

**1-4440 SERIES
MULTIPLE NOZZLE
DESUPERHEATERS**

1-4442 SERIES SPRAYSAT DESUPERHEATERS



PARCOL 1-4442 series SPRAYSAT multiple nozzle desuperheaters are designed to provide optimum performances and high rangeability. The independent spray nozzles, that are uncovered by the throttling piston, provide a good water atomization also at the minimum flow conditions. In order to grant a precise control of steam temperature also on severe applications (for example when steam velocity or water-steam differential pressure is very low), different sizes of spray nozzles are available. The built-in control system provides minimum dimension and very reliable and easy operation. The split body design allows to easily change the orientation of water connection versus spray nozzles and makes the seat replacement very easy.

MAIN FEATURES

BODY

- sizes: water: 1" to 3";
steam: 3", 4" or 6" depending on the selected Cv.
- connections: ANSI, UNI and DIN flanged;
ANSI B16.25 butt welding end on request.
- ratings: water side: ANSI 150÷1500
(PN 16÷250);
steam side: ANSI 150÷1500
(PN 16÷250);
higher rating on request for special design
- construction: fabricated forged steel.
- materials: carbon steel, CrMo steels.

PLUG

The flow control is performed by piston (11) sliding in the spray nozzles head. The sealing is provided by plug (5) and seat (6).

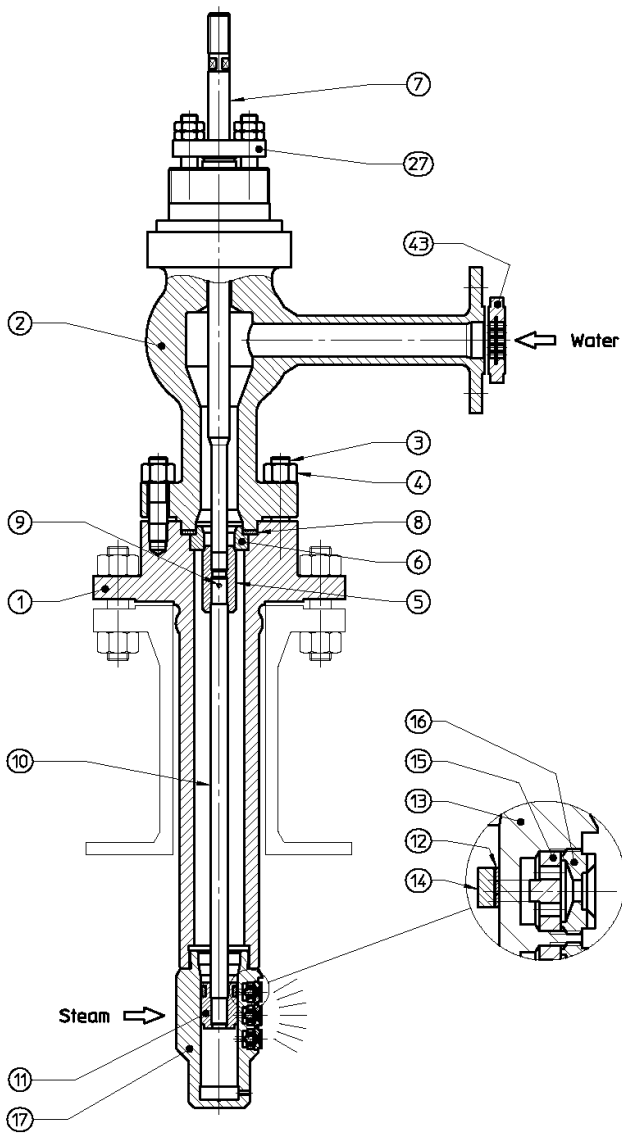
- size: according to the steam connection flange size and to the spray nozzle arrangement (see Cv table for minimum and maximum values)
- rangeability: (inherent) according to the maximum selected Cv, better than 30:1 for any spray nozzles arrangement.
- guiding: the piston is guided by the spray nozzle head.
- seat: clamped between upper and lower body for an easy replacement
- shutoff class: better than V IEC 60534-4.

COOLING WATER FILTER

To avoid spray nozzles obstruction, desuperheaters are normally supplied with a filter mounted on water connection.

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Valve assembly



POS.	PART NAME
1	Lower body
2	Upper body
3	Stud
4	Nut
5	Plug
6	Seat
7	Upper Stem
8	Gasket
9	Pin
10	Lower Stem
11	Piston
12	Piston Ring
14	Seal Ring
17	Spray Nozzle Head
25	Plate
26	Rivet
27	Packing box
43	Water Filter

