Type DVX

BYVAP®
Steam Desuperheater

Description

The BYVAP steam desuperheater type DVX is designed for accurate and cost effective steam temperature control.
The desuperheater DVX is a complete temperature control product cooling the superheated steam by introducing water into the steam flow, because of a multi-hole nozzle design combined with a Venturi effect.

Characteristics

- Body material : 1.4404 / A182 F316L
- TMS : 930°F / 500°C
- PN250 / Class1500
- Water flange: ½"/ 1" / DN15/DN25
- Minimum temperature above saturation 41°F / 5°C
- Accuracy: +/- 1,5%

Particular advantages

Excellent spraying by high quality vortex nozzles, greatly reducing the risk of water accumulation in the pipe, and large turndown ratio.

How to order

DVX Body DN..., Material..., PN/Class ..., Kv...,
Water flange Size / Class ...

Certification

This desuperheater complies with 2014/68/EU PED.
Because of the limited dimension of equipment, it is subjected to article 4.3 (Sound Engineering Practice) of the directive and as such it cannot receive EU marking.

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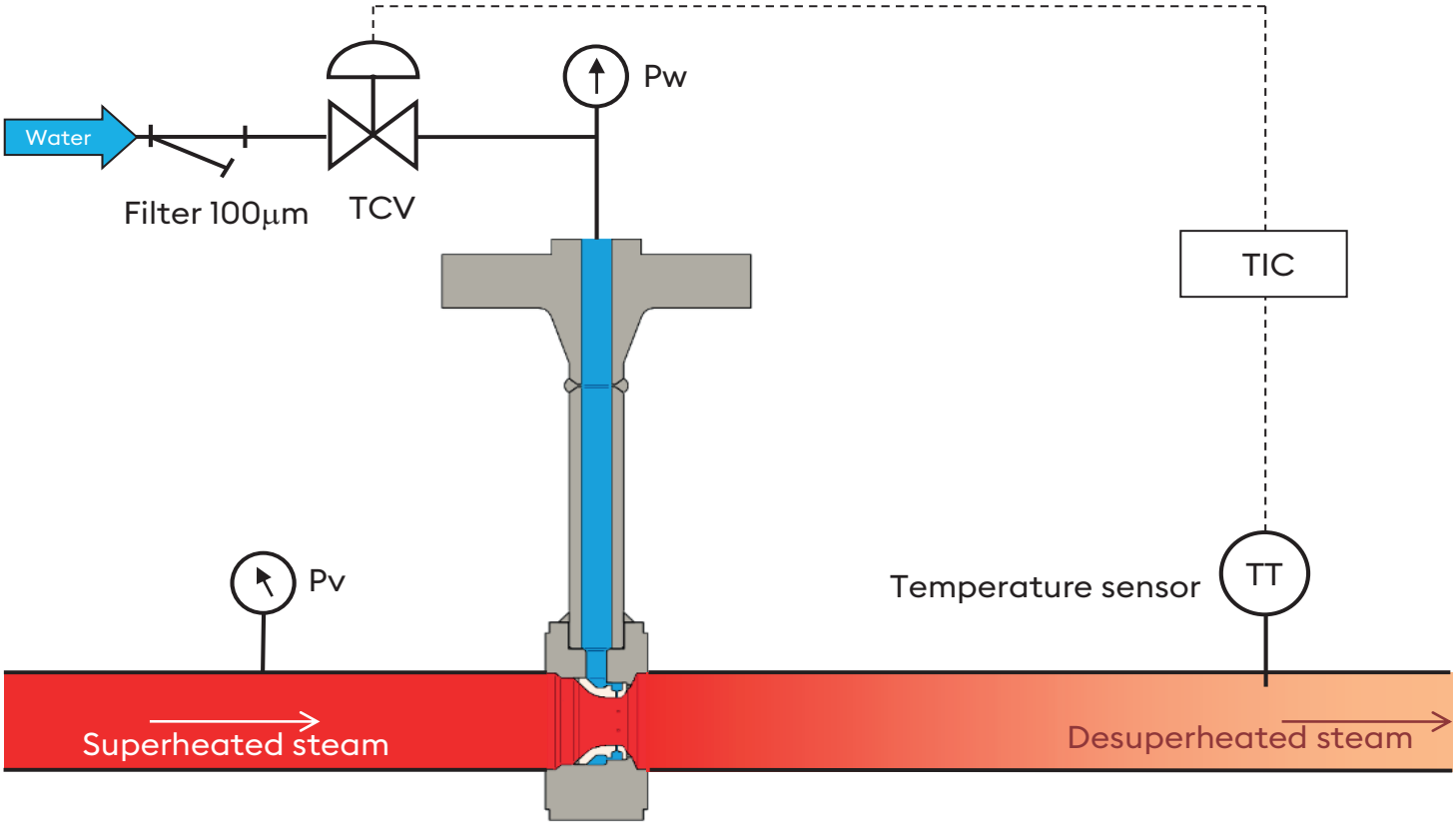
Schematic diagram



Recommandations

FILTRER

The installation of a 100µm filter in the desuperheating water line is recommended to protect the desuperheater DVX

STRAIGHT LENGTH

The first elements that can impair the desuperheating, must not be located less than 6xD upstream and 20xD downstream

PRESSURE DIFFERENCE

The difference of pressure between water of desuperheating and steam must be between 7.25 PSI / 0,5bar and 145 PSI / 10bar.

STEAM SPEED

Minimal speed of steam must not be below 23ft/s / 7m/s.

