

**1-4442 SERIES
MULTIPLE NOZZLE
DESUPERHEATER**

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.

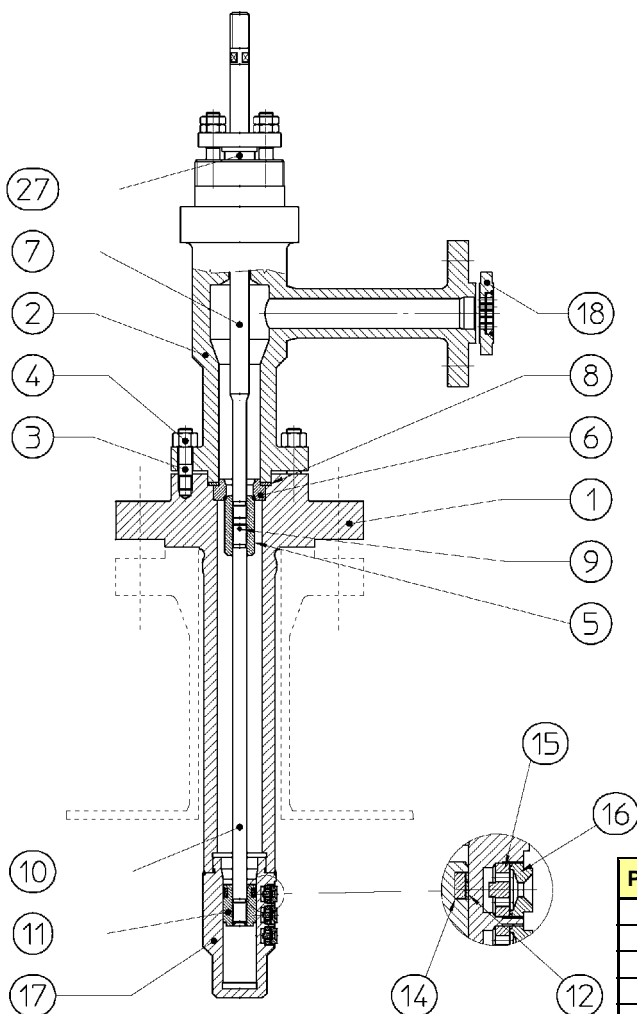
COOLING WATER FILTER

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

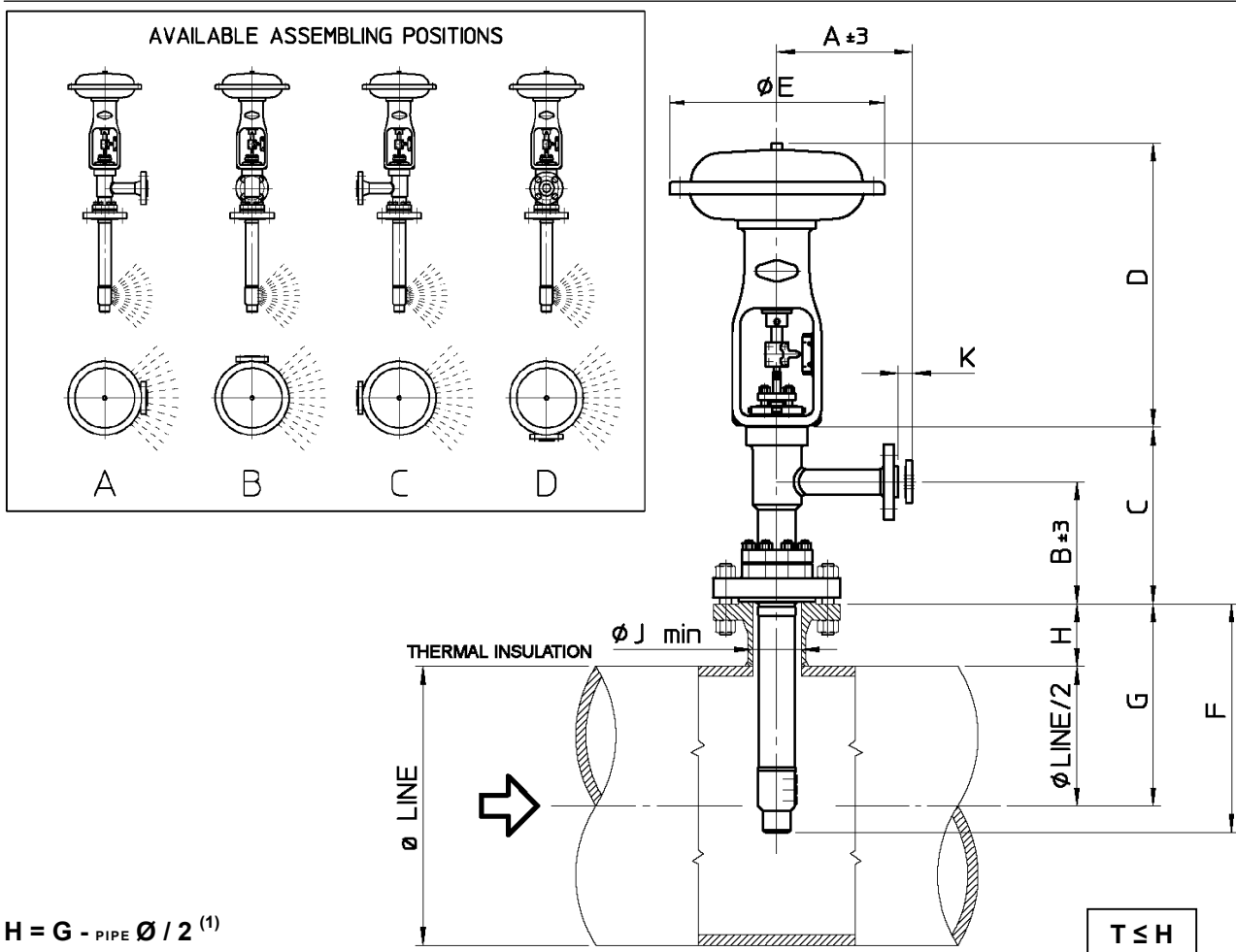
Cv and Δp

Water DN ⁽¹⁾ inches	Steam DN inches	Stroke mm	Cv max ⁽²⁾	Number of nozzles	Minimum rangeability	Max Δp shutoff ^{(3) (4)} bar		Spraying Δp min. bar
						air to open	air to close	
1 - 1.1/2	3	45	0.07 ÷ 1.8	7	30	150		2
		60	0.23 ÷ 2.6	10	40	90	150	2
		100	1.6 ÷ 4.2	16	50	150		3
1.1/2 - 2	4	76	2 ÷ 6	10	40	150		2
		100	4 ÷ 7.6	13	50	100		3
		100	5 ÷ 11.2	15	50	150		3
2 - 3	6	150	9.4 ÷ 16.8	21	50	150		3

- (1) Higher diameters shall be selected to limit the maximum water speed (max. 6÷7 m/s).
- (2) Any Cv value included in the listed ranges can be obtained by changing the spray nozzles composition.
- (3) Δp values with diaphragm actuators PARCOL 1-X-210 or 1-X-250 series, air supply pressure = 50 psi.
- (4) Maximum water steam pressure drop in open position is 60 bar. Up to 80 bar with specialty trim design.



POS.	PART NAME	MATERIAL
1	LOWER BODY	Cr-Mo STEEL
2	UPPER BODY	CARBON STEEL
3	STUD	SA 193 B7
4	NUT	SA 194 Gr. 4
5	PLUG	HARDENED STAINLESS STEEL
6	SEAT	HARDENED STAINLESS STEEL + STEEL
7	UPPER STEM	STAINLESS STEEL
8	GASKET	AISI 321 + GRAPHITE
9	ELASTIC PIN	AISI 304
10	LOWER STEM	STAINLESS STEEL
11	PISTON	HARDENED STAINLESS STEEL NITRIDED
12	PISTON RING	AUSTENITIC CAST IRON
13	SPRAY NOZZLE HEAD	HARDENED STAINLESS STEEL NITRIDED