1-4440 MULTIPLE NOZZLE DESUPERHEATERS

Materials of construction

BASIC CLASS		A	D	V	G
Temperature range		-29 / +427 °C	-29 / +566 °C	-29 / +566°C	-29 / +343°C
ITEM	PART NAME	ASME - ASTM			
1	LOWER BODY	SA 182 F22 Cl.3	SA182 F22 Cl.3	SA 182 F91	SA 182 F316 / SA 479 316
2	UPPER BODY	SA 105 / SA 350 LF2	SA182 F22 Cl.3	SA 182 F91	SA 182 F316 / SA 479 316
3	STUD	SA 193 B7	SA 193 B16		SA 193 B8M Cl.1
4	NUT	SA 194 Gr.2H	SA 194 Gr.8		
5	PLUG	A564-630 H900			A 479 316 Hardened
6	SEAT	A 479 F6NM Seat joint stellite gr.6			A 479 316 Seat joint stellite gr.6
7	UPPER STEM	A 479 XM-19			
8	GASKET	AISI 321+GRAPHITE			
9	PIN	A 479 316L			
10	LOWER STEM	A 479 XM-19			
11	PISTON	A 479 F6NM Nitrided			A 479 316 Hardened
12	PISTON RING	A 439 type D3			A 479 XM-19
14	SEAL RING	FLEXIBLE GRAPHITE			
17	SPRAY NOZZLE HEAD	SEE DETAIL			
25	PLATE	A 479 304			
26	RIVET	ALUMINIUM			
27	PACKING	SEE DWG. 1-CP700-799			
43	WATER FILTER	AISI 300 SERIES			

SPRAY NOZZLE HEAD ITEM 17 PARTICULARS					
BASIC CLASS		A	D	V	G
ITEM	PART NAME	ASME - ASTM			
13	SPRAY NOZZLE HEAD	A 479 F6NM Nitrided			A 479 316 Ni plated
15	VORTEX GENERATOR	AISI 416			
16	SPRAY NOZZLE	A 479 F6NM Nitrided			A 479 316 Hardened

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Flow coefficient Cv [gpm]

