	Instructions for installation and service	CHPR
	RADIAL DESUPERHEATER DN 200 - 600 PN 16 - 400	

The instructions for installation and service of radial desuperheater (CHPR) are binding for users to ensure proper function of steam desuperheater. The user must keep the rules said here while servicing, installation and using. Technical details of individual execution are specified in catalogue data sheets. If the usage of the valves is different from mentioned herein, the guarantee terms are not valid any more.

I. TECHNICAL DESCRIPTION AND FUNCTION

1.1 Description

Radial desuperheater, type CHPR, is equipment, designed for control of steam temperature. The CHPR has mechanical nozzles with variable flow and injection perpendicular injection to the pipe axis. The number of nozzles corresponds to the required quantity of water.

Quantity of cooling water is controlled by separated control valve. CHPR is delivered with weld ends or as a part of by-pass station together with RS702 or RS902 valves. The cooling water pipe is connected through flange or butt-welded.

1.2 Application

The CHPR serves for precise and economical steam temperature control by a direct injection of cooling water into flow of steam. The CHPR is primary designed for by-pass station.

1.3 Technical data

Series	CHPR	
Type	Welded	
Nominal diameter DN (steam line)	200 to 600	
Nominal diameter DN (water)	15 to 100	
Nominal pressure PN	16 to 400	
Material of body (including flange / weld end)	1.0426 (P 280 GH)	20 to 500°C
	1.7335 (13CrMo4-5)	20 to 550°C
	1.7383 (11CrMo9-10)	20 to 600°C
	1.4922 (X20CrMoV11-1)	20 to 600°C
Flanges	Acc. to EN 1092-1 (07/2013)	
Weld ends	Acc. to EN 12627 (08/2000)	
Operating overpressure	Acc. to EN 12516-1 (08/2015)	

1.4 Operating medium

CHPR is designed for injection of cooling water without mechanical impurities. Using for some other medium should be consulted with producer.

2. RULES FOR INSTALLATION AND OPERATING CHPR

2.1 Installation

CHPR has to be installed and put into operation by qualified person! Qualified person is a person acquainted with installation, putting into operation and manipulation herewith product, and which is qualified in enclosure. As well he must be for educated about health protection and safety at work.

2.2 Preparation before installation

Before installation into pipeline you must check the data on the name-plate with data mentioned in accompanying documentation. Then check if the CHPR is not damaged and dirty. Pay attention especially to inner space.

Antirust agents are applied on the CHPR during the manufacturing process. The inner space is protected by protective oil (Coyote Konkor). In case there is danger of cooled medium contamination, the CHPR must be rinsed/cleaned by suitable cleaner. The cooling water weld end is protected by grease, it must be always degreased.

2.3 Conditions for proper function of CHPR

- the filter must be placed into cooling water pipeline prior the control valve, or other suitable provision must be done to assure that the water is free of mechanical particles.
- the length of straight section of pipeline, indicated in the CHPR calculation, must be kept
- minimum inlet speed of steam must be higher than 6 m/s

2.4 Installation CHPR into pipeline

CHPR can be installed in any position.

For proper function CHPR, below-mentioned instructions must be obeyed:

- the arrow, indicated on the CHPR body must be in direction of cooled media flow.
- no excessive forces can be transferred from pipeline to CHPR
- the pipeline must be cleaned from dirt before CHPR installation
- it is recommended to keep free space around the CHPR for easy manipulation and service
- installation itself must be done precisely. The axis of the steam line must be coaxial with the CHPR

2.5 Drainage of pipeline

The CHPR work principle requires the drainage of outlet pipeline. The presence of excessive quantity of water can cause the pipeline damage. It also negatively influences the precision of temperature measurement.

2.6 Temperature sensor

Minimum distance between the CHPR and temperature sensor is indicated in CHPR calculation. To place at least 1 bend ($R > 3x DN$) between the CHPR and sensor is strictly recommended. The change of pipeline DN in this section is prohibited. The sensor shall be placed in upper half, in case of horizontally oriented pipeline.

It's recommended to place the sensor into protective vessel to eliminate the influence of water.

It's impossible to use the temperature sensor when the CHPR is part of by-pass station, placed on the inlet of condenser and the steam is cooled to temperature of saturated steam. In this case, the control of injected cooling water quantity is based on balance calculation.