14	SEAL RING	GRAPHITE
15	VORTEX GENERATOR	HARDENED STAINLESS STEEL
16	SPRAY NOZZLE	HARDENED STAINLESS STEEL
18	WATER FILTER	STAINLESS STEEL
27	STEM PACKING	GRAPHITE



$H = G - \text{PIPE } \varnothing / 2^{(1)}$

INLET SIZE water side inches	OUTLET SIZE steam side inches	PARCOL actuator	Stroke mm	PIPE Ø ⁽¹⁾ inches	A		B	C	D	E	F	G	J	K							
					RF	RJ								RF	RJ						
1"-1.1/2"	3"	D450	45	6"-12"	215	222	200	290	585	485	378	315	70	15	22						
			60	8"-12"												394	330				
		D46	100	14"-16"														436	360		
				10"-14"												16"-18"	410				
1.1/2"	4"	D600	76	12"-22"	265	272	250	362	755	630	533	450	95	15	22						
			24"	465												475					
		D46	100														14"-22"	557	465		
				24"-26"												500					
2"	4"	D600	76	12"-22"	270	277	250	362	755	630	533	450	95	20	27						
			24"	465												475					
		D46	100														14"-22"	557	465		
				24"-26"												500					
2"	6"	D63	100	16"-26"	320	327	300	470	1022	640	630	530	140	20	27						
			28"	555																	
		150	20"-28"						320							327	300	470	1022	640	630
				30"-32"																	
3"	6"	D63	100	16"-26"	325	329	300	470	1022	640	630	530	140	25	29						
			28"	555																	
		150	20"-28"						325							329	300	470	1022	640	630
				30"-32"																	

⁽¹⁾ For piping diameters higher than the maximum listed, the value of H shall be calculated by using the maximum pipe diameter listed on the table.



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