High-pressure / high-temperature steam cooler for extreme conditions







> Type DKH, sectional view

#### Product features

- Special design for higher pressures and higher temperatures
- The DKH injection cooler works like the DKV type, with controlled nozzle technology (pressure atomization via controlled nozzle technology)
- Spray head with integrated high-performance nozzles and excellent atomization
- No additional control valve required
- Selectable control characteristics for precise temperature control
- Tightly closing metallic seat
- Large permissible water vapor pressure difference delta p up to 100 bar / 1450 PSI
- High control accuracy over the entire control range
- High operational reliability by using simple components, minimal wear and tear
- Excellent control accuracy over the entire control range
- Special materials available

#### **Applications**

For the special demands place on temperature control in power plants and in the process industry



High-pressure / high-temperature steam cooler for extreme conditions

### Technical data

Nominal diameter	DN 150-1200 / NPS 6-48	
Pressure class	PN 250-400 / Class 1500-2500	
Temperature range	650 °C / 1200 °F	
Housing material	1.0460 / A105 1.5415 1.7335 / A182F12CI.2 1.7383 / A182F22CI.3 1.4903 / A182F91	
Housing type	Forged	
Media	Superheated steam, gas	
Flanges	EN 1092-1, ASME B16.5, ISO 7005, JIS, JPI	
Actuators	Electric, pneumatic, hydraulic, handwheel (for manual operation)	
Number of stages (max.)	1	
Number of controlled stages (max.)	1	
Operating range (max.)	1:100 (water)	

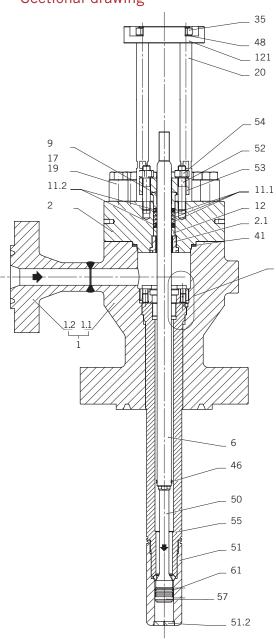
### Function

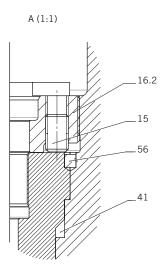
see chapter DKV (Page 69)



