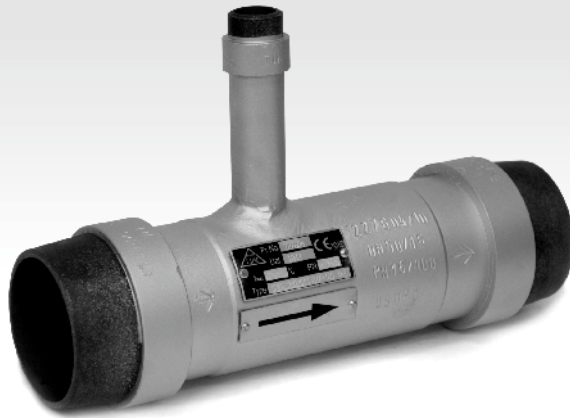




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DESUPERHEATER **CHPE**





CHPE

Desuperheater

DN 40 to 200
PN 16 to 320

Description

This desuperheater (further the CHPE only) is a device designed to control the temperature of steam. CHPE consists of a body which is a part of a steam pipeline and of an inlet port used for supply of cooling water. Internal shape is formed as a Venturi tube where there is a significant increasing of speed. This increased speed positively influences the quality of water atomization as well as evaporation velocity of water injected. The orifice plate is included in the output port of CHPE to increase the cooling effect. The throat followed by extended part in which there is the gap used to supply of cooling water. For better secession of the water stream there is tear-off edge provided.

A quantity of injection water is controlled by separate water control valve. Due to construction of CHPE it is capable of injecting water from zero values. The minimal water quantity is limited on its control valve only and maximal value is limited by the ratio between the mass of water and steam. The shape of Venturi tube causes low pressure drop in the stem pipeline for the recommended speed ranges of cooled steam. In these cases the pressure drop can be ignored in the calculations. CHPE is supplied with flanged or welded connection possibly with their combination.

Application

CHPE serves for precise and economical temperature regulation by a direct intalling of cooling water into steam flow. CHPE is designed especially for industrial applications such as low-pressure steam production in heating, steam circuits in power plants or technological processes.

Process media

CHPE is designed to inject cooling water without mechanical impurities. Application of CHPE for other process media must be considered to the used material that is in contact with the medium and it is recommended to consult with the manufacturer.

For proper function of CHPE it is recommended to install strainer in front of the water control valve.

Installation

CHPE must be installed into pipeline always the way so that the process medium flow will coincide with the arrows indicated on the body. As far as the dismantling is considered, it is recommended to leave free space of him. CHPE can be installed in horizontal, vertical or inclined pipeline in any position.

Technical data

Series	CHPE	
Execution	Flanged or weld ends	
Nominal size DN (steam pipeline)	40 to 200	
Nominal size DN (water)	15 to 50	
Nominal pressure PN	16 to 320	
Body material (flanges / weld ends)	Cast steel 1.0425 (P265GH) / 1.0426 (P280GH)	20 to 480 °C
	Alloy steel 1.7335 (13CrMo4-5)	20 to 550 °C
	Alloy steel 1.7380 (10CrMo9-10) / 1.7383 (11CrMo9-10)	20 to 600 °C
	Stainless steel 1.4922 (X20CrMoV11-1)	20 to 600 °C
Flanges	Acc. to ČSN EN 1092-1 (03/2008)	
Weld ends	Acc. to ČSN EN 12627 (08/2000)	
Maximal permissible pressures	Acc. to ČSN EN 12516-1 (01/2006)	

Connection dimensions (weld ends)

DN	PN						16 - 160	250	320	
	16	25	40	63	100	160				
t [mm]										
D										
15	2						2.6	3.2	21.3	
20	2.3						---		26.9	
25	2.6						2.9	3.6	5	33.7
32	2.6						---		42.4	
40	2.6	2.9	3.2	3.6	5	6.3	48.3			
50	2.9	3.2	3.6	4	6.3	8	60.3	60	64	
65	2.9	3.6	4	5	8	11	76.1	76	89	
80	3.2	4	5	6.3	11	13	88.9	101.6		
100	3.6	4.5	5.6	8	14	16	114.3	127	133	
125	4	5.6	6.3	10	16	20	139.7	152	168	
150	4.5	6.3	8	13	18	25	168.3	178	194	
200	6.3	7.1	8.8	16	25	30	219.1	244.5		

