

Best Deal - STAINLESS STEEL



DMS 

DINOX-D[®]

Water Heating Technology

Stainless Steel

Calorifier-Storage Tanks

Hot Water Systems



www.dinox-d.de
www.dms-metall.de

German Quality / TÜV approved production



www.dinox-d.de

DINOX – D Edelstahlprodukte GmbH

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Dipl.-Ing. Horst Drax

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Ute Kaiser



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General Informations

DINOX-D Edelstahlprodukte GmbH, D-Oststeinbek and D-Wismar

Founded 1998

Construction and Distribution of Stainless Steel Tanks,
Calorifiers, Pressure-Vessels, Water-Storage, Filters etc.
particularly for

Water Heating and Cooling
Foodstuff Industry
Solar and Steam Facilities

Reg.: AG Lübeck HR B 2787 RE - Tax-USt-IdNr. DE 812 222 326

DINOX-H Kft., H-Tatabanya

The manufacturing is TÜV fairly implemented to our
work by examined welders supervised by TÜV-Rheinland
according to TRB 200/AD HP0 and EN 729.3 and HP 5/1-3

Single and quantity production are manufactured as well
to customers datas as DINOX series

max. diameter 2400 mm
max. 8 mm stainless steel

Reg.: CG 01-09-003426 - Tax 11191209-2-11 HU 11191209



DMS Metall- und Schweisstechnik GmbH, D-Oststeinbek and D-Wismar

Fouded 1974

Construction, manufacturing, and distribution of
Hot-Water-Systems especially with legionella killing effect
district heating/cooling systems completly piped and wired
ready for use in

Hotels, Hospitals, Sport Facilities, Apartments, Factories,
and Homes for Elderly, etc. Range of capacity for Hot Water
Systems of nearly unlimited size and for Compact District
Heating/Cooling Stations from 10 kW to 6 MW

Production tailor made only

The manufacturing is TÜV fairly implemented to our work
by examined welders supervised by TÜV NORD according to
AD 2000-HPO, EN ISO 3834-2, and CE 0045

Braced-, and Gasketed-, Coil- and Shell Heat Exchangers,
Electric Immersion Heaters – screwed and flanged, Control Cabinets

Reg.: AG Lübeck HR B 1743 RE - Tax-USt.- IdNr. DE 135 106 717



Certificate

Manufacturer and Welding Shop acc. to AD 2000-Code

Certificate no.:

01 202 HU/A 10 3331

Name and address of the
manufacturer:

DINOX-H Kft.

H-2800 Tatabánya, Dembinszky út 5.

It is hereby certified that the manufacturer has furnished proof of the quality requirements. The above-mentioned company

- has facilities permitting manufacturing and inspection in conformity with the present technical standard,
- operates a quality system which guarantees that manufacturing and inspection of the products stated in our report are in conformity with the technical codes and regulations,
- employs qualified supervisory and inspection personnel.

Specifications:

AD 2000-Merkblatt HP0

Test Report no.:

E 122/0455/2010

Scope:

Manufacturing of Pressure Equipment, see annex

Manufacturing Plant:

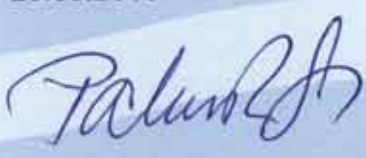
DINOX-H Kft.

H-2800 Tatabánya, Dembinszky út 5.

Valid until:

25.03.2013

Budapest, 11.05.2010


Dipl.-Ing. (FH) Paluska Gyula
Certifier

TÜV Rheinland-Certification Body for
Pressure Equipment
TÜV Rheinland Industrie Service GmbH
Am Grauen Stein, 51105 Cologne, Germany

Sub-office:
TÜV Rheinland InterCert Kft.
H-1132 Budapest, Váci út 48/a-b
tel.: +36 (1) 4611-100, fax: +36 (1) 4611-199
E-mail: ltechnika@hu.tuv.com, Internet: www.tuv.hu

F-LT 20-Me_3_1

www.tuv.hu

Certificate

Inspection of a Welding Shop

Certificate no.:

01 202 HU/A 10 3332

Name and address of the
manufacturer:

DINOX-H Kft.
H-2800 Tatabánya
Dembinszky út 5.

It is hereby certified that the manufacturer has
furnished proof of the comprehensive quality
requirements to be met for his welding activity.

Specifications:

DIN EN ISO 3834-3

Test Report no.:

E 122/0455/2010

Scope:

Manufacturing of Pressure Equipment, see annex

Manufacturing Plant:

DINOX-H Kft.
H-2800 Tatabánya
Dembinszky út 5.

Valid until:

25.03.2013

Budapest, 11.05.2010


Dipl.-Ing. (FH) Gyula Paluska
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E-mail: ltechnika@hu.tuv.com, Internet: www.tuv.hu



F-LT 20-Je_3_1

(2009.10.05-től)

www.tuv.hu



TÜVRheinland®
Precisely Right.

ZERTIFIKAT CERTIFICATE

Überwachung der Abnahme
Monitoring of final assessment

nach Richtlinie 97/23/EG / according to directive 97/23/EC

Zertifikat-Nr. / Certificate No.: 07 202 1240 Z 0053/12/A1

Name und Anschrift des Herstellers DMS Metall- und Schweißtechnik GmbH
Name and address of manufacturer: **Amselweg 28**
23970 Wismar

Der Hersteller ist nach Prüfung der Voraussetzungen berechtigt, die von ihm im Rahmen des Geltungsbereichs des Moduls hergestellten Druckgeräte mit dem abgebildeten Zeichen zu kennzeichnen. After having examined the preconditions, the manufacturer is entitled to mark the pressure equipment produced within the range of the ambit of the module with the following mark:

CE 0045

Geprüft nach Richtlinie 97/23/EG:
Tested according to directive 97/23/EC:

Interne Fertigungskontrolle mit Überwachung der Abnahme (Modul A1)

Internal manufacturing checks with monitoring of the final assessment (module A1)

Prüfbericht-Nr.:
Test report No.:

1240P0053/12/D011

Beschreibung des Druckgerätes:
Description of pressure equipment:

Rohrleitungen

Fertigungsstätte:
Place of manufacture:

DMS Metall- und Schweißtechnik GmbH
Amselweg 28
23970 Wismar

Rostock, 12.11.2012

Zertifizierungsstelle für Druckgeräte
der TÜV NORD Systems
GmbH & Co. KG


Dipl.-Ing. Hantke

Benannte Stelle / Notified Body, 0045

TÜV NORD Systems
GmbH & Co. KG
Große Bahnstr. 31
D-22525 Hamburg, Germany

Tel. +49-(0) 40/8557-0
Fax +49-(0) 40/8557-2187
e-mail hamburg@tuv-nord.de

Mitglied der
Member of


CONFÉDÉRATION EUROPÉENNE D'ORGANISMES DE CONTRÔLE

CERTIFICATE

**The Certification Body for Pressure Equipment
of TÜV NORD Systems GmbH & Co. KG**

certifies that the company

**DMS Metall- und Schweißtechnik GmbH
Betriebsteil Wismar
Amselweg 28
23970 Wismar**

has been verified and recognized
as welding workshop in the product range of

pipng and parts of pressure vessels

based on the requirements of the standard

DIN EN ISO 3834-2 (EN 729-2)

Certificate-no.: 07-202-1240 EN 2522/9

The range of validity and details of the inspection can be seen in our


Report-no.: 1240ST117/9/H

The company is using a quality assurance system,
technical equipment, qualified personnel and procedures for joining processes
for manufacturing and testing of welded products.

This certificate is valid until

September 2012

Rostock, 18.09.2009



Certification Body for Pressure Equipment
of TÜV NORD Systems GmbH & Co. KG
(Notified Body, Reg. -No. 0045)

CERTIFICATE

**The Certification Body for Pressure Equipment
of TÜV NORD Systems GmbH & Co. KG**

certifies that the company

**DMS Metall- und Schweißtechnik GmbH
Betriebsteil Wismar
Amselweg 28
23970 Wismar**

has been verified and recognized
as manufacturer of

piping and parts of pressure vessels

according to the rules of

AD 2000-Merkblatt HP0

Certificate-no.: 07-202-1240-HP-2522/9

The range of validity and details of the inspection can be taken from our


Report-no.: 1240ST117/9/H

The company has established a product-related quality system
together with personnel and equipment which assures
manufacturing and testing corresponding to the technical rules.

This certificate is valid until

September 2012

Rostock, 18.09.2009



Certification Body for Pressure Equipment
of TÜV NORD Systems GmbH & Co. KG
(Notified Body, Reg.-No. 0045)

TÜV NORD Systems GmbH & Co. KG • Region Mecklenburg-Vorpommern
Trelleborger Straße 15 • 18107 Rostock

DMS Metall- und Schweißtechnik GmbH
Herr Baberowski
Amselweg 28
23970 Wismar

TÜV NORD Systems
GmbH & Co. KG
Region
Mecklenburg- Vorpommern
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18107 Rostock
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rostock@tuev-nord.de
www.tuev-nord.de

TÜV®

Unser / Ihr Zeichen
SOV lev

Ansprechpartner/in
Herr Levin
E-Mail: tlevin@tuev-nord.de

Durchwahl
Tel.: 0381 77 03-485
Mobil: 0160 88 80 407

Datum
25.11.2012

Rezertifizierung als Hersteller von Druckgeräten gem. Druckgeräte richtlinie 97/23/EG-AD2000/HP0 sowie EN ISO 3834-2 / Certification as a manufacturer of pressure devices according to Druckgeräte richtlinie 97/23/EG-AD2000/HP0 as well as EN ISO 3834-2

Sehr geehrter Herr Baberowski,

Dear Mr. Baberowski,

auf Grund erheblich strengerer behördlicher Auflagen zieht sich das o.g. Rezertifizierungsverfahren länger hin als erwartet. Derzeit befinden wir uns in der Klärungsphase mit der Behörde zu einem qualitätsgesicherten Prüfprozedere. Ich erwarte für etwa Ende Dezember einen positiven Abschluss des Verfahrens. Bis dahin möchte ich Sie bitten, sich auf die vorhandene Zertifizierung Ihres Unternehmens (Zertifikate Nr. 07-202-1240-HP-2522/9 und Nr. 07-202-1240-EN-2522/9) in Verbindung mit diesem Schreiben zu berufen. Nach dem bereits erfolgten Betriebsstättenaudit und Sichtung der vorgelegten Unterlagen steht nach unserer Einschätzung eine Revision der bestehenden Zertifizierung nicht in Frage.

the abovementioned certification procedure stretches longer than expected on account of considerably stricter official editions.

Currently we are in the purification phase with the authority to a high-class-secure testing method. I expect at the end of December a positive end of the procedure. Till then I request to appeal with this writing to the available certification of your company (Zertifikate Nr. 07-202-1240-HP-2522/9 und Nr. 07-202-1240-EN-2522/9).

After an already occurred enterprise audit and a sighting of the presented documents a revision of the existing certification stands according to our appraisal not in question.

Mit freundlichen Grüßen

Yours sincerely



T. Levin
Sachverständiger

Sitz der Gesellschaft
TÜV NORD Systems GmbH & Co. KG
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Fax: 040 8557-2295
info@tuev-nord.de
www.tuev-nord.de

Vorsitzender des Aufsichtsrates
Dr.-Ing. Guido Rettig
Amtsgericht Hamburg
HRA 102137
USt-IdNr.: DE 243031938
Steuer-Nr.: 27/628/00031

Komplementär
TÜV NORD Systems
Verwaltungsgesellschaft mbH, Hamburg
Amtsgericht Hamburg
HRB 88330
Geschäftsführer
Dipl.-Ing. Rudolf Wieland (Sprecher)
Dr.-Ing. Ralf Jung

Commerzbank AG, Hamburg
BLZ: 200 400 00
Konto-Nr.: 4056222 00

BIC (SWIFT-Code): COBADEFFXXX
IBAN-Code: DE 73 2004 0000 0405 6222 00



Best Deal - STAINLESS STEEL



LAS - E Electric Water Heater Systems
Electrawa 6 - 48 kW



Stainless Steel Storage Tanks

Serie LAS-E 150 - 8000
or tailor made

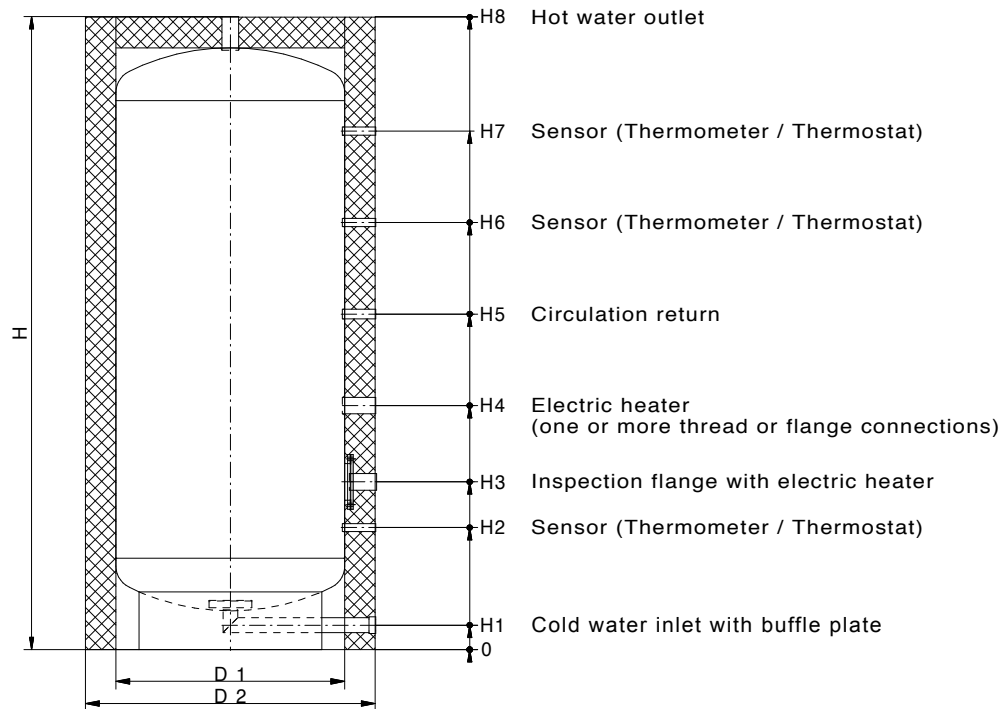
Electric capacity and control
to customers request



heat exchangers - hot water systems - district heating stations

TYPE: LAS-E

Domestic hot water storage tanks exclusively stainless steel



Measures in mm

Material: ANSI 316 Ti / 1.4571 / 1.4404

Capacity (L)	150	200	300	400	500	500	600	750	1000
H1	65	65	65	65	65	65	65	80	80
H2	380	305	305	350	350	350	365	400	430
H3	380	455	455	505	505	505	520	550	580
H4	580	700	650	700	800	750	700	800	900
H5	780	850	850	950	1080	960	1030	1100	1110
H6	580	1000	1050	1200	1360	1170	1360	1400	1320
H7	780	1150	1250	1400	1640	1380	1690	1700	1530
H8	992	1452	1552	1657	1992	1959	2048	2078	1750
H9									2037
H height total	992	1452	1552	1657	1992	1959	1990	2078	2087
D1 without insulation	500	500	500	600	600	650	650	750	900
D2 - polyesterfleece	700	700	700	800	800	850	850	950	1100
Weight (kg)	40	55	70	80	85	95	105	135	155
Ttl. height with insulation	1282	1603	1834	1915	2145	1952	2197	2280	2367
Ttl. height without insulation	1100	1470	1712	1756	2005	1774	2047	2101	2072
Connections									
Cold and hot water	FM 1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Electric heater	FM 1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Inspection flange	120/180	120/180	120/180	120/180	120/180	120/180	120/180	120/180	120/180
Circulation return	FM 3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Thermostat	FM 1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Thermometer	FM 1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Venting	FM								1"

* All FM connections according to DIN 2999 part 1 are extended to 110 mm

* 100mm fleece insulation with reinforced PR-jacked. Colour RAL 9006 silver

* LAS 150: Thermostat- and Thermometer connections are placed 180° offset

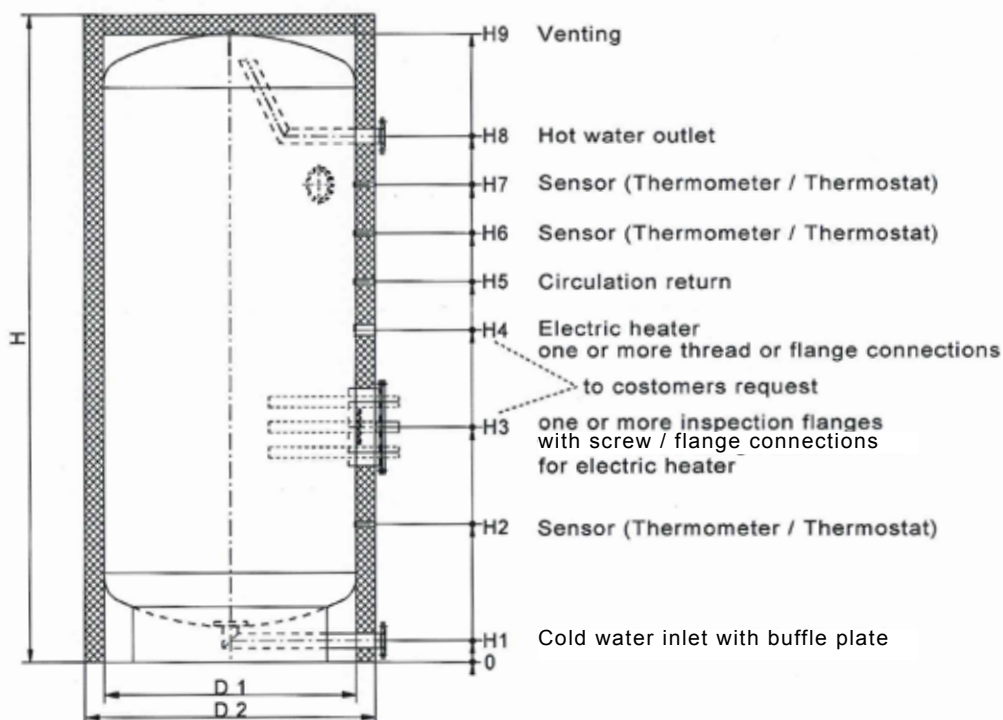
* LAS 1000: Hot water outlet is arranged laterally, in the upper dished bottom, a vent sleeve is used instead

* Subject to technical changes

heat exchangers - hot water systems - district heating stations

TYPE: LAS-E

Domestic hot water storage tanks exclusively stainless steel



Measures in mm

Material: ANSI 316 Ti / 1.4571 / 1.4404

Capacity (L)	1250	1500	2000	3000	4000	5000	6000	7000	8000
H1	70	70	100	110	115	115	115	135	135
H2	410	410	510	550	600	600	685	705	705
H3	545	545	710	900	950	950	1030	1050	1050
H4	750	900	1000	1310	1350	1500	1400	1500	1700
H5	965	1215	1360	1600	1500	2000	1600	1730	2080
H6	1065	1315	1460	1700	1700	2200	1800	1860	2210
H7	1265	1515	1660	1900	2100	2600	1980	2090	2440
H8	1515	1765	2060	2300	2600	3100	2285	2705	3055
H9	1830	2080	2421	2752	3080	3580	2846	3266	3616
H height total	1914	2164	2505	2836	3165	3665	2935	3355	3705
D1 without insulation	1000	1000	1100	1300	1400	1400	1800	1800	1800
D2 - polyesterwies	1200	1200	1300	1500	1600	1600	2000	2000	2000
Weight (kg)	180	215	285	450	475	670	1180	1300	1400
Tilt height without insulation	1907	2136	2523	2877	3267	3740	3134	3516	3840
Tilt height with insulation	2260	2475	2822	3208	3546	3999	3552	3906	4210
Connections									
Cold and hot water	FM 2"	FM 2"	DN 65	DN 65	DN 65	DN 65	DN 65	DN 100	DN 100
Electric heater	FM 1 1/2"	FM 1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Inspection flange	120/180	120/180	120/180	400/480	400/480	400/480	400/480	400/480	400/480
Circulation return	FM 3/4"	FM 3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Thermostat	FM 1/2"	FM 1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Thermometer	FM 1/2"	FM 1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Venting	FM 1"	FM 1"	1"	1"	1"	1"	1"	1"	1"

* All FM connections according to DIN 2999 part 1 are extended to 110 mm

* 100mm fleece insulation with reinforced PR-jacked. Colour RAL 9006 silver

* till 2000l is an additional handhole provided

* Subject to technical changes

heat exchangers - hot water systems - district heating stations

Control Cabinets

- The perfect and reliable controllers to satisfy the widest range of installation requirements
- Simple termination control panel for smaller models, Standard ON/OFF control panel with pressure sensing device for standard models, microprocessor control panel with the superior characteristics including cascade function as an option.
- CAD drawing and wiring diagram for each control panel
- Industrial rating electrical components
- All types of control panels can be fitted to any group of models

A. Basic Control panel:

- Industrial standard IP 54 enclosure
- Control panel mounted on tank
- Magnetic type trip switch for over current protection
- Manual reset function
- Relays control for each heating element/stage
- All elements electrically tested, wired and pre-assembled for easy installation
- All parts meet European safety standards



B. Standard Control panel:

- Industrial type standard control panel mounted on tank with hinged door
- Standard BMS signals with common fault indication
- IP54 protection enclosure
- Main power cut-off switch coupled to door inter-lock
- Automatic electric cut-outs
- Selector switch for each heating elements/stage
- Individual fault indication (ON while on trip) of short circuit or safety cut-out tripping for each heating element/stage, and volt free output contacts for Building Management System
- Low water cut-out and sensing device
- Heating element ON indication light
- Automatic temperature limiter with high limits switch
- All elements electrically tested, wired and pre-assembled for easy installation
- All parts meet European safety standards

C. Microprocessor control panel

- Industrial standard control panel mounted on tank or self standing with hinged door with microprocessor controller
- 3 heating stages as standard
- IP54 protection enclosure
- Mains power cut-off switch coupled to door inter-lock
- Heater indicator/LED for each heating elements/stage
- Power-on indicator/LED indication
- Auto-off-manual switch for each of the heating element/stage
- Electronic temperature sensor
- C1: Peak-off control timer with programmable stage control and digital display
- C2: Turn-key superior processor controller by DINOX
- Individual fault indication (ON while on trip) of short circuit or safety cut-out tripping for each heating element/stage, and volt free output contacts for Building Management System
- Low water cut-out and sensing device
- All elements electrically tested, wired and pre-assembled for easy installation
- All parts meet European safety standards



D. Control panel for Hot water boiler/Heat Exchanger/Legionellaes

- Turn-key superior processor controller by DINOX

heat exchangers - hot water systems - district heating stations

Electric screw plug heating elements - for water heaters

The screw plug heating element in this series has especially been designed for use in water heaters and are equipped with a 6/4" sleeve. Both the heating elements and the R 6/4" screw in flange are made of corrosion resistant stainless steel.

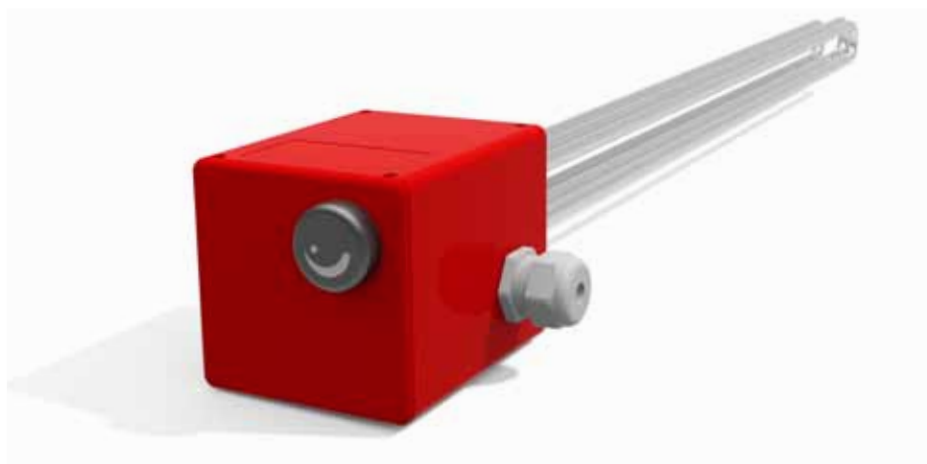
The plastic cover cap is sealed appropriately for sage use in damp conditions (protected from spray water, IP 54).

This cover cap has a built-in regulating thermostat (adjustment range up to 80 °C) with an external adjusting button and a safety temperature regulator (disconnection temperature at approx. 100 °C) with an internal reset button. The two temperature sensors (separate systems) are mounted in a protective tube and measure the water temperature directly. Therefore any damage to the heater is unlikely – also in the case of a defect regulating thermostat. Delivery without thermostats are possible. The screw plug heating elements have an unheated length of approx. 100 mm, which make them suited for installation in all conventional commercial heater with a maximum sleeve length of 100 mm. Standard series:

Model	Heating capacity	Voltage	Immersion length
EHKi – 2,00/1	2,00 kW	230 V	345 mm
EHKi – 2,50/1	2,50 kW	230 V	345 mm
EHKi – 2,50/3	2,50 kW	3 x 400 V	345 mm
EHKi – 3,00/3	3,00 kW	3 x 400 V	345 mm
EHKi – 3,75/3	3,75 kW	3 x 400 V	345 mm
EHKi – 4,50/3	4,50 kW	3 x 400 V	390 mm
EHKi – 6,00/3	6,00 kW	3 x 400 V	490 mm
EHKi – 7,50/3	7,50 kW	3 x 400 V	590 mm
EHKi – 9,00/3	9,00 kW	3 x 400 V	690 (600) mm
EHKi – 12,00/3	12,00 kW	3 x 400 V	1000 mm
DN 80 flange connection:			
HF 80 –18,0	18,00 kW	3 x 400 V	750 mm

assembly position: horizontally

Other heating capacities, voltages and installation lengths can be provided upon request and at short notice.



heat exchangers - hot water systems - district heating stations

Flange built-in electric heating systems

The flange built-in heating systems consist of an appropriate number of high-quality tubular radiators which are mounted on a flange plate. You can choose the appropriate type of built-in heating systems from our vast product range depending on the required power and installation position, the available fitting length and the required heating groups.

- Infinitely variable temperature control from 15 to 85 °C / 59 to 185 °F
- Energy-saving position at 65 °C / 149 °F
- Antifreezing position
- All-pole safety-temperature limiter
- Optimum protection against corrosion of the heating elements

Type	nominal power kW	nominal voltage	immersion Length mm	flange Ø mm
HF-186	6	400 V 3 pH	300	180
HF-189	9		300	180
HF-2812	12		400	280
HF-2815	15			
HF-2818	18			
HF-2821	21			
HF-2824	24			
HF-2827	27			
HF-2833	33			
HF-2836	36			
HF-2848	48			

assembly position: horizontally

other capacities or flange diameters on request



heat exchangers - hot water systems - district heating stations

Ceramic Heating Elements

Ceramic heating elements were designed for indirect heating of various liquid and gaseous media.

Product properties

The basic difference from all other heaters used is the exchangeability. Ceramic heating elements can be inserted into existing steel or stainless steel protective pipes. The protective pipes are welded, screwed or flanged into the vessel. The heating elements can be changed at any time without draining the medium.

Essential components in ceramic heating elements

Ceramic

The heating element consist of ceramic with high electrical insulation values.

Heating wire

The high heat resistant heating wire is pulled into the ceramic in spiral form. Collapsing of the spiral is ruled out by a horizontal arrangement of the heating element. In vertical installation, it is possible to prevent collapsing of the spiral by a special construction.

Protective tube

The protective tube with the internal diameter adapted to the external diameter of the ceramic heating elements can be delivered on request. Usually, the protective pipe is made of stainless steel. Special materials are possible.

Connection housing

On request a housing made of powder-coated steel sheet or stainless steel can be provided. The housing can be screwed to the vessel or flange.

Dimensions

Ceramic heating elements are available in the standard diameters of 21.5 mm, 32.0 mm, 36.5 mm, 46.0 mm and 58.0 mm.

Electrical connection

The electrical connection can be designed either as a flexible pure nickel wire or screw pins. Wiring on a motor terminal board is possible.

Note

Please state the installation position (horizontal/vertical) in the order.



heat exchangers - hot water systems - district heating stations

DMS - Electric - Water - Heater Type *Elektrawa*

Electric built-in heater, shell material steel ST 37.2 or stainless steel 1.4404/ANSI 316Ti, constructed for longterm running. Max. operating pressure 5 bar/steel 10 bar/stainless steel. Incl. insulation, painted steel sheet coated.