2.7 Inspection after the installation

The pressure test of pipeline must be done after the CHPR installation and the tightness of the system shall be checked. The CHPR is designed for test pressure $\leq 1.5x PN$ (temperature of test fluid 10 - 40°C) In case of higher test pressure, contact the CHPR manufacturer, please.

2.8 Spare parts

Spare parts are not part of CHPR delivery. They must be ordered separately. When the spare parts are ordered, following data must be given: type of a CHPR, CHPR production number and name of a spare part.

2.9 Guarantee conditions

The producer does not guarantee the operation and safety of the product under conditions different from data given in the catalogue data sheet. Any using of the valve under different conditions shall be consulted with the producer.

Defects of CHPR caused by impurities in process medium shall be considered as out of guarantee terms.

The producer does not take over the guarantee if any change was made by the user without prior written consent from the producer.

2.10 Transportation and storage

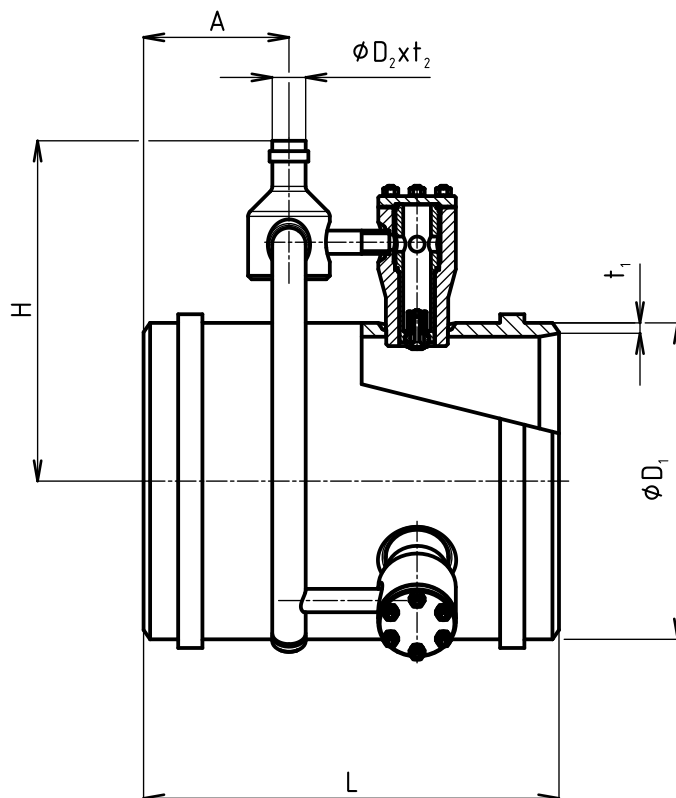
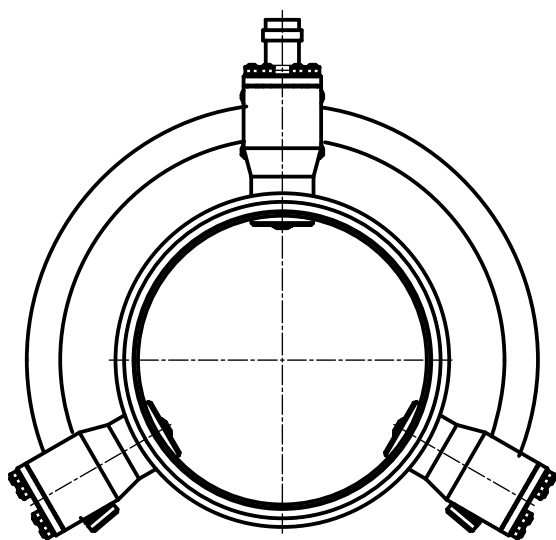
During transport and storage, the CHPR must not be exposed to water or placed in environment with relative humidity exceeding 90 %.

Weld ends must be protected with blinds (these are part of delivery).