Water Inlet DN	Steam Outlet DN	Actuator type	stroke mm	Nozzle No.	Stroke %										Nozzle Min. ø				
					5	10	20	30	40	50	60	70	80	90		100			
1"- 1.1/2"	3"	1-X-290 D39 1-X-290 D46	45	7	0.01	0.01	0.01	0.02	0.03	0.04	0.04	0.05	0.06	0.06	0.07	0.8			
					0.01	0.01	0.01	0.02	0.03	0.04	0.04	0.06	0.08	0.09	0.11				
					0.01	0.01	0.01	0.02	0.04	0.05	0.07	0.09	0.11	0.14	0.16				
					0.01	0.01	0.01	0.02	0.04	0.06	0.09	0.11	0.15	0.20	0.24				
					0.01	0.01	0.01	0.03	0.06	0.09	0.14	0.19	0.28	0.41	0.60				
					0.01	0.01	0.01	0.03	0.06	0.09	0.15	0.25	0.42	0.61	0.80				
		0.01	0.02	0.03	0.06	0.10	0.18	0.29	0.49	0.68	0.87	1.0	1.2						
		0.14	0.19	0.31	0.52	0.72	0.91	1.10	1.29	1.47	1.65	1.8	1.4						
		0.01	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.8						
		0.01	0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.11	0.13	0.16							
		0.01	0.01	0.02	0.03	0.05	0.08	0.10	0.12	0.15	0.18	0.22							
		0.01	0.01	0.02	0.04	0.06	0.10	0.14	0.18	0.21	0.27	0.34							
	0.01	0.01	0.03	0.05	0.09	0.13	0.16	0.23	0.29	0.35	0.50								
	0.01	0.01	0.03	0.05	0.09	0.13	0.19	0.32	0.48	0.62	0.77								
	0.01	0.01	0.03	0.06	0.10	0.16	0.29	0.45	0.60	0.86	1.1	1.2							
	0.01	0.02	0.05	0.11	0.24	0.39	0.64	0.92	1.19	1.46	1.7								
	0.14	0.22	0.45	0.74	1.03	1.30	1.58	1.84	2.11	2.36	2.6	4							
	1-X-250 D46	100	16	0.01	0.01	0.03	0.05	0.06	0.08	0.10	0.12	0.13	0.15	0.16	0.8				
				0.01	0.01	0.03	0.05	0.06	0.08	0.10	0.13	0.17	0.21	0.24					
				0.01	0.01	0.03	0.05	0.08	0.12	0.16	0.20	0.24	0.30	0.36					
				0.01	0.01	0.04	0.08	0.12	0.17	0.23	0.29	0.35	0.44	0.54					
				0.01	0.01	0.05	0.09	0.16	0.22	0.28	0.34	0.44	0.57	0.81					
				0.01	0.01	0.06	0.12	0.19	0.26	0.37	0.48	0.63	0.87	1.2					
				0.01	0.01	0.06	0.12	0.21	0.32	0.54	0.78	1.02	1.41	1.8	1.2				
0.01				0.01	0.06	0.13	0.24	0.56	1.01	1.45	1.89	2.31	2.7						
0.14				0.26	0.72	1.18	1.64	2.09	2.52	2.95	3.37	3.78	4.2	4					
1.1/2"- 2"				4"	1-X-290 D46 1-X-290 D63	76	16	0.01	0.01	0.03	0.05	0.06	0.08	0.10	0.12	0.13	0.15	0.16	0.8
								0.01	0.01	0.03	0.05	0.06	0.08	0.10	0.13	0.17	0.21	0.24	
								0.01	0.01	0.03	0.05	0.06	0.10	0.14	0.18	0.24	0.30	0.36	
	0.01	0.01	0.04					0.08	0.12	0.16	0.20	0.26	0.34	0.44	0.54				
	0.01	0.01	0.05					0.11	0.17	0.23	0.30	0.41	0.51	0.61	0.80				
	0.01	0.01	0.06					0.12	0.19	0.29	0.40	0.51	0.74	0.98	1.2				
	0.01	0.02	0.09		0.18	0.37	0.63	1.03	1.47	1.90	2.33	2.7	1.2						
	0.14	0.26	0.72		1.18	1.64	2.09	2.52	2.95	3.37	3.78	4.2	4						
	0.08	0.12	0.25		0.41	0.57	0.72	0.97	1.24	1.51	1.77	2.0	3						
	0.08	0.12	0.25		0.41	0.57	0.81	1.09	1.36	1.63	2.03	2.4							
	0.08	0.12	0.25		0.41	0.65	0.93	1.21	1.48	1.88	2.29	2.7							
	0.08	0.12	0.25		0.49	0.78	1.06	1.33	1.73	2.15	2.55	3.1							
	0.08	0.12	0.32	0.61	0.90	1.18	1.57	2.00	2.41	2.99	3.6								
	0.08	0.12	0.32	0.61	0.90	1.29	1.72	2.15	2.72	3.32	3.9								
	0.08	0.12	0.32	0.61	1.01	1.44	1.87	2.45	3.06	3.64	4.2	4							
	0.14	0.22	0.45	0.84	1.28	1.72	2.30	2.91	3.51	4.09	4.7								
	0.14	0.22	0.54	0.99	1.57	2.20	2.82	3.43	4.02	4.60	5.2	6							
	0.32	0.49	1.00	1.66	2.30	2.92	3.54	4.14	4.72	5.29	5.9								
	1-X-290 D46 1-X-290 D63 1-X-250 D46 1-X-250 D63	100	21	0.01	0.01	0.04	0.06	0.08	0.11	0.13	0.15	0.17	0.19	0.22	0.8				
				0.01	0.01	0.04	0.06	0.08	0.11	0.13	0.18	0.24	0.29	0.33					
				0.01	0.01	0.04	0.08	0.14	0.19	0.24	0.29	0.34	0.41	0.49					
				0.01	0.01	0.06	0.13	0.22	0.30	0.41	0.55	0.69	0.82	1.1					
				0.01	0.01	0.09	0.22	0.36	0.51	0.65	0.78	1.05	1.36	1.7					
				0.01	0.01	0.09	0.22	0.36	0.59	0.91	1.23	1.55	1.94	2.5					
0.01			0.03	0.13	0.27	0.57	0.90	1.49	2.07	2.63	3.19	3.7	1.2						
0.14			0.32	0.94	1.55	2.15	2.74	3.31	3.87	4.42	4.96	5.5	4						
0.08			0.13	0.33	0.71	1.08	1.45	1.89	2.44	2.98	3.51	4.0	3						
0.08			0.13	0.46	0.84	1.21	1.57	2.01	2.56	3.10	3.74	4.5							
0.08			0.13	0.46	0.84	1.21	1.60	2.16	2.71	3.48	4.25	5.0	4						
0.14			0.24	0.58	0.96	1.45	2.02	2.58	3.29	4.08	4.84	5.6							
0.14	0.24	0.58	1.03	1.61	2.21	3.02	3.81	4.59	5.35	6.1	6								
0.14	0.24	0.75	1.42	2.26	3.08	3.88	4.67	5.44	6.19	6.9									
0.32	0.54	1.31	2.16	2.99	3.80	4.60	5.38	6.14	6.88	7.6									