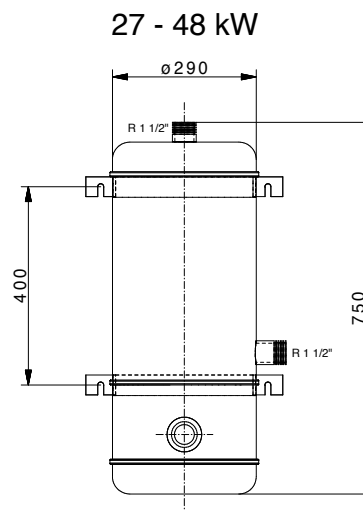
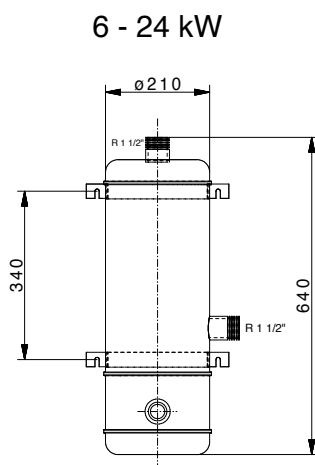
Appropriate number of high-quality tubular radiators are mounted on a flange plate.

Infinitely variable temperature control from 15 to 85°C
59 to 185°F, with safety temperature limiter 105°C /
221°F or 60°C / 140°F

Types ZA 15 - 48 kW with internal power steps. Connections 1 1/2" outside thread, on request others, return connection selective left or right
Electric connection: 3 phase, 380 V, with contactor

Type	capacity	weight	diameter	height
	kW	kg	mm	
ZA 6	6	15,0	210	640
ZA 9	9	15,0	210	640
ZA 12	12	15,5	210	640
ZA 15	15	16,0	210	640
ZA 18	18	16,0	210	640
ZA 24	24	16,5	210	640
ZA 27	27	23,0	290	750
ZA 36	36	24,0	290	750
ZA 48	48	31,0	290	750

Elektrawa



heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		<p>Calorifier</p> <p>Type : LAS – E _____</p> <p>constructed and built according to DIN 4753 part 1, horizontal designed,</p> <p>max. operating pressure 6 / 10 bar testpressure 8 / 13 bar max. operating temperature 95°C/203°F</p> <p>Cold water connection placed at deepest point of the storage tank to ensure 100% use of contents, incl. flow damper, easy removable and recyclable fleece insula- tion with plastic cover, all necessary connections and hand-hole 120/180 mm/man-hole DN 400 suitable for electric-flange-heater</p> <p>Without E-Anode Material: stainless steel 1.4571 / 1.4404 / ANSI 316Ti pickled and neutralized. Butt seam welded – no crease – production supervised by TUV</p> <p>Contents: _____ l</p> <p>Connections: cold supply/hot water _____ “ FM circulation _____ “ FM thermometer _____ “ FM sensor _____ “ FM screwed-in-heater / flange heater _____ “ FM / DN _____ PN _____</p> <p>Measures: diameter with insulation _____ mm diameter without insulation _____ mm total height ca. _____ mm length ca. _____ mm weight: ca. _____ kg</p> <p>insulation mounted / not mounted</p>		

01/2013 DMS/DINOX reserves the right to make changes without notice.

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		<p>ELHO screw-in-heater / flange heater</p> <p>with brazed heating elements maximum used till Kat. I according PED</p> <p>heated medium water</p> <p>to heating from water nominal capacity _____ kW = _____ kW nominal voltage 230 Volt 50 Hz /400 Volt 3ph</p> <p>dimensions: screw-in thread / flange _____ " DN immersion length thread _____ mm from that unheated _____ mm at thread / flange</p> <p>material: screw-in thread / flange stainless-steel heating elements incoloy 825</p> <p>electrical data: number of circuits _____ protection class IP 54 specific surface load _____ W/cm²</p>		

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro																
		<p>Control cabinet</p> <p>for electrical liquid heating application for heating capacity _____x_____ kW capacity per circuit _____ kW nominal voltage 400 volt 3ph control voltage 230 Volt AC electronic temperature control (PMA)*/ thermostatic temperature control and limiter* heating circuits switched by relay</p> <p>cabinet housing steel, powder coated colour RAL 7035 or similar size approx. _____ x _____ x _____ mm</p> <p>terminal connection brackets for wall mounting</p> <p>according to description and similar to wiring diagram</p> <p>approval and check according DIN/VDE 0113 and VBG 4</p> <p>documents standard 1-fold in english version</p> <p>Mounting accessories:</p> <table><tr><td>Venting</td><td>Flexvent Flamco</td></tr><tr><td>Ball valve (cold+hot water)</td><td>Pettinaroli 52TEU</td></tr><tr><td>Manometer</td><td>SUKU RFM 0-6 bar</td></tr><tr><td>Thermometer</td><td>0-120 °C SUKU BR 01</td></tr><tr><td>Low water protection</td><td>FEMA-Honeywell DWR</td></tr><tr><td>06-206</td><td></td></tr><tr><td>Safety valve</td><td>Honeywell SM 152 AA</td></tr><tr><td>Thermostat + Limiter</td><td>SAMSON 5348-1</td></tr></table> <p>Price:</p> <p>Package: Wrapped with transparent foil on one way wooden palett and wooden crate</p>	Venting	Flexvent Flamco	Ball valve (cold+hot water)	Pettinaroli 52TEU	Manometer	SUKU RFM 0-6 bar	Thermometer	0-120 °C SUKU BR 01	Low water protection	FEMA-Honeywell DWR	06-206		Safety valve	Honeywell SM 152 AA	Thermostat + Limiter	SAMSON 5348-1		
Venting	Flexvent Flamco																			
Ball valve (cold+hot water)	Pettinaroli 52TEU																			
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01/2013 DMS/DINOX reserves the right to make changes without notice.

heat exchangers - hot water systems - district heating stations

[illegible]

Position	Quantity		single price Euro	total price Euro
		<p>DMS - Electric - Water - Heater</p> <p>Series Elektrawa</p> <p>Type: ZA _____</p> <p>Electric-built-in heater, shell material steel St 37.2 / stainless steel 1.4571 / 1.4404 / ANSI 316 TI incl. insulation with painted steel</p> <div style="display: flex; justify-content: space-between;"> max. operating pressure 6 bar steel 10 bar stainless steel </div> <div style="display: flex; justify-content: space-between;"> max. operating temperature 95 °C drinking water 120 °C heating water </div> <p>incl. infinitely variable temperature control thermostat adjustable range 15 to 85 °C / 59 to 185 °F with safety temperature limiter 105 °C / 221 °F or 60 °C / 140 °f</p> <p>Technical datas:</p> <p>capacity _____ kW / 400 V 3 pH</p> <p>internal power steps for types 15 - 48 kW</p> <p>diameter _____ mm</p> <p>height _____ mm</p> <p>weight _____ kg</p> <p>Connections outside thread 1 ½” others on request return connection left/right</p> <p>Price:</p>		

Best Deal - STAINLESS STEEL



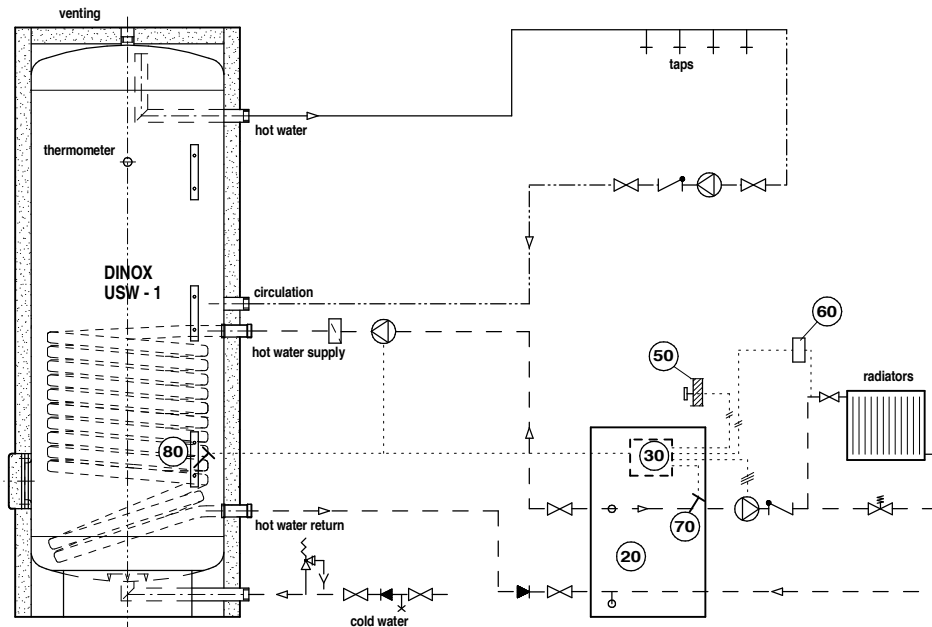
DINOX - Domestic Stainless Steel Calorifier

USW/USE - 1 and USW - 2
150 - 8000 l or tailor made
one or two heating coils
or even more and additional
electric heaters as well

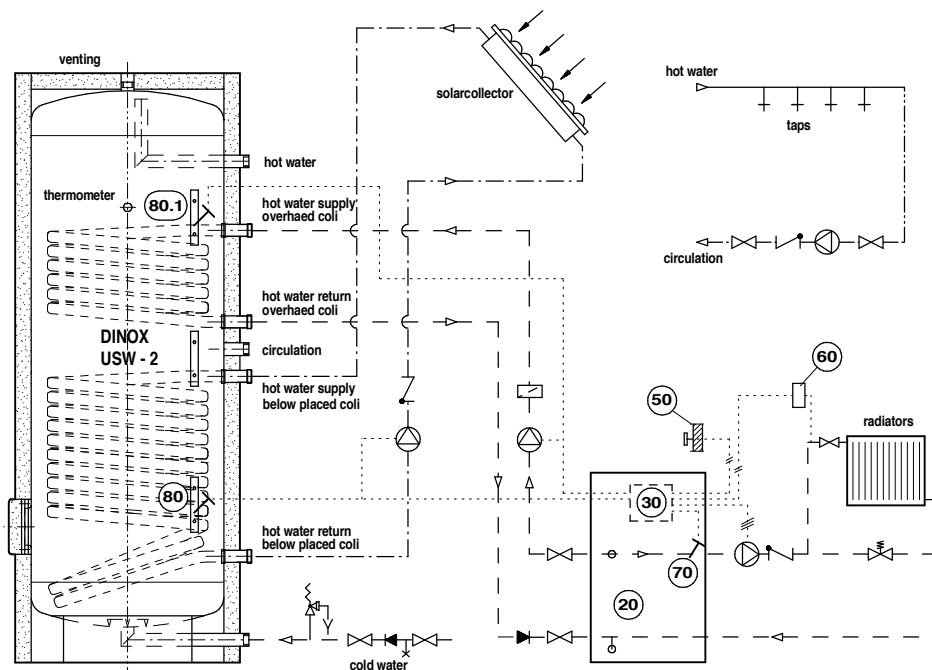


heat exchangers - hot water systems - district heating stations

High Performance-Stored-Water-Heater USW-1



High Performance-Stored-Water-Heater USW-2



- 20 gas - / oil fired boiler
- 30 boiler regulator
- 50 outdoor temperature sensor
- 60 indoor temperature sensor

- 70 boiler temperature sensor
- 80 thermostat water heater
- 80.1 thermostat water heater

Domestic calorifier exclusively stainless steel ANSI 316 Ti produced

From 150 to 1000 liter

- For district heating, heating value technology, solar-, and boiler heating usage
- with internal bare-tube heating coil
- corrosion resistant
- thermostatguide outside for 6 – 12 mm sensors
- heating up to deepest point of system

designed, manufactured, and tested according to DIN 4753 and company standard as well as PED-European Equipment

Directive. Production monitored and certified by TÜV Rheinland

All welding TIG butt-welded

Complete tank pickled and passivated

Operating pressure max. 10 bar tank and max. 25 bar heating coil

Operating temperature max. 95 °C tank and 110 °C heating coil

Assesory - optional:

- Flangecover with 1½" FM connection for electric heater up to 12 kW
- Dipping sleeve ½" FM made out of stainless steel ANSI 316 Ti L = 150 mm

Insulation:

- 100 mm soft foam covered with PE jacket colour RAL 9006 silver

or:

- 100 mm polyestervlies polystyrol covered colour RAL 9006 silver

ask for other colours on demand

**Insulations are CFC-free and
100 % recycable**

Best Deal – STAINLESS STEEL



Firmenanschrift:

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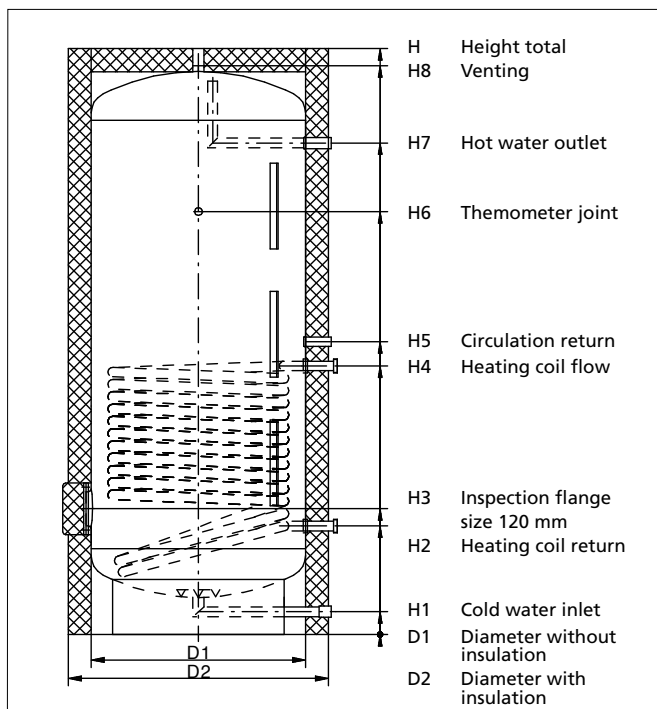
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- All sleeve connections similar to DIN 10241 2000 (or DIN 2986)
 - All FM connections according to DIN 2999 part 1 are extended to 90 mm
 - All M connections according to DIN 259 part 1 (ISO 228/1) are extended to 115 mm
 - 100 mm soft foam insulation with reinforced PE-jacked Colour RAL 9006 silver
- or:
- Polyestervlies polystyrol covered Colour RAL 9006 silver
 - ask for other colours on demand
 - Subject to technical changes

Measures in mm

Capacity (L)	150	200	300	400	500	600	750	1000	1000
H1	65	65	65	70	70	70	80	80	90
H2	260	305	305	330	330	330	380	395	405
H3	340	365	365	390	390	390	440	455	465
H4	685	605	795	890	890	890	940	995	1005
H5	760	685	870	975	975	975	1025	1090	1140
H6	1100	1115	1345	1375	1430	1430	1480	1500	1725
H7	1130	1145	1375	1420	1670	1670	1720	1710	1995
H8	1315	1362	1612	1657	1907	1910	1990	2022	2276
H height total	1396	1445	1695	1740	1990	1992	2073	2106	2360
D1 without insulation	400	500	500	600	600	650	750	850	800
D2-soft foam/polyestervlies	600	700	700	800	800	850	950	1050	1000
Weight (kg)	50	65	88	103	108	126	168	190	185
tilt height without insulation ±5	1330	1380	1627	1671	1920	1921	2015	2058	2300
tilt height with insulation ±5	1519	1606	1834	1915	2145	2166	2280	2353	2563

Connections

Inspection flange	120/180	120/180	120/180	120/180	120/180	120/180	120/180	120/180	120/180
Cold and hot water	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1½"	FM 1½"	FM 1½"
Circulation	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"
Thermometer	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"
Venting	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"
Thermostat guide	3x300	3x300	3x300	3x300	3x300	3x300	3x300	3x300	3x300
Heating coil	M 1"	M 1"	M 1¼"	M 1½"	M 1½"	M 1½"	M 1½"	M 1½"	M 1½"
Heating surface m²	0,9	0,9	1,4	1,8	1,8	1,8	2,4	2,8	2,8
Bar tube diameter	18,0	18,0	26,9	33,7	33,7	33,7	33,7	33,7	33,7

Technical datas

Key performance indicator

acc. to DIN 4708*	2	4	12	20	23	26	35	46	46
Continuous output* l/h	926	978	1522	1743	1924	2012	2413	2846	2846

*with 10/80/45 °C

Domestic calorifier exclusively stainless steel
ANSI 316 Ti produced

Dinox-D High Performance-Calorifier USW-1 **1250-8000l Stainless Steel**

- Material stainless steel ANSI 316 Ti
- sensor guidance for sensor diameter Ø 6 to 12 mm
- 1 tube heat exchanger - material ANSI 316 Ti constructed to customers request
- constructet and built according to DIN 4753
- butt seam welded - no crease
- completely pickled and neutralized

Optional accessoires:

- Man hole cover with socket end 1½" inside thread for srewed type electric heating system up to 12 kW
- One or more flange-connections for electric heater
- Immersion sleeve

Isolierung:

- Removable 100 mm soft foam plastic covered

CKC-free and 100% recycable

max. operating pressure:	tank 10bar coil 25 bar
max. operating temperature:	tank 95°C/203°F coil 110°C/230°F



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Technical Department:

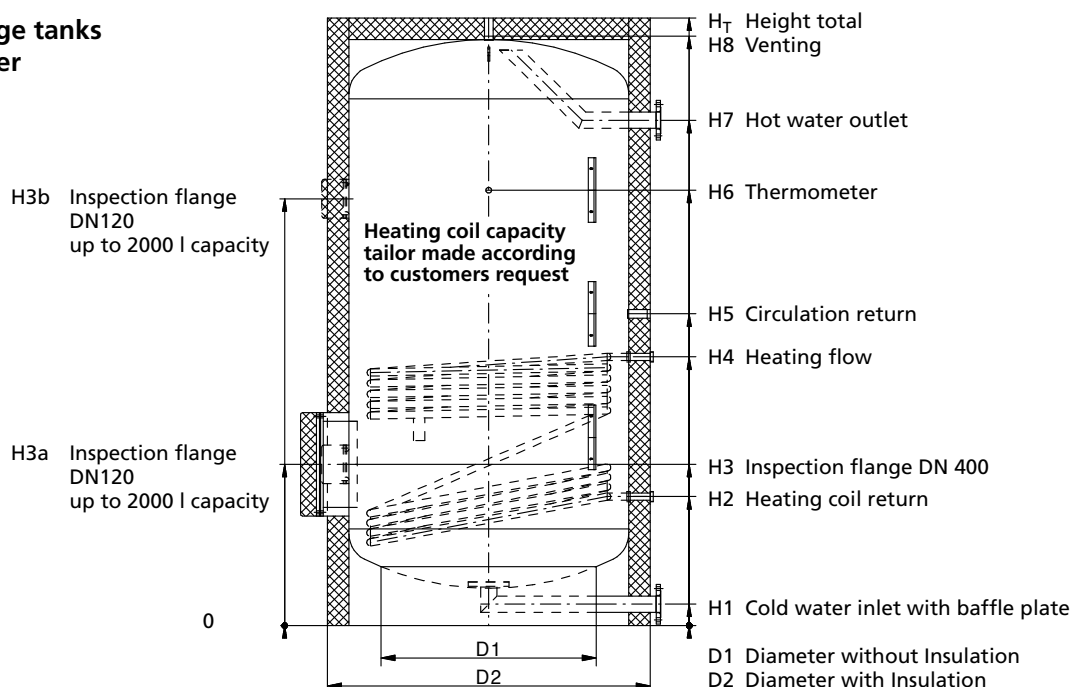
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Domestic calorifier exclusively stainless steel ANSI 316 Ti produced

2

03.2a

USW-1 - storage tanks up to 8000 Liter



Measures in mm

Capacity (L)	1250	1500	2000	3000	4000	5000	6000	7000	8000
H1	90	90	90	110	115	115	115	135	135
H2	510	510	510	600	660	660	695	715	715
H3	550/1510	550/1535	550/1785	750	810	810	890	910	910
H4	970	1180	1180	1250	1360	1510	1395	1500	1500
H5	1070	1410	1410	1450	1510	1710	1515	1640	1640
H6	1420	1560	1560	2025	2260	2700	2100	2450	2750
H7	1560	1810	2060	2350	2660	3160	2285	2705	3055
H8	1899	2150	2425	2740	3080	3580	2850	3270	3620
H _T incl. Insulation	1979	2230	2505	2826	3165	3665	2935	3355	3705
Tilt height without insulation ±5	1966	2198	2465	2811	3153	3634	3097	3462	3776
Tilt height with insulation ±5	2314	2531	2822	3199	3546	3999	3552	3906	4210
D1	1000	1000	1100	1300	1400	1400	1800	1800	1800
D2-soft foam/polyestervlies	1200	1200	1300	1500	1600	1600	2000	2000	2000
Weight (kg)	225	250	310	515	600	700	1210	1350	1450

Connections

Cold & hot water	FM 2"	FM 2"	FM 2"	DN65	DN65	DN65	DN65	DN100	DN100
CirCulation	FM ¾"	FM ¾"	FM ¾"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"
Thermostat	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"
Thermometer	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"
Venting	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"

Company standard - changable to customers request!

Domestic calorifier exclusively stainless steel ANSI 316 Ti produced

From 150 to 1000 liter

- For district heating, heating value technology, solar-, and boiler heating usage
- with internal bare-tube heating coil
- corrosion resistant
- FM 1½" connection for electric heater
- FM ½" thermostat connection
- heating up to deepest point of system

designed, manufactured, and tested according to DIN 4753 and company standard as well as PED-European Equipment Directive
 Production monitored and certified by TÜV Rheinland
 All welding TIG butt-welded
 Complete tank pickled and passivated
 Operating pressure max. 10 bar tank and max. 25 bar heating coil
 Operating temperature max. 95 °C tank and 110 °C heating coil

Assesory - optional:

- Flangecover with 1½" FM connection for electric heater up to 12 kW
- Dipping sleeve ½" FM made out of stainless steel ANSI 316 Ti, L = 150 mm

Insulation:

- 100 mm soft foam covered with PE jacket colour RAL 9006 silver

or:

- 100 mm polyestervlies polystyrol covered colour RAL 9006 silver

ask for other colours on demand

Insulations are CFC-free and 100 % recycable



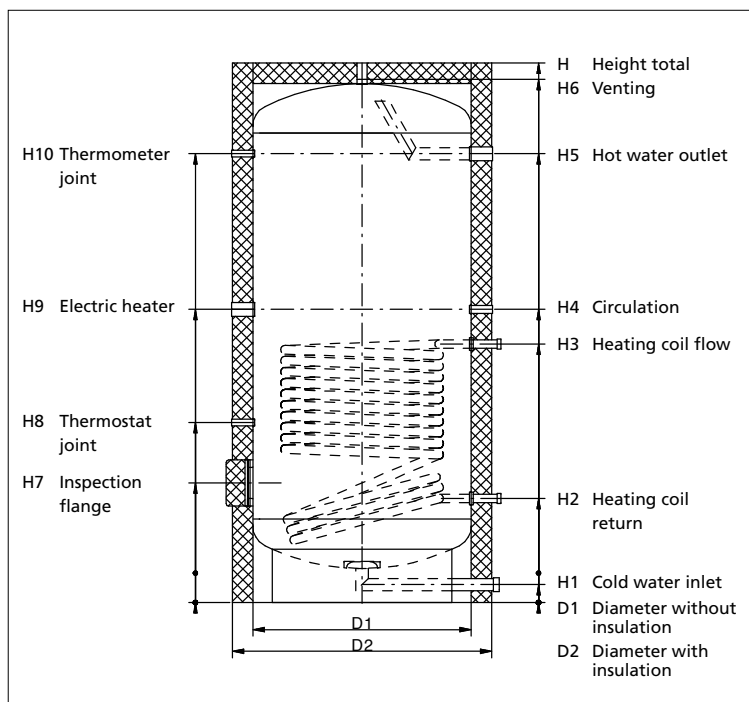
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Domestic calorifier exclusively stainless steel ANSI 316 Ti produced



- All sleeve connections similar to DIN 10241 2000 (or DIN 2986)
 - All FM connections according to DIN 2999 part 1 are extended to 90 mm
 - All M connections according to DIN 259 part 1 (ISO 228/1) are extended to 115 mm
 - 100 mm soft foam insulation with reinforced PE-jacked Colour RAL 9006 silver
- or:
- Polyestervlies polystyrol covered Colour RAL 9006 silver
 - ask for other colours on demand
 - Subject to technical changes

Measures in mm

Capacity (L)	150	200	300	400	500	750	910	1000
H1	65	65	65	70	70	80	90	70
H2	260	305	305	330	330	380	405	405
H3	685	605	795	890	890	940	1005	1005
H4	760	685	870	975	975	1025	1140	1140
H5	1130	1145	1375	1420	1670	1720	1745	1745
H6	1315	1362	1612	1657	1907	1990	2026	2032
H7	340	365	365	390	390	440	465	465
H8	500	500	600	600	600	700	700	700
H9	760	685	870	975	975	1025	1140	1140
H10	1130	1145	1375	1420	1670	1720	1745	1745
H height total	1396	1445	1695	1740	1990	2073	2110	2116
D1 without insulation	400	500	500	600	600	750	800	850
D2-soft foam/polyestervlies	600	700	700	800	800	950	1000	1050
Weight (kg)	50	65	88	103	108	168	180	190
Tilt height with insulation ±5	1519	1606	1834	1915	2145	2280	2335	2362
Tilt height without insulation ±5	1330	1380	1627	1670	1920	2015	2050	2070

Connections

Inspection flange	120/180	120/180	120/180	120/180	120/180	120/180	120/180	120/180
Cold and hot water	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1½"	FM 1½"	FM 1½"
Circulation	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"
Thermometer	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"
Thermostat	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"
Venting	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"
Electric heater	FM 1½"	FM 1½"	FM 1½"	FM 1½"	FM 1½"	FM 1½"	FM 1½"	FM 1½"
Heating coil	M 1"	M 1"	M 1¼"	M 1½"	M 1½"	M 1½"	M 1½"	M 1½"
Heating surface m²	0,9	0,9	1,4	1,8	1,8	2,4	2,8	2,8
Bar tube diameter	18,0	18,0	26,9	33,7	33,7	33,7	33,7	33,7

Technical datas

Key performance indicator								
acc. to DIN 4708*	2	4	12	20	23	26	35	46
Continuous output* l/h	926	978	1522	1743	1924	2012	2413	2846

*with 10/80/45°C

Typ USW-2



Domestic calorifier exclusively stainless steel ANSI 316 Ti produced

From 200 to 1000 liter

- For district heating, heating value technology, solar-, and boiler heating usage
- with **two internal** bare-tube heating coil
- corrosion resistant
- thermostatguide outside for 6 – 12 mm sensors
- heating up to deepest point of system

designed, manufactured, and tested according to DIN 4753 and company standard as well as PED-European Equipment

Directive. Production monitored and certified by TÜV Rheinland

All welding TIG butt-welded

Complete tank pickled and passivated

Operating pressure max. 10 bar tank and max. 25 bar heating coil

Operating temperature max. 95 °C tank and 110 °C heating coil

Assesory - optional:

- Flangecover with 1½" FM connection for electric heater up to 12 kW
- Dipping sleeve ½" FM made out of stainless steel ANSI 316 Ti L = 150 mm

Insulation:

- 100 mm soft foam covered with PE jacket colour RAL 9006 silver

or:

- 100 mm polyesterwies polystyrol covered colour RAL 9006 silver

ask for other colours on demand

Insulations are CFC-free and 100 % recycable

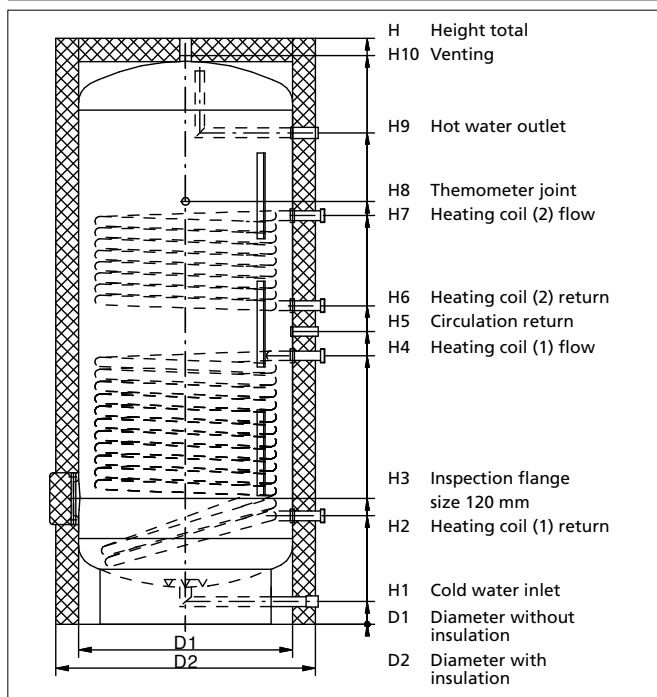


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- Two internal bare-tube heating coils
 - All sleeve connections similar to DIN 10241 2000 (or DIN 2986)
 - All FM connections according to DIN 2999 part 1 are extended to 90 mm
 - All M connections according to DIN 259 part 1 (ISO 228/1) are extended to 115 mm
 - 100 mm soft foam insulation with reinforced PE-jacked Colour RAL 9006 silver
- or:
- Polyestervlies polystyrol covered Colour RAL 9006 silver
 - ask for other colours on demand
 - Subject to technical changes