Connection dimensions

DN	L	L1	H	
			Flanges [mm]	Weld ends
40	200		Dle PN příruby	
50	230	95		110
65	290			118
80	310			159
100	350	156		170
125	400	170		184
150	480	205		199
200	600	230		224

Connection dimensions (flanges)

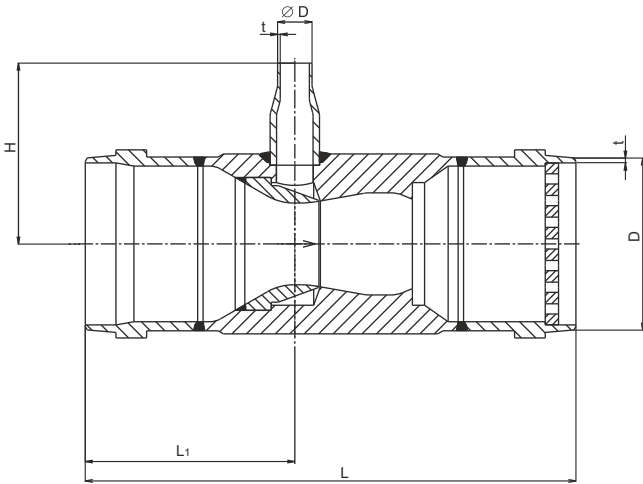
DN	PN 16					PN 25					PN 40					PN 63																																								
	D1	D2	a [mm]	d	n [шт]	D1	D2	a [mm]	d	n [шт]	D1	D2	a [mm]	d	n [шт]	D1	D2	a [mm]	d	n [шт]																																				
15	95	65	16	14	4	95	65	16	14	4	95	65	18	18	4	105	75	20	22	4																																				
20	105	75	18			105	75	20			105	75				22	130	90			24	26	8	140	100	26	30	33																												
25	115	85				115	85				140	100					155	110						36	36				42	36	12																									
32	140	100				140	100				170	125					180	135														42	42	48	48																					
40	150	110				150	110				185	145					22	180																		135	48	48	54	60																
50	165	125				165	125				200	160					24	200																		160					54	54	60	66												
65	185	145				185	145				235	190					24	235																		190									60	60	66	72								
80	200	160				200	160				270	220					26	270																		220													66	66	72	78				
100	220	180				220	180				300	250					28	300																		250																	72	72	78	84
125	250	210				250	210				345	280					36	345																		280																				
150	285	240		285	240	415	345		42	415	345	84	84	90	96																																									
200	340	295	340	295						90	90					96	102																																							

DN	PN 100					PN 160					PN 250					PN 320					PN16/PN40-320			
	D1	D2	a [mm]	d	n [шт]	D1	D2	a [mm]	d	n [шт]	D1	D2	a [mm]	d	n [шт]	D1	D2	a [mm]	d	n [шт]	D3 [mm]	f [mm]		
15	105	75	20	14	4	105	75	20	14	4	130	90	26	18	4	130	90	26	18	4	45	2		
20	130	90	22	18		---					---					---					58			
25	140	100	24	22		140	100	24	18	4	150	105	28	22	4	160	115	34	22	4	68			
32	155	110	24			---					---					---					78			
40	170	125	26			8	170	125	28	22	4	185	135	34	26	4	195	145	38	26	4		88	
50	195	145	28				195	145	30	22	4	200	150	38	8	210	160	42	8	102				
65	220	170	30				220	170	34	26	8	230	180	42		255	200	51		30	122			
80	230	180	32				230	180	36	26	8	255	200	46		30	275	220		55	36		138	
100	265	210	36				265	210	40	30	8	300	235	54		33	335	265		65	36		158	162
125	315	250	40				315	250	44	33	12	340	275	60		12	380	310		75	12		188	
150	355	290	44		355		290	50	33	12	390	320	68	36			425	350		84		39	212	218
200	430	360	52		430		360	60	36	12	485	400	82	42			525	440		103		42	268	285