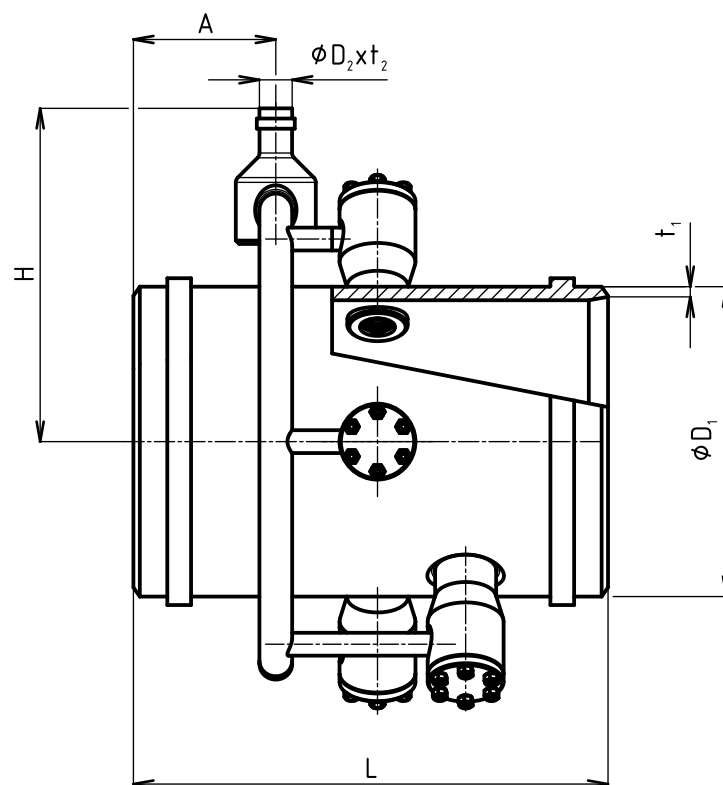
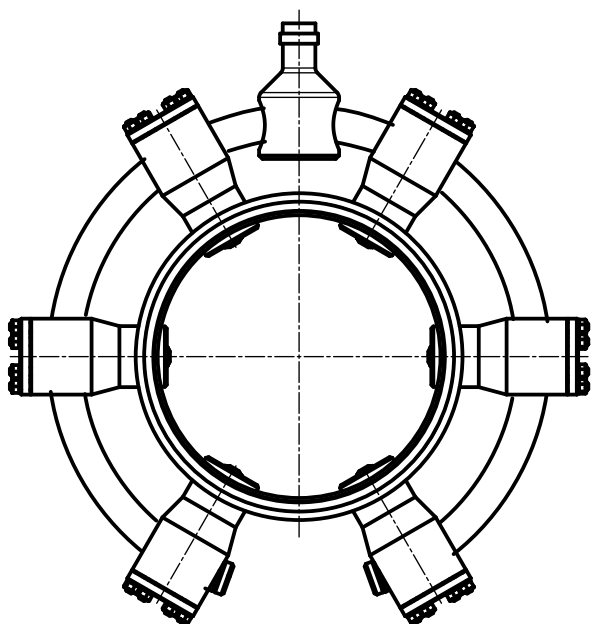
2.11 Waste disposal

Packaging and the CHPR (after their scrapping) shall be disposed off in the common way, e.g. by handing over to a specialized company for a disposal (metal parts - metal scrap, packaging + other non-metallic parts - communal waste).

One-row design



Two-row design



Dimensions CHR:

Type	L	A
	[mm]	
One-row design	600	210
Two-row design	700	210

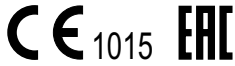
RADIAL DESUPERHEATER

CHPR type number specification

		XXXX	X	XXX	/	XXX	-	XXX	/	XXX	X	X	X	X
Series	Radial desuperheater	CHPR												
Number of nozzles	Acc. to water quantity		X											
DN steam pipeline	DN200 to 600			XXX										
DN cooling water	DN15 to 100					XXX								
PN steam pipeline	PN16 to 400							XXX						
PN cooling water	PN16 to 400									XXX				
Connection - steam pipeline	Weld ends										4			
Connection - water	Flange with raised face											1		
	Flange with recess											2		
	Flange with plain face											3		
	Weld ends											4		
Material	Carbon steel 1.0426 (20 to 500°C)													1
	Alloy steel 1.7335 (20 to 550°C)													2
	Alloy steel 1.7383 (20 to 600°C)													6
	Alloy steel 1.4922 (20 to 600°C)													7
	Other material													9
Opening overpressure	0,2 MPa													1
	combin. 0,2 and 0,4 MPa													2
	0,4 MPa													3

Order example: CHPR with 3 nozzles, opening overpressure 0,4 MPa, connection to the steam pipeline DN200 PN100, flanged connection of cooling water DN25 PN160 type B1, material 1.7335 is marked as follows:
CHPR3 200/025-100/160 4123

Maximum permissible working overpressure acc. to EN 12516-1+A1



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