Measures in mm

Capacity (L)	200	300	400	500	600	750	1000	1000
H1	65	65	70	70	70	80	80	90
H2	305	305	330	330	330	380	395	405
H3	365	365	390	390	390	440	455	465
H4	605	795	890	890	890	940	995	1005
H5	685	870	975	975	975	1025	1090	1140
H6	765	945	1055	1110	1060	1115	1185	1275
H7	1065	1260	1325	1380	1380	1430	1585	1675
H8	1115	1345	1375	1430	1430	1480	1500	1725
H9	1145	1375	1420	1670	1670	1720	1710	1995
H10	1362	1612	1657	1907	1910	1990	2022	2276
H height total	1445	1695	1740	1990	1992	2073	2106	2360
D1 without insulation	500	500	600	600	650	750	850	800
D2-soft foam/polyestervlies	700	700	800	800	850	950	1050	1000
Weight (kg)	75	100	115	120	140	185	210	190
Tilt height without ISO ±5	1380	1627	1671	1920	1921	2015	2058	2300
Tilt height with ISO ±5	1606	1834	1915	2145	2166	2280	2353	2563

Connections

Inspection flange	120/180	120/180	120/180	120/180	120/180	120/180	120/180	120/180
Cold and hot water	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1½"	FM 1½"	FM 1½"
Circulation	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"
Thermometer	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"
Venting	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"
Thermostat guide	3x300	3x300	3x300	3x300	3x300	3x300	3x300	3x300
Heating coil	M 1"	M 1¼"	M 1½"	M 1½"	M 1½"	M 1½"	M 1½"	M 1½"
Heating surface (1) m²	0,9	1,4	1,8	1,8	1,8	2,4	2,8	2,8
Heating surface (2) m²	0,9	0,9	0,9	0,9	1,1	1,4	1,7	1,7
Bar tube diameter	18,0	26,9	33,7	33,7	33,7	33,7	33,7	33,7

Leistungsdaten

Key performance indicator acc. To DIN 4708*	2	3	3	4	7	10	14	14
Key performance indicator acc. To DIN 4708*	4	12	20	23	26	35	46	46
Continuous* output* l/h – coil (2)	476	784	820	943	1016	1215	1348	1348
Continuous* output* l/h – coil (1)	978	1522	1743	1924	2012	2413	2846	2846

*with 10/80/45°C

Domestic calorifier exclusively stainless steel
 ANSI 316 Ti produced

Dincox-D High Performance-Calorifier USW-2 1250-8000l Stainless Steel

- Material stainless steel ANSI 316 Ti
- sensor guidance for sensor diameter
Ø 6 to 12 mm
- 2 tube heat exchanger - material ANSI 316 Ti
or more according to customers request
- constructet and built according to DIN 4753
- butt seam welded - no crease
- completely pickled and neutralized

Optional accessoires:

- Man hole cover with socket end 1½" inside
thread for srewed type electric heating
system up to 12 kW
- One or more flange-connections for
electric heater
- Immersion sleeve

Insulation:

- Removable 100 mm soft foam plastic covered

CFC-free and 100% recycable

max. operating pressure:	tank 10bar coil 25 bar
max. operating temperature:	tank 95°C/203°F coil 110°C/230°F

Best Deal - STAINLESS STEEL



Head quarter:

DINOX-D®
 Edelstahlprodukte GmbH
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 info@dinox-d.de
 www.dinox-d.de

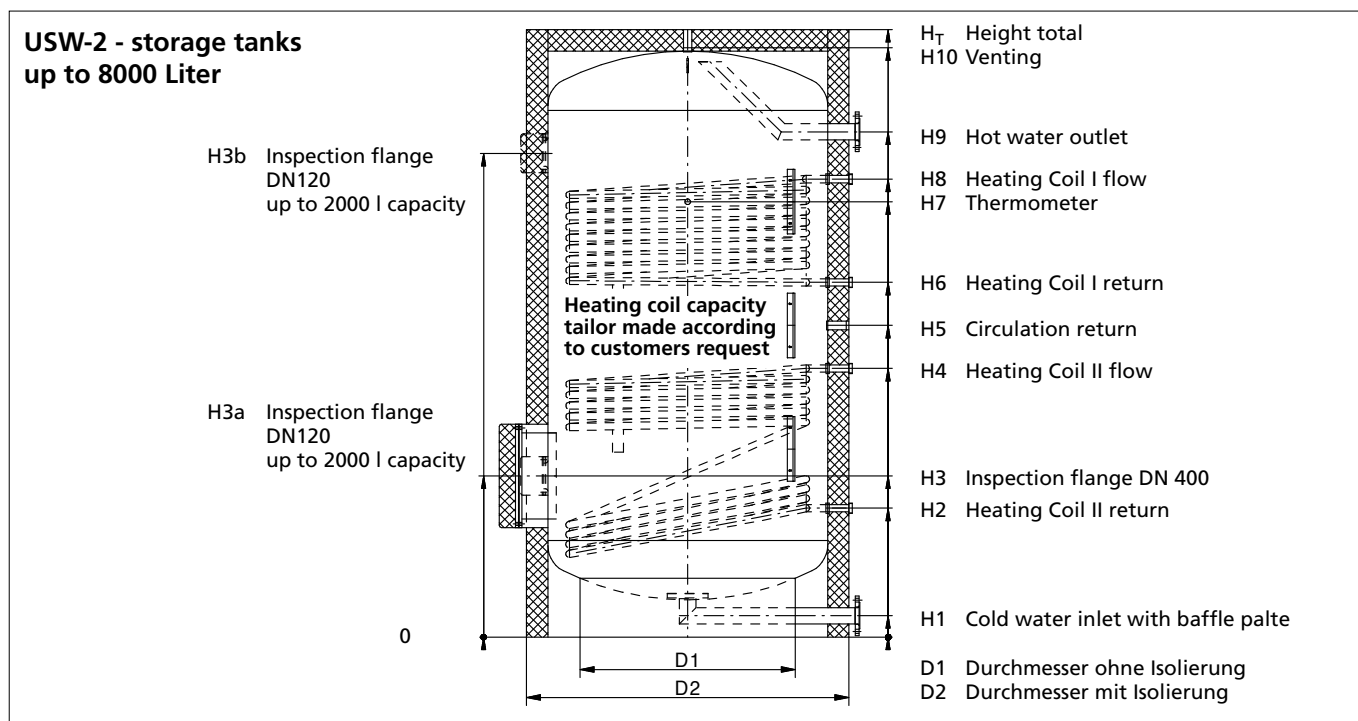
Technical Department:

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 dinox-d-wismar@t-online.de

Domestic calorifier exclusively stainless steel ANSI 316 Ti produced

2

03.5a



Measures in mm

Capacity (L)	1250	1500	2000	3000	4000	5000	6000	7000	8000
H1	90	90	90	110	115	115	115	135	135
H2	510	510	510	600	660	660	695	715	715
H3	550/1510	550/1750	550/2000	750	810	810	890	910	910
H4	970	1180	1180	1250	1360	1510	1395	1500	1500
H5	1070	1280	1280	1450	1510	1710	1515	1640	1640
H6	1170	1380	1380	1650	1660	1910	1635	1780	1780
H7	1420	1560	1560	2025	2260	2700	2100	2450	2750
H8	1445	1700	1940	2130	2410	2860	2085	2410	2725
H9	1560	1810	2060	2350	2660	3160	2285	2705	3055
H10	1899	2150	2425	2740	3080	3580	2850	3270	3620
H _T incl. Insulation	1979	2230	2505	2826	3165	3665	2935	3355	3705
Tilt height without insulation ±5	1966	2198	2465	2811	3153	3634	3097	3462	3776
Tilt height with insulation ±5	2314	2531	2822	3199	3546	3999	3552	3906	4210
D1 without insulation	1000	1000	1100	1300	1400	1400	1800	1800	1800
D2-soft foam/polyestervlies	1200	1200	1300	1500	1600	1600	2000	2000	2000
Weight (kg)	245	265	330	540	670	790	1270	1430	1575

Connections

Cold & hot water	FM 2"	FM 2"	FM 2"	DN65	DN65	DN65	DN65	DN100	DN100
Circulation	FM ¾"	FM ¾"	FM ¾"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"
Thermostat	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"
Thermometer	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"
Venting	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"

Company standard - changable to customers request!

Domestic calorifier exclusively stainless steel ANSI 316 Ti produced

From 300 to 1000 liter

- For district heating, heating value technology, solar-, and boiler heating usage
- with **two internal** bare-tube heating coil
- corrosion resistant
- FM 1½" connection for electric heater
- FM ½" thermostat connection
- heating up to deepest point of system

designed, manufactured, and tested according to DIN 4753 and company standard as well as PED-European Equipment Directive
 Production monitored and certified by TÜV Rheinland
 All welding TIG butt-welded
 Complete tank pickled and passivated
 Operating pressure max. 10 bar tank and max. 25 bar heating coil
 Operating temperature max. 95 °C tank and 110 °C heating coil

Assesory - optional:

- Flangecover with 1½" FM connection for electric heater up to 12 kW
- Dipping sleeve ½" FM made out of stainless steel ANSI 316 Ti L = 150 mm

Insulation:

- 100 mm soft foam covered with PE jacket colour RAL 9006 silver

or:

- 100 mm polyestervlies polystyrol covered colour RAL 9006 silver

ask for other colours on demand

Insulations are CFC-free and 100 % recycable



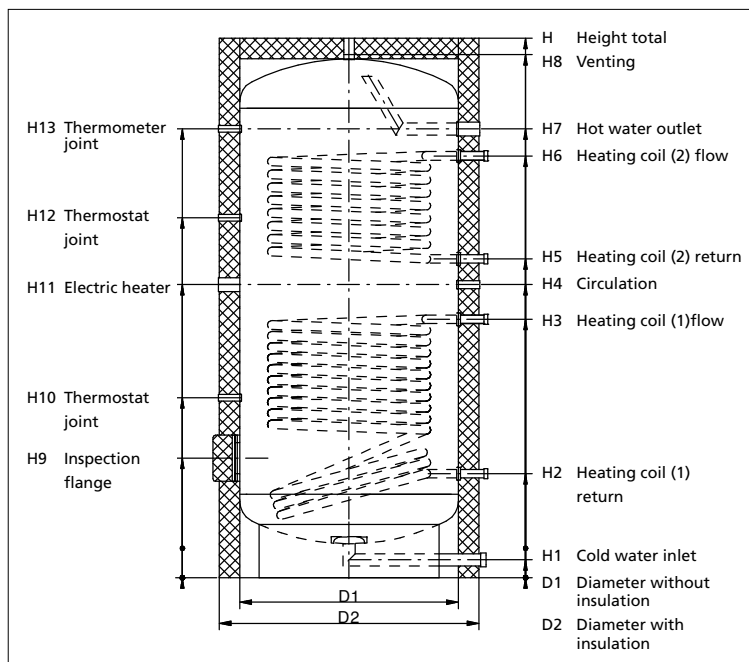
Firmenanschrift:

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Domestic calorifier exclusively stainless steel ANSI 316 Ti produced



- Two internal bare-tube heating coils
- All sleeve connections similar to DIN 10241 2000 (or DIN 2986)
- All FM connections according to DIN 2999 part 1 are extended to 90 mm
- All M connections according to DIN 259 part 1 (ISO 228/1) are extended to 115 mm
- 100 mm soft foam insulation with reinforced PE-jacked Colour RAL 9006 silver
- or:
- Polyestervlies polystyrol covered Colour RAL 9006 silver
- ask for other colours on demand
- Subject to technical changes

Measures in mm

Capacity (L)	300	400	500	750	910	1000
H1	65	70	70	80	90	70
H1	305	330	330	380	405	405
H3	795	890	890	940	1005	1005
H4	870	975	975	1025	1110	1140
H5	945	1055	1110	1115	1215	1240
H6	1260	1325	1380	1430	1615	1640
H7	1375	1420	1670	1720	1745	1745
H8	1612	1657	1907	1990	2026	2033
H9	365	390	390	440	465	465
H10	600	600	600	700	700	700
H11	870	975	975	1025	1110	1140
H12	1100	1200	1250	1300	1500	1400
H13	1375	1420	1670	1720	1745	1745
H height total	1695	1740	1990	2073	2110	2116
D1 without insulation	500	600	600	750	800	850
D2-soft foam/polyestervlies	700	800	800	950	1000	1050
Weight (kg)	88	103	108	168	180	190
tilt height with insulation ±5	1834	1915	2145	2280	2335	2362
tilt height without insulation ±5	1627	1671	1920	2015	2051	2070

Connections

Inspection flange	120/180	120/180	120/180	120/180	120/180	120/180
Cold and hot water	FM 1"	FM 1"	FM 1"	FM 1½"	FM 1½"	FM 1½"
Circulation	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"
Thermometer	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"
Venting	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"
Thermostat guide	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"
Electric heater	FM 1½"	FM 1½"	FM 1½"	FM 1½"	FM 1½"	FM 1½"
Heating coil	M 1¼"	M 1½"	M 1½"	M 1½"	M 1½"	M 1½"
Heating surface (1) m²	1,4	1,8	1,8	2,4	2,8	2,8
Heating surface (2) m²	0,9	0,9	0,9	1,4	1,6	1,7
Bar tube diameter	26,9	33,7	33,7	33,7	33,7	33,7

Technical datas

Key performance indicator acc. To DIN 4708*	2	3	3	4	7	10	14
Key performance indicator acc. To DIN 4708*	4	12	20	23	26	35	46
Continuous* output* l/h – coil (2)	476	784	820	943	1016	1215	1348
Continuous* output* l/h – coil (1)	978	1522	1743	1924	2012	2413	2846

*with 10/80/45°C

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		<p>DINOX-D</p> <p>High Performance-Stored-Water-Heater</p> <p>Series USW-1</p> <p>Type: _____</p> <p>vertical designed, constructed and built according to DIN 4753, material stainless steel 1.4571/1.4404 / ANSI 316 TI pickled and neutralized, butt seam welded – no crease max. operating pressure 10 bar, max. operating temperature 95 °C / 203°F, with all necessary connections and handhole, cold water placed at deepest point to ensure 100% use of contents, incl. flow damper. Fix installed stainless steel spiral tube heat exchanger placed at deepest part, max. operating pressure 25 bar, max. operating temperature 110 °C / 230 °F.</p> <p>Removable fleece insulation, plastic covered.</p> <p>Technical datas:</p> <p>Contents: _____ l</p> <p>Water-heater temperature: _____ °C</p> <p>Coil: _____ m²</p> <p>capacity: _____ kW</p> <p>hot water flow-line / -return _____ °C</p> <p>headloss _____ kPa</p> <p>heating water flow _____ m³/h</p> <p>Connections water-heater:</p> <p>cold-/hot water: FM _____ “inside thread</p> <p>circulation FM _____ “inside thread</p> <p>venting FM _____ “inside thread</p> <p>thermometer/sensor FM _____ “inside thread</p> <p>Connections coil:</p> <p>hot water flow-line/-return _____</p> <p>M _____ “outside thread</p> <p>Measures:</p> <p>diameter incl. insulation: _____ mm</p> <p>diameter without insulation: _____ mm</p> <p>height: _____ mm</p> <p>Weight: _____ kg</p> <p>Price:</p>		

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heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		<p>DINOX-D</p> <p>High Performance-Stored-Water-Heater</p> <p>Series USW-2</p> <p>Type: _____</p> <p>vertical designed, constructed and built according to DIN 4753, material stainless steel 1.4571/1.4404 / ANSI 316 TI pickled and neutralized, butt seam welded – no crease max. operating pressure 10 bar, max. operating temperature 110 °C / 203°F, with all necessary connections and handhole, cold water placed at deepest point to ensure 100% use of contents, incl. flow damper. Fix installed stainless steel spiral tube heat exchanger placed at deepest part, second fix installed stainless steel spiral tube heat exchanger overhead placed, max. operating pressure 25 bar, max. operating temperature 110 °C / 230 °F. Removable fleece insulation, plastic covered.</p> <p>Technical datas:</p> <p>Contents: _____ l</p> <p>Water-heater temperature: _____ °C</p> <p>Overhaed Coil: _____ m²</p> <p>capacity: _____ kW</p> <p>hot water flow-line / -return _____ °C</p> <p>headloss _____ kPa</p> <p>heating water flow _____ m³/h</p> <p>Below placed Coil:</p> <p>capacity: _____ kW</p> <p>hot water flow-line / -return _____ °C</p> <p>headloss _____ kPa</p> <p>heating water flow _____ m³/h</p> <p>Connections water-heater:</p> <p>cold-/hot water: FM _____ “inside thread</p> <p>circulation FM _____ “inside thread</p> <p>venting FM _____ “inside thread</p> <p>thermometer/sensor FM _____ “inside thread</p> <p>Connections coil:</p> <p>hot water flow-line / -return M _____ “outside thread</p> <p>Measures:</p> <p>diameter incl. insulation: _____ mm</p> <p>diameter without insulation: _____ mm</p> <p>height: _____ mm</p> <p>Weight: _____ kg</p> <p>Price:</p>		

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Best Deal - STAINLESS STEEL

Combined-Water-Heating-Systems storing and charging

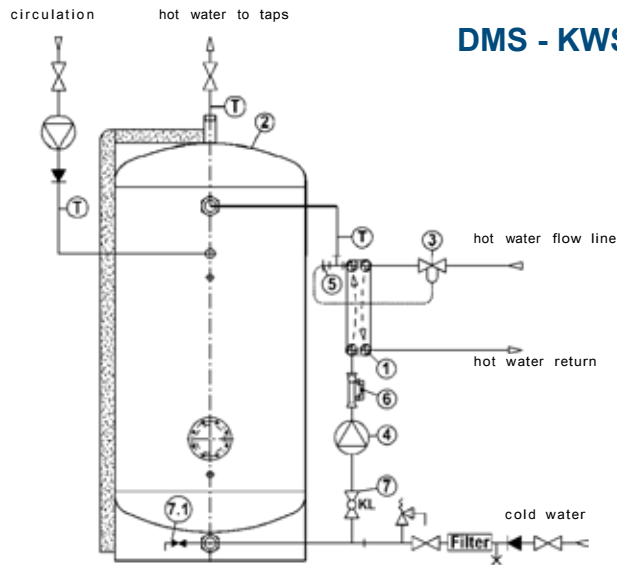


1. Water storage tank without or with disinfection volume will be heated completely
2. Contents of the vessel complete
= 100 % for use
- 2.1 Therefor it is possible to reduce the volume
up to 20 % without capacity loss
3. No dead storage therefor high hygienic
working system
4. Heating outside of the tank therefor
 - reduction of heat-water flow because the
difference of the temperature is much higher
 - easy maintenance
 - much better efficiency of the whole system
5. It is possible to reduce the heating-tempera-
ture to get the same hote-water-temperature
- leading to lower heat losses during time
of no demand
6. More than one hot-water-tank can be loaded
by one heat-exchanger.
Pipework can be produced that any hot-water-
tank can be shut-off for maintenance without
interrupting the hot-water supply
7. Combined-water-systems are installed since
many decades to deliver hot-water to any
demand beside private homes and quite state
of art



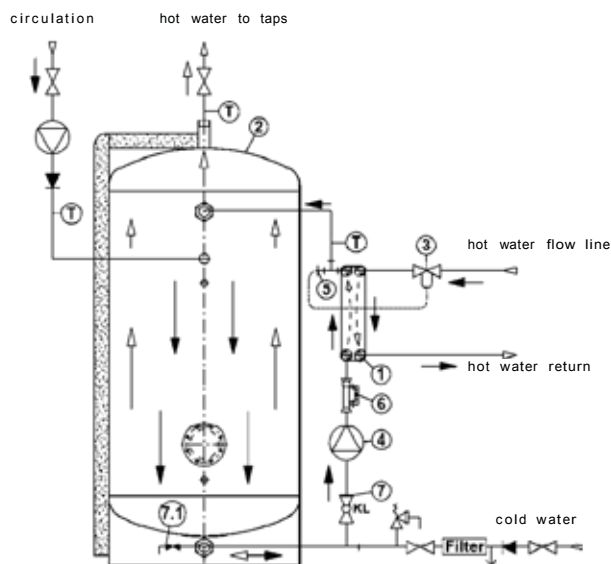
heat exchangers - hot water systems - district heating stations

DMS - KWS-K - Combined - Water - Heating - Systems storing and charging



System before starting (filled up)

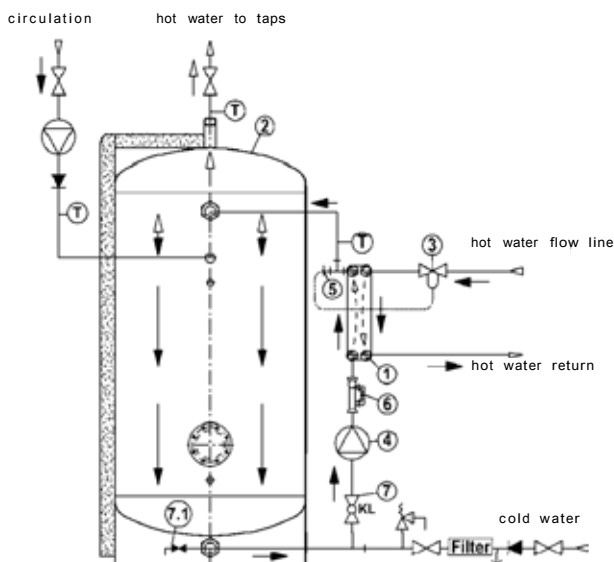
- 1) heat exchanger (brazed)
- 2) hot water storage tank
- 3) water temperature regulator
- 4) charging pump
- 5) sensor connection point
- 6) taco-setter
- 7) shut off valve
- 7.1) draining



System loaded or unloaded

↓ charging

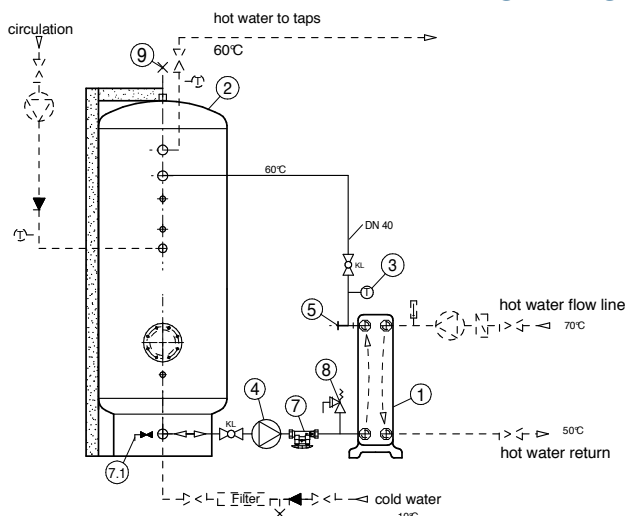
↑ unloading



System loaded - circulation running

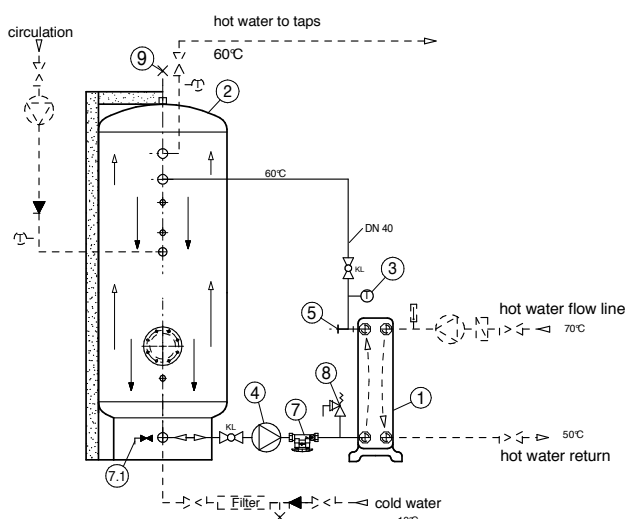
heat exchangers - hot water systems - district heating stations

DMS - KWS-K - Combined - Water - Heating - Systems storing and charging



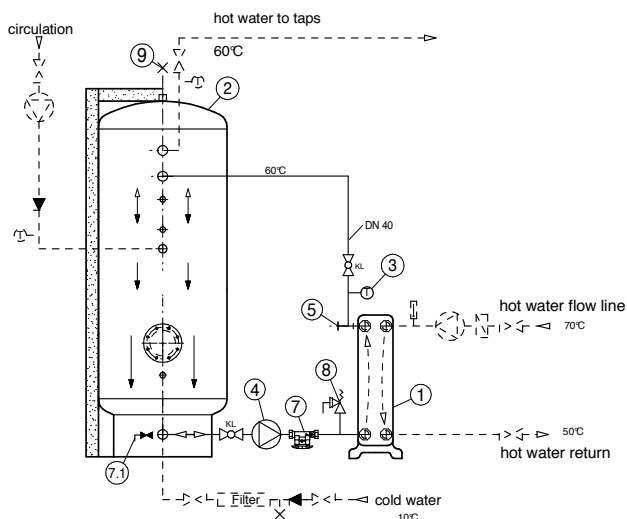
System before starting (filled up)

- 1) heat exchanger (gasketed)
- 2) hot water storage tank
- 3) thermometer
- 4) charging pump
- 5) sensor connection point
- 7) taco-setter
- 7.1) draining
- 8) safety valve
- 9) venting valve



System loaded or unloaded

- ↓ charging
↑ unloading



System loaded - circulation running

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		DMS KWS-K System hot water system ready for use storing and charging combined pipework of welded stainless steel (no flexible pipes acc. to hygienic requirements) with gun metal fittings Type: KWS-K _____ consisting of:		
(1)		DMS-brazed/gasketed plate heat exchanger material: steel 1.4401 (ANSI 316) stainless steel with insulation Typ: PS-LG _____		
(2)		_____stainless steel hot water storage tank Typ: DINOX LAS _____ contents: _____ l constructed and built according to DIN 4753 part 1, vertical designed, material quality 1.4571/1.4404 (conformant to US.ANSI 316TI) with all necessary connections and hand hole, pickled and neutralized with removable soft foam/fleece insulation with plastic cover		
(3)		water temperature regulator two-/three-way valve (not mounted) with/without safety thermostat Type: Samson _____		
(4)		charging pump material stainless steel/bronze Typ: Grundfos / Wilo _____		
(6)		balancing/setting valve Type: TACO-Setter 23- _____ including shutt/off valves thermometer, and safty gauge max. working pressure/-temp. secondary: 10 bar/ 95°C/203°F) primary: 25 bar/ 185°C/365°F) height: _____ mm diameter/width: _____ mm weight: _____ kg boiler input: _____ kW primary: temperature: _____ °C/°F head loss: _____ kPa secondary: temperature: _____ °C/°F head loss: _____ kPa Total Price:		

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heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		DMS KWS-K System hot water system ready for use storing and charging combined pipework of welded stainless steel (no flexible pipes acc. to hygienic requirements) with gun metal fittings Type: KWS-K _____ consisting of:		
(1)		shell / coil heat exchanger material: steel St37.2 / stainless steel 1.4571 (conformant to US.ANSI 316TI) with insulation Typ: ER - SR _____		
(2)		_____ stainless steel hot water storage tank Typ: DINOX LAS _____ contents: _____ l constructed and built according to DIN 4753 part 1, vertical designed, material quality 1.4571/1.4404 (conformant to US.ANSI 316TI) with all necessary connections and hand hole, pickled and neutralized with removable soft foam/fleece insulation with plastic cover		
(3)		water temperature regulator two-/three-way valve (not mounted) with/without safety thermostat Type: Samson _____		
(4)		charging pump material stainless steel/bronze Typ: Grundfos / Wilo _____		
(6)		balancing/setting valve Type: TACO-Setter 23- _____ including shutt/off valves thermometer, and safty gauge max. working pressure/-temp. secondary: 10 bar/ 95°C/203°F) primary: 25 bar/ 185°C/365°F) height: _____ mm diameter/width: _____ mm weight: _____ kg boiler input: _____ kW primary: temperature: _____ °C/°F head loss: _____ kPa secondary: temperature: _____ °C/°F head loss: _____ kPa Total Price:		

01/2013 DMS/DINOX reserves the right to make changes without notice.