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Water Inlet DN	Steam Outlet DN	Actuator type	stroke mm	Nozzle No.	Stroke %										Nozzle Min. ø		
					5	10	20	30	40	50	60	70	80	90		100	
1.1/2" - 2"	4"	1-X-290 D63 1-X-250 D63	120	26	0.01	0.02	0.05	0.08	0.10	0.13	0.16	0.19	0.22	0.24	0.27	0.8	
					0.01	0.02	0.05	0.08	0.10	0.13	0.16	0.21	0.28	0.34	0.40		
					0.01	0.02	0.05	0.09	0.15	0.22	0.29	0.35	0.42	0.51	0.61		
					0.01	0.02	0.06	0.13	0.20	0.27	0.37	0.46	0.57	0.74	0.91		
					0.01	0.02	0.08	0.14	0.25	0.35	0.45	0.62	0.79	0.98	1.4		
					0.01	0.02	0.09	0.18	0.29	0.45	0.63	0.87	1.26	1.64	2.0		
					0.01	0.02	0.11	0.24	0.42	0.59	0.94	1.34	1.73	2.37	3.1		
				0.01	0.04	0.15	0.33	0.65	1.10	1.83	2.55	3.26	3.94	4.6	1.2		
				0.14	0.39	1.17	1.92	2.67	3.39	4.10	4.80	5.48	6.14	6.8	4		
				16	0.14	0.26	0.72	1.18	1.64	2.33	3.02	3.69	4.35	5.05	6.0	4	
					0.14	0.26	0.80	1.53	2.24	2.94	3.67	4.65	5.60	6.54	7.5	4	
					0.32	0.59	1.61	2.65	3.68	4.68	5.66	6.62	7.55	8.47	9.4	6	
					27	0.01	0.02	0.05	0.08	0.11	0.14	0.17	0.20	0.22	0.25	0.28	0.8
						0.01	0.02	0.05	0.08	0.11	0.14	0.17	0.23	0.29	0.36	0.42	
0.01	0.02	0.05	0.08			0.15	0.22	0.29	0.35	0.43	0.53	0.63					
0.01	0.02	0.05	0.12			0.19	0.28	0.39	0.49	0.60	0.77	0.94					
0.01	0.02	0.08	0.15	0.26		0.37	0.49	0.67	0.84	1.03	1.4						
0.01	0.02	0.09	0.18	0.29		0.44	0.63	0.93	1.34	1.73	2.1						
0.01	0.02	0.10	0.21	0.40		0.58	0.90	1.32	1.76	2.49	3.2						
0.01	0.04	0.14	0.31	0.67		1.19	1.95	2.70	3.43	4.14	4.8	1.2					
0.14	0.41	1.21	2.00	2.77		3.52	4.26	4.98	5.69	6.38	7.0	4					
14	0.14	0.25	0.63	1.04		1.44	1.83	2.38	2.97	3.55	4.21	5.0	4				
	0.14	0.25	0.63	1.04		1.44	1.92	2.53	3.12	3.89	4.71	5.5					
	0.14	0.25	0.63	1.04		1.61	2.23	2.83	3.52	4.36	5.19	6.0					
	0.14	0.25	0.63	1.14		1.77	2.38	3.18	4.04	4.88	5.70	6.5					
	0.14	0.25	0.66	1.30		2.14	3.03	3.90	4.75	5.58	6.39	7.2					
	0.22	0.39	0.97	1.61	2.45	3.33	4.20	5.05	5.87	6.79	7.9						
	0.22	0.39	1.02	1.93	2.83	3.71	4.58	5.42	6.47	7.60	8.7						
	0.22	0.39	1.02	1.93	2.83	3.71	4.83	5.99	7.14	8.25	9.3	5					
	0.22	0.39	1.21	2.29	3.52	4.73	5.92	7.07	8.20	9.31	10.4						
	0.44	0.76	1.93	3.18	4.41	5.61	6.78	7.93	9.05	10.1	11.2		7				
	32	0.01	0.02	0.06	0.09	0.13	0.16	0.20	0.23	0.26	0.30		0.33	.8			
		0.01	0.02	0.06	0.09	0.13	0.16	0.20	0.26	0.34	0.41		0.49				
		0.01	0.02	0.06	0.09	0.15	0.24	0.32	0.39	0.51	0.63		0.74				
		0.01	0.02	0.09	0.17	0.25	0.33	0.46	0.58	0.70	0.91		1.1				
0.01		0.02	0.10	0.18	0.29	0.42	0.54	0.74	0.95	1.20	1.7						
0.01		0.03	0.12	0.24	0.37	0.59	0.80	1.09	1.57	2.04	2.5						
0.01		0.03	0.14	0.28	0.51	0.73	1.15	1.64	2.12	2.90	3.7						
0.01		0.04	0.17	0.40	0.78	1.30	2.20	3.09	3.95	4.80	5.6	1.2					
0.14		0.48	1.44	2.37	3.28	4.18	5.05	5.90	6.74	7.56	8.4	4					
17		0.14	0.27	0.76	1.33	2.09	2.83	3.72	4.76	5.78	6.78	7.7	4				
		0.14	0.27	0.76	1.49	2.24	3.00	4.06	5.10	6.20	7.59	8.9					
		0.14	0.27	1.03	1.80	2.79	3.87	4.92	6.09	7.49	8.86	10.2					
		0.22	0.42	1.32	2.43	3.52	4.83	6.28	7.69	9.07	10.43	11.7		5			
		0.44	0.83	2.34	3.86	5.35	6.81	8.23	9.63	10.99	12.32	13.6		7			
	40	0.01	0.02	0.07	0.12	0.16	0.21	0.25	0.29	0.33	0.37	0.41		0.8			
		0.01	0.02	0.07	0.12	0.16	0.21	0.25	0.32	0.42	0.51	0.61					
0.01		0.02	0.07	0.12	0.21	0.32	0.42	0.51	0.63	0.77	0.92						
0.01		0.02	0.10	0.21	0.31	0.41	0.55	0.70	0.87	1.13	1.4						
0.01		0.03	0.13	0.24	0.38	0.53	0.72	0.98	1.25	1.50	2.1						
0.01		0.04	0.15	0.31	0.49	0.77	1.04	1.33	1.94	2.53	3.1						
0.01		0.04	0.18	0.38	0.66	1.10	1.72	2.33	2.93	3.60	4.7						
0.01		0.06	0.23	0.51	1.11	1.74	2.74	3.85	4.93	5.99	7.0	1.2					
0.14		0.60	1.79	2.96	4.10	5.22	6.31	7.38	8.43	9.44	10.4	4					
21		0.14	0.32	0.94	1.64	2.57	3.49	4.42	5.71	6.97	8.20	9.4	4				
		0.14	0.32	0.94	1.79	2.73	4.01	5.32	6.60	7.85	9.08	10.3					
		0.14	0.32	0.99	1.95	3.02	4.36	5.66	6.94	8.18	9.79	11.5					
		0.14	0.32	1.15	2.20	3.56	4.89	6.19	7.54	9.27	11.0	12.6					
		0.14	0.33	1.31	2.55	3.91	5.23	7.01	8.77	10.5	12.2	13.8					
	0.22	0.49	1.52	3.02	4.88	6.70	8.48	10.2	11.9	13.6	15.2	5					
	0.44	0.97	2.89	4.77	6.61	8.41	10.2	11.9	13.6	15.2	16.8	7					
54	0.01	0.03	0.10	0.16	0.22	0.28	0.34	0.39	0.45	0.50	0.55	0.8					
	0.01	0.03	0.10	0.16	0.22	0.28	0.34	0.43	0.56	0.69	0.82						
	0.01	0.03	0.10	0.16	0.26	0.40	0.53	0.66	0.85	1.05	1.2						
	0.01	0.03	0.10	0.25	0.38	0.57	0.78	0.98	1.18	1.52	1.9						
	0.01	0.03	0.15	0.29	0.51	0.72	0.99	1.35	1.70	2.04	2.8						
	0.01	0.03	0.16	0.35	0.56	0.90	1.27	1.78	2.60	3.40	4.2						
	0.01	0.03	0.17	0.39	0.68	1.06	1.78	2.61	3.41	4.83	6.3						
	0.01	0.04	0.25	0.59	1.30	2.15	3.63	5.12	6.59	8.01	9.4	4					
	0.14	0.82	2.42	4.00	5.54	7.05	8.52	9.96	11.37	12.75	14.1						
	29	0.14	0.44	1.55	2.87	4.15	5.42	6.65	8.20	9.94	11.63		13.3	4			
		0.14	0.44	1.71	3.02	4.31	5.57	7.14	8.91	10.64	12.97		15.3				
		0.22	0.68	2.02	3.33	4.75	6.58	8.38	10.55	12.93	15.26		17.5		5		
		0.22	0.68	2.52	4.42	6.28	8.50	10.96	13.37	15.73	18.03		20.3				
		0.44	1.34	3.99	6.59	9.13	11.61	14.05	16.42	18.75	21.01		23.2			7	