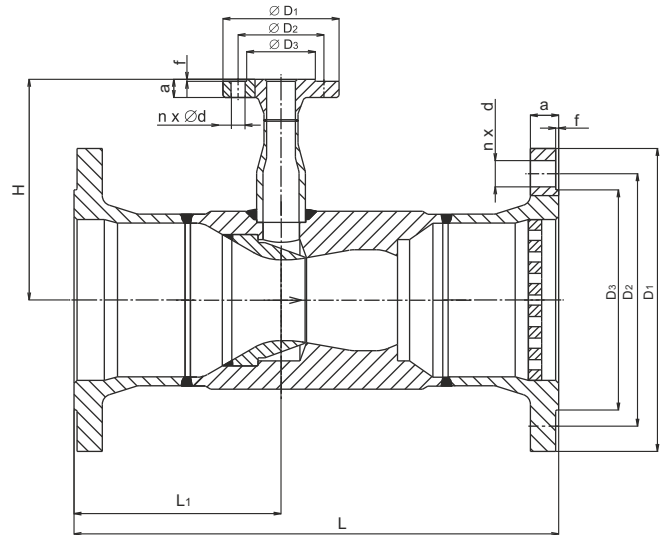
Note: DN 15 - 50 applies to injection water connection
DN 40 to 200 applies to steam pipeline connection.

Welded and flanged connection can be combined

Version with weld ends CHPE



Version with flanges CHPE



Valve complete specification No. for ordering CHPE

		XXXX	XXX	/	XXX	-	XXX	/	XXX	X	X	X
Series	Steam cooling unit	CHPE										
DN stem pipeline	DN - acc. to design		XXX									
DN water	DN - acc. to design				XXX							
PN steam pipeline	PN - acc. to design						XXX					
PN water	PN - acc. to design								XXX			
Connection - steam pipeline	Flange with raised face											1
	Flange with female face											2
	Flange with plain face											3
	Weld ends											4
Connection - water	Flange with raised face											1
	Flange with female face											2
	Flange with plain face											3
	Weld ends											4
Material	Cast steel 1.0425 / 1.0426 (20 to 480°C)											1
	Alloy steel 1.7335 (20 to 550°C)											2
	Alloy steel 1.7380 / 1.7383 (20 to 600°C)											6
	Stainless steel 1.4922 (20 to 600°C)											7
	Other material											9

Order example: Steam cooling unit CHPE with welded connection into steam pipeline DN150 PN 100, flanged connection of injection water DN 25 PN160 type B1, body material alloy steel 1.7335 is marked as follows: **CHPE 150/80-040 1**