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		DMS KWS-K System LK-min hot water system ready for use storing and charging combined pipework of welded stainless steel (no flexible pipes acc. to hygienic requirements) with gun metal fittings Typ: KWS-K Systems LK-min _____ consisting of:		
(1)		DMS-brazed/gasketed plate heat exchanger material: steel 1.4401 (ANSI 316) stainless steel with insulation Typ: PS-LG _____		
(2)		_____ stainless steel hot water storage tank Typ: DINOX LAS _____ LK usable contents: _____ l disinfection volume: _____ l constructed and built according to DIN 4753 part 1, vertical designed, material quality 1.4571/1.4404 (conformant to US.ANSI 316TI) with all necessary connections and hand hole, pickled and neutralized with removable soft foam/fleece insulation with plastic cover		
(3)		water temperature regulator two-/three-way valve (not mounted) with/without safety thermostat Type: Samson _____		
(4)		charging pump material stainless steel/bronze Typ: Grundfos / Wilo _____		
(6)		balancing/setting valve Type: TACO-Setter 23- _____ including shutt/off valves thermometer, and safty gauge max. working pressure/-temp. secondary: 10 bar/ 95°C/203°F) primary: 25 bar/ 185°C/365°F) height: _____ mm diameter/width: _____ mm weight: _____ kg boiler input: _____ kW primary: temperature: _____ °C/°F head loss: _____ kPa secondary: temperature: _____ °C/°F head loss: _____ kPa Total Price:		

01/2013 DMS/DINOX reserves the right to make changes without notice.

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		DMS KWS-K System LK-min hot water system ready for use storing and charging combined pipework of welded stainless steel (no flexible pipes acc. to hygienic requirements) with gun metal fittings Typ: KWS-K Systems LK-min _____ consisting of:		
(1)		shell / coil heat exchanger material: steel St37.2 / stainless steel 1.4571 (conformant to US.ANSI 316TI) with insulation Typ: ER - SR _____		
(2)		_____stainless steel hot water storage tank Typ: DINOX LAS _____ LK usable contents: _____ l disinfection volume: _____ l constructed and built according to DIN 4753 part 1, vertical designed, material quality 1.4571/1.4404 (conformant to US.ANSI 316TI) with all necessary connections and hand hole, pickled and neutralized with removable soft foam/fleece insulation with plastic cover		
(3)		water temperature regulator two-/three-way valve (not mounted) with/without safety thermostat Type: Samson _____		
(4)		charging pump material stainless steel/bronze Typ: Grundfos / Wilo		
(6)		balancing/setting valve Type: TACO-Setter 23- _____ including shutt/off valves thermometer, and safety gauge max. working pressure/-temp. secondary: _____ 10 bar/ 95°C/203°F) primary: _____ 25 bar/ 185°C/365°F) height: _____ mm diameter/width: _____ mm weight: _____ kg boiler input: _____ kW primary: temperature: _____ °C/°F head loss: _____ kPa secondary: temperature: _____ °C/°F head loss: _____ kPa Total Price:		

01/2013 DMS/DINOX reserves the right to make changes without notice.

heat exchangers - hot water systems - district heating stations

DMS – Combined – Water – Heating – Systems KWS-K and LK – Systems

Assembly instruction:

All the constituent components of the completely pre-mounted piped KWS-K-Systems are manufactured from corrosion resistant material – mainly stainless steel. The warm water and circulation pipework, following the DMS-KWS-K-System, should not be made out of galvanized steel tubes for corrosion reasons. The systems should be installed in a frost-free room by a recognized specialized company. Strainers or filters must be mounted in the inlets of primary and secondary connections. The pipework must be layed without tension.

Safety equipment:

The safety equipment of the hot water storage tank together with the heat exchanger is regulated in DIN 4753, part 1 (German rule). Requirements and regulations from the district heating operator/or boiler are to be considered. In addition DIN 1988 applies as well as possible regulations of local water suppliers for the installation.

Function of the DMS-KWS-K-Systems:

Charging:

From the bottom of the hot water storage tank (2) cold water flows to the charging pump (4) to heat up to desired temperature in the heat exchanger (1) to the hot inlet of the storage tank (2). When all of the water in the storage tank has been heated to the desired temperature the water temperature regulator (3) closes to reduce and stop heating.

Tapping:

When warm water is taken from the taps, only the amount of water, which could be heated up to desired temperature, flows through the heat exchanger (1), the quantity beyond flows through the storage tank to the taps. Therefore it is necessary to match the flow capacity of the charging pump by the Taco-setting valve (6) with the heating capacity. If the capacity of the charging pump is too big, water at a lower temperature than desired may flow from the heat exchanger – or the heating capacity is too low. Complaints because of apparently inadequate capacity results in both cases. The Taco-setting-valve (6) must be adjusted in such a manner, that the completely opened water temperature regulator at a lowest inlet temperature to the heating water achieves the desired temperature of warm water in the heat exchanger. The thermostat of the water temperature regulator should be placed at the hot outlet (5) of the heat exchanger.

Circulation / no tapping:

In order to have in a short time water at the desired temperature at the taps, a circulating pump is installed. From the warm outlet of the storage tank the circulation starts. Circulation water should cool down not more than 5 K (°C). The whole circulation has to be adjusted in order to have well balanced hygienic pipework.

heat exchangers - hot water systems - district heating stations

Highest capacity:

Start:

1. Check, that installation of primary and secondary devices are duly. Consider the installation scheme too, which is settled at every delivered system.
2. At first start with secondary side filling the storage tank, open slowly the shut off valves at cold water inlet, and one by one in the warm water pipe to the taps. Exhaust the pipework at the taps. Wait as long as evenly water withdraws from the taps and close the taps.
3. Switch on the charging pump (4) and exhaust it in the same way.
4. At second start filling up the primary side of the heat exchanger:
 - a. Regulations of the district heating supplier or boiler manufacturer are to be considered.
 - b. The heating water has to heat up steadily at 70 °C at minimum at the heat exchanger. If not, a special system with a special manual may be required.
 - c. Then open shut off valves slowly at the in- and outlet pipework.
 - d. The regulation thermostat has to be adjusted to the desired temperature
The hot water temperature should be adjusted to 60 °C at maximum to avoid a build-up of limescale.
5. Coordinate the flow rate of the charging pump (4) by the Taco-setting valve (6) with the capacity of the primary side.
6. Check, whether the water temperature regulator is closing when the desired temperature is reached. Adjust the temperature regulator if necessary.
7. Check the installations of the circulation pump and the non-return-valves and then start the pump.
8. For hygienic and long term operation reasons, the charging pump has to run constantly. Otherwise it may cause under supply or not enough heated water.

When all compontens are adjusted the system run independently.

Examination and maintenance:

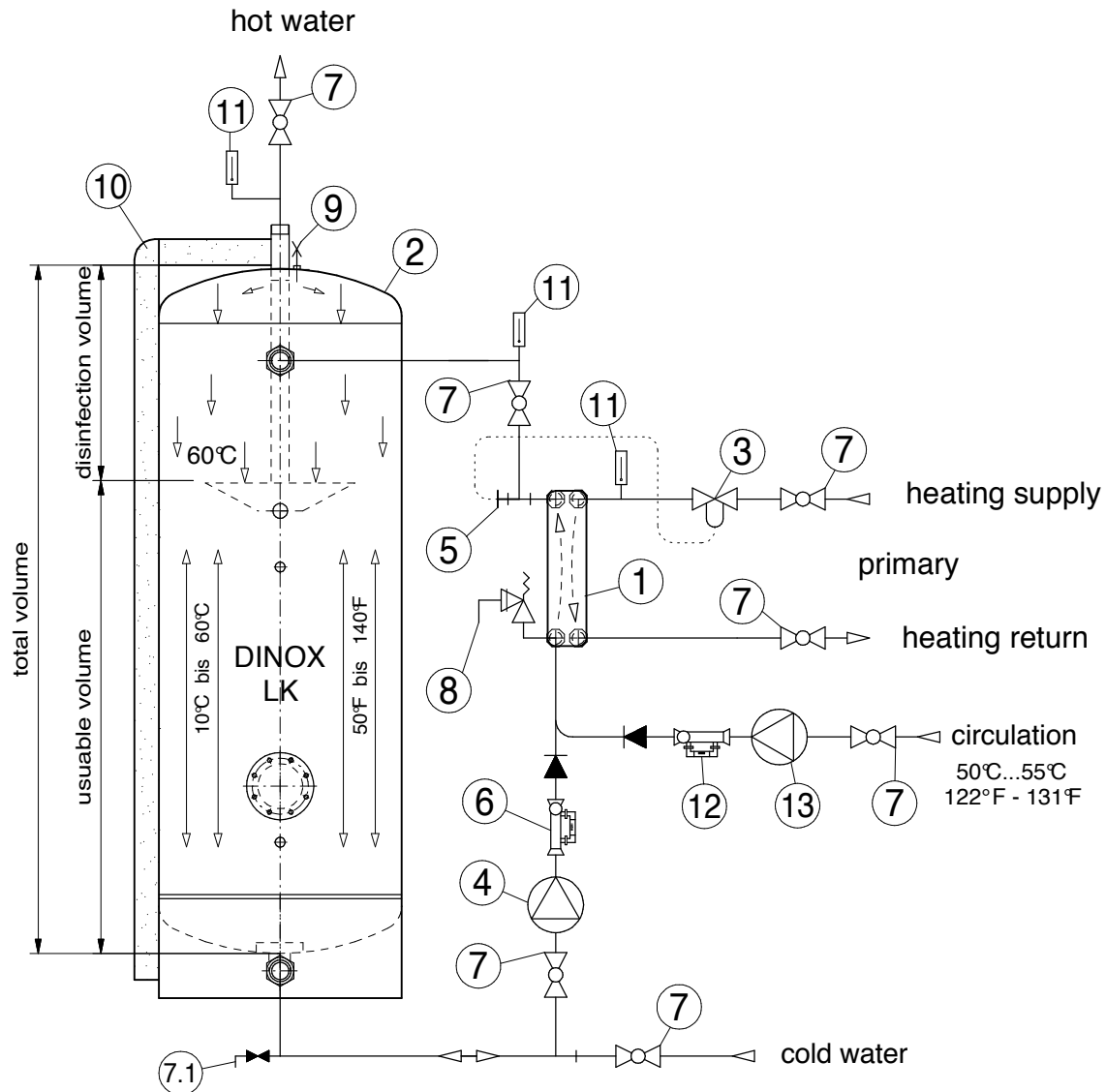
The safety and regulation devices are to be examined regularly. Once a year, the system has to be checked in all functions. This has to be done by a specialized company, in accordance with the DIN 1988 part 8 (German rule).

heat exchangers - hot water systems - district heating stations

DMS - KWS - K- System LK - min

Legionellae minimising hot water system with thermal disinfection in stationary dwell time of the 60°C/140°F heated water within LK - storage tank

Pre-mounted and wired according to customers demand



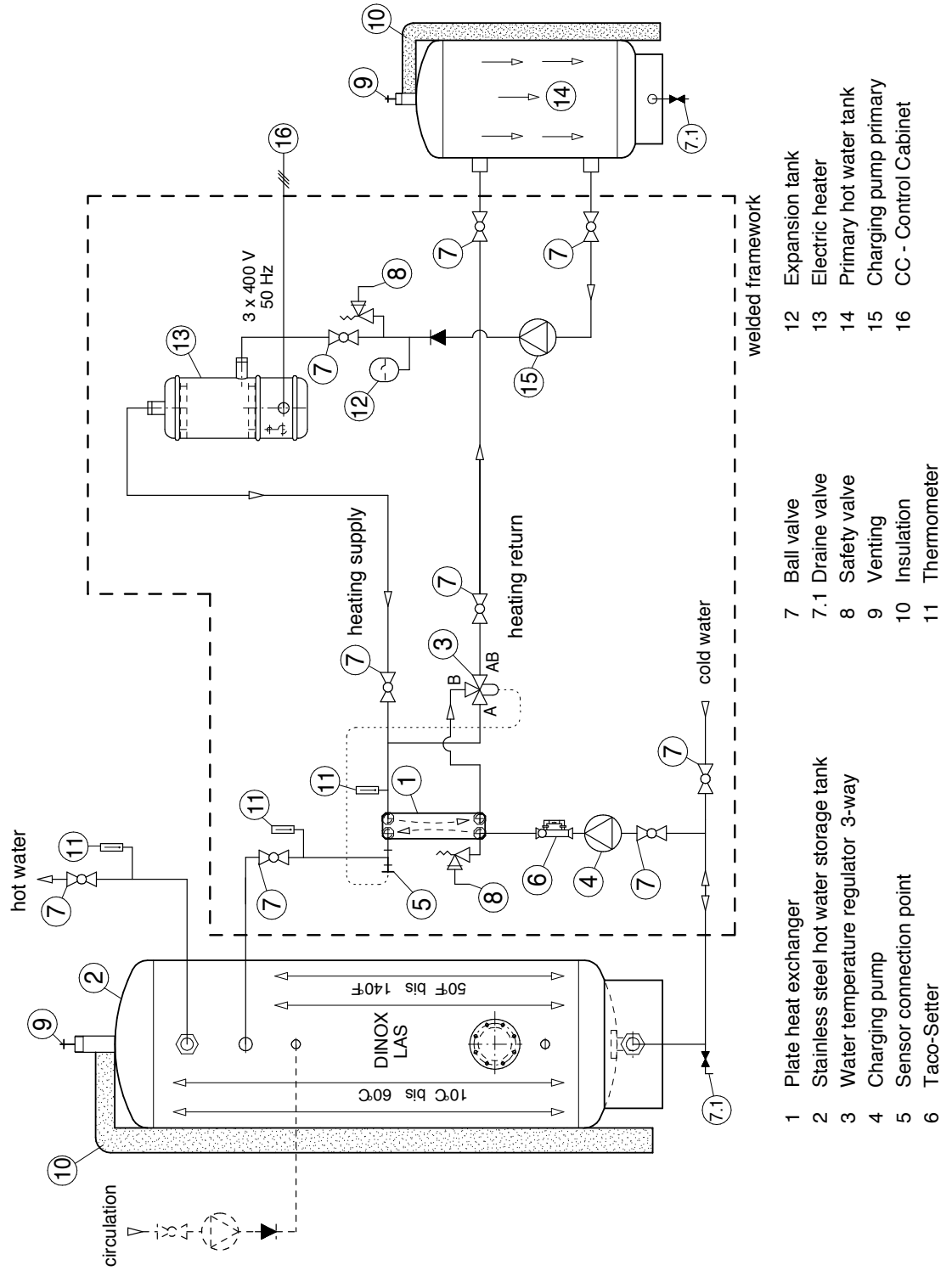
- 1 Plate heat exchanger
- 2 Stainless steel hot water storage tank LK
- 3 Water temperature regulator
- 4 Charging pump
- 5 Sensor connection point
- 6 Taco-Setter
- 7 Ball valve

- 7.1 Draine valve
- 8 Safety valve
- 9 Venting
- 10 Insulation
- 11 Thermometer
- 12 Taco-Setter circulation
- 13 Circulation pump

heat exchangers - hot water systems - district heating stations

DMS - KWS - K-System

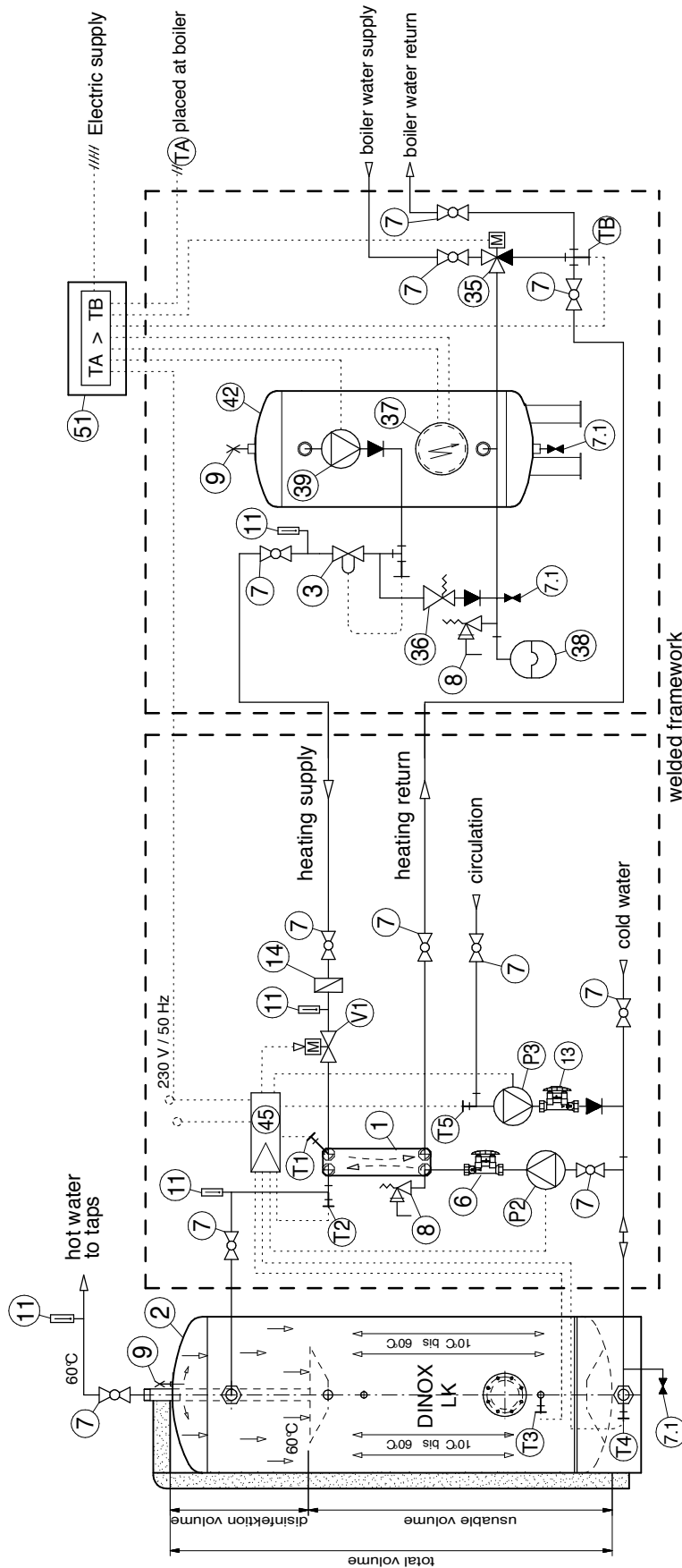
with electric-heater type Elektrawa (9-48 kW) - one heater - higher capacity two or more heaters
detailed designed to customers request - tailor made pre-mounted and wired



heat exchangers - hot water systems - district heating stations

DMS - KWS - K - LK - min - System - indirect electric heated

Legionellae minimising hot water system with thermal disinfection in stationary dwell time of the 60°C/140°F heated water within LK - storage tank detailed designed to customers request - tailor made pre-mounted and wired

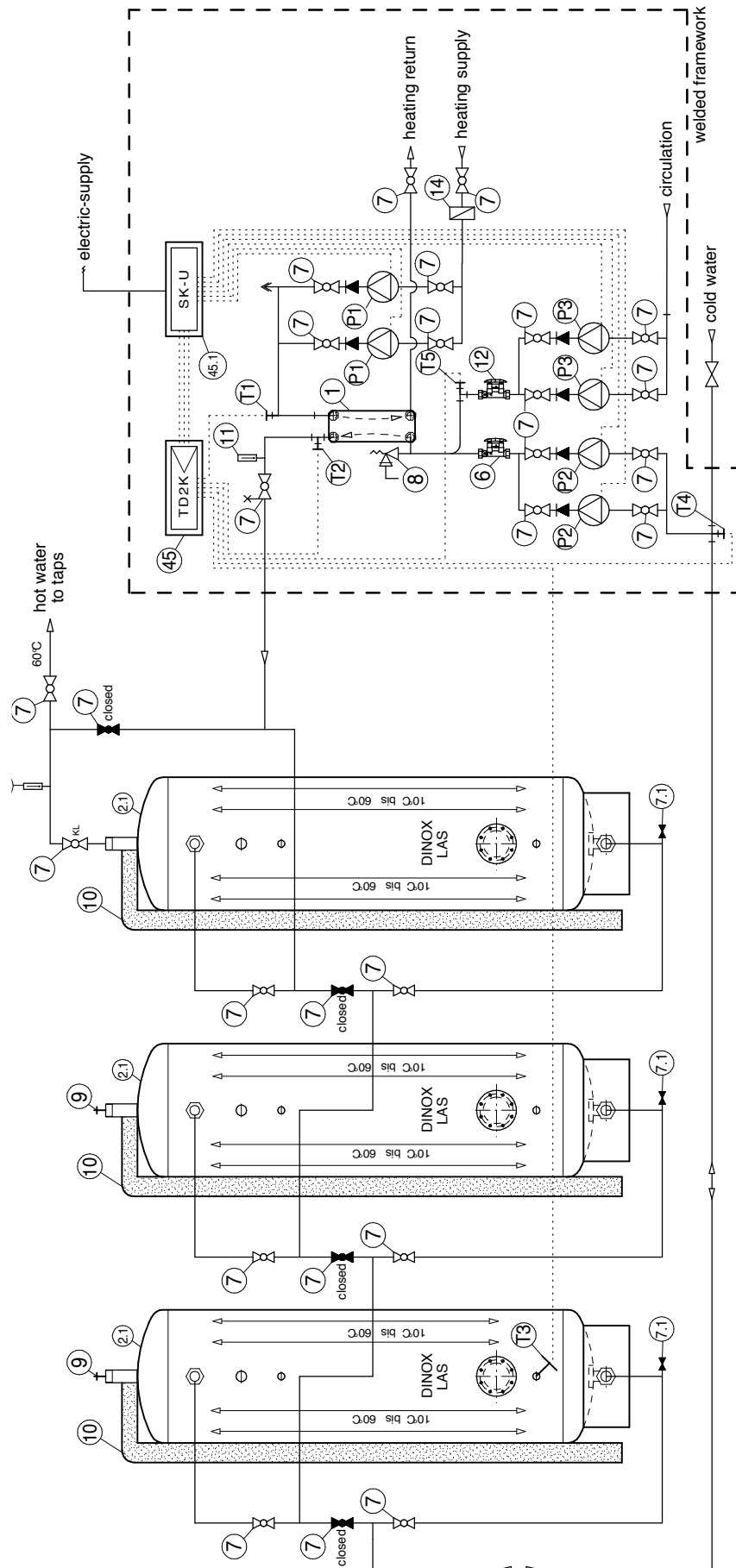


- | | | | | | | | |
|-----|---|----|-------------------------|----|--------------------------------|----|---------------------------------|
| 1 | Plate heat exchanger | 8 | Safety valve | 35 | Motorized switching ball valve | V1 | Motorized valve |
| 2 | Stainless steel hot water storage tank LK | 9 | Venting | 36 | Overflow valve | TA | Sensor boiler water |
| 3 | Water temperature regulator | 10 | Insulation | 37 | Electric heater | TB | Sensor return Legionim system |
| 4 | Charging pump | 11 | Thermometer | 38 | Expansion tank | T1 | Sensor heating supply |
| 6 | Taco-Setter | 12 | Taco-Setter circulation | 39 | Pump electric heater | T2 | Sensor hot water supply |
| 7 | Ball valve | 13 | Circulation pump | 42 | Primary hot water tank | T3 | Sensor storage tank loading ON |
| 7.1 | Drain valve | 14 | None return valve | 45 | Thermomicroprocessor control | T4 | Sensor storage tank loading OFF |
| | | | | 51 | Control cabinet | T5 | Sensor circulation return |

heat exchangers - hot water systems - district heating stations

DMS - KWS - K-3 -TD2K - RD - System

detailed designed to customers request - tailor made pre-mounted and wired



- P1 Primary pump capacitycontrolled
- P2 Charging pump capacitycontrolled
- P3 Circulation pump capacitycontrolled
- T1 Sensor heating supply
- T2 Sensor hot water supply
- T3 Sensor storage tank loading ON
- T4 Sensor storage tank loading OFF
- T5 Sensor circulation return

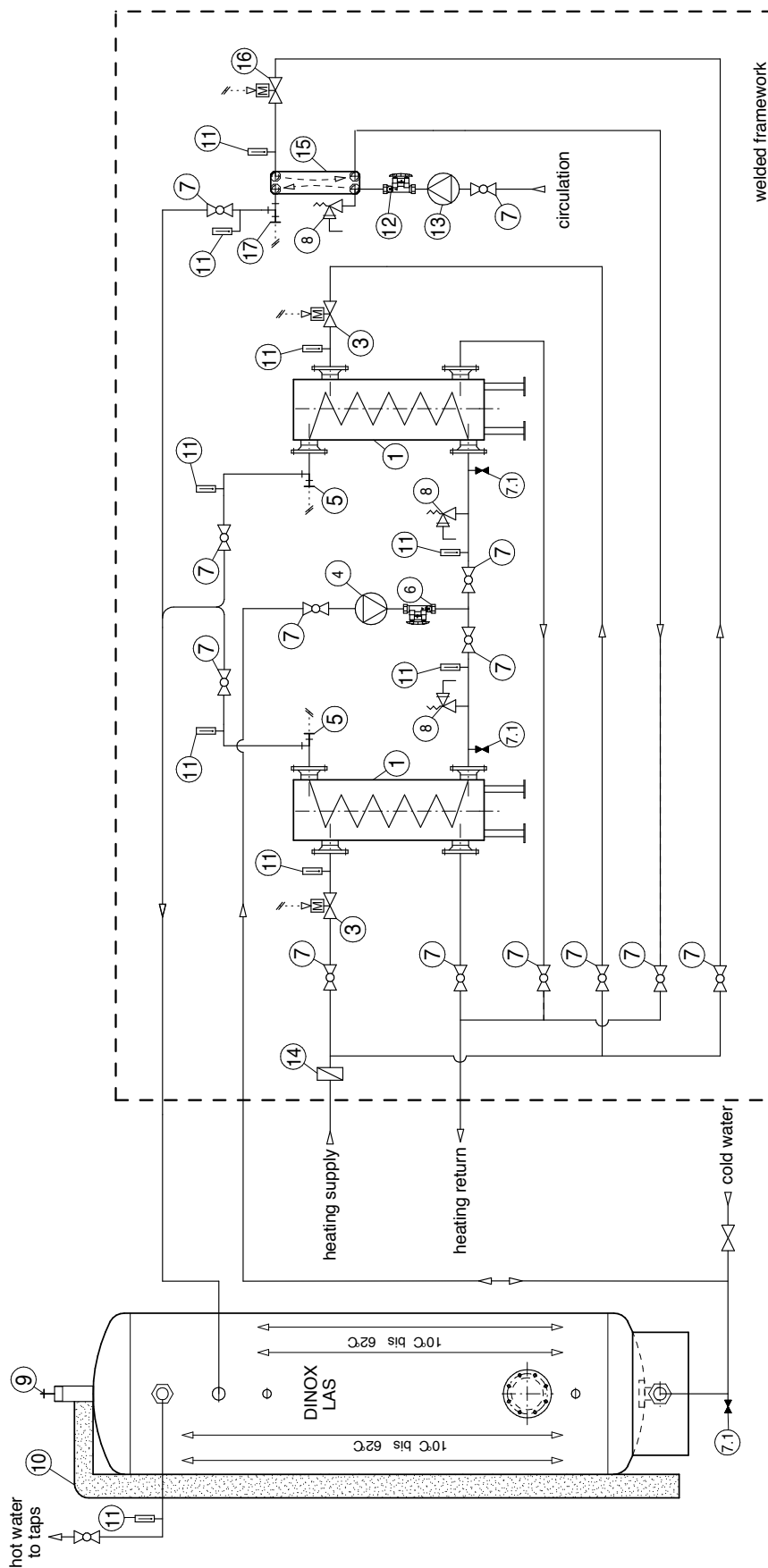
- 10 Insulation
- 11 Thermometer
- 12 Taco-Setter circulation
- 14 Non return Valve
- 45 Thermomdrive microprocessor control
- 45.1 Pump switch board