1-4440 MULTIPLE NOZZLE DESUPERHEATERS

Maximum differential pressures [bar]

DN Water side inches	DN Steam side inches	Actuator type	Stroke	CLOSED VALVE									OPEN VALVE Δp ⁽¹⁾ min - max
				Δp_{max}									
				DIRECT ACTING ACTUATOR (normally closed)			REVERSE ACTING ACTUATOR (normally open)						
Spring range [psi]	Supply [psi]	Δp_{max} [bar]	Spring range [psi]	Supply [psi]	Δp_{max} [bar]	Spring range [psi]	Supply [psi]	Δp_{max} [bar]	Spring range [psi]	Supply [psi]	Δp_{max} [bar]		
1 – 1.1/2	3	1-X-290 D39	45	19 ÷ 47	60	106	7 ÷ 28	60	189				
				13 ÷ 31	40	65	5 ÷ 19	40	115				
		1-X-290 D46	45	24 ÷ 44	60	217	12 ÷ 28	60	250				
				16 ÷ 30	40	137	8 ÷ 19	40	181				
		1-X-290 D46	60	19 ÷ 48	60	167	7 ÷ 28	60	250				
13 ÷ 32	40			106	5 ÷ 19	40	179						
1-X-290 D46	100	19 ÷ 40	60	164	6 ÷ 30	60	250						
		13 ÷ 27	40	104	4 ÷ 20	40	169						
1-X-250 D46	100	18 ÷ 42	50	154	6 ÷ 30	60	156						
1.1/2 - 2	4	1-X-290 D46	76	19 ÷ 40	60	123	6 ÷ 30	60	198				
				13 ÷ 27	40	77	4 ÷ 20	40	125				
		1-X-290 D63	76	15 ÷ 42	60	215	- - -	- - -	-				
				10 ÷ 28	40	136	4 ÷ 17	40	250				
		1-X-290 D46	100	19 ÷ 47	60	123	6 ÷ 30	60	198				
				13 ÷ 27	40	77	4 ÷ 20	40	125				
		1-X-290 D63	100	19 ÷ 40	60	250	- - -	- - -	-				
				13 ÷ 27	40	184	4 ÷ 20	40	250				
1-X-250 D46	100	18 ÷ 42	50	154	6 ÷ 30	50	108						
		15 ÷ 34	50	238	6 ÷ 30	50	250						
1-X-290 D63	120	19 ÷ 40	60	250	- - -	- - -	-						
		13 ÷ 27	40	184	4 ÷ 20	40	250						
1-X-250 D63	120	15 ÷ 38	50	238	5 ÷ 34	50	206						
2 – 3	6	1-X-290 D46	100	19 ÷ 40	60	75	6 ÷ 30	60	121				
				13 ÷ 27	40	47	4 ÷ 20	40	76				
		1-X-290 D63	100	19 ÷ 40	60	197	6 ÷ 30	60	250				
				13 ÷ 27	40	128	4 ÷ 20	40	195				
		1-X-250 D63	100	15 ÷ 34	50	167	6 ÷ 30	50	185				
		1-X-290 D63	120	19 ÷ 40	60	197	6 ÷ 30	60	250				
				13 ÷ 27	40	128	4 ÷ 20	40	195				
1-X-250 D63	120	15 ÷ 38	50	167	5 ÷ 34	50	144						
1-X-250 D63	150	14 ÷ 28	50	155	6 ÷ 30	50	185						
1-X-250 D63	200	10 ÷ 29	50	104	6 ÷ 30	50	185						

