13.32		0.70	130	170	250	150	200	300	180	230	330	180	230	360	180	250	380
								1.00	130	180	280	150	200	300	150	230	330	180	250	360	200	250	410
		4.00	218.85	4.00	11.13	15.12		1.50	–	–	–	150	200	300	150	230	360	180	250	380	200	280	430
176.207.1Y.11.00 **176.407.1Y.11.00** **176.507.1Y.11.00**	2.05	0.15	59.20	0.15	3.64	3.36	1.00	0.35	200	280	410	280	360	480	330	430	530	330	480	690	410	480	660
		0.30	84.97	0.30	5.37	4.91		0.70	200	280	410	280	360	480	300	410	580	360	460	710	410	530	760
								1.00	150	230	360	230	300	460	280	360	530	300	430	610	360	510	740
		0.70	129.79	0.70	8.53	7.87		1.50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
		1.00	159.42	1.00	10.84	10.08	2.00	0.35	100	140	220	140	190	280	180	230	360	230	280	380	250	330	480
		1.35	184.59	1.35	12.98	12.16		0.70	100	150	230	140	190	280	180	250	380	200	280	410	250	330	480
								1.00	100	150	250	130	180	280	170	220	330	200	280	410	240	300	480
		1.70	206.70	1.70	14.92	14.07		1.50	–	–	–	–	–	–	150	230	330	190	250	380	230	300	430
		2.00	226.76	2.00	16.91	15.97	2.75	0.35	90	130	180	110	170	250	150	200	300	180	230	330	200	280	380
		2.40	245.27	2.40	18.94	17.69		0.70	90	130	200	130	170	250	150	200	300	180	230	360	200	280	410
								1.00	90	110	180	120	150	250	140	190	300	170	230	330	200	280	380
		2.75	262.64	2.75	20.86	19.64		1.50	90	130	200	110	150	250	140	200	300	150	230	360	200	280	380
		3.15	279.03	3.15	22.82	21.53	4.00	0.35	90	110	150	110	150	230	140	190	250	150	220	360	180	250	410
		3.50	293.98	3.50	24.72	23.33		0.70	90	110	180	100	140	220	130	190	290	150	200	330	180	250	360
								1.00	80	110	190	110	150	230	130	180	280	150	230	330	170	250	380
		4.00	317.15	4.00	27.80	26.33		1.50	–	–	–	100	150	230	130	180	250	150	200	330	170	240	360

Ordering no. / Type	Narrowest free cross section Ø [mm]	Liquid		Air			Spray dimensions [mm] at distance D_1, D_2 and D_3																	
									Fan air [bar]															
									0.70			1.00			1.40			1.75			2.00		
		Liquid pressure **p** [bar]	**V̇** water [l/h]	Air pressure **p** air [bar]	Atomizing air [m³/h]	Fan air [m³/h]	Atomizing air [bar]	Liquid pressure **p** [bar]	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm	Ø D_1 = 150 mm	Ø D_2 = 230 mm	Ø D_3 = 380 mm
176.208.1Y.11.00 **176.408.1Y.11.00** **176.508.1Y.11.00**	2.36	0.15	97.20	0.15	3.84	4.40	1.00	0.35	190	280	430	280	360	610	300	460	710	–	–	–	–	–	–
		0.30	114.76	0.30	4.64	5.28		0.70	190	280	430	250	360	610	330	480	760	–	–	–	–	–	–
		0.70	162.98	0.70	6.80	7.87		1.00	–	–	–	230	330	560	300	430	690	–	–	–	–	–	–
								1.50	–	–	–	250	360	530	300	380	580	–	–	–	–	–	–
		1.00	199.13	1.00	8.63	10.08	2.00	0.35	110	190	300	170	250	360	200	280	410	230	330	460	280	460	560
		1.35	229.60	1.35	10.21	12.16		0.70	110	180	250	170	230	360	220	280	410	230	360	510	270	380	530
		1.70	256.24	1.70	11.86	14.07		1.00	110	170	230	140	200	330	190	250	410	230	300	480	280	380	610
								1.50	–	–	–	150	200	330	200	280	380	220	300	460	270	380	560
		2.00	280.70	2.00	13.37	15.97	2.75	0.35	110	170	230	140	190	280	170	250	360	200	280	380	250	360	460
		2.40	302.99	2.40	14.99	17.69		0.70	100	150	230	140	200	300	170	240	360	200	280	430	230	330	480
		2.75	324.03	2.75	16.33	19.64		1.00	100	140	200	130	180	280	170	230	380	200	280	410	230	330	480
								1.50	90	130	200	130	180	280	150	220	360	190	280	460	230	320	460
		3.15	343.22	3.15	17.99	21.53	4.00	0.35	90	110	180	110	150	220	140	190	300	150	220	300	190	300	410
		3.50	361.32	3.50	19.27	23.33		0.70	90	110	190	130	170	230	140	200	300	170	230	330	200	270	430
		4.00	388.72	4.00	21.73	26.33		1.00	90	110	170	110	150	220	130	200	300	150	230	360	180	280	430
								1.50	–	–	–	110	150	220	140	200	300	150	220	360	190	250	410
176.209.1Y.11.00 **176.409.1Y.11.00** **176.509.1Y.11.00**	2.54	0.15	82.06	0.15	1.87	3.36	1.00	0.35	200	300	460	280	380	610	330	460	710	410	530	760	460	660	810
		0.30	119.53	0.30	3.77	4.91		0.70	200	280	430	280	410	610	330	480	690	410	560	740	460	640	810
		0.69	180.05	0.69	6.58	7.87		1.00	–	–	–	–	–	–	300	460	690	410	510	690	430	580	810
								1.50	–	–	–	–	–	–	300	460	690	380	530	760	430	580	810
		1.03	221.23	1.03	8.50	10.08	2.00	0.35	130	200	300	180	250	380	200	280	460	250	330	510	280	360	560
		1.38	255.60	1.38	10.13	12.16		0.70	130	180	280	170	230	360	200	280	460	230	330	560	280	380	610
		1.72	285.50	1.72	11.57	14.07		1.00	100	170	280	170	230	360	200	280	430	230	330	510	280	380	560
								1.50	–	–	–	–	–	–	200	250	430	230	300	460	250	380	560
		2.07	312.94	2.07	13.13	15.97	2.75	0.35	100	150	230	150	200	330	170	230	410	200	280	460	240	360	510
		2.41	338.83	2.41	14.71	17.69		0.70	100	150	230	140	190	300	180	240	410	200	280	460	230	360	560
		2.76	362.49	2.76	16.26	19.64		1.00	90	140	230	140	190	300	180	250	410	200	280	460	250	360	560
								1.50	100	140	200	140	190	300	180	250	410	200	280	460	230	330	510
		3.10	384.75	3.10	17.75	21.53	4.00	0.35	100	140	200	130	180	250	140	190	280	180	250	360	190	250	410
		3.45	405.71	3.45	19.33	23.33		0.70	90	130	200	130	180	280	150	200	300	170	230	360	200	280	410
		4.00	436.86	4.00	21.83	26.33		1.00	90	130	180	110	150	250	140	200	300	180	230	410	200	280	460
								1.50	–	–	–	110	150	250	140	180	300	170	230	410	190	280	460