- 1 Plate heat exchanger
- 2.1 Stainless steel hot water storage tank
- 6 Taco-Setter
- 7 Ball valve
- 7.1 Drain valve
- 8 Safety valve
- 9 Venting

heat exchangers - hot water systems - district heating stations

KWS - K - 1000 / 2 - RWU - ZWU - System

detailed designed to customers request - tailor made pre-mounted and wired

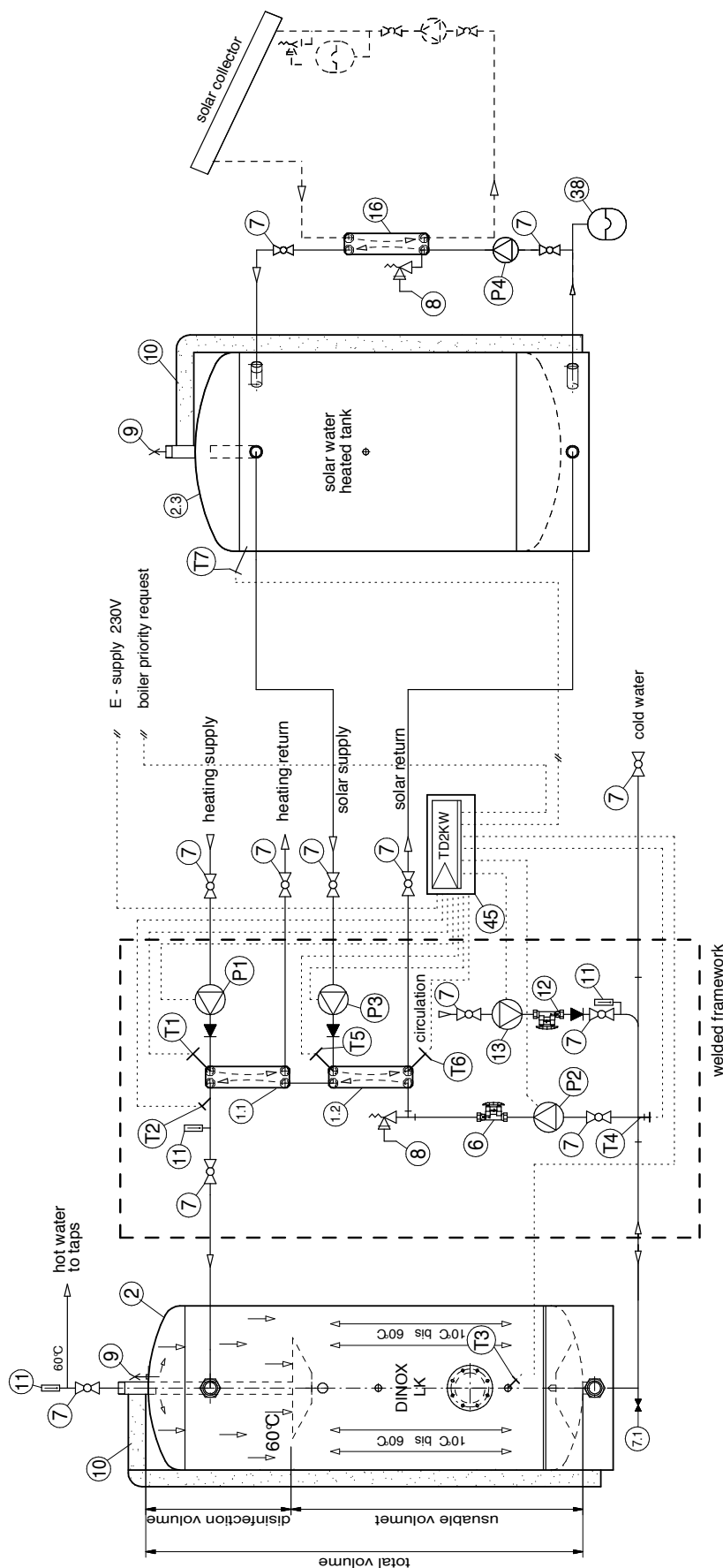


- | | | | |
|-----|--|----|---|
| 1 | Shell and coil heat exchanger | 12 | Taco-Setter circulation |
| 2 | Stainless steel hot water storage tank | 13 | Circulation pump |
| 3 | Water temperature regulator | 14 | Non return valve |
| 4 | Charging pump | 15 | Plate heat exchanger circulation |
| 5 | Sensor point heating supply | 16 | Circulation water regulator |
| 6 | Taco-Setter | 17 | Sensor point heating supply circulation |
| 7 | Ball valve | | |
| 7.1 | Drain valve | | |
| 8 | Safety valve | | |
| 9 | Venting | | |
| 10 | Insulation | | |
| 11 | Thermometer | | |

heat exchangers - hot water systems - district heating stations

Hot Water System Boiled - and Solar - Water heated

pre-mounted frame construction, stainless steel pipework, internal wired designed and constructed according to customers demand



- | | | |
|--|--|--|
| 1.1 Plate heat exchanger-boiler water supplied | 38 Expansion tank | T1 Sensor heating supply-boilerwater |
| 1.2 Plate heat exchanger-solar water supplied | 45 Thermomicroprocessor control | T2 Sensor hot water supply |
| 2 Stainless steel hot water storage tank LK | P1 Primary pump capacitycontrolled boilerwater | T3 Sensor storage tank loading ON |
| 2.3 Primary water tank-solar water heated | P2 Charging pump capacitycontrolled | T4 Sensor storage tank loading OFF |
| 6 Taco-Setter | P3 Primary pump capacitycontrolled solarwater | T5 Sensor heating supply-solar heater |
| 7 Ball valve | P4 Charging pump solar water | T6 Sensor return solar heater water |
| 7.1 Drain valve | | T7 Sensor solar heater water tank load |

LAS 150 - 1000 l



DINOX
Hot - Water - Storage - Tank

Series LAS

corrosionresistant

Constructed according to DIN 4753 part 1

Contents 150 - 8000 and more

Any special finish and contents on request

Combinable with any heat exchanger

Material:

High quality stainless steel 1.4571/1.4404

(ANSI 316 TI)

Butt seam welding – no crease

Completely pickled and neutralized

Insulation removable fleece with plastic cover

Best Deal - STAINLESS STEEL

LAS >1250 - 8000 l





Domestic hot water storage tanks exclusively stainless steel ANSI 316 Ti produced

From 150 to 1000 liter

- For usage with external heat exchangers
- Corrosion resistant

designed, manufactured, and tested according to DIN 4753 and company standard as well as PED-European Equipment Directive.

Production monitored and certified by TÜV Rheinland

All welding TIG butt-welded no crease
Complete tank pickled and passivated

Operating pressure max. 10 bar

Operating temperature max. 95 °C

Assessory - optional:

- Flangecover with 1½" FM connection for electric heater up to 12 kW
- Dipping sleeve FM ½" made out of stainless steel ANSI 316 Ti L = 150 mm

Insulation:

- 100 mm soft foam covered with PE jacket colour RAL 9006 silver

or:

- 100 mm polystyrol covered colour RAL 9006 silver

ask for other colours on demand

**Insulations are CFC-free
and 100 % recycable**

Best Deal – STAINLESS STEEL



Head quarter:

DINOX-D®

Edelstahlprodukte GmbH

Im Hegen 14 a

D-22113 Oststeinbek

Tel. +49(0)40-71 39 09-28

Fax +49(0)40-71 39 09-87

info@dinox-d.de

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Technical Department:

D-23970 Wismar

Tel. +49(0)38 41-28 78 91

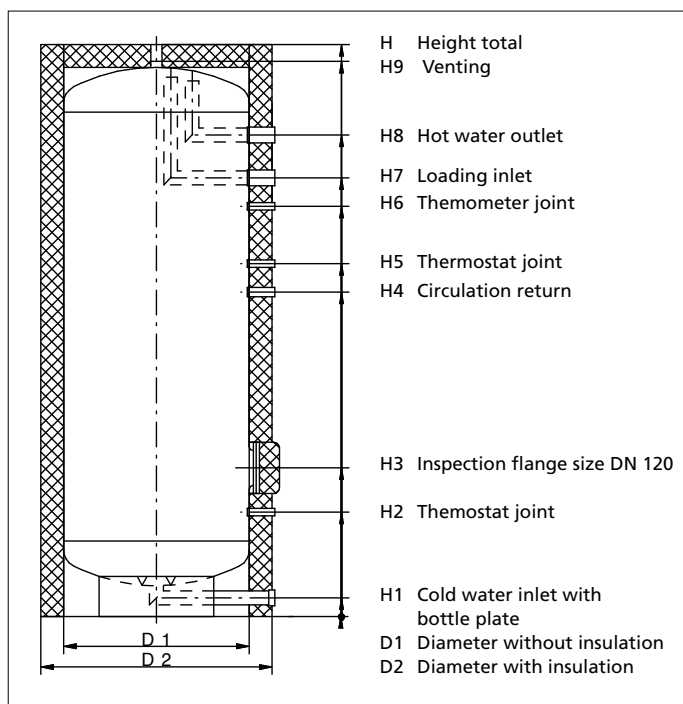
Fax +49(0)38 41-22 42 853

dinox-d-wismar@t-online.de

Domestic hot water storage tanks exclusively stainless steel ANSI 316 Ti produced

4

02.1a



- All sleeve connections similar to DIN 10241 2000 (or DIN 2986)
- All FM connections according to DIN 2999 part 1 are extended to 90 mm
- 100 mm soft foam insulation with reinforced PE-jacked. Colour RAL 9006 silver
- or:
- Polyestervlies polystyrol covered. Colour RAL 9006 silver
- ask for other colours on demand
- LAS 150: Thermostat- and thermometer connections are placed 180° offset
- Subject to technical changes

Measures in mm

Capacity (L)	150	200	300	400	500	500	600	750	1000	1000
H1	65	65	65	65	65	65	65	80	80	80
H2	310	305	305	350	350	365	385	400	430	430
H3	380	455	455	505	505	520	540	550	580	580
H4	590	600	850	870	1120	885	1155	1165	1200	950
H5	570	700	950	970	1220	985	1255	1265	1300	1050
H6	730	900	1150	1170	1420	1185	1455	1465	1500	1250
H7	680	1000	1250	1270	1520	1285	1555	1565	1600	1350
H8	780	1150	1400	1420	1670	1435	1705	1715	1750	1500
H9	992	1362	1612	1657	1910	1674	1943	1990	2037	1790
H height total	1075	1445	1695	1740	1990	1760	2026	2073	2121	1874
Tilt height without insulation	1016	1379	1627	1671	1919	1688	1961	2015	2072	1842
Tilt height with insulation	1283	1606	1834	1915	2145	1952	2197	2280	2367	2173
D1 without insulation	500	500	500	600	600	650	650	750	850	900
D2- soft foam/polyestervlies	700	700	700	800	800	850	850	950	1050	1100
Weight (kg)	40	55	70	80	85	95	105	135	145	155

Connections

Inspection flange	120/180	120/180	120/180	120/180	120/180	120/180	120/180	120/180	120/180	120/180
Cold and hot water	FM 1¼"	FM 1¼"	FM 1¼"	FM 1½"	FM 1½"	FM 1½"	FM 1½"	FM 2"	FM 2"	FM 2"
Loading connection	FM 1¼"	FM 1¼"	FM 1¼"	FM 1½"	FM 1½"	FM 1½"	FM 1½"	FM 2"	FM 2"	FM 2"
Circulation return	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"
Thermostat	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"
Thermometer	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"
Venting	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"



**Domestic hot water storage tanks exclusively stainless steel
ANSI 316 Ti produced**

Dinox-D Hot-Water-Storage-Tank LAS 1250-8000 l Stainless Steel

corrosionresistent

Constructed according to DIN 4753
part 1 contents 1250-800 l

- Any specific finish and contents on request
- Combinable with any heat exchanger

Material:

- High quality stainless steel ANSI 316 Ti
- Butt seam welding - no crease
- Pickled and neutralized
- Insulation removable soft foam
with plastic cover



Best Deal - STAINLESS STEEL

DINOX-D®

Head quarter:

DINOX-D®

Edelstahlprodukte GmbH
Im Hegen 14 a
D-22113 Oststeinbek
Tel. +49(0)40-71 39 09-28
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Technical Department:

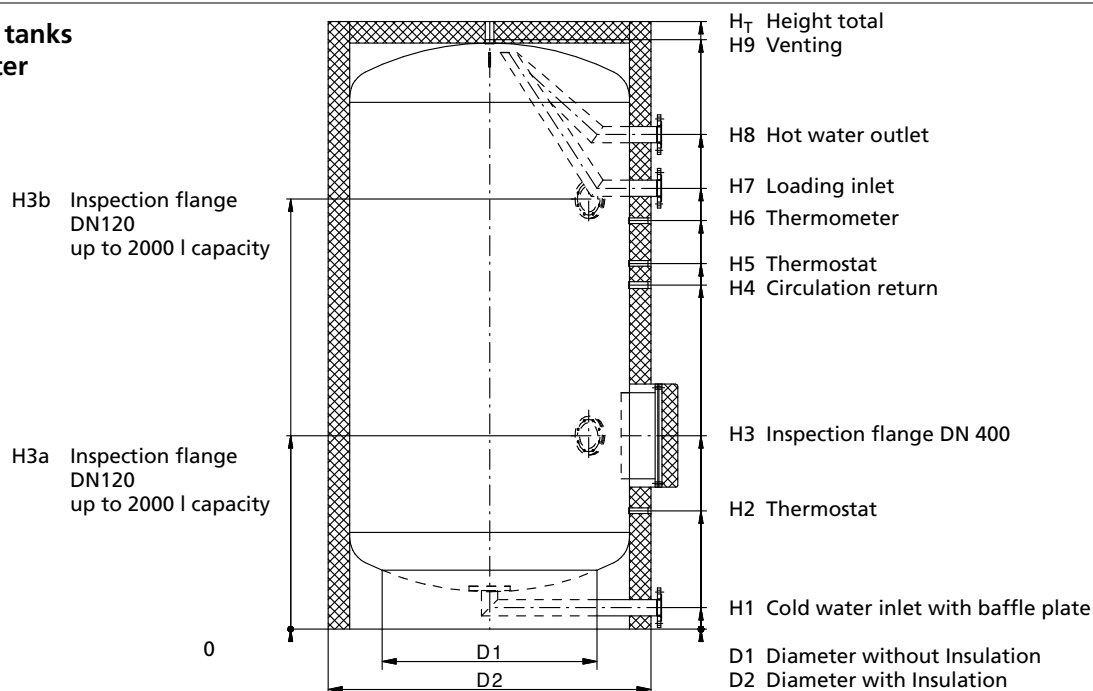
D-23970 Wismar
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Fax +49(0)38 41-22 42 853
dinox-d-wismar@t-online.de

Domestic hot water storage tanks exclusively stainless steel ANSI 316 Ti produced

4

02.2a

LAS - storage tanks up to 8000 Liter



Measures in mm

Capacity (L)	1250	1500	2000	3000	4000	5000	6000	7000	8000
H ₁	70	70	100	110	115	115	115	135	135
H ₂	445	445	510	550	600	600	685	705	705
H ₃	545/1395	545/1645	710/1760	900	950	950	1030	1050	1050
H ₄	965	1215	1360	1600	1500	2000	1460	1730	2080
H ₅	1065	1315	1460	1700	1700	2200	1590	1860	2210
H ₆	1265	1515	1660	1900	2100	2600	1770	2090	2440
H ₇	1365	1615	1810	2050	2300	2800	2000	2320	2670
H ₈	1515	1765	2060	2300	2600	3100	2285	2705	3055
H ₉	1831	2081	2425	2745	3080	3580	2850	3270	3620
H _T incl. Insulation	1914	2164	2505	2826	3165	3665	2935	3355	3705
Tilt height without insulation ±5	1907	2137	2465	2811	3153	3634	3097	3462	3776
Tilt height with insulation ±5	2259	2474	2822	3199	3546	3999	3552	3906	4210
D ₁ without insulation	1000	1000	1100	1300	1400	1400	1800	1800	1800
D ₂ -soft foam/polyestervlies	1200	1200	1300	1500	1600	1600	2000	2000	2000
Weight (kg)	180	215	285	450	575	670	1180	1300	1400

Connections

Cold & hot water	FM 2"	FM 2"	DN65	DN65	DN65	DN65	DN65	DN100	DN100
Loading connection	FM 2"	FM 2"	DN65	DN65	DN65	DN65	DN65	DN100	DN100
Circulation return	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"	FM ¾"
Thermostat	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"
Thermometer	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"	FM ½"
Venting	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"	FM 1"

Company standard - changable to customers request!

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		<p>DINOX-D Hot - Water - Storage - Tank</p> <p>Type : LAS _____</p> <p>constructed and built according to DIN 4753 part 1, vertical designed,</p> <p>max. operating pressure 6 / 10 bar test pressure 8 / 13 bar max. operating temperature 95 °C</p> <p>Cold water connection placed at deepest point of the storage tank to ensure 100% use of contents, incl. flow damper, easy removable and recyclable fleece insulation with plastic cover, all necessary connections and hand-manhole</p> <p>Material: stainless steel 1.4571/1.4404 / ANSI 316TI pickled and neutralized. Butt seam welded – no crease</p> <p>Contents: _____ l</p> <p>Connections:</p> <p>cold supply/hot water DN _____ * _____ " FM * charging _____ " FM circulation _____ " FM thermometer _____ " FM sensor _____ " FM venting _____ " FM</p> <p>Measures:</p> <p>diameter with insulation _____ mm diameter without insulation _____ mm total height _____ mm Weight: ca. _____ kg</p> <p>Price:</p> <p>Insulation mounted/not mounted *paint out not applicable details</p>		

01/2013 DMS/DINOX reserves the right to make changes without notice.



Hotels



*Sport-
facilities*



Hospitals



WATER

health from the tap

*DeltaLegio
the legionellakilling systems*

heat exchangers - hot water systems - district heating stations*DeltaLegio**Hot Water Systems with an integrated thermal disinfection mechanism*

Preventing Legionellas within your hot water circulation system

DeltaLegio is a proprietary reliable hot water heating system aimed at preventing the growth of Legionellas in your water piping systems. Legionella is a pathogenic bacterium which can be destroyed by thermal treatment within the hot water tank. As a result, fully disinfected water enters the pipework to your taps.



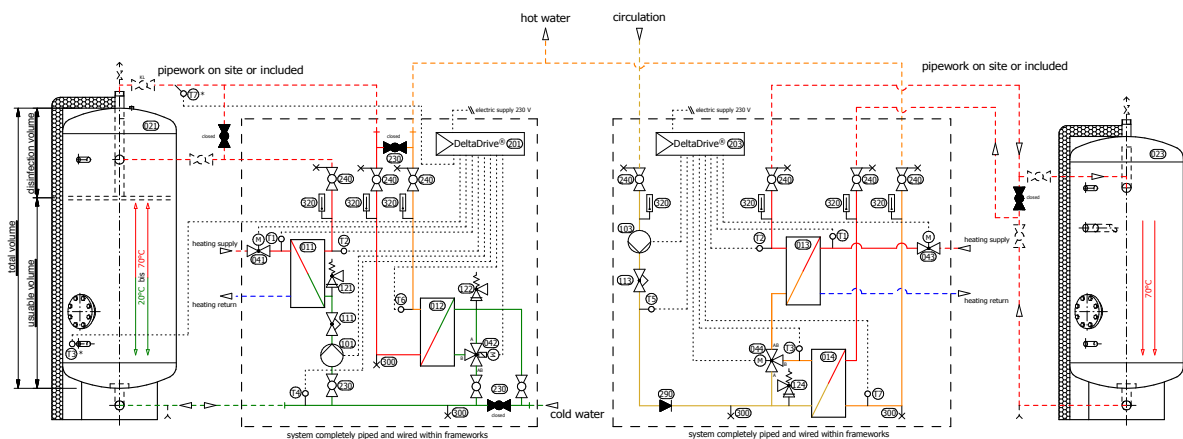
The system is designed to reduce hardness scaling leading to more economic running systems. During times of no water demand, the circulating water is continuously disinfected. DeltaLegio-Systems are simple and easy to service and are suitable as well for new as for existing buildings.

heat exchangers - hot water systems - district heating stations

The system is designed to reduce hardness scaling leading to more economic running systems. During times of no water demand, the circulating water is continuously disinfected. DeltaLegio-Systems are simple and easy to service and are suitable as well for new as for existing buildings.

DeltaLegio-Systems are custom-designed, this means

- specific to customers demand and requirement
- stainless steel material and our production methods lead to highest hygiene standards
- Cost-effective



DeltaLegio-Systems operate in four steps:

1. The incoming cold water is first heated up to a disinfection temperature of at least 70 °C
2. The heated water in the disinfection tank is recommended to stay for at least 10 mins
3. The disinfected legionella-free water is then cooled down to the desired operation temperature controlled by a motorized three-way valve
4. Complete disinfection of the returning circulating water, reheated up to 70 °C and kept up to 10 minutes within the disinfection room of the hot water tank too

Construction details for any DeltaLegio-System:

1. All pumps are running thermotdrive controlled mechanisms - most economic operation mode
2. Pipework is completely insulated = minimized heat losses
3. Mounted vibration free in a durable framework, piped and wired with all top quality accessories, ready to use

Based on proper planning, performance, and monitoring, Legionella are essentially destroyed by our DeltaLegio-Systems. We have excellent references from several hundred customers with installations of our system. We also have more than 20 years experience of designing, construction, and building legionella-destroying systems for i.e. Hospitals, Hotels, Old-People-Homes, Sport-facilities, Army-Barracks, Prisons, and all kind of shower rooms.

DeltaLegio System

- | | |
|-----|---|
| 011 | hot water generator |
| 012 | hot water chiller |
| 013 | circulation flow re-heater |
| 014 | circulation flow chiller |
| 021 | hot water storage tank with disinfection volume |
| 023 | hot water disinfection tank circulation |
| 111 | setting/balancing valve loading |
| 113 | setting/balancing valve circulation |

- | Temperature | Flow rate | Pressure | Power | Flow rate | Pressure | Power |
|-------------|-----------|----------|-------|-----------|----------|-------|
| 10°C | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60°C | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 55°C | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75°C | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

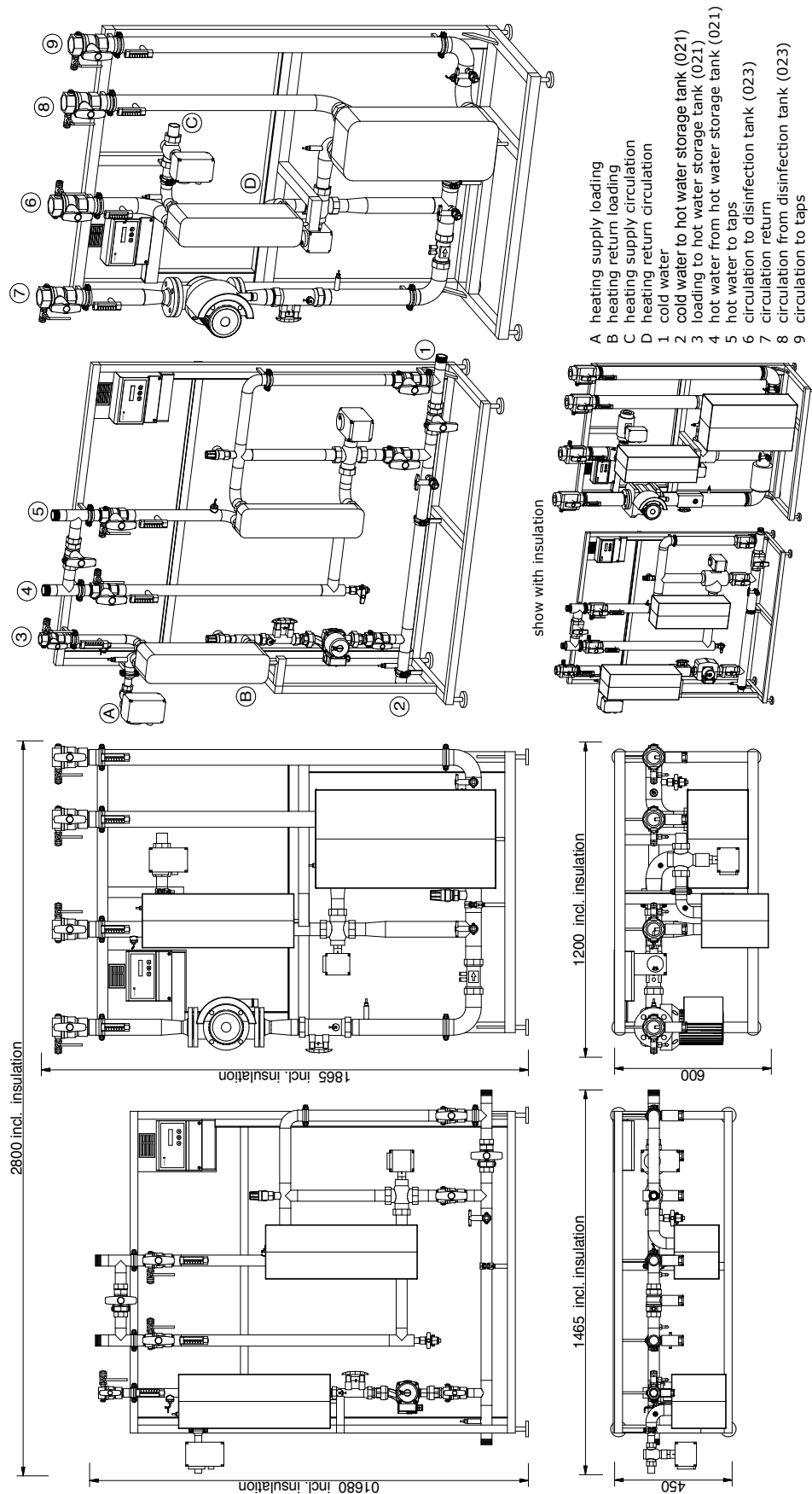
----- on site or when piped separat packed
safty valve drain pipe not included

DMS Legionella Killing Hot Water System

Serie DeltaLegio®

heat exchangers - hot water systems - district heating stations

DeltaLegio System (example)



DMS Legionella Killing Hot Water system - Example

Serie DeltaLegio®

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		<p>DMS-Legionella Killing Hot Water System</p> <p>Series - DeltaLegio - System</p> <p>hot water generator with legionellae killing device, shown/ designed acc. to flow-diagram Drawing-No.: _____ with continuous disinfection of total quantity of circulation water</p> <p>Killing of legionellae by heating to disinfection temperature of at least 70 °C Stationary dwell time within disinfection volume of storage tank 5 to 10 minutes</p> <p>Cooling down by hot water chiller and mixed to desired operating temperature 45 to 55 °C without any loss of energy and therefore no danger of scalding at the taps</p> <p>Continuous disinfection of total quantity of circulation water by reheating to disinfection temperature by separate heat exchanger and keeping in the disinfection volume of the storage tank</p> <p>LK-units inside painted frame construction pipework of inert gas welded and additional glass bead blasted stainless steel 1.4571 (ANSI 316 TI) (no flexible pipes acc. to hygienic requirements!)</p> <p>Pipes and valves not insulated</p> <p>Glass covered flow diagram mounted into framework</p> <p>Primary pipework and electric wiring on site</p> <p>Storage tanks and heat exchangers with all necessary internals, connections, hand holes, and complete removab- le and recyclable insulation</p>		

01/2013 DMS/DINOX reserves the right to make changes without notice.

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		<p>capacity datas:</p> <p>heating capacity _____ kW</p> <p>medium _____ water/steam*</p> <p>temperatures _____ °C</p> <p>flow rate _____ l/h</p> <p>total system head loss _____ kPa</p> <p>charging flow rate _____ l/min</p> <p>peak flow rate _____ l/min</p> <p>circulation flow rate _____ l/min</p> <p>total contents _____ l</p> <p>total head loss hot water system _____ kPa</p> <p>measures of frame work: H x W x D _____ x _____ mm</p> <p>weight _____ kg</p> <p>max. operation pressure primary _____ bar</p> <p>secondary _____ 10 bar</p> <p>max. operation temperature primary _____ °C</p> <p>secondary _____ 95 °C</p> <p>Type: L - _____</p> <p><u>System consisting of:</u></p> <p>1 pc.</p> <p>DMS hot-water-generator</p> <p>designed as braced plate heat exchanger</p> <p>Type: PS-LG _____</p> <p>1 pc.</p> <p>DINOX-D hot water-storage-tank</p> <p>Type: LAS _____ LK</p> <p>hot-water-storage-tank with legionellae killing device</p> <p>with specially built- in parts guaranteeing to keep designed</p> <p>disinfection time constructed and built according to DIN 4753 part</p> <p>1, stainless steel material quality 1.4571/1.4404 (ANSI 316 TI),</p> <p>butt seam welding – no crease, pickled and neutralized, internal</p> <p>flow rate buffer of perforated stainless steel plate, incl. 100 mm</p> <p>fleece insulation plastic covered</p> <p>usable contents: _____ l</p> <p>disinfection volume: _____ l</p> <p>diameter incl. insulation: _____ mm</p> <p>height: _____ mm</p> <p>weight: _____ kg</p> <p>connections: cold/hot water _____ FM / DN</p> <p>charging _____ FM / DN</p> <p>hand hole _____ DN</p> <p>_____ pc.</p> <p>DINOX-D hot-water-disinfection tank* - circulation</p> <p>as described above</p> <p>Type: LAS _____</p> <p>contents: _____ l</p> <p>diameter incl. insulation: _____ mm</p> <p>height: _____ mm</p> <p>weight: _____ mm</p> <p>connections: cold/hot water _____ FM / DN</p> <p>charging _____ FM / DN</p> <p>hand hole _____ DN</p>		

01/2013 DMS/DINOX reserves the right to make changes without notice.