⁽¹⁾ Δp_{max} can reach the value of 80 bar with trim special execution

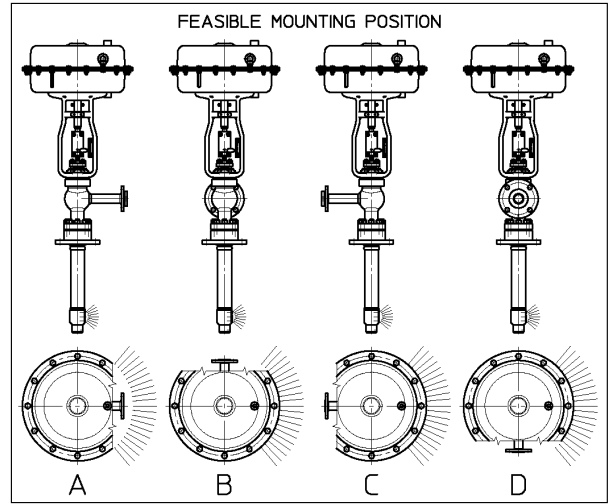
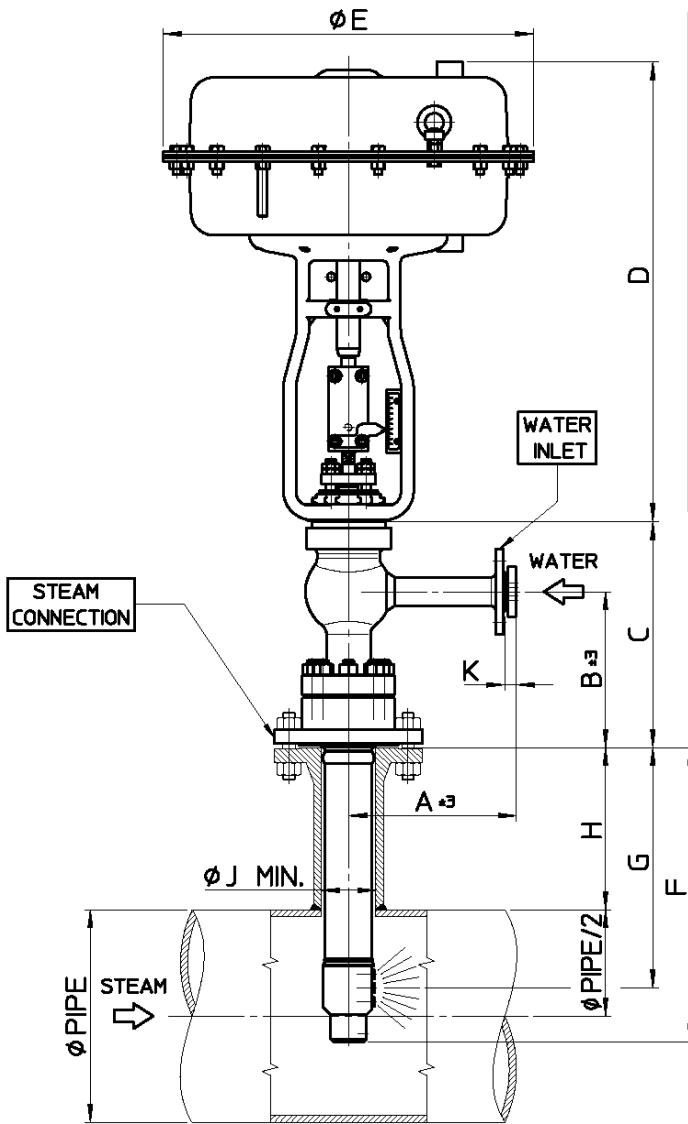
1-4440 MULTIPLE NOZZLE DESUPERHEATERS

Overall dimensions [mm] and weights [kg]

