

SA-35

STEAM ATOMIZING DESUPERHEATER

COPES-VULCAN®

PRODUCT OVERVIEW

The Copes-Vulcan SA-35 was developed to obtain a more uniform spray pattern under varying load conditions where no pressure drop in the steam header can be tolerated. Steam atomizing allows for higher turndown (up to 25:1) with varying load conditions.

FEATURES

- **Stainless Steel Nozzle Assembly:** Divides one large jet of liquid into many small jets.
- **High-Pressure Steam Jet:** Creates a fine mist without needing a thermal liner inside the main header.
- **Efficient Evaporation:** Reduces liquid particle size for quick and efficient evaporation, controlling downstream temperatures to within 15°F (9°C) of saturation.
- **Machined Nozzle:** Made from one piece of stainless steel, with a hard-faced overlay to minimize erosion wear.
- **Thermal Sleeve:** Ensures uniform expansion with the steam tube, minimizing thermal stresses.
- **Narrow Silhouette:** Causes no appreciable restriction in the header.
- **Multiple Sizes and Pressure Classes:** Available in four sizes, up to class 1500.
- **Circumferential Orifices:** Small orifices drilled into the nozzle with rectangular slots for atomizing steam.
- **Low Liquid Pressure Requirement:** Only 10–40 psi (70–280 kPa) above header pressure needed.
- **Constant Atomizing Steam Flow:** Maintains improved atomization at low flows, unique compared to other desuperheaters.

STANDARD MATERIALS

The standard materials used in the construction of the SA-35 Desuperheater typically include:

- **Stainless Steel:** Used for the nozzle assembly and other critical components due to its durability and resistance to corrosion.
- **Hard-Faced Overlay:** Applied to the nozzle head to minimize erosion wear.
- **Thermal Sleeve Material:** Ensures uniform expansion with the steam tube, likely made from a material compatible with both the steam and liquid tubes to minimize thermal stresses.



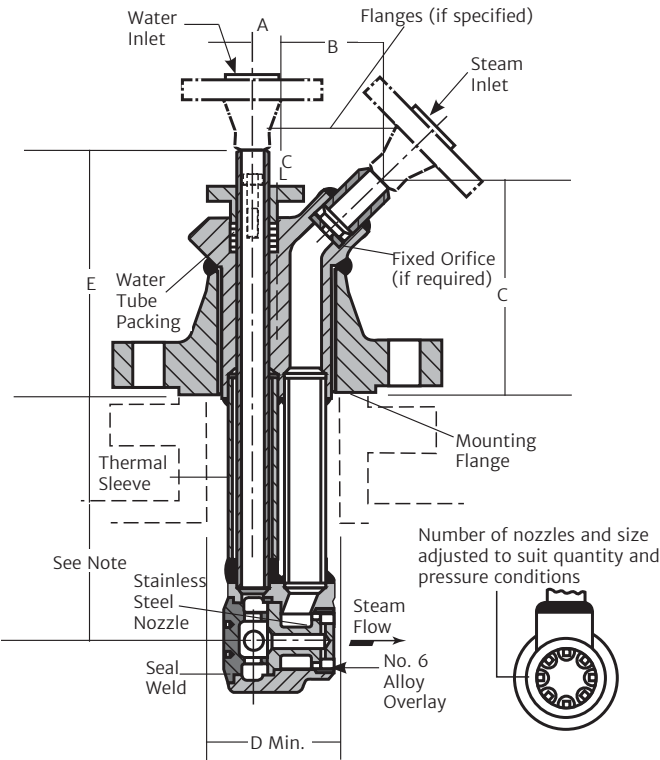
TYPICAL APPLICATIONS

- REFINERIES
- CHEMICAL
- PULP & PAPER

DIMENSIONS

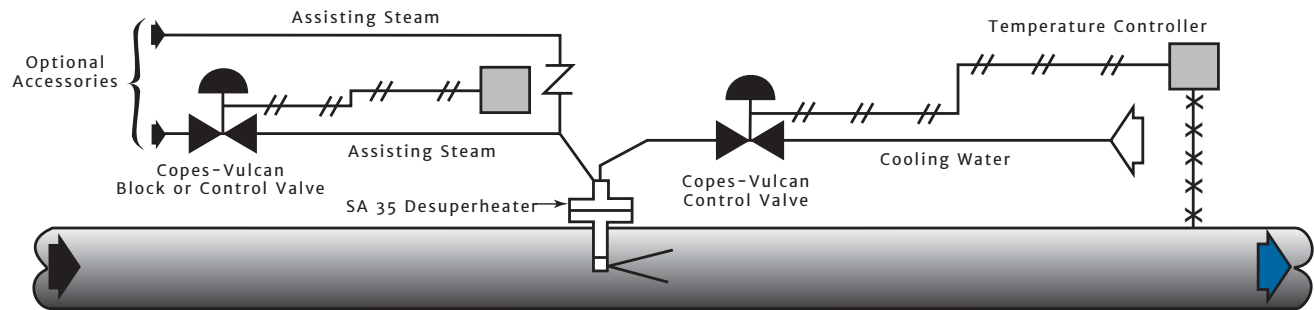
SIZE	DIMENSIONS (INCHES) - ALL HEADER SIZES																	
	MOUNTING FLANGE	WATER CONN.	STEAM CONN.	A	B	C				D MIN.	TO 600 STD.			900 & 1500 STD.				
						150	300	400	600		E	H	CONN. PIPES SCHEDULE	C	E	H	CONN. PIPES SCHEDULE	
3-4	3	.5	.5	.5	3.875	6.25	6	.625	—	7	3	7	6	80	7	8	7	—
4-6	4	.75	1	.8125	4.25	6.75	7	7.5	8	4	9	6	80	8	10	7	160	
6-8	6	1.25	1.5	1.125	5	7.875	8.25	8.75	9.25	6	10	6.5	80	10	11	8.5	160	
8-10	8	2	2	1.375	6	8.5	8.875	9.375	10	8	11	7	80	11	13	9	160	

NOTE: Any size desuperheater may be mounted on any header size larger than minimum size listed below. Extension pipe lengths are varied to locate sprayhead at center of header up to maximum size listed. No increase is made for larger headers causing head to be slightly off center.



DESUPERHEATER SIZE	HEADER SIZE
3-4	4-16" (100-400mm)
4-6	6-18" (150-450mm)
6-8	8-20" (200-500mm)
8-10	10-24" (250-600mm)

PRINCIPLE OF OPERATION



Temperature impulse signal from controller actuates cooling water valve flow to desuperheater. Atomizing steam may require a pressure reducing valve and pressure controller or check valve only, depending upon atomizing steam source conditions.

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