



**02 - 03.3**  
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## INJECTION HEAD (DRIVE-STEAM TYPE)

# VHP





# VHP

Injection head  
(drive-steam pipe)

**DN 20 and 25**  
**PN 25 to 100**

## Description

VHP is a device designed to regulate the temperature of the steam. VHP is equipped with Laval nozzle which sprays the injection water with the aid of kinetic energy of drive steam expanding in the nozzle. The used design enables creating tiny spray drops even with the minimum flow rate of cooling water which mostly depends on a rangeability of control valve piped before the injection head. VHP is supplied with flanged possibly welded connection with connection flange of DN 80 to the steam pipeline. The other dimensions (B, C, DN and PN of Flange 2 and 3) are subject to customer's requirements and must be clarified in the purchase contract.

## Application

VHP is designed for precise and economic injection of cooling water into steam. VHP is especially designed for industrial applications such as production of low-pressure steam or steam production in technology.

## Process media

VHP is designed to inject cooling water without mechanical impurities. Application of VHP 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.

## Installation

VHP 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. 1. As far as the dismantling is considered, it is recommended to leave free space of min. height that is equal to the distance between

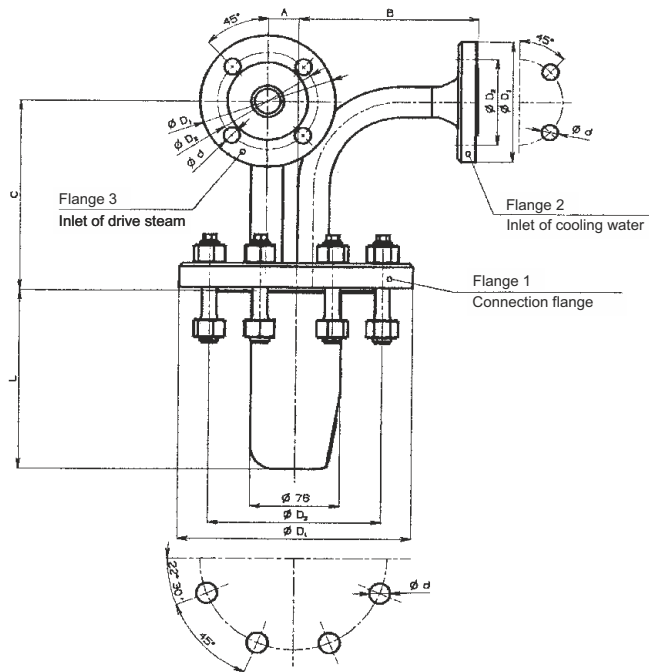
## Technical data

Series	VHP	
Execution	Injection head with Laval nozzle	
Nominal diameter	Flange 1: DN 80; flange 2 and 3: DN 20 and DN 25	
Nominal pressure	25 to 100	
Body and flange 1 material	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
Nozzle material	Alloy steel 1.7733	
Connecting dimensions (flanges / weld ends)	Acc. to ČSN EN 1092-1 (2/2003) / ČSN EN 12627 (8/2000) *)	

\*) Dimensions and type of connection (flange / weld) acc. to customers requirements. It shall be specified in the order

Connection dimensions													
PN	DN	Flange 1			Flange 2 and 3					A	B <sub>min</sub>	C	L
		D <sub>1</sub> mm	D <sub>2</sub> mm	d mm	PN	DN	D <sub>1</sub> mm	D <sub>2</sub> mm	d mm				
100	80	230	180	26	25	80	105	75	14	24	150 *)	150 *)	156
							115	85	14				
							105	75	14				
							115	85	14				
							63	130	90				
100	140	100	18										

\*) Dimensions and type of connection (flange / weld) acc. to customers requirements. It shall be specified in the order.



Complete specification No. for ordering VHP				XXX	XX	XXX	/	XXX	/	XXX	-	XXX	X
1. Series	injection head			VHP									
2. Nozzle diameter	10				10								
3. Nominal diameter	flange 1	DN 80	(connection flange - steam pipeline)			080							
	flange 3	DN 20 DN 25	(inlet of drive steam)					020 025					
	flange 2	DN 20 DN 25	(inlet of cooling water)							020 025			
4. Nominal pressure	PN 25											025	
	PN 40											040	
	PN 63											063	
	PN 100											100	
5. Body 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 (20 to 600°C)												6
	Stainless steel 1.4922 (20 to 600°C)												7
	Other material												9

**Ordering example:** Injection head, flange 1 DN 80, flange 2 DN 25, flange 3 DN 20, PN 40, body material: cast steel 1.0425 is specified as follows: **VHP10 080/025/020-040 1**