High-pressure / high-temperature steam cooler for extreme conditions

## Sectional drawing





High-pressure / high-temperature steam cooler for extreme conditions

### Parts list

1         Housing cpl.         *           1.1         Housing         *           1.2         Flange         *           2         Cap         *           2.1         Bushing         *           3         Cap gasket         Grafit           6         Valve spindle         1.4057           9         Packing follower         1.4122           11.1         Packing         Grafit           11.2         Packing         Grafit           15         Threaded pin         A2           17         Capped nut         **           19         Stud bolt         **           20         Spacer bolt         **           35         Hexagon nut         8           41         Spiral gasket         1.4541/Grafit           46         Pin         1.4301           48         Lock washer         1.1211           50         Control piston         1.4122           51         Spray head         1.4006           51.2         Ground plate         *           54         Hexagon nut         **           55         Lance         *	Pos.	Item	Material
1.2       Flange       *         2       Cap       *         2.1       Bushing       *         3       Cap gasket       Grafit         6       Valve spindle       1.4057         9       Packing follower       1.4122         11.1       Packing       Grafit         11.2       Packing       Grafit         15       Threaded pin       A2         17       Capped nut       **         19       Stud bolt       **         20       Spacer bolt       **         35       Hexagon nut       8         41       Spiral gasket       1.4541/Grafit         46       Pin       1.4301         48       Lock washer       1.1211         50       Control piston       1.4122         51       Spray head       1.4006         51.2       Ground plate       1.4006         52       Stud bolt       **         53       Gland plate       *         54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle <td>1</td> <td>Housing cpl.</td> <td>*</td>	1	Housing cpl.	*
2         Cap         *           2.1         Bushing         *           3         Cap gasket         Grafit           6         Valve spindle         1.4057           9         Packing follower         1.4122           11.1         Packing         Grafit           11.2         Packing         Grafit           15         Threaded pin         A2           17         Capped nut         **           19         Stud bolt         **           20         Spacer bolt         **           35         Hexagon nut         8           41         Spiral gasket         1.4541/Grafit           46         Pin         1.4301           48         Lock washer         1.1211           50         Control piston         1.4122           51         Spray head         1.4006           51.2         Ground plate         1.4006           52         Stud bolt         **           53         Gland plate         *           54         Hexagon nut         **           55         Lance         *           56         Pin         1.4122	1.1	Housing	*
2.1       Bushing       *         3       Cap gasket       Grafit         6       Valve spindle       1.4057         9       Packing follower       1.4122         11.1       Packing       Grafit         11.2       Packing       Grafit         15       Threaded pin       A2         17       Capped nut       **         19       Stud bolt       **         20       Spacer bolt       **         35       Hexagon nut       8         41       Spiral gasket       1.4541/Grafit         46       Pin       1.4301         48       Lock washer       1.1211         50       Control piston       1.4122         51       Spray head       1.4006         51.2       Ground plate       1.4006         52       Stud bolt       **         53       Gland plate       *         54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle       **         61       Piston ring       **	1.2	Flange	*
3 Cap gasket Grafit 6 Valve spindle 1.4057 9 Packing follower 1.4122 11.1 Packing Grafit 11.2 Packing Grafit 15 Threaded pin A2 17 Capped nut ** 19 Stud bolt ** 20 Spacer bolt ** 35 Hexagon nut 8 41 Spiral gasket 1.4541/Grafit 46 Pin 1.4301 48 Lock washer 1.1211 50 Control piston 1.4122 51 Spray head 1.4006 51.2 Ground plate 1.4006 52 Stud bolt ** 54 Hexagon nut ** 55 Lance * 56 Pin 1.4122 57 Spray nozzle ** 61 Piston ring **	2	Cap	*
1.4057	2.1	Bushing	*
9       Packing follower       1.4122         11.1       Packing       Grafit         11.2       Packing       Grafit         15       Threaded pin       A2         17       Capped nut       **         19       Stud bolt       **         20       Spacer bolt       **         35       Hexagon nut       8         41       Spiral gasket       1.4541/Grafit         46       Pin       1.4301         48       Lock washer       1.1211         50       Control piston       1.4122         51       Spray head       1.4006         51.2       Ground plate       1.4006         51.2       Ground plate       **         53       Gland plate       *         54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle       **         61       Piston ring       **	3	Cap gasket	Grafit
11.1       Packing       Grafit         11.2       Packing       Grafit         15       Threaded pin       A2         17       Capped nut       **         19       Stud bolt       **         20       Spacer bolt       **         35       Hexagon nut       8         41       Spiral gasket       1.4541/Grafit         46       Pin       1.4301         48       Lock washer       1.1211         50       Control piston       1.4122         51       Spray head       1.4006         51.2       Ground plate       1.4006         52       Stud bolt       **         53       Gland plate       *         54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle       **         61       Piston ring       **	6	Valve spindle	1.4057
11.2       Packing       Grafit         15       Threaded pin       A2         17       Capped nut       **         19       Stud bolt       **         20       Spacer bolt       **         35       Hexagon nut       8         41       Spiral gasket       1.4541/Grafit         46       Pin       1.4301         48       Lock washer       1.1211         50       Control piston       1.4122         51       Spray head       1.4006         51.2       Ground plate       1.4006         52       Stud bolt       **         53       Gland plate       *         54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle       **         61       Piston ring       **	9	Packing follower	1.4122
15       Threaded pin       A2         17       Capped nut       **         19       Stud bolt       **         20       Spacer bolt       **         35       Hexagon nut       8         41       Spiral gasket       1.4541/Grafit         46       Pin       1.4301         48       Lock washer       1.1211         50       Control piston       1.4122         51       Spray head       1.4006         51.2       Ground plate       1.4006         52       Stud bolt       **         53       Gland plate       *         54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle       **         61       Piston ring       **	11.1	Packing	Grafit
17       Capped nut       **         19       Stud bolt       **         20       Spacer bolt       **         35       Hexagon nut       8         41       Spiral gasket       1.4541/Grafit         46       Pin       1.4301         48       Lock washer       1.1211         50       Control piston       1.4122         51       Spray head       1.4006         51.2       Ground plate       1.4006         52       Stud bolt       **         53       Gland plate       *         54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle       **         61       Piston ring       **	11.2	Packing	Grafit
19	15	Threaded pin	A2
Spacer bolt	17	Capped nut	**
35       Hexagon nut       8         41       Spiral gasket       1.4541/Grafit         46       Pin       1.4301         48       Lock washer       1.1211         50       Control piston       1.4122         51       Spray head       1.4006         51.2       Ground plate       1.4006         52       Stud bolt       **         53       Gland plate       *         54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle       **         61       Piston ring       **	19	Stud bolt	**
41       Spiral gasket       1.4541/Grafit         46       Pin       1.4301         48       Lock washer       1.1211         50       Control piston       1.4122         51       Spray head       1.4006         51.2       Ground plate       1.4006         52       Stud bolt       **         53       Gland plate       *         54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle       **         61       Piston ring       **	20	Spacer bolt	**
46       Pin       1.4301         48       Lock washer       1.1211         50       Control piston       1.4122         51       Spray head       1.4006         51.2       Ground plate       1.4006         52       Stud bolt       **         53       Gland plate       *         54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle       **         61       Piston ring       **	35	Hexagon nut	8
48       Lock washer       1.1211         50       Control piston       1.4122         51       Spray head       1.4006         51.2       Ground plate       1.4006         52       Stud bolt       **         53       Gland plate       *         54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle       **         61       Piston ring       **	41	Spiral gasket	1.4541/Grafit
50       Control piston       1.4122         51       Spray head       1.4006         51.2       Ground plate       1.4006         52       Stud bolt       **         53       Gland plate       *         54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle       **         61       Piston ring       **	46	Pin	1.4301
51       Spray head       1.4006         51.2       Ground plate       1.4006         52       Stud bolt       **         53       Gland plate       *         54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle       **         61       Piston ring       **	48	Lock washer	1.1211
51.2       Ground plate       1.4006         52       Stud bolt       **         53       Gland plate       *         54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle       **         61       Piston ring       **	50	Control piston	1.4122
52       Stud bolt       **         53       Gland plate       *         54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle       **         61       Piston ring       **	51	Spray head	1.4006
53 Gland plate	51.2	Ground plate	1.4006
54       Hexagon nut       **         55       Lance       *         56       Pin       1.4122         57       Spray nozzle       **         61       Piston ring       **	52	Stud bolt	**
55	53	Gland plate	*
56 Pin 1.4122 57 Spray nozzle ** 61 Piston ring **	54	Hexagon nut	**
57 Spray nozzle ** 61 Piston ring **	55	Lance	*
61 Piston ring **	56	Pin	1.4122
O1 FISCULTING	57	Spray nozzle	**
121 Plate 1.0460	61	Piston ring	**
	121	Plate	1.0460

<sup>\*</sup> See table "Technical data"

Parts list as an example of the standard configuation

<sup>\*\*</sup> Depending on customer requirements



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## **Dimensions**