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		<p>1 pc. motorized Water temperature regulator two-/three-way valve*, according to heat exchanger (Pos. 1) Type: _____</p> <p>1 pc. Charging pump material: stainless steel/bronze 220 V 60 Hz 400 V three phase* Type: _____</p> <p>1 pc. Setting/balancing valve setting range: _____ - _____ l/min Type: TACO-Setter: _____</p> <p>1 pc. DMS hot-water chiller designed as braced plate heat exchanger Type: PS-LG _____</p> <p>1 pc. Motorized hot water mixing valve material: gun metal, adjustable temperature range: 30-80 °C Type: _____</p> <p>1 pc. Motorized hot water mixing valve temperature control and adjust circulation flow, designed as de- scribed above Type: _____</p> <p>1 pc. Setting/balancing valve setting range: _____ - _____ l/min Type: TACO-Setter: _____</p> <p>1 pc. Circulation pump material: stainless steel/bronze 220 V 60 Hz / 400 V three phase* Type: _____</p> <p>1 pc. DMS circulation flow re-heater designed as braced plate heat exchanger as described above Type: PS-LG _____</p> <p>1 pc. Circulation water temperature regulator as described above Type: _____</p> <p>1 pc. DMS circulation flow chiller designed as braced plate heat exchanger as described above Type: PS-LG _____</p> <p>2 pc. DeltaDrive microprocessor controlled *paint out not applicable details regulations for temperatures – motor valves and pumps</p>		

01/2013 DMS/DINOX reserves the right to make changes without notice.

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		<p>Internal stainless steel pipework equipped with:</p> <p>combined non-return/shut off valves, DVGW-certified</p> <p>easy going non-return valves, DVGW-certified</p> <p>safety valves, TÜV-certified</p> <p>water sampling valves</p> <p>draining-valves</p> <p>thermometers for industrial purposes quality-class 1.0</p> <p>temperature sensors</p> <p>Total system price:</p>		

heat exchangers - hot water systems - district heating stations

Basis to design hot water systems with thermal disinfection for Hospitals, Old-people-homes and Hotels

Date: _____

Consulting engineer/Company: _____

Project: _____

To design the Legionellae killing hot water system with thermal disinfection

DMS-DeltaLegio- System

Type: _____

We used the following details:

1. Number of beds _____

2. Number of 1-bed-rooms, _____ with a tub _____ with a shower
1-bed-rooms, _____ with a tub _____ with a shower
multi-bed-rooms, _____ with a tub _____ with a shower

3. Therapy department

_____ bath tubs with _____ l contents _____ -operations /h* /day*

other facts: _____

4. Restaurant/cafeteria

Quantity of meals at main eating time: _____

other facts: _____

5. Laundry

☐ yes

☐ no

hot water demand for each operation: _____

max. washing operations within 1 h: _____

6. Other users _____

7. Pipework-material

galvanized

copper

synthetic

stainless-steel

cold water pipes ☐ ☐ ☐ ☐

hot water pipes ☐ ☐ ☐ ☐

heat exchangers - hot water systems - district heating stations

8. primary energy:

gas-/oilfired boiler:	number of boilers _____	capacity of each boiler kW _____	min. flow temperature in summer _____ °C	how many boilers of which capacity are in use ____ / ____ kW
district heating:	energy demand of the building _____ kW	max. flow temperature in winter _____ °C/°F	min. flow temperature in summer _____ °C/°F	hot water quantity per MW _____ m³/h
	primary return flow _____ °C	(at nominal rated power of the hot water system)		

9. max. operating pressure

primary _____ bar

secondary _____ bar

10. head losses

incl. regulation	primary	_____	kPa
incl. Legiokill-system	secondary		kPa

11. for equipment transportation to the place to installation

min. interior width of the door _____ mm

overhead clearance of the room of _____ mm

12. other remarks

13. result of a. m. positions 1 – 12

primary capacity needed: _____ kW

secondary loading capacity: _____ l/h 70 °C

disinfection volume: _____ l with _____ minutes disinfection time

contents of hot water tank: _____ l divided to _____ x _____ l

peak hot water demand: _____ l/h = _____ l/min

circulation volume acc. to your specification _____ l/h

or designed acc. to:

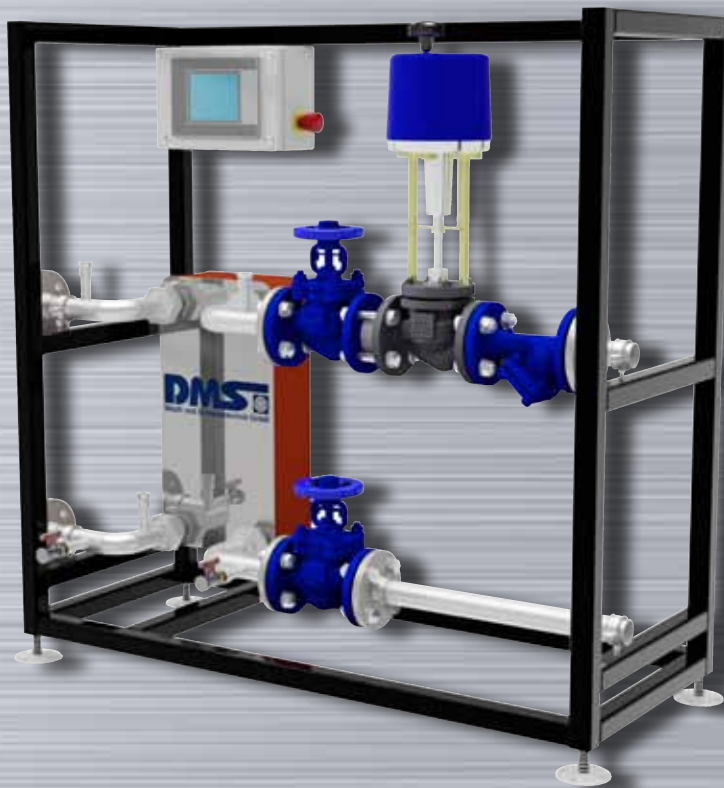
number of taps x _____ l x triple circulation = _____ l/h

DMS-LK-System

Type: _____

If you have any question please ask:

*paint out not applicable details



City Water Cooler

- High efficient stainless steel plate heat exchangers brazed or gas-ketted any capacity
- with or without separate stainless steel storage tank any size
- stainless steel piped with all accessories
- control cabinet completely wired
- capacity and design tailor made
- with or without frame work
- ready for use

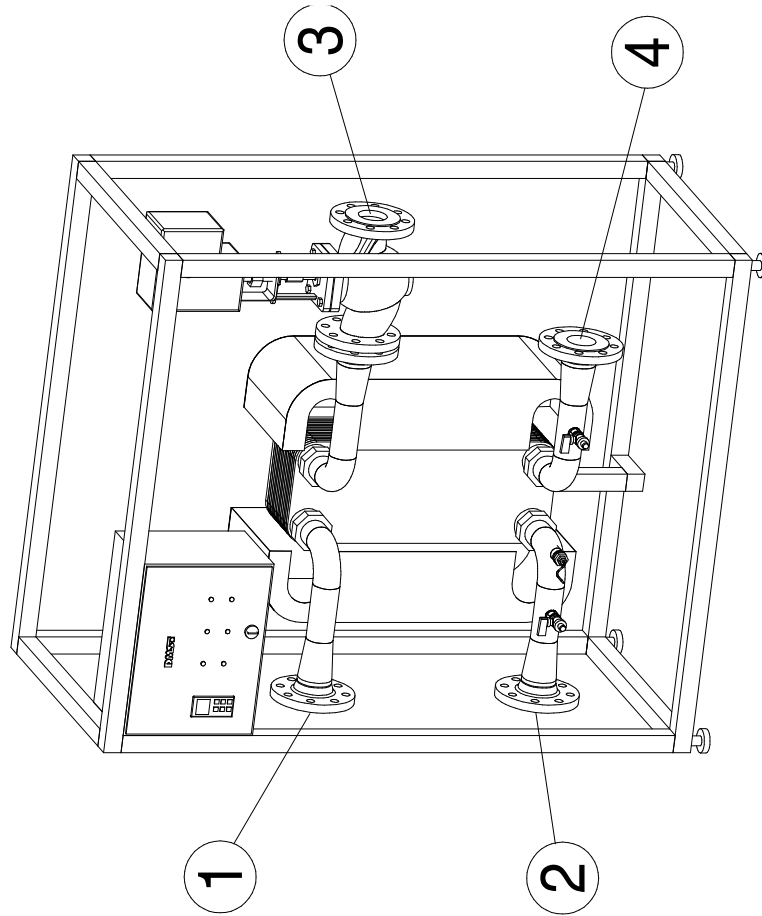
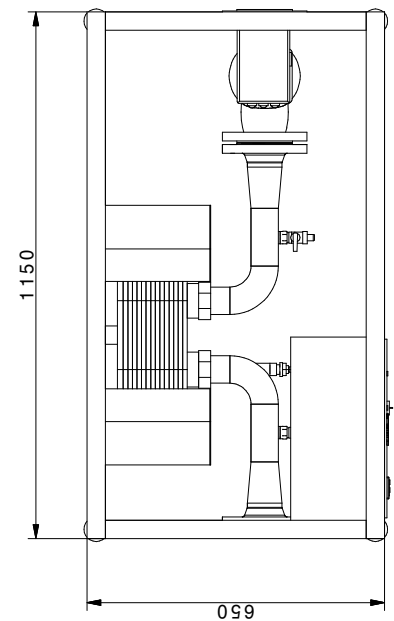
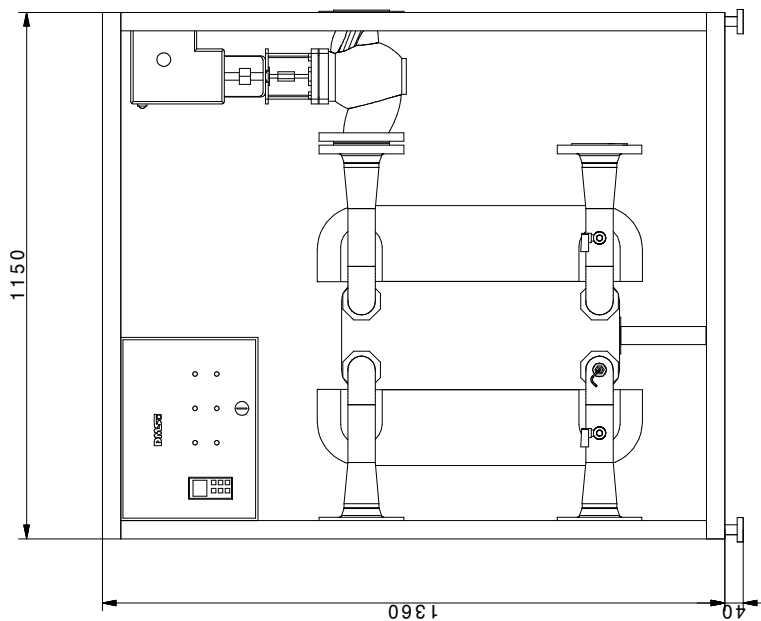


LAS Cooling System

heat exchangers - hot water systems - district heating stations

DMS - City Water Cooler

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- | | |
|---------------|------------------------------|
| Pos. 1 | City Water feed |
| Pos. 2 | Cooled domestic water |
| Pos. 3 | Return to chiller |
| Pos. 4 | Chiled water feed |

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		<p>DMS CITY-WATER-COOLER-SYSTEM</p> <p>Serie: PS / SA - C DN</p> <p>Supported frame mounted and wired. Pipework stainless-steel 1.4571</p> <p>Consisting of:</p> <p>DMS-Brazed Plate Heat Exchanger Type: PS-LG _____ / _____ A number of thin, acid-resistant plates, precision stamped and assembled as a unit, each alternate plate being rotated 180 degrees plate pack assembled with two end plates and connections, vacuum brazed. Plate material stainless steel ANSI 316 (1.4401)</p> <p>capacity: _____ kW</p> <p>temperatures: primary _____ °C secondary _____ °C</p> <p>headlosses: primary _____ kPa secondary _____ kPa</p> <p>max. working pressure 16 / 25* bar max. working temperature 185 °C</p> <p>connections: _____ primary / secondary _____ outside thread*</p> <p>Measures:</p> <p>Height _____ mm Width _____ mm Longitude _____ mm Weight _____ kg</p>		

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heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		<p>SAMSON - Control Valve</p> <p>Type: _____</p> <p>thermal rating _____ kW</p> <p>medium _____ chilled water</p> <p>operating temperature ca. _____ °C</p> <p>temperature spread _____ °C</p> <p>flowrate _____ m³/h</p> <p>pressure drop _____ bar</p> <p>max. allowable differential pressure _____ bar</p> <p>consisting of:</p> <p>valve Type _____ DN _____ PN _____</p> <p>electric actuator 230 V 50 Hz</p> <p>immersion sensor</p> <p>control box with Trovis compact controller</p> <p>Total Price:</p>		

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		<p>DMS – Cooling - System</p> <p>colling water system ready for use storing and charging combined pipework of welded stainless steel</p> <p>Type: KWS-K Cool _____ consisting of:</p> <p>1 Plate heat exchanger gasketed design material: stainless steel ANSI 316 plates stainless steel framework steel gaskets NITRIL Type: PS-LG _____ - see separate description –</p> <p>1 Stainless Steel Buffer tank Type: DINOX LAS – _____ – So - see separate description –</p> <p>Control Cabinet -see separate description-</p> <p>1 Charging pump material stainless steel Typ: Grundfos/Wilo _____</p> <p>including shutt/off valves and thermometer</p> <p>Total Price:</p>		

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heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		<div><div>DMS-Gasketed-Plate-Heat-Exchanger</div><div>Type: PS-LG _____/_____</div><div>Consisting of a frame, which in turn consist of a head, a follower, a column, a carrying bar, a guiding bar and a number of clamping bolts. In between the heat and the follower a varying number of pressed plates are clamped together. Each plate is supplied with a gasket forming a closed systems of parallel flow channels</div><div>Materials:<div><div>Framework</div><div>Plates stainless steel Steel Gaskets Connections</div><div>ANSI 316 Nitril ANSI 316</div></div><div>Capacity: _____ kW</div><div>Temperatures: <div>Primary Secondary</div><div>_____ _____</div>°C</div><div>Headlosses: <div>Primary Secondary</div><div>_____ _____</div>kPa</div><div><div>max. working pressure Testpressure max. working temperature</div><div>_____ _____ _____</div>bar</div><div>Connections: <div>Primary Secondary</div><div>_____ _____</div>" BSP</div><div>Measures:<div><div>Longitude Width Height</div><div>_____ _____ _____</div>mm</div><div>Weight _____ kg</div></div><div>(Pipework has to be mounted stress-free to the connections of the heat exchanger)</div></div></div>		

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		Stainless-Steel-Buffer-Tank Type : LAS - E _____ -S0 constructed and built according to description and drawings, vertical designed, max. operating pressure 6 / 10 bar Testpressure 8 / 13 bar max. operating temperature 95°C/203°F recyclable fleece insulation with plastic cover Material: stainless steel 1.4571 / 1.4404 / ANSI 316TI pickled and neutralized. Butt seam welded – no crease production supervised by TUV Contents: _____ l Connections: cold/warm loose flange DN _____ PN 16/ _____ “ FM circulation _____ “ FM thermometer _____ “ FM sensor _____ “ FM venting _____ “ FM drain _____ “ FM Measures: diameter with insulation _____ mm diameter without insulation _____ mm total height _____ mm Weight: ca. _____ kg insulation mounted		

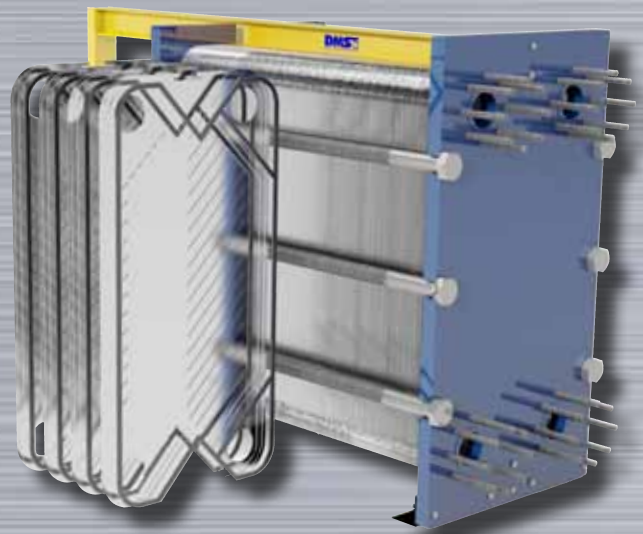
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heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		<p>Control Cabinet</p> <p>for cooling systems control voltage 230 Volt AC electronic temperature control (PMA)</p> <p>cabinet housing steel, powder coated colour RAL 7035 or similar size approx. _____ x _____ x _____ mm</p> <p>terminal connection brackets for wall mounting</p> <p>according to description and similar to wiring diagram sent with mail</p> <p>approval and check according DIN/VDE 0113 and VBG 4</p> <p>documents standard 1-fold in english version</p> <p>Charging Pump</p> <p>material: stainless-steel 220 V 50 Hz / 400 V 3ph capacity _____ m³/h</p> <p>head max. _____ h/m</p> <p>Typ: Grundfos/Wilo</p> <p>Total Price:</p>		



DMS plate heat exchanger - brazed and gasketed design - a comprehensive programme to solve any heat exchanger problem in an optimal way



DMS Coil and Shell Heat Exchanger

Heat Exchanger

- 1.) water/water
- 2.) steam/water

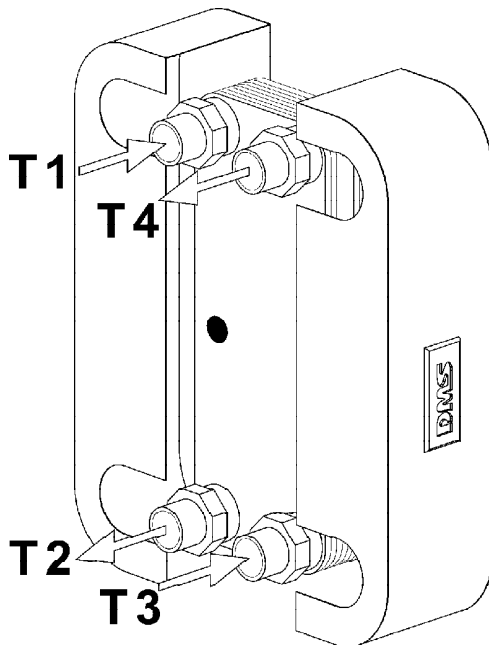
Drinking water heating

- 1.) hot water/ drinking water
- 2.) steam / drinking water

heat exchangers - hot water systems - district heating stations

DMS-Brazed Plate Heat Exchanger Series PS-L-G

Connection example



Application:

Brazed plate heat exchangers can be utilized for heating and cooling of clean liquids which must not contain particles and dirt larger than one millimeter in size which would result in blockage. Furthermore the DMS brazed plate heat exchangers are suitable as evaporator and condenser units.

Typical applications are:

District heating, heating, and ventilation solar heating and air-conditioning units heating pumps and heating recovering units hydraulic and fuel oil units

Construction and mode for operation:

DMS brazed plate heat exchangers consist of: a number of thin, acid-resistant plates, precision stamped and assembled as a unit, each alternate plate being rotated 180°.

Material: copper brazed stainless steel ANSI 316 (1.4401)
The plate pack, assembled with two end plates and connections, is vacuum brazed at extremely high temperatures providing a permanently sealed heat exchange. The final result is a strong and compact plate heat exchanger with extremely high heat transmissions. The high heat transmission comes from the main pattern which is designed to create a turbulence prevents or minimizes blockages in the heat exchanger. Should the liquid or steam used cause restrictions the plate heat exchanger can be rinsed with cleaning agents according to the specifications in our installation, operating, and maintenance manual.

Accessories:

Insulating jackets, 4 three-part connections on request temperature adjustment sensor

To design the right type we have to know:

Kind of liquid
primary and secondary temperatures and head losses

	IN	OUT
primary	T1	T2
secondary	T3	T4

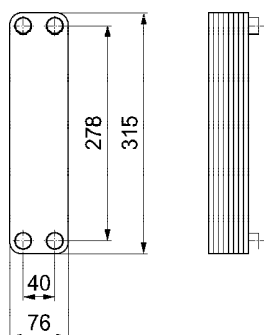
heat exchangers - hot water systems - district heating stations

DMS-Brazed Plate Heat Exchanger Series PS-LG 23/

Compact-heat exchanger with fixed number of plates

Material: copper braced stainless steel ANSI 316 (1.4401)
max. operating pressure: 25 bar
max. operating temperature: 185°C/365 ° F

Connections: 4 x ¾" outside thread, stainless steel
 3-part-connection, flat packing
 laid in part, bronze or steel
 insulating jacket



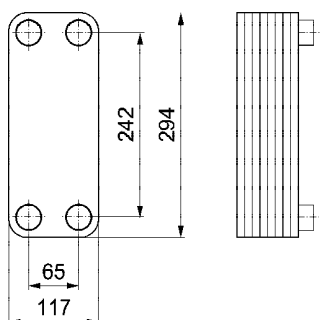
DMS - type	measures in mm			weight in kg
	longitude	width	height	
PS - LG 23/ 10 TL	32	76	315	1,7
PS - LG 23/ 14 TL	38	76	315	2,1
PS - LG 23/ 18 TL	47	76	315	2,5
PS - LG 23/ 24 TL	59	76	315	3,0
PS - LG 23/ 32 TL	76	76	315	3,8
PS - LG 23/ 40 TL	93	76	315	4,5
PS - LG 23/ 48 TL	110	76	315	5,3

DMS-Brazed Plate Heat Exchanger Series PS-LG 34/

Compact-heat exchanger with fixed number of plates

Material: copper braced stainless steel ANSI 316 (1.4401)
max. operating pressure: 25 bar
max. operating temperature: 185°C/365 ° F

Connections: 4 x 1" outside thread, stainless steel
 from 64 plates 1½"
 3-part-connection, flat packing
 laid in part, bronze or steel
 insulating jacket



DMS - type	measures in mm			weight in kg
	longitude	width	height	
PS - LG 34/ 10 TL	32	117	294	2,1
PS - LG 34/ 14 TL	41	117	294	2,6
PS - LG 34/ 20 TL	50	117	294	3,0
PS - LG 34/ 30 TL	81	117	294	4,6
PS - LG 34/ 40 TL	99	117	294	5,6
PS - LG 34/ 50 TL	117	117	294	6,5
PS - LG 34/ 60 TL	154	117	294	8,3
PS - LG 34/ 70 TL	170	117	294	9,2
PS - LG 34/ 80 TL	188	117	294	10,1
PS - LG 34/ 90 TL	210	117	294	11,2

heat exchangers - hot water systems - district heating stations

DMS-Brazed Plate Heat Exchanger Series PS-LG, PS-LG 70/

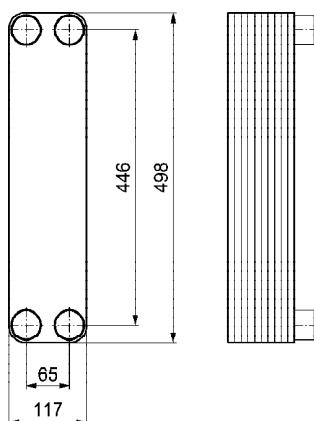
Compact-heat exchanger with fixed number of plates

Material: copper braced stainless steel ANSI 316 (1.4401)

max. operating pressure: 25 bar

max. operating temperature: 185°C/365 ° F

Connections: 4 x 1½" outside thread, stainless steel
3-part-connection, flat packing
laid in part, bronze or steel
insulating jacket



DMS - type	measures in mm					weight in kg
	longitude			width	height	
	TL	TM	TK			
PS - LG 70/ 10	32	35	36	117	498	4,2
PS - LG 70/ 14	41	46	48	117	498	5,0
PS - LG 70/ 20	50	57	60	117	498	5,8
PS - LG 70/ 30	81	97	100	117	498	8,8
PS - LG 70/ 40	99	119	123	117	498	10,5
PS - LG 70/ 50	134	164	170	117	498	14,0
PS - LG 70/ 60	154	186	193	117	498	15,7
PS - LG 70/ 70	170	209	216	117	498	17,4
PS - LG 70/ 80	188	231	239	117	498	19,1
PS - LG 70/ 90	210	259	268	117	498	21,2
PS - LG 70/ 100	232	287	297	117	498	23,4
PS - LG 70/ 110	255	315	326	117	498	25,5
PS - LG 70/ 120	277	343	355	117	498	27,7
PS - LG 70/ 130	299	371	384	117	498	29,8
PS - LG 70/ 140	322	399	413	117	498	32,0
PS - LG 70/ 150	344	427	442	117	498	34,1

DMS-Brazed Plate Heat Exchanger Series PS-LG, PS-LG 140/

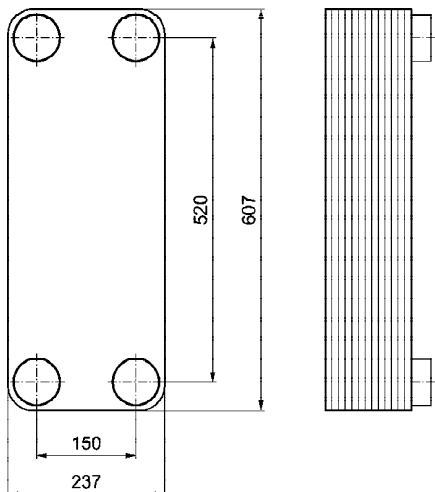
Compact-heat exchanger with fixed number of plates

Material: copper braced stainless steel ANSI 316 (1.4401)

max. operating pressure: 16 bar

max. operating temperature: 185°C/365 ° F

Connections: 4 x 2½" outside thread, stainless steel
3-part-connection, flat packing
laid in part, bronze or steel
insulating jacket



DMS - type	measures in mm					weight in kg
	longitude			width	height	
	TL	TM	TK			
PS - LG 140/ 10	37	41	45	237	607	9,3
PS - LG 140/ 14	47	50	54	237	607	11,0
PS - LG 140/ 20	58	62	66	237	607	12,7
PS - LG 140/ 30	96	113	120	237	607	18,7
PS - LG 140/ 40	118	125	132	237	607	22,1
PS - LG 140/ 50	140	147	156	237	607	25,5
PS - LG 140/ 60	183	190	198	237	607	32,4
PS - LG 140/ 70	205	212	221	237	607	35,8
PS - LG 140/ 80	226	234	246	237	607	39,2
PS - LG 140/ 90	253	262	270	237	607	43,5
PS - LG 140/ 100	280	289	297	237	607	47,8
PS - LG 140/ 110	308	317	325	237	607	52,0
PS - LG 140/ 120	335	344	355	237	607	56,3
PS - LG 140/ 130	362	372	383	237	607	60,6
PS - LG 140/ 140	389	400	412	237	607	65,0
PS - LG 140/ 150	416	425	436	237	607	69,2
PS - LG 140/ 160	443	455	467	237	607	73,5
PS - LG 140/ 170	470	482	493	237	607	77,7
PS - LG 140/ 180	497	510	522	237	607	82,0
PS - LG 140/ 190	524	535	548	237	607	86,3
PS - LG 140/ 200	551	563	575	237	607	90,6

heat exchangers - hot water systems - district heating stations

DMS-Brazed Plate Heat Exchanger Series PS-LG, PS-LG 333/

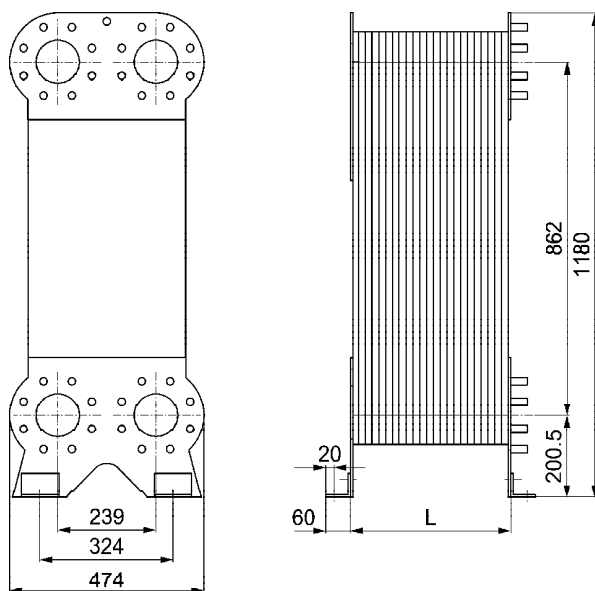
Compact-heat exchanger with fixed number of plates

