



02 - 03.2
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Injection head (mechanical type)

VH





VH

Injection head

DN 25, 40, 50
PN 25 to 160

Description

The injection head (further in text only VH) is a device designed to control the temperature of steam. VH is equipped with a mechanical spraying nozzle with changable flow. The nozzle is designed to create tiny drops of cooling water independently on water quantity. Water is sprayed proportionally so it could quickly evaporate. Injected water quantity is controlled by a separate control valve.

VH is supplied in flanged possibly welded connection with connection flange 2 (connection to steam pipeline) of DN 50 (for temperature of 350°C max. only) or DN 80 with 1 to 3 nozzles and dimensions corresponding to the customer's requirements.

Application

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

Process media

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

For the correct function of the VH, the manufacturer recommends inserting a filter of mechanical impurities into the pipeline in front of the control valve of the injected water, or in another suitable way to ensure that the injected medium does not contain abrasive admixtures or other mechanical impurities.

Installation

VH must be installed into pipeline always the way so that the flow of cooled medium will coincide with the arrows indicated on the flange No. 2. As far as the dismantling is considered, it is recommended to leave free space of min. Height that is equal to the distance between flange lower edge and end point of body bent (length "L"). VH can be piped in horizontal, vertical or inclined pipeline in any position.

Detailed instructions for installation are given in document „Instruction for Installation and Maintenance“ and in „Heat balance calculation“ which is a part of the offer.

Technical data		VH	
Series		Injection head with 1, 2 or 3 nozzles	
Execution		Injection head with 1, 2 or 3 nozzles	
Flange 1 (water connection)	Nominal diameter	DN 25 to 50	
	Nominal pressure	PN 16 to 250	
Flange 2 (connection to the steam line)	Nominal diameter	DN 80	
	Nominal pressure	PN 100 to 400	
Body material and connection to the steam line)		Cast steel 1.0426 (P 280 GH)	20 to 350 °C
		Alloy steel 1.7335 (13CrMo4-5)	20 to 550 °C
		Alloy steel 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 (07/2013)	
Operating pressures		Acc. to ČSN EN 12516-1 (08/2015)	

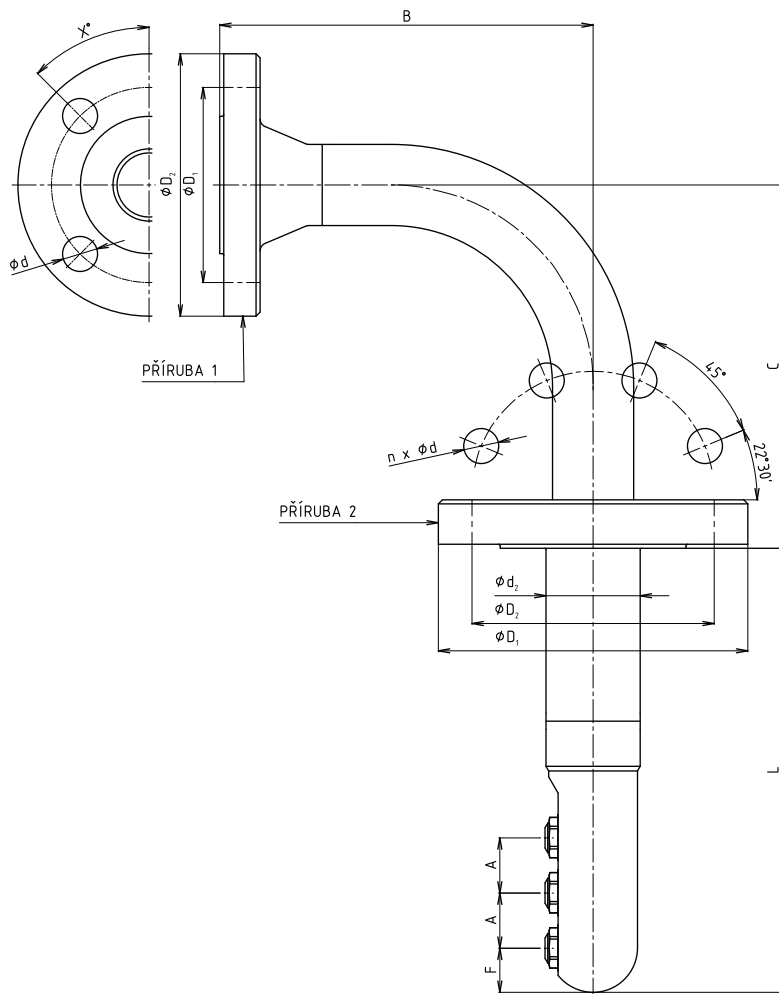
Kvs values			
No. of nozzles	1	2	3
K _{Kvs}	2.4	4.8	7.2

Connection dimensions of VH

DN	PN16-160		PN250		PN 16 - 40			Flange 1 PN 63			PN 100			PN 160			PN 250		
	n	χ°	n	χ°	D1 mm	D2 mm	d mm	D1 mm	D2 mm	d mm	D1 mm	D2 mm	d mm	D1 mm	D2 mm	d mm	D1 mm	D2 mm	d mm
25	4	45	4	45	115	85	14	140	100	18	140	100	18	140	100	18	150	105	22
40	4	45	4	45	150	110	18	170	125	22	170	125	22	170	125	22	185	135	26
50	4	45	8	22.5	165	125	18	180	135	22	195	145	26	195	145	26	200	150	26