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



**LDM, spol. s r.o.**  
**Litomyšlská 1378**  
**560 02 Česká Třebová**  
**Czech Republic**

tel.: +420 465 502 511  
fax: +420 465 533 101  
e-mail: sale@ldm.cz

**LDM, spol. s r.o.**  
**Office Praha**  
**Podolská 50**  
**147 01 Praha 4**  
**Czech Republic**

tel.: +420 241 087 360  
fax: +420 241 087 192  
e-mail: sale@ldm.cz

**LDM, spol. s r.o.**  
**Office Ústí nad Labem**  
**Ladova 2548/38**  
**400 11 Ústí nad Labem**  
**- Severní Terasa**  
**Czech Republic**

tel.: +420 602 708 257  
e-mail: tomas.kriz@ldm.cz

**LDM servis, spol. s r.o.**  
**Litomyšlská 1378**  
**560 02 Česká Třebová**  
**Česká Republika**

tel.: +420 465 502 411-3  
fax: +420 465 531 010  
e-mail: servis@ldm.cz

**LDM Bratislava s.r.o.**  
**Mierová 151**  
**821 05 Bratislava**  
**Slovakia**

tel.: +421 2 43415027-8  
fax: +421 2 43415029  
e-mail: ldm@ldm.sk

**LDM, Polska Sp. z o.o.**  
**ul. Bednorza 1**  
**40 384 Katowice**  
**Poland**

tel.: +48 32 730 56 33  
fax: +48 32 730 52 33  
mobile: +48 601 354 999  
e-mail: ldmpolska@ldm.cz

**LDM Armaturen GmbH**  
**Wupperweg 21**  
**D-51789 Lindlar**  
**Germany**

tel.: +49 2266 440333  
fax: +49 2266 440372  
mobile: +49 177 2960469  
e-mail: ldmmaturen@ldmvalves.com

**OOO "LDM Promarmatura"**  
**Jubilejnyj prospekt,**  
**dom.6a, of. 601**  
**141400 Khimki Moscow Region**  
**Russia**

tel.: +7 4957772238  
fax: +7 4956662212  
mobile: +7 9032254333  
e-mail: inforus@ldmvalves.com

**TOO "LDM"**  
**Shakirova 33/1**  
**kab. 103**  
**100012 Karaganda**  
**Kazakhstan**

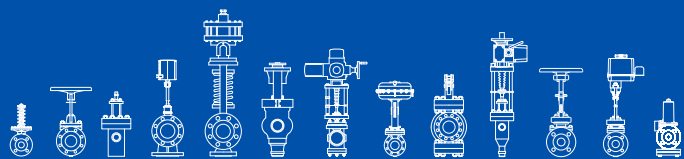
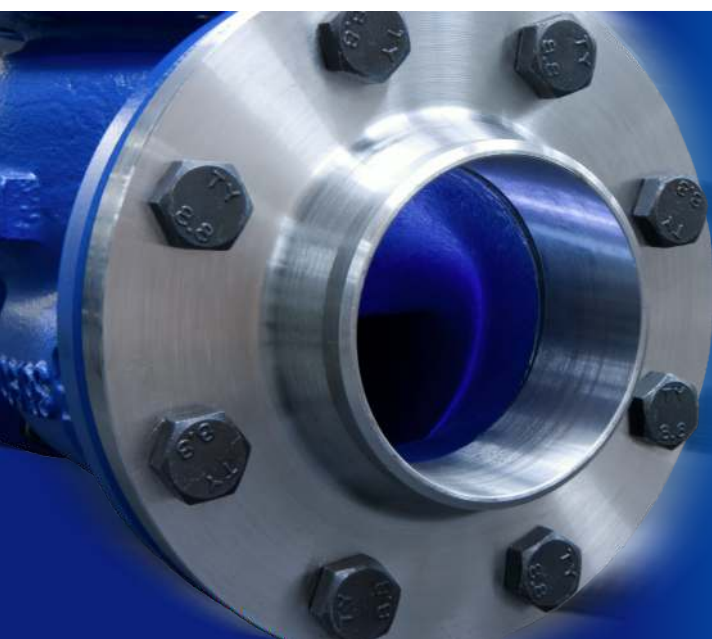
tel.: +7 7212 566 936  
fax: +7 7212 566 936  
mobile: +7 701 738 36 79  
e-mail: sale@ldm.kz

**LDM - Bulgaria - OOD**  
**z. k. Mladost 1**  
**bl. 42, floor 12, app. 57**  
**1784 Sofia**  
**Bulgaria**

tel.: +359 2 9746311  
fax: +359 2 9746311  
mobile: +359 888 925 766  
e-mail: ldm.bg@ldmvalves.com

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