Material: copper braced stainless steel ANSI 316 (1.4401)

max. operating pressure: 25 bar

max. operating temperature: 185°C/365 ° F

Connections: stainless steel flange DN 100/PN 16 or PN 25



DMS - type	measures in mm					weight in kg
	longitude (L)			width	height	
	TL	TM	TK			
PS - LG 333/40	126	133	140	474	1180	102
PS - LG 333/50	150	157	164	474	1180	115
PS - LG 333/60	174	181	188	474	1180	128
PS - LG 333/70	198	205	212	474	1180	141
PS - LG 333/80	222	229	236	474	1180	154
PS - LG 333/90	246	253	260	474	1180	167
PS - LG 333/100	270	277	284	474	1180	180
PS - LG 333/110	294	301	308	474	1180	193
PS - LG 333/120	318	325	332	474	1180	206
PS - LG 333/130	342	249	256	474	1180	219
PS - LG 333/140	366	373	380	474	1180	232
PS - LG 333/150	390	397	404	474	1180	245
PS - LG 333/160	414	421	428	474	1180	258
PS - LG 333/170	438	445	452	474	1180	271
PS - LG 333/180	462	469	476	474	1180	284
PS - LG 333/190	486	493	500	474	1180	297
PS - LG 333/200	510	517	524	474	1180	310

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro
		<p>DMS-Brazed Plate Heat Exchanger</p> <p>Type: PS-LG _____ / _____</p> <p>A number of thin, acid-resistant plates, precision stamped and assembled as a unit, each alternate plate being rotated 180 degrees plate pack assembled with two end plates and connections, vacuum brazed. Plate material stainless steel ANSI 316 (1.4401)</p> <p>capacity: _____ kW</p> <p>temperatures: primary _____ °C</p> <p>secondary _____ °C</p> <p>headlosses: primary _____ kPa</p> <p>secondary _____ kPa</p> <p>max. working pressure 16* / 25* bar</p> <p>max. working temperature 185 °C</p> <p>connections: primary / secondary _____ outside thread*</p> <p>longitude _____ mm</p> <p>width _____ mm</p> <p>height _____ mm</p> <p>weight _____ kg</p> <p>inclusive 4 screwed connections and insulating jackets*</p> <p>(Pipework has to be mounted stress-free to the connections of the heat exchanger)</p> <p>Price</p> <p>*paint out not applicable details</p>		

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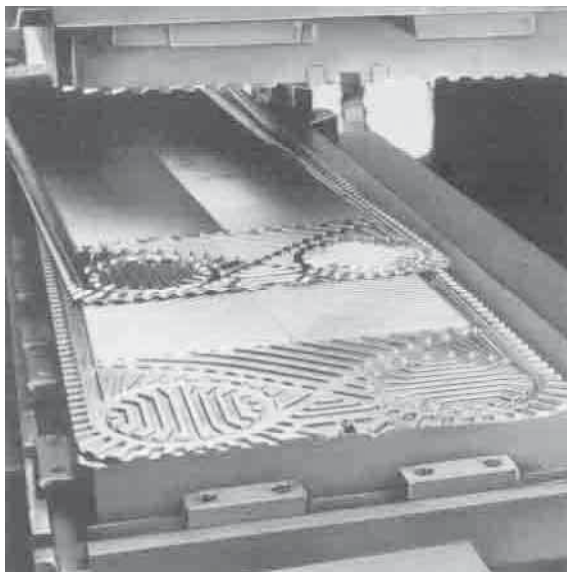
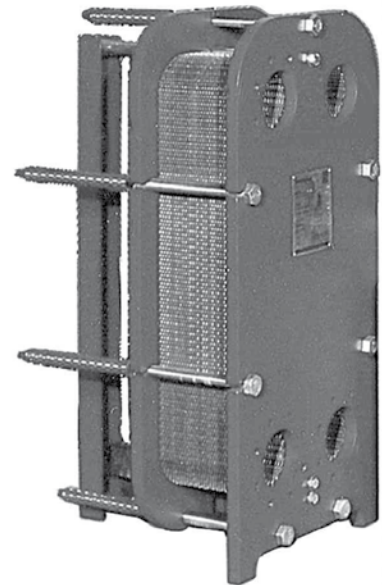
heat exchangers - hot water systems - district heating stations

DMS Gasceted Plate Heat Exchanger

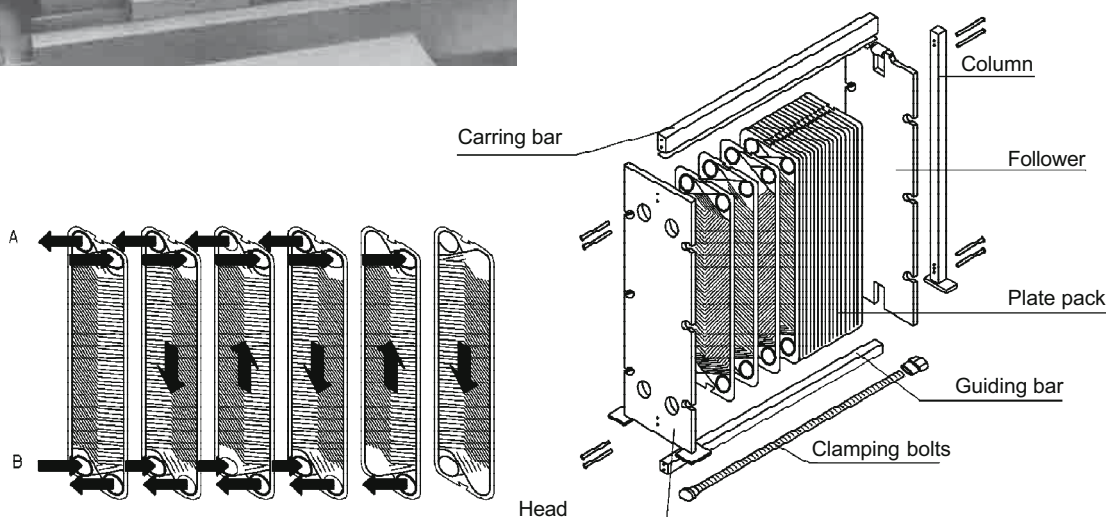
The design and function

The plate heat exchanger consists of a frame, which in turn consists of a head, a follower, a column, a carrying bar, a guiding bar and a number of clamping bolts. In between the head and the follower a varying number of pressed plates are clamped together.

Each plate is supplied with a gasket, so that the plates form a closed system of parallel flow channels, through which the medias flow alternately at every second interval.



The pipe work has to be mounted **stress-free** to the connections of the plate heat exchanger



heat exchangers - hot water systems - district heating stations

Feature of the DMS plates

The construction is based on many years of experience. The demand made DMS plates has been that of high efficiency and flexibility together with the demand for suitability in high differential pressures.

The inlet part

The design of the inlet parts is provided with sloping lead grooves which guarantee the even distribution of liquids across the plate pattern. The result is a maximum utilization of the whole plate. Furthermore, this inlet design guarantees that the so-called “dead spots”, which could cause the growth of bacteria in the plate heat exchanger, are completely avoid.

The plate pattern

The plate pattern chosen is the fishbone pattern. Even at low liquid speeds this pattern gives maximum turbulence and thereby an extremely effective heat transmission. DMS plates can be obtained in two different designs, respectively thermally short and thermally long. The two different designs have their own special thermal characteristics with regards to pressure drop and thermal efficiency.

Edges enforcement

In order to reinforce the gasket groove the DMS plate is designed with an edge on both sides of the gasket groove. On the inside with a straight edge and on the outside with corrugated edge. This design ensures that the plate is solidly supported, and it gives at the same time a good hold on the gasket.

The Gasket

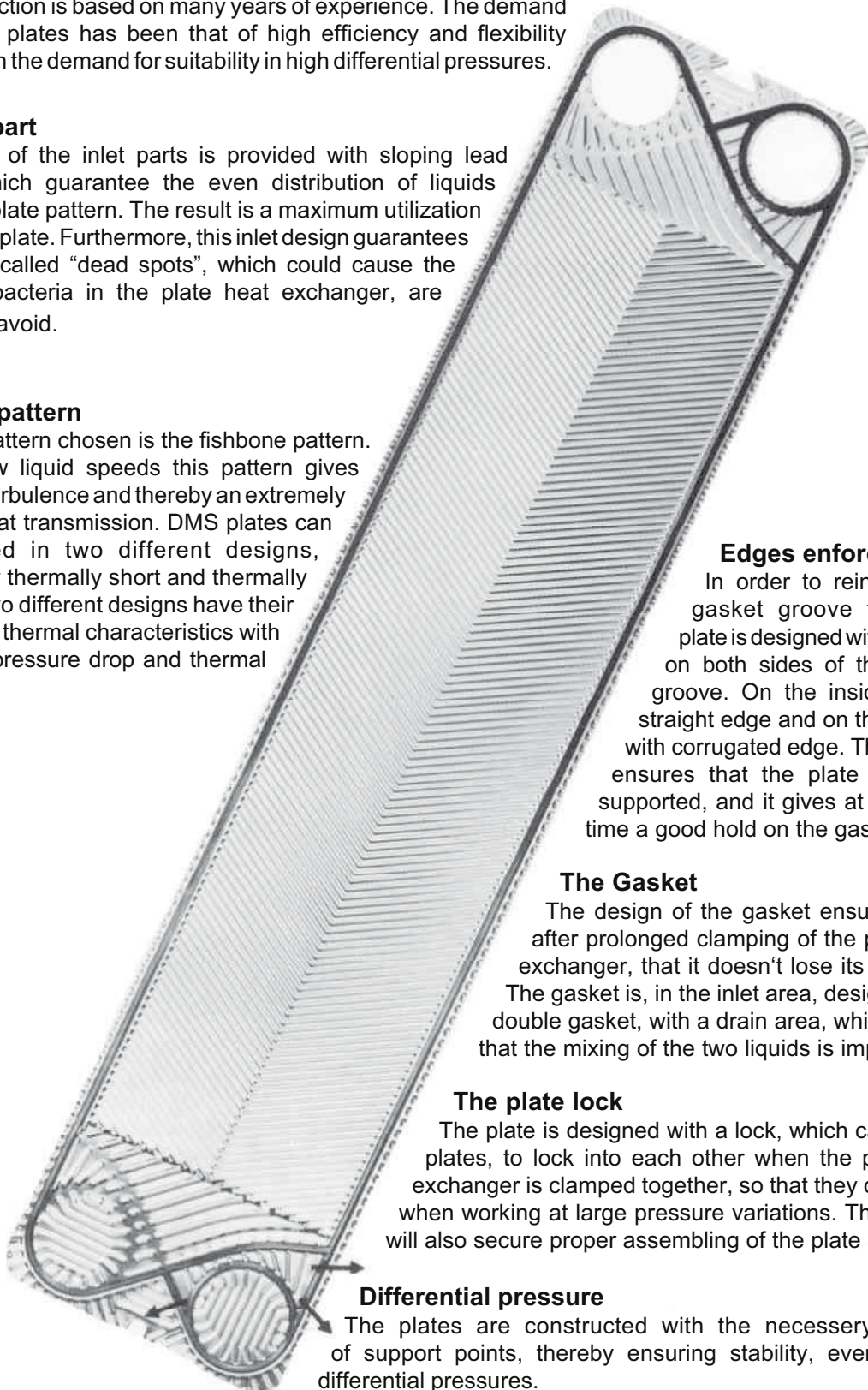
The design of the gasket ensures, even after prolonged clamping of the plate heat exchanger, that it doesn't lose its elasticity. The gasket is, in the inlet area, designed as a double gasket, with a drain area, which means that the mixing of the two liquids is impossible.

The plate lock

The plate is designed with a lock, which causes the plates, to lock into each other when the plate heat exchanger is clamped together, so that they don't slide when working at large pressure variations. This feature will also secure proper assembling of the plate stack.

Differential pressure

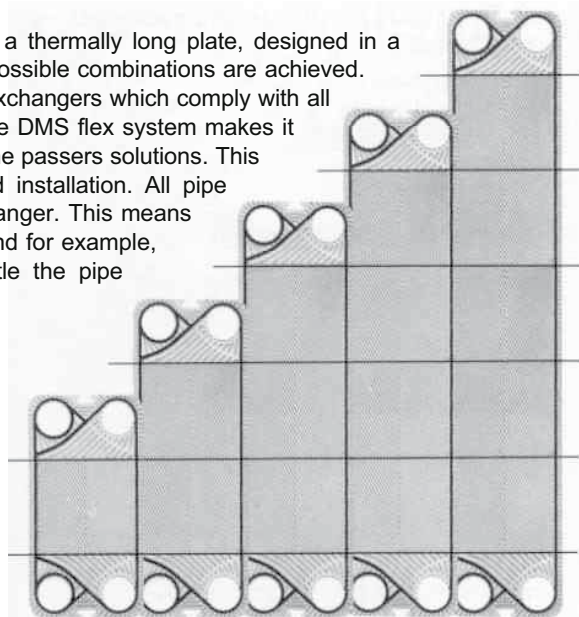
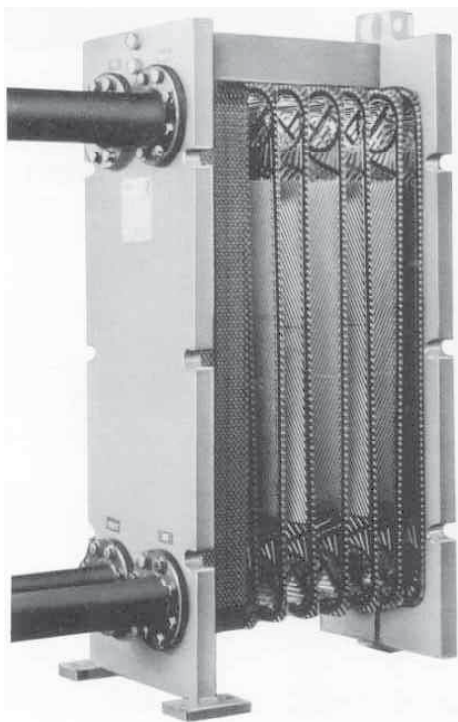
The plates are constructed with the necessary number of support points, thereby ensuring stability, even at high differential pressures.



heat exchangers - hot water systems - district heating stations

The DMS Flex system

The DMS Flex system is based on a thermally short and a thermally long plate, designed in a number of different lengths. In this way a large number of possible combinations are achieved. DMS as a result of this flex system, can supply plate heat exchangers which comply with all demands for both pressure drop and heat transmission. The DMS flex system makes it possible to supply most of the plate heat exchangers with one passers solutions. This has a number of advantages with regards to service and installation. All pipe connections are placed on the head of the plate heat exchanger. This means that the plate heat exchanger can be opened and closed and for example, extended to greater capacities without having to dismantle the pipe installation.

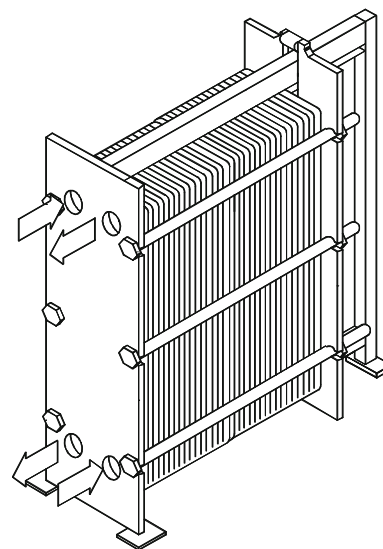


Heat exchanger in the industrial sector and distant heating

The heat exchanger have been directly included both in the primary processes of production and in the secondary processes, such as cooling and recovery of heat from surplus heating. The greatest part of heat exchangers used are shell and tube and spiral heat exchangers. It is in fact a tradition, that the industrial sector uses this type of heat exchanger. We can supply plate heat exchangers for most of the applications for which traditional heat exchangers are normally supplied, only on a more efficient and economical basis. We can supply plate heat exchangers with differential pressures of up to 30kp/cm², and temperatures ranging from -30°C / -86°F to 220°C / 428°F. DMS uses a pressing technique, which makes it possible to press plates in all pressable material such as stainless steel, Titanium, Hastelloy, Inconel etc. DMS plates can be supplied with gaskets, which can even cope with extremely harsh liquids. In comparison to shell and tube and spiral heat exchangers the plate heat exchanger has a number of advantages, as follows:

Thermal efficiency

The thermal efficiency of plate heat exchangers is considerably better, than that of both shell and tube and spiral heat exchangers. The reason being primarily, that a plate heat exchanger constitutes a plate stack, consisting of corrugated plates. The plate pattern creates a high turbulence, which in turn gives a high heat transmission. In the development of these plate heat exchangers, we have aimed for high thermal efficiency in all heat exchanger applications. This is achieved with the help of a plate programme, which can fully utilize a specified pressure drop, i.e. by using the pressure drop to create turbulence and thereby heat transmission across the whole plate pattern. An effective turbulence in the plate heat exchanger will give a minimum of fouling on the transmission area in comparison to traditional heat exchangers. The DMS flex system is based on a varying plate length and two different plate patterns, thermally short and thermally long, for each plate length. That is why DMS can make most of the heat exchanger applications with one pass plate heat exchangers, simply because they offer optimal utilization of the plates by using the pressure drop to create turbulence, thereby giving an effective heat transmission. In the case where the plate heat exchanger is in more than one pass the result will be, that a part of the pressure drop will be used in the corner holes and inlet area of the plate. In other words as wasted pressure drop. Furthermore, it would create difficulties with regards to installation and service of the plate heat exchanger.



heat exchangers - hot water systems - district heating stations

Installation and service

The DMS flex system can as mentioned, cope with the majority of industrial applications with one pass solutions, meaning that all pipe connections will be placed on the head of the plate heat exchanger. This gives great advantages with regards to both service inspection and possible repairs. This means that the plate heat exchanger can be opened and closed without having to dismantle the pipe installations. DMS plate heat exchanger frames are designed so that they easily can be opened and closed. A minimum of clamping bolts are used and the follower is equipped with an easy running roller.



Flexibility

DMS plate heat exchangers consist of standard components, which offer great flexibility. Plates and gaskets are designed, so they can be used as both right hand and left hand plates. This is done by simply turning the plate 180°. A possible increase or reduction in capacity would normally be a simple modification. The traditional shell and tube and spiral heat exchangers can not be adjusted to accomodate other capacities.

Space requirement

The thermal efficiency of DMS plate heat exchangers results in a much smaller space requirement than for traditional heat exchangers. This is especially of great importance when opening or closing the heat exchanger, and for example in service inspection.

Surplus heat

A waste of energy is a waste of money. This saying is, at the moment extremely relevant because of the energy situation which is completely incalculable. That is why all energy sources must be utilized as effectively as possible, and this of course also applies to areas which include surplus heating. DMS plate heat exchangers are extremely suitable for use for heat recovery, as they, with their working areas in the field of pressure and temperature, can be included in a series of processes, where it is possible to utilize surplus heat. Surplus heat can for example, be used in the district heating nets, or for international heating in industry. From an economical point of view, it would be an advantage, to utilize even small quantities of energy.

DMS – Plates and Gaskets are available in following qualities:

Standard – Plates:

Stainless steel ANSI 304, ANSI 316, 1.4401, Titanium

Special – Plates:

Hastelloyed, Inconel and other pressable materials

Standard – Gaskets:

EPDM and Nitril

Special – Gaskets:

Viton, Hypalon, Klingerith and others

Special Designs:

Free-Flow, Semi-welded

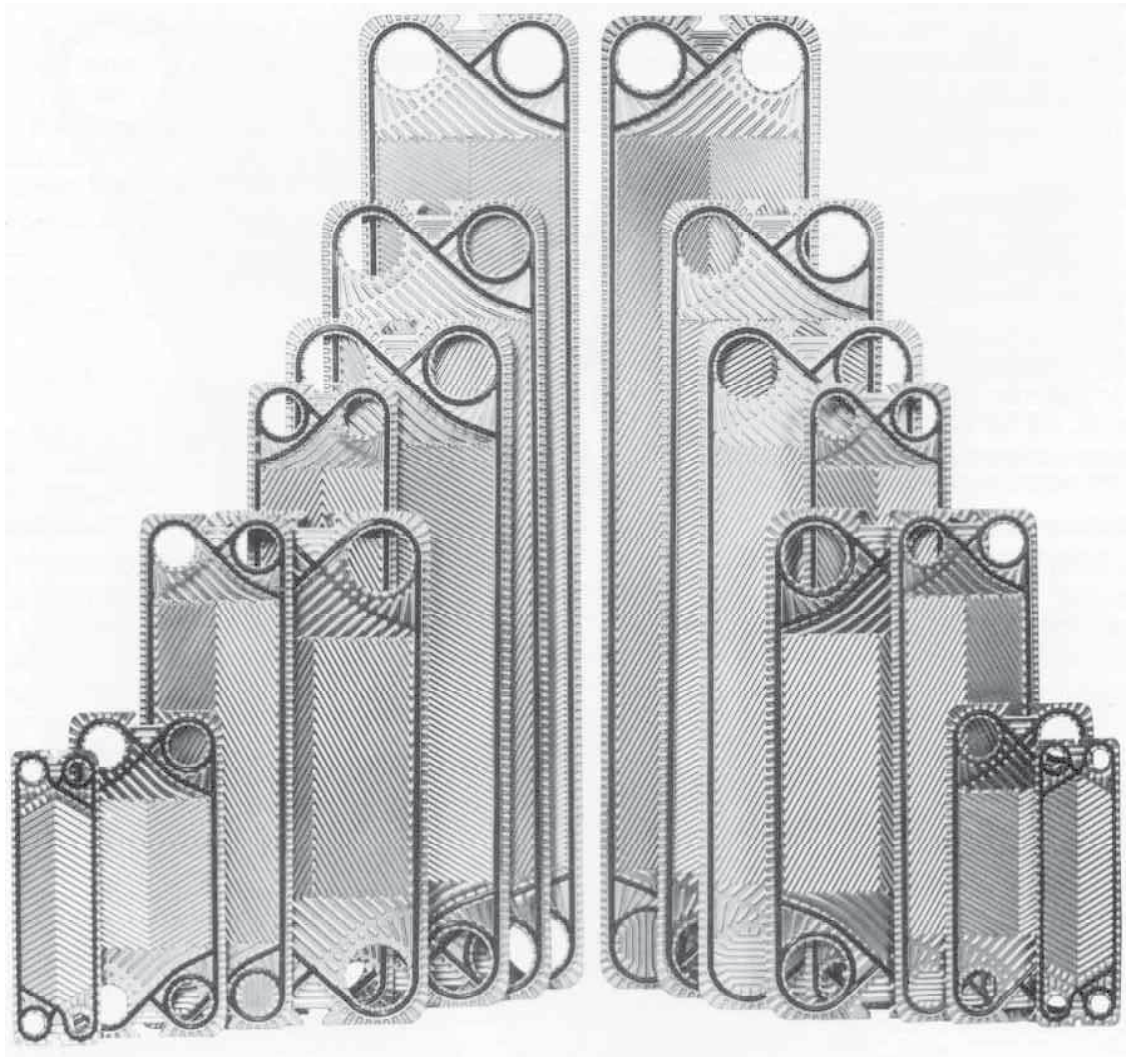
The Possibilities:

- more than 40 different sizes of plates
- various pattern with individual collection of plates
- Dimensions of connections R 1" to DN 500
- amount of volume up to 3000 cbm/h

heat exchangers - hot water systems - district heating stations

A part of the DMS plate programme

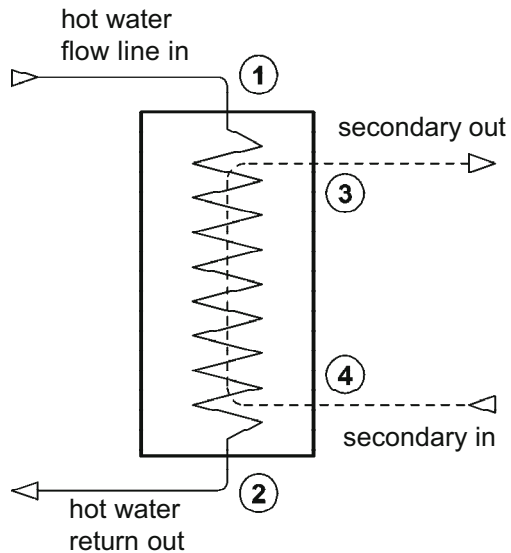
The plate programme of DMS is today so comprehensive, that any exchanger problem can be solved in an optimal way.



DMS places it's many years of experience concerning plate heat exchangers, at your disposal. You will get the right solution at a competitive price ...

heat exchangers - hot water systems - district heating stations

***DMS - Coil and Shell Heat Exchanger
Copper or Stainless Steel***

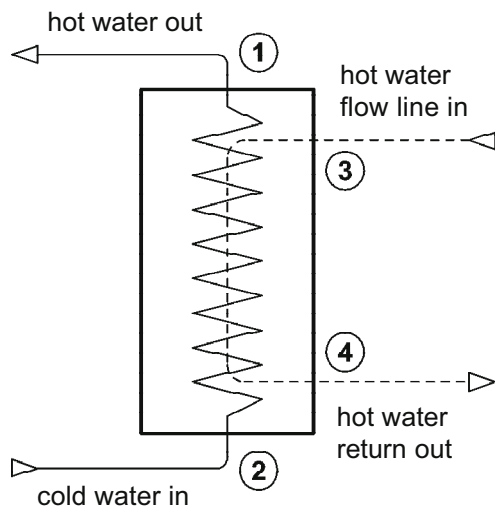


Heat exchange

- 1.) water / water
- 2.) steam / water

The primary side (lower amount of water/ steam) has to be mounted to the coil-connections IN 1 OUT 2 for heating the secondary side shell- connections: IN 4 OUT 3

Temperatur control according to technical rules.