Max. permissible operating pressures [MPa]													
Material	PN	Temperature [°C]											
		100	150	200	250	300	350	400	450	480	500	550	600
Cast steel 1.0425 / 1.0426	16	1.5	1.42	1.34	1.23	1.11	1.04	0.96	0.59	0.36	---	---	---
	25	2.34	2.22	2.10	1.92	1.74	1.62	1.50	0.92	0.56	---	---	---
	40	3.74	3.55	3.36	3.07	2.78	2.59	2.40	1.47	0.90	---	---	---
	63	5.90	5.59	5.29	4.84	4.38	4.08	3.78	2.32	1.41	---	---	---
	100	9.36	8.88	8.40	7.68	6.96	6.48	6.00	3.68	2.24	---	---	---
	160	14.9	14.2	13.4	12.2	11.1	10.3	9.60	5.89	3.59	---	---	---
	250	23.4	22.2	21.0	19.2	17.4	16.2	15.0	9.20	5.60	---	---	---
	320	29.9	28.4	26.8	24.5	22.2	20.7	19.2	11.7	7.17	---	---	---
	400	37.4	35.5	33.6	30.7	27.8	25.9	24.0	14.7	8.96	---	---	---
Alloy steel 1.7335	16	1.6	1.6	1.6	1.6	1.6	1.49	1.37	1.26		1.0	0.47	---
	25	2.5	2.5	2.5	2.5	2.5	2.33	2.13	1.97		1.56	0.73	---
	40	4.0	4.0	4.0	4.0	4.0	3.73	3.41	3.15		2.5	1.17	---
	63	6.3	6.3	6.3	6.3	6.3	5.87	5.38	4.97		3.93	1.85	---
	100	10.0	10.0	10.0	10.0	10.0	9.31	8.53	7.89		6.24	2.93	---
	160	16.0	16.0	16.0	16.0	16.0	14.9	13.6	12.6		9.99	4.70	---
	250	25.0	25.0	25.0	25.0	25.0	23.2	21.3	19.7		15.6	7.34	---
	320	32.0	32.0	32.0	32.0	32.0	29.8	27.3	25.2		19.9	9.39	---
	400	40.0	40.0	40.0	40.0	40.0	37.2	34.1	31.5		24.9	11.7	---
	630	63.0	63.0	63.0	63.0	63.0	58.7	53.8	49.7		39.3	18.5	---
Alloy steel 1.7380 / 1.7383	16	1.6	1.6	1.6	1.6	1.6	1.5	1.37	1.26		1.05	0.56	0.24
	25	2.5	2.5	2.5	2.5	2.5	2.35	2.13	1.97		1.65	0.88	0.37
	40	4.0	4.0	4.0	4.0	4.0	3.75	3.41	3.15		2.63	1.41	0.6
	63	6.3	6.3	6.3	6.3	6.3	5.91	5.38	4.97		4.15	2.22	0.94
	100	10.0	10.0	10.0	10.0	10.0	9.38	8.53	7.89		6.58	3.52	1.49
	160	16.0	16.0	16.0	16.0	16.0	15.0	13.6	12.6		10.5	5.63	2.39
	250	25.0	25.0	25.0	25.0	25.0	23.4	21.3	19.7		16.4	8.80	3.73
	320	32.0	32.0	32.0	32.0	32.0	30.0	27.3	25.2		21.0	11.2	4.78
	400	40.0	40.0	40.0	40.0	40.0	37.5	34.1	31.5		26.3	14.0	5.98
Stainless steel 1.4922	16	1.6	1.6	1.6	1.6	1.6	1.5	1.37	1.26		1.05	0.9	0.42
	25	2.5	2.5	2.5	2.5	2.5	2.35	2.13	1.97		1.65	1.46	0.65
	40	4.0	4.0	4.0	4.0	4.0	3.75	3.41	3.15		2.63	2.33	1.05
	63	6.3	6.3	6.3	6.3	6.3	5.91	5.38	4.97		4.15	3.67	1.65
	100	10.0	10.0	10.0	10.0	10.0	9.38	8.53	7.89		6.58	5.82	2.61
	160	16.0	16.0	16.0	16.0	16.0	15.0	13.6	12.6		10.5	9.32	4.18
	250	25.0	25.0	25.0	25.0	25.0	23.4	21.3	19.7		16.4	14.5	6.54
	320	32.0	32.0	32.0	32.0	32.0	30.0	27.3	25.2		21.0	18.6	8.37
	400	40.0	40.0	40.0	40.0	40.0	37.5	34.1	31.5		26.3	23.3	10.4



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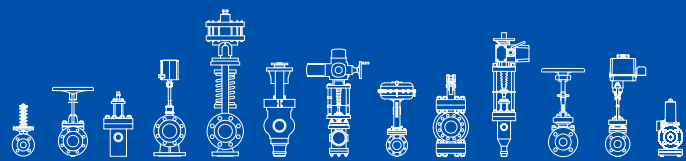
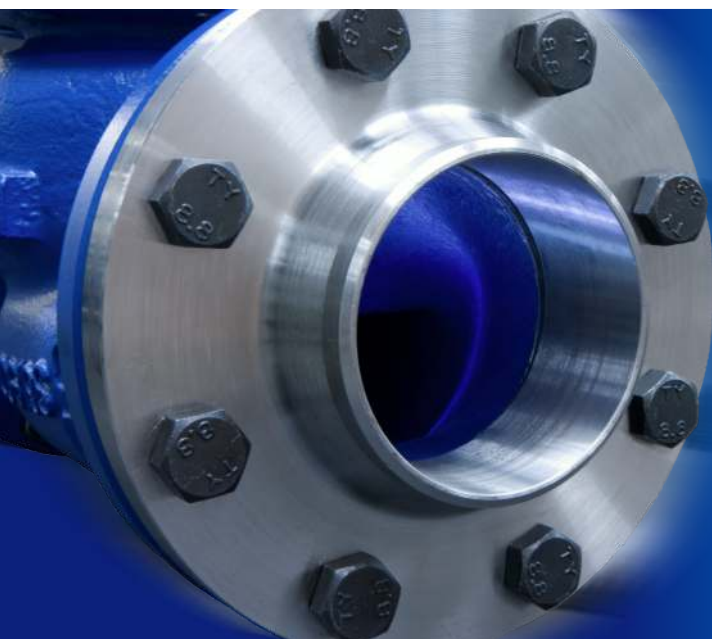
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