WATER INLET DN inches	STEAM CONNECTION DN inches	WATER INLET RATING ⁽¹⁾	PARCOL Actuator ⁽²⁾	Stroke mm	PIPE MIN. Ø inches	A		B	C	D ⁽³⁾	E	F	G	J	K		L ⁽⁵⁾ inches							
						RF	RJ								RF	RJ								
1-1.1/2	3	ANSI 150÷1500 UNI/DIN PN 10÷250	1-X-290 D39	45	6 ⁽⁴⁾	215	222	200	290	574	395	465	378	315	70	15	22	14						
			1-X-290 D46	60	8					644	394								318					
			1-X-250 D46	100	10					787	767								436	335				
			1-X-290 D39	45	6 ⁽⁴⁾					290	827								1020	465	378	315		
			1-X-290 D46	60	8					350	574								395				394	318
			1-X-250 D46	100	10					342	787								767				436	335
		1-X-290 D39	45	6 ⁽⁴⁾	250			350	574	395	378	315												
		1-X-290 D46	60	8									644	394				318						
		1-X-250 D46	100	10									787	767				436	335					
		1-X-290 D39	45	6 ⁽⁴⁾									250	350				574	395	378	315			
		1-X-290 D46	60	8																		644	394	318
		1-X-250 D46	100	10																		787	767	436

WATER INLET DN inches	STEAM CONNECTION DN inches	WATER INLET RATING ⁽¹⁾	PARCOL Actuator ⁽²⁾	Stroke mm	PIPE MIN. Ø inches	A				B	C	D ⁽³⁾	E	F	G	J	K				L ⁽⁵⁾ inches																	
						1.1/2"		2"									1.1/2"	2"	RF	RJ																		
						RF	RJ	RF	RJ																													
1.1/2 - 2	4	ANSI 150÷1500 UNI/DIN PN 10÷250	1-X-290 D46	76	12	265	272	270	277	250	360	735	465	548	447	95	15	22	20	27	24																	
			1-X-290 D63									796	640																									
			1-X-290 D46									100	12									410	787	465	572	459												
			1-X-290 D63																				920	640														
			1-X-250 D46																				120	14			290	827	465	592	470							
			1-X-290 D63																									1020	640									
			1-X-250 D63																									970	640									
			1-X-250 D63																									992	640									
			1-X-250 D63									1020	640									373	992	1218	640	572	459											
			1-X-290 D46									76	12															290	735	465	548	447						
			1-X-290 D63																										796	640								
			1-X-290 D46																										100	12			410	787	465	572	459	
		1-X-290 D63	920	640																																		
		1-X-250 D46	120	14	290					827	465			592	470																							
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1-4440 MULTIPLE NOZZLE DESUPERHEATERS



$\phi PIPE \leq L$:
 $H = G - \phi PIPE/2$

$\phi PIPE > L$: (5)
 H MIN. = 120 (STEAM CONNECTION DN 3")
 130 (STEAM CONNECTION DN 4")
 170 (STEAM CONNECTION DN 6")

		WATER INLET RATING		
		ANSI 150÷600 UNI/DIN PN 10÷100	ANSI 900-1500 UNI/DIN PN 160-250	ANSI 2500 UNI/DIN PN 320-400
STEAM CONNECTION RATING	3 SERIES	ANSI 150÷600 UNI/DIN PN 10÷100	ANSI 150÷1500 UNI/DIN PN 10÷250	ANSI 1500-2500 UNI/DIN PN 250-400
	4 SERIES	ANSI 150÷600 UNI/DIN PN 10÷100	ANSI 600÷1500 UNI/DIN PN 250	ANSI 2500 UNI/DIN PN 320-400
	6 SERIES	ANSI 150÷600 UNI/DIN PN 10÷100	ANSI 300÷1500 UNI/DIN PN 25÷250	ANSI 600÷2500 UNI/DIN PN 100÷400

1-4443 SERIES SPRAYRING DESUPERHEATERS

PARCOL 1-4443 series SPRAYRING multiple nozzle desuperheaters have been specially designed to extend the field of application of 1-4442 series.

The throttling piston feeds a series of independent annular ducts, each of which feeds two or more nozzles.

This patented solution allows to control a big number of very small nozzles (up to 128) allowing to perform a very good steam conditioning also at very slow steam velocities without penalize desuperheater maximum Cv.

The result is the achievement of incredibly high system turndowns (up to 70÷1 and over) with optimum efficiency at all working conditions.

Likewise for 1-4442, the built-in control system provides minimum dimension and very reliable and easy operation.

The annular design also minimizes pressure drop across water injection point, while the spraying angle of nozzle maximize nozzle efficiency dramatically reducing injected water contact with pipe wall.



1-4443 Sprayring desuperheater DN 1.1/2" x 16" provided with 1-X-290 Multispring pneumatic diaphragm actuator with side driven handwheel.

MAIN FEATURES

BODY

- sizes: water: 1" to 3";
steam: 6", to 24", line-size or slightly reduced. Higher dimensions on request.
- connections: water side: ANSI, UNI and DIN flanged;
steam side: wafer, flanged.
- ratings: water side: ANSI 150÷1500 (PN 16÷250);
steam side: ANSI 150÷1500 (PN 16÷250);
higher rating on request for special design
- construction: fabricated forged steel.
- materials: carbon steel, CrMo steels.