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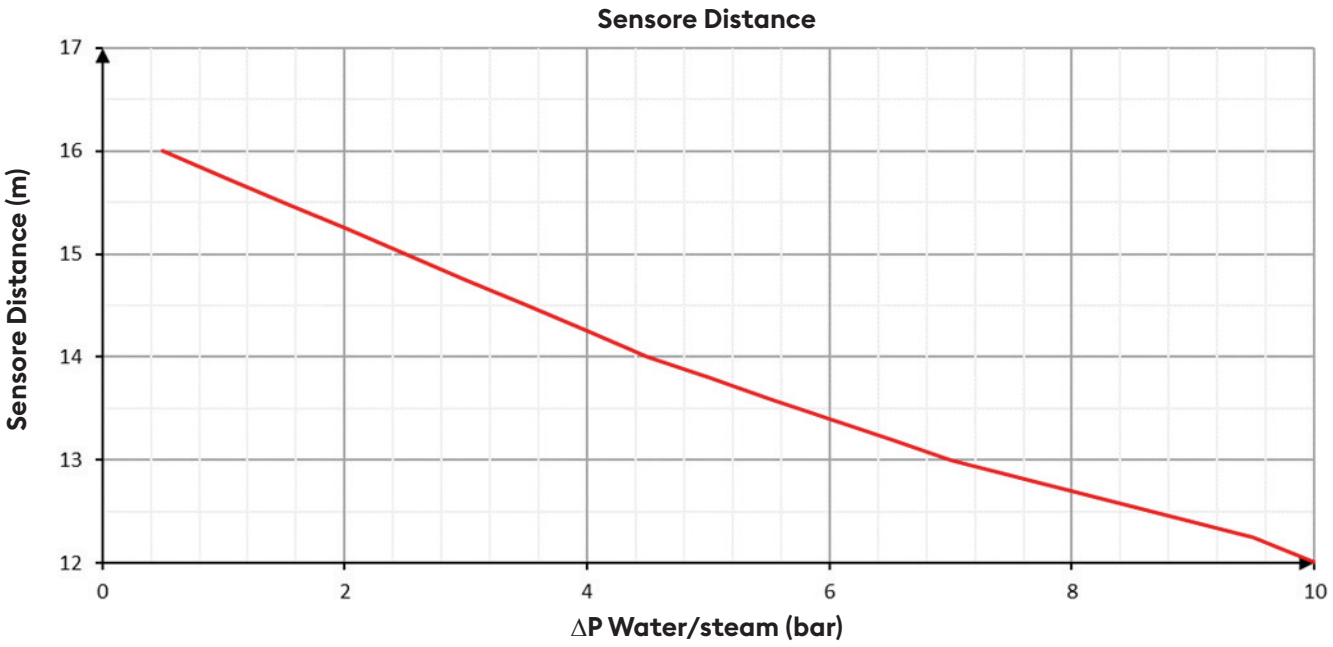
TEMPERATURE SENSOR DISTANCE



Standard capacity

SIZE	1 ½"	Kv	0.012	0.024	0.036	0.048	0.072	0.096	-	-	-	-	-
		Cv	*0.014*	*0.028*	*0.042*	*0.055*	*0.083*	*0.111*	-	-	-	-	-
	2"	Kv	0.024	0.036	0.048	0.072	0.096	0.12	-	-	-	-	-
		Cv	*0.028*	*0.042*	*0.055*	*0.083*	*0.111*	*0.14*	-	-	-	-	-
	2 ½"	Kv	0.036	0.048	0.072	0.096	0.12	0.16	0.20	-	-	-	-
		Cv	*0.042*	*0.055*	*0.083*	*0.111*	*0.14*	*0.18*	*0.23*	-	-	-	-
	3"	Kv	0.048	0.072	0.096	0.12	0.16	0.20	0.27	0.36	0.45	-	-
		Cv	*0.055*	*0.083*	*0.111*	*0.14*	*0.18*	*0.23*	*0.31*	*0.42*	*0.52*	-	-
	4"	Kv	0.072	0.096	0.12	0.16	0.20	0.27	0.36	0.45	0.56	0.64	0.81
		Cv	*0.083*	*0.111*	*0.14*	*0.18*	*0.23*	*0.31*	*0.42*	*0.52*	*0.65*	*0.74*	*0.94*

table 1

Type DVX | BYVAP® Steam Desuperheater

Flow calculation :

To select a Sprayhead to install on the desuperheater two calculations have to be done:

- A calculation to define the water flow based on the process data.
- A calculation to define the Kv

The water flow Qw is first calculated from process data using the following formula:

$$Q_W = Q_V \frac{H_{ve} - H_{vs}}{H_{vs} - H_w}$$

Q_v = Steam flow (m^3/h)
Q_w = Water flow (m^3/h)
H_{ve} = Upstream Steam enthalpy
H_{vs} = Downstream Steam enthalpy
H_w = Water enthalpy

A simplified Kv calculation can be done using the following formula:

$$K_V = \frac{Q_W}{\sqrt{P_W - P_V}}$$

Q_w = Water flow (m^3/h)
P_v = Steam pressure (bar)
P_w = Water pressure (bar)

Dimensions

SIZE	H (mm)	A (mm)		Water flange	Mass (kg)
		Between flanges	Welded BW		
1 ½"	200	40	60	½"	2,5
2"	205	40	65	½"	3,5
2 ½"	215	45	70	½"	4,2
3"	227	50	75	½"	6,2
4"	260	60	90	1"	10

table 2