CELEROS™ FLOW TECHNOLOGY

TECHNICAL DATA SHEET

COPES-VULCAN®

MECHANICAL ATOMIZING DESUPERHEATER

MA-IV & MA-IVU



PRODUCT OVERVIEW

The MA-IV/MA-IVU is a multi nozzle mechanical atomizing desuperheater that reduces steam or gas temperatures by introducing cooling liquids directly into the hot fluid. The MA-IV/MA-IVU is a probe style direct contact heat exchanger. The liquid passes through the main tube of the desuperheater to the spray nozzles and discharges into the steam header.

FEATURES

- Two mounting options available, welding to the pipe line or flange mounted
- Unique design is ideally suited for thermal expansion
- No special supports or adapters required for installation
- Construction materials suitable for high temperatures
- Designed for higher capacities and a wider range of liquid flows than older MA models
- Offers consistent, reliable temperature control
- Designed to minimize problems associated with vibration
- Outstanding performance is achieved by unique spring-loaded nozzle design

STANDARD MATERIALS

- Injection Tube (Probe) - ASME SA-182 GR. F91/ASTM A182 GR. F91
- Nozzle Head - ASME SA-182 GR. F91/ASTM A182 GR. F91
- Plunger Stop - ASME SA-182 GR. F91/ASTM A182 GR. F91
- Coil Spring - INCONEL 718 (Heat treated and aged)
- Thermal Sleeve - ASME SA-335 GR. P91/ASTM A335 GR. P91
- Mounting Flange - ASME SA-182 GR. F22/ASTM A182 GR. F22
- Welding Cap - ASME SA-182 GR. F91/ASTM A182 GR. F91
- Socket Weld Coupling - ASME SA-182 GR. F91/ASTM A182 GR. F91
- Nozzle Plunger - 422 SST ASTM A565 GR. 616 UNS S42200 COND HT / PLASMA / NITRIDED (ref CVI Procedure 1.3.190)

TYPICAL APPLICATIONS

The MA-IV/MA-IVU is generally used for applications which feature steady and transient loads. The primary use is for interstage attemperation of high pressure and temperature superheated steam and is specially designed for intermittent use. It is well suited for applications where limited differential pressure is available for injection purposes.

- POWER
- PULP & PAPER
- CHEMICAL
- REFINERIES

NOZZLES

NO. OF NOZZLES	TYPE OF NOZZLE					SMALL NOZZLE		MID NOZZLE	
	A	B	C	B	C	MAX. CV	TURNDOWN	MAX. CV	TURNDOWN
2 NOZZLE	X	X				4	15	13.8	23
3 NOZZLE	X	X	X			6	22	20.7	35
4 NOZZLE	X	X	X	X		8	30	27.6	46
5 NOZZLE	X	X	X	X	X	10	37	34.5	58

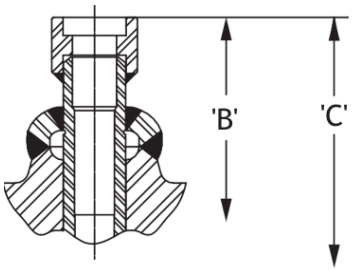
SMALL NOZZLE CAPACITY

NOZZLE TYPE	PRESSURE CLASS																		
	30	40	50	60	70	80	100	120	140	160	180	200	230	260	300	350	400	500	2000
Nozzle A	0.27	0.29	0.31	0.45	0.57	0.69	0.91	1.07	1.2	1.35	1.45	1.53	1.63	1.72	1.83	1.92	1.99	2	2
Nozzle B	0	0	0	0.19	0.34	0.48	0.7	0.87	1.02	1.23	1.32	1.42	1.54	1.63	1.75	1.85	1.95	2	2
Nozzle C	0	0	0	0	0.07	0.22	0.48	0.7	0.86	1.02	1.19	1.3	1.42	1.54	1.67	1.78	1.88	2	2
Nozzle B	0	0	0	0.19	0.34	0.48	0.7	0.87	1.02	1.23	1.32	1.42	1.54	1.63	1.75	1.85	1.95	2	2
Nozzle C	0	0	0	0.19	0.34	0.48	0.7	0.87	1.02	1.23	1.32	1.42	1.54	1.63	1.75	1.85	1.95	2	2

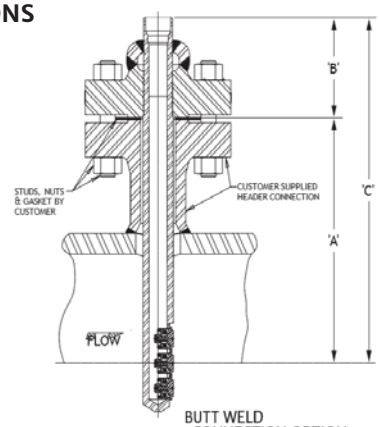
MID NOZZLE CAPACITY

NOZZLE TYPE	PRESSURE CLASS																		
	30	40	50	60	70	80	100	120	140	160	180	200	230	260	300	350	400	500	2000
Nozzle A	0.6	1.96	2.65	3.35	3.86	4.37	5.09	5.7	6.05	6.41	6.65	6.71	6.78	6.8	6.81	6.82	6.9	6.9	6.9
Nozzle B	0	0	0.1	1.25	2.12	2.91	4.09	4.9	5.5	5.97	6.37	6.6	6.76	6.79	6.9	6.9	6.9	6.9	6.9
Nozzle C	0	0	0	0	0.54	1.54	2.78	3.77	4.44	4.89	5.38	5.76	6.22	6.58	6.83	6.9	6.9	6.9	6.9
Nozzle B	0	0	0.1	1.25	2.12	2.91	4.09	4.9	5.5	5.97	6.37	6.6	6.76	6.79	6.9	6.9	6.9	6.9	6.9
Nozzle C	0	0	0	0	0.54	1.54	2.78	3.77	4.44	4.89	5.38	5.76	6.22	6.58	6.83	6.9	6.9	6.9	6.9

BUTTWELD / SOCKETWELD CONNECTIONS



SOCKET WELD
CONNECTION OPTION



BUTT WELD
CONNECTION OPTION

HEADER SIZE	A	PRESSURE CLASS					
		900		1500		2500	
		B	C	B	C	B	C
16"/400mm	16.75/425.45	7.56/192.02	24.31/617.47	7.56/192.02	24.31/617.47	7.56/192.02	24.31/617.47
18"/450mm	17.75/450.85	7.56/192.02	25.31/642.87	7.56/192.02	25.31/642.87	7.56/192.02	25.31/642.87
20"/500mm	18.75/476.25	7.56/192.02	26.31/668.27	7.56/192.02	26.31/668.27	7.56/192.02	26.31/668.27
22"/550mm	19.75/501.65	7.56/192.02	27.31/693.67	7.56/192.02	27.31/693.67	7.56/192.02	27.31/693.67
24"/600mm	20.75/527.05	7.56/192.02	28.31/719.07	7.56/192.02	28.31/719.07	7.56/192.02	28.31/719.07
30"/750mm	23.75/603.25	7.56/192.02	31.31/795.27	7.56/192.02	31.31/795.27	7.56/192.02	31.31/795.27

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