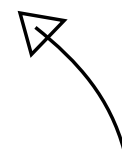


AB5110



Attemperator



*Breakthrough
engineering*

AB5110 Attemperator

Complimenting our complete line of high performance attemperators, IMI Critical Engineering introduces the optimised AB5110, a general all-purpose attemperator that is well suited for incineration, refinery, liquefaction, petrochemical and chemical plants.

The AB5110 is a reliable cost-effective solution that is simple to install with low maintenance and cost of ownership. Incorporating multi-stage pressure drop technology, it reduces high pressure water in stages to prevent erosion damage. Variable orifice spring-loaded nozzles, to increase turn down while improving water evaporation, provide highly accurate temperature control.

Now with more features and benefits than ever to meet all your needs. Contact your local IMI Critical Engineering support for more information.

Key features

> Spring-loaded OP nozzles

- Our patented OP nozzles with a variable orifice spring-loaded design, injects the right amount of fine water droplets for efficient primary atomisation.

> Replaceable OP nozzles

- Up to 3 slots are available to add, remove or replace OP nozzles to achieve the required capacity.

> External metal seat

- Repeatable tight shut-off according to Class IV or V is achieved with a seat design located external to the steam pipe, preventing unintended water leakage.

> Multi-stage technology

- Multi-stage cascade trim reduces the high-pressure water in discrete stages to prevent damaging cavitation that can quickly erode the valve trim.

> Tapered nozzle tube

- Using FEA simulations, the tapered nozzle tube design is ideal to withstand high structural and thermal stresses caused by the steam flow.

> Flexible options

- Available in various trim sizes, end connections and actuation to meet all your needs

Benefits

> Accurate temperature control

With the high performance OP nozzles and placement at the center of the steam pipe, allowing for complete water atomisation to ensure precise temperature control, increases plant efficiency, productivity and low operating costs.

> High reliability

Multi-stage technology, robust tapered nozzle tube and a reliable external seat, reduce the potential for damage due to erosion, vibration and thermal stress.

> High capacity and turn-down

The flexibility of the quantity of installed OP nozzles allow for a high degree of flexibility to meet any capacity and turn-down ratio.

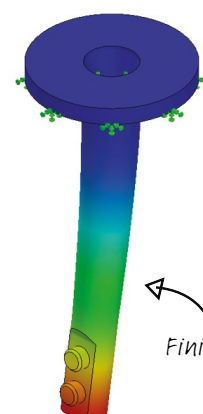
> Easy maintenance

No special tools required, no welding of trim or components and with 30% fewer parts than typical probe attemperators, maintenance is fast and simple.

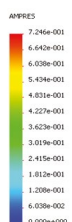


Multi-stage technology cascade anti-cavitation trim to control cavitation damage

OP nozzle for fine water droplets spray



Finite Element Analysis (FEA) for nozzle tube



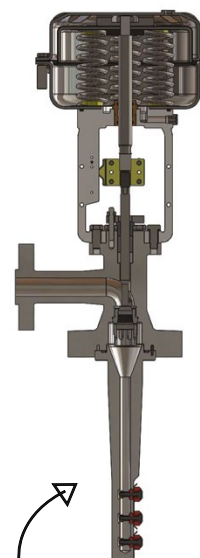
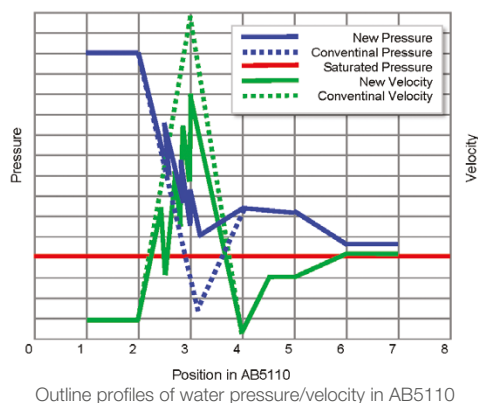
Multi-stage anti-cavitation performance

The AB5110 applies the multi-stage pressure drop technology of contoured plug and variable spring-loaded OP nozzles.

When the water flow rate is low, the AB5110 reduces the high pressure water in discrete stages to prevent cavitation. When the water flow rate is high, the pressure drop is low and the spring-loaded OP nozzle controls the high pressure injected cooling water going into the steam pipe. The combination of these two technologies provide the best solution for desuperheating and accurate temperature control.

The graph outlines the water pressure and velocity of the AB5110. Position 1-2 and 6-7 are at the inlet and outlet of AB5110. Position 3 is at the vena-contracta at the

outlet of the trim. Cavitation and flashing are controlled to avoid damage to the attenuator.



Fewer parts and simple structure for robust design and easy maintenance

Product specification

Connection size

Water inlet flange: 1-1/2"
Steam flange: 3"

ASME pressure ratings

ASME class 600, 900 and 1500

Body material

ASTM A217-WC6 (option: A217-WC9)

Trim type

Multi-stage pressure drop type of contoured plug

Rated Cv

3.0, 4.6, 6.5, 7.8 (option: other Cv)

Stroke

25.5mm, 32.0mm

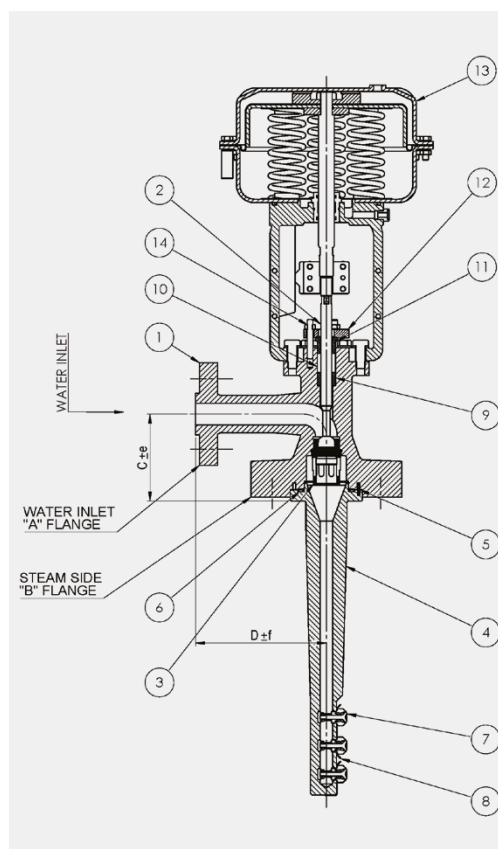
Actuator

MSD-III diaphragm actuator

Seat leakage class

ANSI / FCI 70.2 Class IV, Class V

Materials & dimensions



Part No.	Component	Material
1	Body	A217 WC6
2	Plug	SUS630
3	Seat ring	SUS630
4	Nozzle tube	A182 F11
5	Spring pin	SUS304
6	Gasket	Graphite
7	OP nozzle	Standard
8	Lock plate	SUS304
9	Stem guide bush	SUS304
10	Gland packing	Graphite
11	Packing gland	SUS304
12	Packing flange	A182 F11
13	Actuator	MSD-III diaphragm
14	Gland stud/nut	B7&2H / B16&GR4

ASME Class	600		900		1500	
Main steam pipe size	~ 14"	16"~	~ 14"	16"~	~ 14"	16"~
Connection	Water inlet A		1.5"			
	Steam B		3"			
C (mm)	153					
D (mm)	230					
Tolerance	e (mm)		0.8			
	f (mm)		0.8			
Approximate weight (kg)	90	93	95	98	102	105

Note: Above weight is dependent on actuator size and type.

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