DN	PN 100, 160				PN 250				PN 320				PN 400			
	D1 mm	D2 mm	n mm	d mm	D1 mm	D2 mm	n mm	d mm	D1 mm	D2 mm	n mm	d mm	D1 mm	D2 mm	n mm	d mm
80	230	180	8	26	255	200	8	30	275	220	8	30	305	240	8	33

DN	d_2 mm	A mm	F mm	B						C mm	L_{max} mm
				PN 16 mm	PN 25-40 mm	PN 63 mm	PN 100 mm	PN 160 mm	PN 250 mm		
25				192	192	210	210	210	217	221	385
40	76	41	33	217	217	234	234	236	252	240	385
50				247	250	254	270	277	287	270	385



Complete specification No. for ordering VH

		XX	X	XXX	/	XXX	-	XXX	X	X	XXX
Series	Injection head	VH									
No. of nozzles	1 up to 3 nozzles acc. to version		X								
DN steam line connect.	DN80			XXX							
DN water	DN - acc. to version					XXX					
PN water	PN - acc. to version							XXX			
Material	Cast steel 1.0426 (20 to 350°C)										1
	Alloy steel 1.7335 (20 to 550°C)										2
	Alloy steel 1.7383 (20 to 600°C)										6
	Stainless steel 1.4922 (20 to 600°C)										7
	Other material										9
Opening pressure	0,2 MPa										1
	combine 0,2 and 0,4 MPa										2
	0,4 MPa										3
Lenght L	acc. to version										XXX

Ordering example: Injection head with 1 nozzle, flange 2 DN 80, flange 1 DN 25, PN 160, body material: cast steel 1.0425, opening pressure 0,4 MPa, length L=300 mm is marked as follows: **VH1 080/025-160 1 3 300**

Note: The delivery includes connecting material and an intermediate flange seal for connection to the steam line

Max. permissible operating pressures [MPa]

Material	PN	Temperature [°C]										
		100	150	200	250	300	350	400	450	500	550	600
Uhlíková ocel 1.0425 / 1.0426	16	1.5	1.42	1.34	1.23	1.11	1.04	---	---	---	---	---
	25	2.34	2.22	2.10	1.92	1.74	1.62	---	---	---	---	---
	40	3.74	3.55	3.36	3.07	2.78	2.59	---	---	---	---	---
	63	5.90	5.59	5.29	4.84	4.38	4.08	---	---	---	---	---
	100	9.36	8.88	8.40	7.68	6.96	6.48	---	---	---	---	---
	160	14.9	14.2	13.4	12.2	11.1	10.3	---	---	---	---	---
	250	23.4	22.2	21.0	19.2	17.4	16.2	---	---	---	---	---
	320	29.9	28.4	26.8	24.5	22.2	20.7	---	---	---	---	---
400	37.4	35.5	33.6	30.7	27.8	25.9	---	---	---	---	---	
Legovaná ocel 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	---	
Legovaná ocel 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	
Nerezová ocel 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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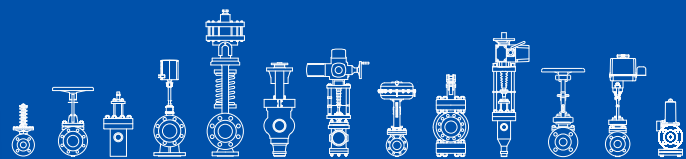
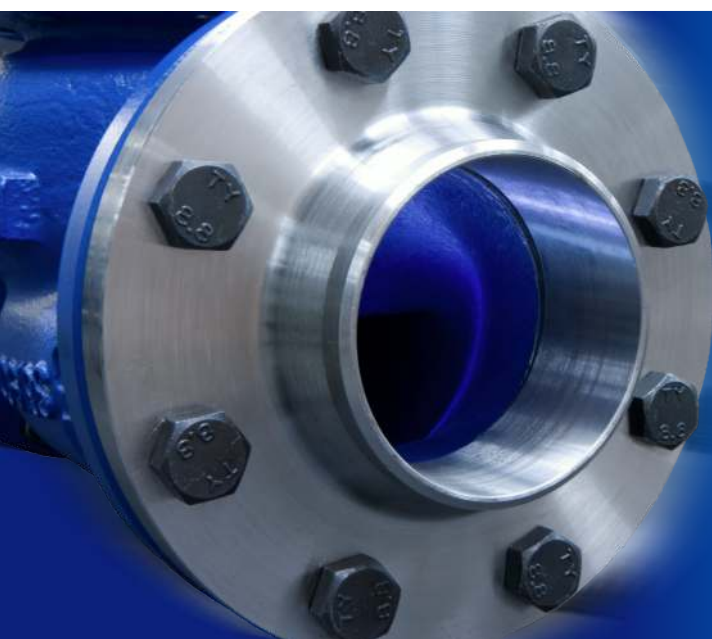
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