Notice:
The fourth digit in the order number (2, 4 or 5) stands for the housing variant (for details see Page 54).

Spare parts set for pneumatic atomizing nozzles Series 176 ViscoMist

Overview of the spare parts set and the power set



Spare parts set

Spare parts set for replacing the main wear parts of the nozzle, consisting of:

- Needle (stainless steel 316L)
- O-rings (Viton)
- Nozzle tip (stainless steel 316L)

Ordering no. Type	Narrowest free cross section Ø [mm]	For nozzles
017.601.1Y.01	0.38	176.xx1.1Y.11.00
017.602.1Y.01	0.58	176.xx2.1Y.11.00
017.603.1Y.01	0.79	176.xx3.1Y.11.00
017.604.1Y.01	1.07	176.xx4.1Y.11.00
017.605.1Y.01	1.32	176.xx5.1Y.11.00
017.606.1Y.01	1.70	176.xx6.1Y.11.00
017.607.1Y.01	2.05	176.xx7.1Y.11.00
017.608.1Y.01	2.36	176.xx8.1Y.11.00
017.609.1Y.01	2.54	176.xx9.1Y.11.00

Power set

Power set for replacing the main wear parts of the nozzle and the air hood, consisting of:

- Needle (stainless steel 316L)
- O-rings (Viton)
- Nozzle tip (stainless steel 316L)
- Air hood (stainless steel 316L)

Ordering no. Type	Narrowest free cross section Ø [mm]	For nozzles
017.601.1Y.00	0.38	176.xx1.1Y.11.00
017.602.1Y.00	0.58	176.xx2.1Y.11.00
017.603.1Y.00	0.79	176.xx3.1Y.11.00
017.604.1Y.00	1.07	176.xx4.1Y.11.00
017.605.1Y.00	1.32	176.xx5.1Y.11.00
017.606.1Y.00	1.70	176.xx6.1Y.11.00
017.607.1Y.00	2.05	176.xx7.1Y.11.00
017.608.1Y.00	2.36	176.xx8.1Y.11.00
017.609.1Y.00	2.54	176.xx9.1Y.11.00

Notice:
Instructions for replacing individual or all components of the nozzles are included in the scope of delivery of the spare parts sets and the power sets.

O-ring set

Ordering no. Type	Mat. no. 7A Viton	Mat. no. 6C EPDM	Consisting of 4 O-rings, suitable for all nozzles of series 176
017.600.xx.01.03	●	●	

Viton (7A) is the standard O-ring material.
EPDM (6C) is optionally available.

Ordering example:	Type	+	Material no.	=	Ordering no.
	017.600.xx.01.03	+	**7A**	=	**017.600.7A.01.03**