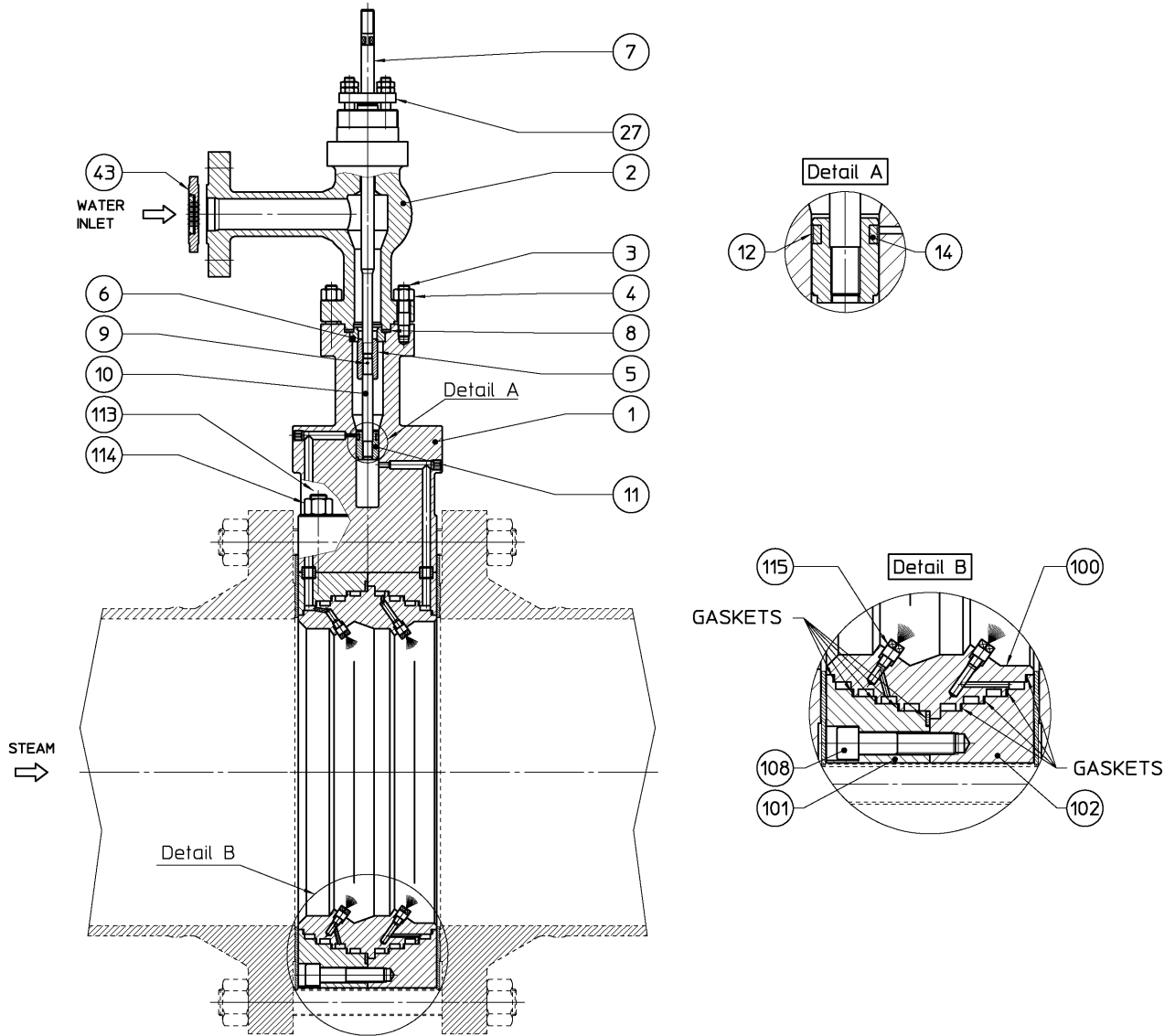
PLUG

- size: according to the steam connection flange size and to the spray nozzle arrangement
- rangeability: (inherent) according to the maximum selected Cv, number and size of nozzle composition, better than 80:1 for any spray nozzles arrangement.
- guiding: the piston is guided by the spray nozzle head.
- seat: clamped between upper and lower body for an easy replacement
- shutoff class: better than V IEC 60534-4.

COOLING WATER FILTER

To avoid spray nozzles obstruction, desuperheaters are normally supplied with a filter mounted on water connection.

1-4440 MULTIPLE NOZZLE DESUPERHEATERS



ITEM	PART NAME
1	BODY ASSEMBLY
2	UPPER BODY
3	STUD
4	NUT
5	PLUG
6	SEAT
7	STEM
8	GASKET
9	PIN
10	TIE-ROD
11	PISTON

ITEM	PART NAME
12	GUIDE SKID
14	SEAL RING
27	PACKING BOX
43	FILTER
100	INTERNAL RING
101	EXTERNAL RING
102	EXTERNAL RING
108	SCREW
113	STUD
114	NUT
115	SPRAY NOZZLE

KOSO PARCOL S.r.l. a socio unico

Sede legale: Via Isonzo, 2, 20010 Canegrate (Milano) ITALY

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VECTOR

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