Drinking water heating

- 1.) hot water / drinking water
- 2.) steam / drinking water

cold water is always running inside of the coil

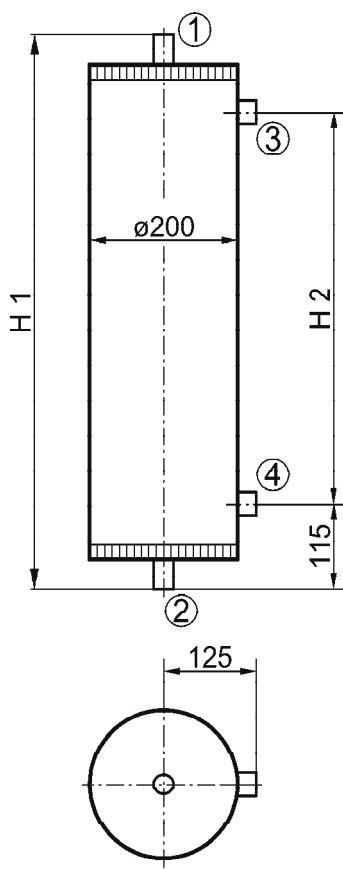
- (1) hot water out
- (2) cold water in
- (3) flow line/steam in
- (4) hot water return/condensate out

Temperatur control according to technical rules.

on request: shell manufactured complete out of stainless steel

heat exchangers - hot water systems - district heating stations

*DMS - Coil and Shell Heat Exchanger
Type H - 1 - ...
Water heater*



	shell			coil		
operating pressure bar	16	12	9	34	32	30
operating temperature °C	150	175	200	150	175	200
operating temperature °F	307	347	392	307	347	392

Working as heat exchanger

connections:

- (1) hot water flow line in
- (2) hot water return out
- (3) secondary out
- (4) secondary in
- (5) venting

Working as water heater

connections:

- (1) hot water out
- (2) cold water in
- (3) hot water flow line in
- (4) hot water return out
- (5) venting

Internal screwed thread

Material:

shell: steel ST 37-2

coil: SF-copper acc. to DIN 1787

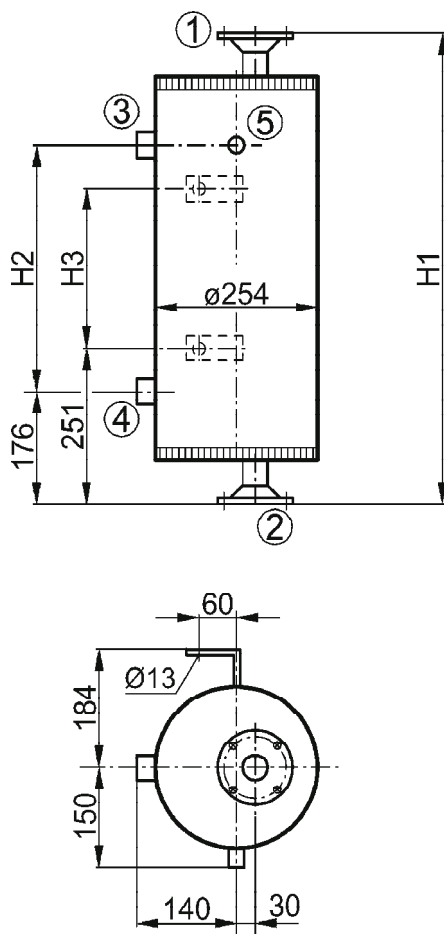
fixed insulation 80 mm mineral wool completely covered with structured aluminium-plates

Approval: TÜV-Type Approval, manufactured according to EU-Pressure Vessel regulations 97/ 23 EG Design C acc. to DIN 1988 T 2

Type	H1 mm	H2 mm	(1) (2) Rp "	(3) (4) Rp "	contents ltr.		weight kg
					shell	coil	
H-1-A	750	520	¾	1	1,2	0,4	11
H-1-B	1100	870			1,6	0,6	15
H-1-C	1370	1140			2,2	0,8	19

heat exchangers - hot water systems - district heating stations

*DMS - Coil and Shell Heat Exchanger
Type H - 2 - ...
Water heater*



		shell			coil		
operating pressure	bar	16	12	9	34	32	30
operating temperature	°C	150	175	200	150	175	200
operating temperature	°F	307	347	392	307	347	392

Working as heat exchanger

connections:

- (1) hot water flow line in
- (2) hot water return out
- (3) secondary out
- (4) secondary in
- (5) venting

Working as water heater

connections:

- (1) hot water out
- (2) cold water in
- (3) hot water flow line in
- (4) hot water return out
- (5) venting

Internal screwed thread

Material:

shell: steel ST 37-2

coil: SF-copper acc. to DIN 1787

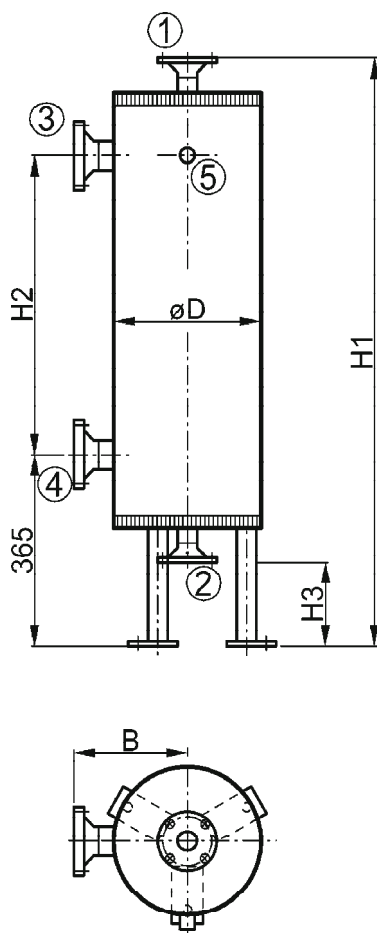
fixed insulation 80 mm mineral wool completely covered with structured aluminium-plates

Approval: TÜV-Type Approval, manufactured according to EU-Pressure Vessel regulations 97/ 23 EG Design C acc. to DIN 1988 T 2

Type	H1 mm	H2 mm	H3 mm	(1) (2) DN / PN	(3) (4) Rp "	contents ltr.		weight kg
						shell	coil	
H-2-A	752	580	250	25 / 40	1	3,0	0,7	16
H-2-B	1002	830	500			4,2	1,1	21
H-2-C	1582	1410	1080			8,3	1,6	33

heat exchangers - hot water systems - district heating stations

*DMS - Coil and Shell Heat Exchanger
Type H - 4 - ... and H - 6 - ...
Water heater*



		shell			coil		
operating pressure	bar	16	12	9	34	32	30
operating temperature	°C	150	175	200	150	175	200
operating temperature	°F	307	347	392	307	347	392

Working as heat exchanger

connections:

- (1) hot water flow line in
- (2) hot water return out
- (3) secondary out
- (4) secondary in
- (5) venting

Working as water heater

connections:

- (1) hot water out
- (2) cold water in
- (3) hot water flow line in
- (4) hot water return out
- (5) venting

Internal screwed thread

Material:

shell: steel ST 37-2
coil: SF-copper acc. to DIN 1787

fixed insulation 80 mm mineral wool completely covered with structured aluminium-plates

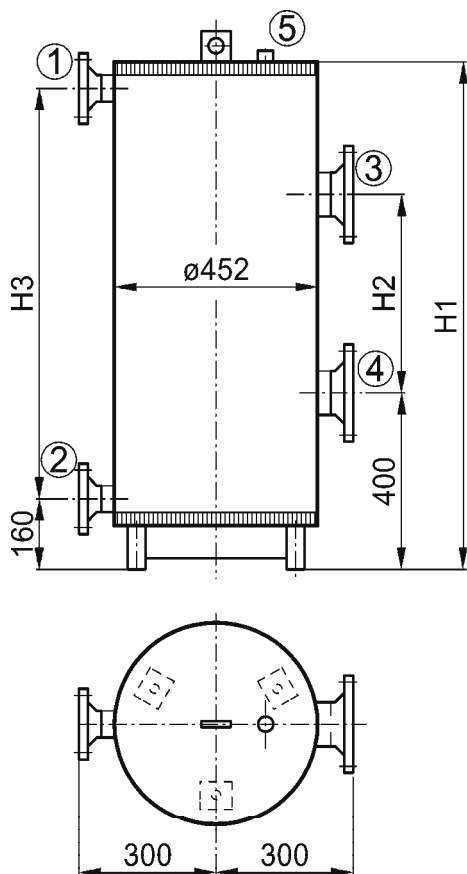
Erection on a rack with adjustable legs

Approval: TÜV-Type Approval, manufactured according to EU-Pressure Vessel regulations 97/ 23 EG Design C acc. to DIN 1988 T 2

Type	Ø D mm	H1 mm	H2 mm	H3 mm	B mm	(1) (2) DN / PN	(3) (4) DN / PN	contents ltr.		weight kg
								shell	coil	
H-4-A	306	975	425	180	215	25 / 40	40 / 16	5,3	2,2	29
H-6-A	340	930	345	170	240	32 / 40	50 / 16	7,3	2,8	38
H-4-B	306	1195	645	180	215	25 / 40	40 / 16	6,7	3,3	38
H-6-B	340	1210	625	170	240	32 / 40	50 / 16	9,3	3,8	49
H-4-C	306	1705	1150	180	215	25 / 40	40 / 16	12,3	4,2	52
H-6-C	340	1790	1230	170	240	32 / 40	50 / 16	22,3	6,8	75

heat exchangers - hot water systems - district heating stations

*DMS - Coil and Shell Heat Exchanger
Type H - 9 - ... and H - 24 - ...
Water heater*



		shell			coil		
operating pressure	bar	16	12	9	34	32	30
operating temperature	°C	150	175	200	150	175	200
operating temperature	°F	307	347	392	307	347	392

Working as heat exchanger

connections:

- (1) hot water flow line in
- (2) hot water return out
- (3) secondary out
- (4) secondary in
- (5) venting

Working as water heater

connections:

- (1) hot water out
- (2) cold water in
- (3) hot water flow line in
- (4) hot water return out
- (5) venting

Internal screwed thread

Material:

shell: steel ST 37-2

coil: SF-copper acc. to DIN 1787

fixed insulation 80 mm mineral wool completely covered with structured aluminium-plates

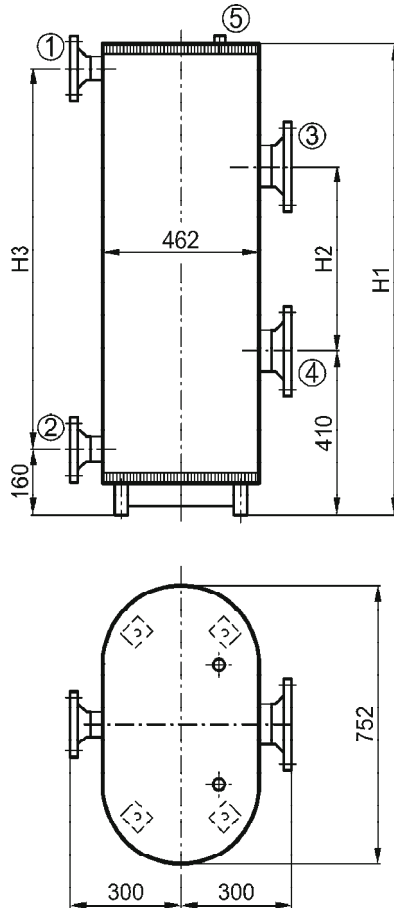
Erection on a rack with adjustable legs

Approval: TÜV-Type Approval, manufactured according to EU-Pressure Vessel regulations 97/ 23 EG Design C acc. to DIN 1988 T 2

Type	H1 mm	H2 mm	H3 mm	(1) (2) DN / PN	(3) (4) DN / PN	contents ltr.		weight kg
						shell	coil	
H- 9-A	1265	450	930	50 / 40	100 / 16	42	6	89
H-18-A						37	8	96
H-24-A						34	10	105
H- 9-B	1595	780	1260			57	9	117
H-18-B						50	12	129
H-24-B						45	16	147
H- 9-C	19500	1135	1615			73	12	146
H-18-C						61	17	163
H-24-C						56	22	189

heat exchangers - hot water systems - district heating stations

DMS - Coil and Shell Heat Exchanger Type H - 30 - ... and H - 48 - ... Water heater



		shell		coil	
operating pressure	bar	16	12	16	12
operating temperature	°C	205	300	205	300
operating temperature	°F	401	572	401	572

Working as heat exchanger

connections:

- (1) hot water flow line in
- (2) hot water return out
- (3) secondary out
- (4) secondary in
- (5) venting

Working as water heater

connections:

- (1) hot water out
- (2) cold water in
- (3) hot water flow line in
- (4) hot water return out
- (5) venting

Internal screwed thread

Material:

shell: steel ST 37-2

coil: SF-copper acc. to DIN 1787

fixed insulation 80 mm mineral wool completely covered with structured aluminium-plates

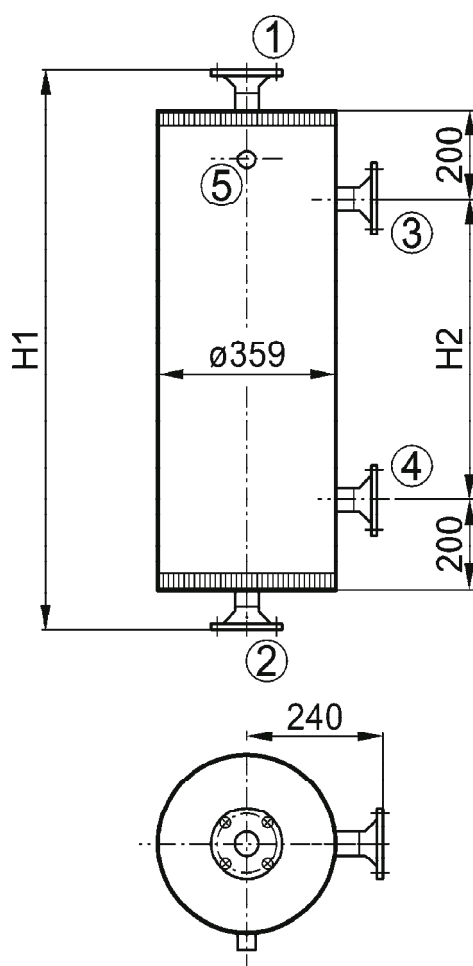
Erection on a rack with adjustable legs

Approval: TÜV-Type Approval, manufactured according to EU-Pressure Vessel regulations 97/ 23 EG Design C acc. to DIN 1988 T 2

Type	H1 mm	H2 mm	H3 mm	(1) (2) DN / PN	(3) (4) DN / PN	contents ltr.		weight kg
						shell	coil	
H-30-A	1215	430	930	65 / 40	125 / 16	84	16	160
H-36-A						79	18	167
H-42-A						76	20	176
H-48-A						68	22	185
H-30-B	1545	760	1260			112	23	219
H-36-B						105	26	230
H-42-B						100	30	248
H-48-B						90	34	266
H-30-C	1900	1115	1615			139	31	279
H-36-C						127	36	296
H-42-C						122	41	322
H-48-C						112	46	347

heat exchangers - hot water systems - district heating stations

DMS - Coil and Shell Heat Exchanger Type ER - 2 - ... Water heater



		shell		coil	
operating pressure	bar	16	12	16	12
operating temperature	°C	205	300	205	300
operating temperature	°F	401	572	401	572

Working as heat exchanger

connections:

- (1) hot water flow line in
- (2) hot water return out
- (3) secondary out
- (4) secondary in
- (5) venting

Working as water heater

connections:

- (1) hot water out
- (2) cold water in
- (3) hot water flow line in
- (4) hot water return out
- (5) venting

Internal screwed thread

Material:

shell: steel ST 37-2
pipe plate, bumed head and flanges of stainless steel 1.4404
cross-gilled stainless steel coil 1.4404
fixed insulation 80 mm mineral wool completely
covered with structured aluminium-plates

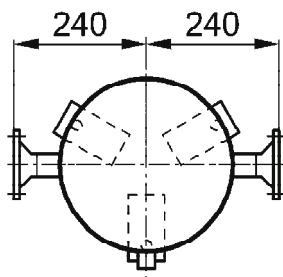
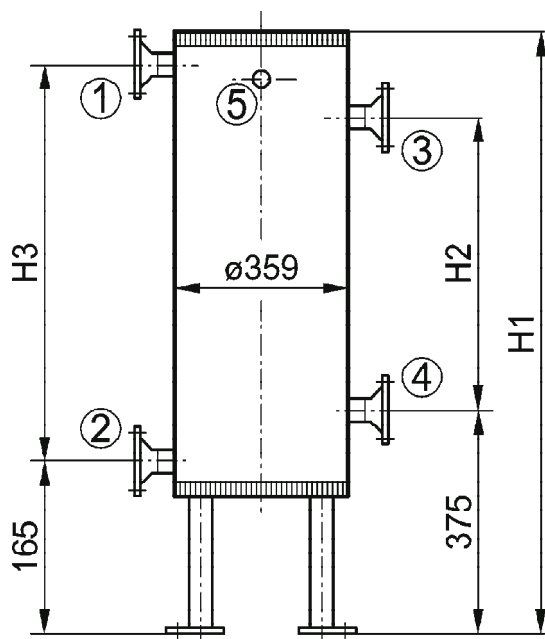
Approval: TÜV-Type Approval, manufactured according to
EU-Pressure Vessel regulations 97/ 23 EG Design C
acc. to DIN 1988 T 2

on request: shell manufactured complete out of stainless steel

Type	H1 mm	H2 mm	(1) (2) DN/PN	(3) (4) DN/PN	contents ltr.		weight kg
					shell	coil	
ER-2-A	590	190	40/16	40/16	5,5	1,5	32
ER-2-B	720	320			7,5	3	37
ER-2-C	850	450			9,5	4,5	42

heat exchangers - hot water systems - district heating stations

*DMS - Coil and Shell Heat Exchanger
Type ER - 5 - and ER - 8 - ...
Water heater*



		shell		coil	
operating pressure	bar	16	12	16	12
operating temperature	°C	205	300	205	300
operating temperature	°F	401	572	401	572

Working as heat exchanger

connections:

- (1) hot water flow line in
- (2) hot water return out
- (3) secondary out
- (4) secondary in
- (5) venting

Working as water heater

connections:

- (1) hot water out
- (2) cold water in
- (3) hot water flow line in
- (4) hot water return out
- (5) venting

Internal screwed thread

Material:

shell: steel ST 37-2
pipe plate, bumed head and flanges of stainless steel 1.4404
cross-gilled stainless steel coil 1.4404
fixed insulation 80 mm mineral wool completely
covered with structured aluminium-plates

Erection on a rack with adjustable legs

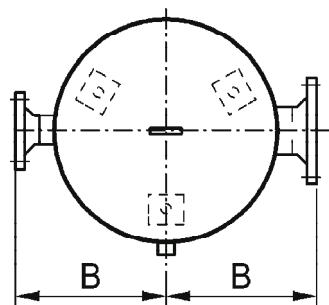
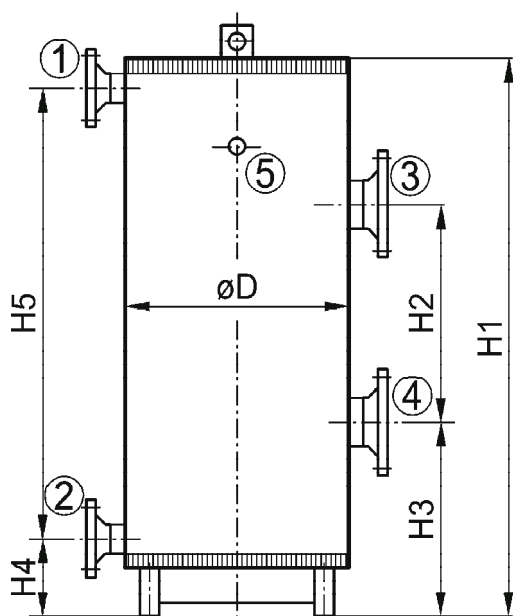
Approval: TÜV-Type Approval, manufactured according to
EU-Pressure Vessel regulations 97/ 23 EG Design C
acc. to DIN 1988 T 2

on request: shell manufactured complete out of stainless steel

Type	H1 mm	H2 mm	H3 mm	(1) (2) DN / PN	(3) (4) DN / PN	contents ltr.		weight kg
						shell	coil	
ER-5-A	970	330	750	40/16	40/16	11	3	41
ER-8-A	1100	460	880			12	4	47
ER-5-B	1220	580	1000			16	4	50
ER-8-B	1500	860	1280			20	6	62
ER-5-C	1470	830	1250			21	5	61
ER-8-C	1920	1280	1700			29	9	79

heat exchangers - hot water systems - district heating stations

DMS - Coil and Shell Heat Exchanger Type ER - 12 - ... and ER - 37 - ... Water heater



		shell		coil	
operating pressure	bar	16	12	16	12
operating temperature	°C	205	300	205	300
operating temperature	°F	401	572	401	572

Working as heat exchanger

connections:

- (1) hot water flow line in
- (2) hot water return out
- (3) secondary out
- (4) secondary in
- (5) venting

Working as water heater

connections:

- (1) hot water out
- (2) cold water in
- (3) hot water flow line in
- (4) hot water return out
- (5) venting

Internal screwed thread

Material:

shell: steel ST 37-2
pipe plate, bumed head and flanges of stainless steel 1.4404
cross-gilled stainless steel coil 1.4404
fixed insulation 80 mm mineral wool completely
covered with structured aluminium-plates

Erection on a rack with adjustable legs

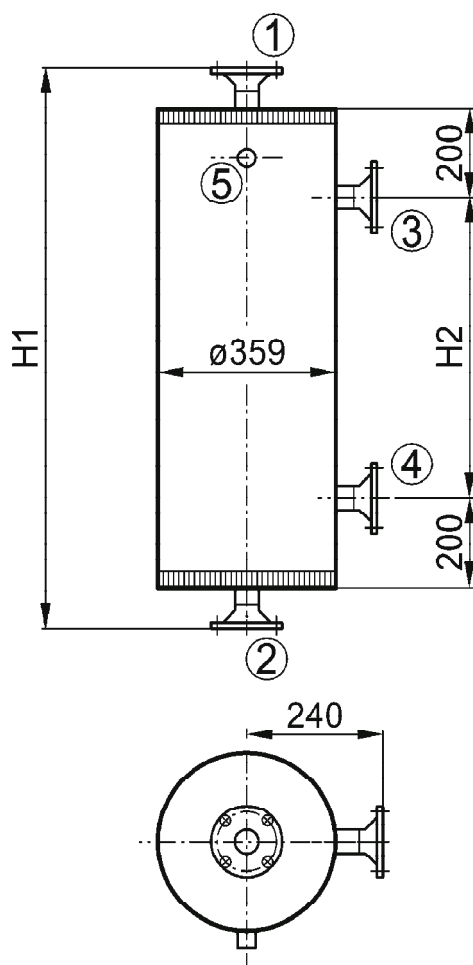
Approval: TÜV-Type Approval, manufactured according to
EU-Pressure Vessel regulations 97/ 23 EG Design C
acc. to DIN 1988 T 2

on request: shell manufactured complete out of stainless steel

Type	Ø D mm	H1 mm	H2 mm	H3 mm	H4 mm	H5 mm	(1) (2) DN / PN	(3) (4) DN / PN	contents ltr.		weight
									shell	coil	
ER-12-A	394	1265	450	400	160	930	50/16	100/16	16	9	65
ER-20-A	494								40	15	110
ER-30-A	494		430	410			65/16	125/16	35	19	125
ER-37-A	494								33	21	129
ER-12-B	394	1645	830	400		1310	50/16	100/16	25	12	84
ER-20-B	494								61	20	145
ER-30-B	494		810	410			65/16	125/16	54	27	167
ER-37-B	494								48	32	174
ER-12-C	394	2025	1210	400		1690	50/16	100/16	33	16	102
ER-20-C	494								84	26	177
ER-30-C	494		1190	410			65/16	125/16	72	36	205
ER-37-C	494								54	43	218

heat exchangers - hot water systems - district heating stations

DMS - Coil and Shell Heat Exchanger Type SR - 2 - ...



		shell	coil
operating pressure	bar	16	25
operating temperature	°C	205	205
operating temperature	°F	401	401

connections:

- (1) hot water flow line in
- (2) hot water return out
- (3) secondary out
- (4) secondary in
- (5) venting

Internal screwed thread

Material:

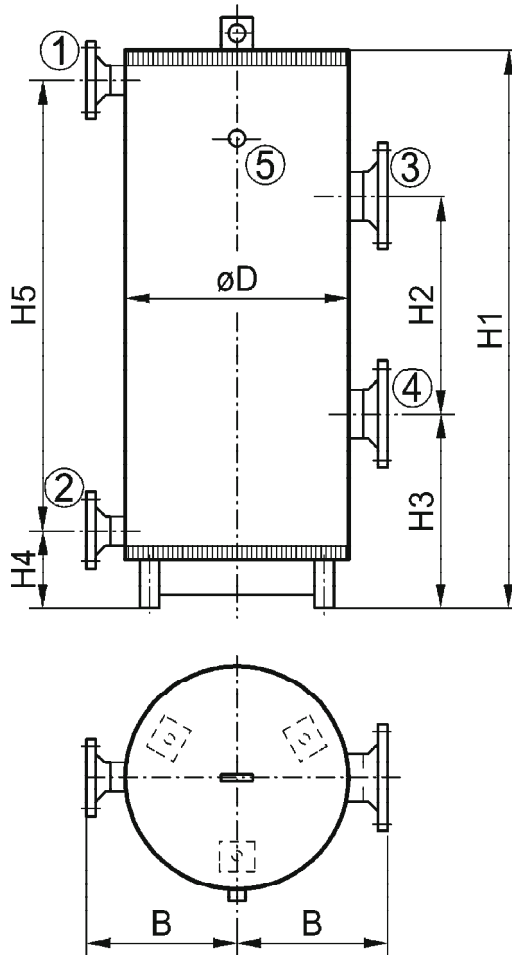
shell, pipe plate, bumed head and flanges of steel ST 37-2
cross-gilled stainless steel coil 1.4404
fixed insulation 80 mm mineral wool completely
covered with structured aluminium-plates

Approval: TÜV-Type Approval, manufactured according to
EU-Pressure Vessel regulations 97/ 23 EG Design C
acc. to DIN 1988 T 2

Type	H1 mm	H2 mm	(1) (2) DN/PN	(3) (4) DN/PN	contents ltr.		weight kg
					shell	coil	
SR-2-A	590	190	40/40	40/16	5,5	1,5	33
SR-2-B	720	320			7,5	3	39
SR-2-C	850	450			9,5	4,5	43

heat exchangers - hot water systems - district heating stations

DMS - Coil and Shell Heat Exchanger Type SR - 12 - ... and SR - 37 - ...



		shell	coil
operating pressure	bar	16	25
operating temperature	°C	205	205
operating temperature	°F	401	401

connections:

- (1) hot water flow line in
- (2) hot water return out
- (3) secondary out
- (4) secondary in
- (5) venting

Internal screwed thread

Material:

shell, pipe plate, bumed head and flanges of steel ST 37-2
cross-gilled stainless steel coil 1.4404
fixed insulation 80 mm mineral wool completely
covered with structured aluminium-plates

on request: shell manufactured complete out of stainless steel

Approval: TÜV-Type Approval, manufactured according to
EU-Pressure Vessel regulations 97/ 23 EG Design C
acc. to DIN 1988 T 2

Type	Ø D mm	H1 mm	H2 mm	H3 mm	H4 mm	H5 mm	(1) (2) DN / PN	(3) (4) DN / PN	contents ltr.		weight kg
									shell	coil	
SR-12-A	394	1265	450	400	160	930	50/40	100/16	16	9	66
SR-20-A	494								40	15	112
SR-30-A	494		430	410			65/40	125/16	35	19	128
SR-37-A	494								33	21	132
SR-12-B	394	1645	830	400		1310	50/40	100/16	25	12	85
SR-20-B	494								61	20	147
SR-30-B	494		810	410			65/40	125/16	54	27	169
SR-37-B	494								48	32	177
SR-12-C	394	2025	1210	400		1690	50/40	100/16	33	16	103
SR-20-C	494								84	26	179
SR-30-C	494		1190	410			65/40	125/16	72	36	208
SR-37-C	494								54	43	221

heat exchangers - hot water systems - district heating stations

Position	Quantity		single price Euro	total price Euro																																							
		<p>DMS – Heat Exchanger</p> <p>Series ER* SR*</p> <p>Type: _____</p> <p>Shell made of steel St 37-2 with fixed cross-gilled pipes in spiral form out of stainless steel (1.4571) vertical designed on adjustable legs with all requested but no counter ends. Constructed to German DIN Standards and EU-Pressure-Vessel-Regulations with insulation consisting of 80 mm thick mineral wool, covered with structural aluminium-plates and PVC-cabs</p> <p>technical data:</p> <table border="0"> <tr> <td></td> <td>coil</td> <td>shell</td> </tr> <tr> <td>performance</td> <td>_____ kW</td> <td></td> </tr> <tr> <td>flow temperature</td> <td>_____ °C</td> <td>_____ °C</td> </tr> <tr> <td>return temperature</td> <td>_____ °C</td> <td>_____ °C</td> </tr> <tr> <td>pressure drop</td> <td>_____ kPa</td> <td>_____ kPa</td> </tr> <tr> <td>volume flow</td> <td>_____ m³/h</td> <td>_____ m³/h</td> </tr> <tr> <td>max. oper. temp.</td> <td>_____ °C</td> <td>_____ °C</td> </tr> <tr> <td>max. oper. pressure</td> <td>_____ MPa</td> <td>_____ MPa</td> </tr> </table> <p>dimensions and weights</p> <table border="0"> <tr> <td>connections</td> <td>_____ DN</td> <td>_____ DN</td> </tr> <tr> <td></td> <td>_____ PN</td> <td>_____ PN</td> </tr> <tr> <td>height</td> <td></td> <td>_____ mm</td> </tr> <tr> <td>diameter</td> <td></td> <td>_____ mm</td> </tr> <tr> <td>weight</td> <td></td> <td>_____ kg</td> </tr> </table> <p>Price:</p> <p>_____</p> <p>*paint out not applicable details</p>		coil	shell	performance	_____ kW		flow temperature	_____ °C	_____ °C	return temperature	_____ °C	_____ °C	pressure drop	_____ kPa	_____ kPa	volume flow	_____ m³/h	_____ m³/h	max. oper. temp.	_____ °C	_____ °C	max. oper. pressure	_____ MPa	_____ MPa	connections	_____ DN	_____ DN		_____ PN	_____ PN	height		_____ mm	diameter		_____ mm	weight		_____ kg		
	coil	shell																																									
performance	_____ kW																																										
flow temperature	_____ °C	_____ °C																																									
return temperature	_____ °C	_____ °C																																									
pressure drop	_____ kPa	_____ kPa																																									
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height		_____ mm																																									
diameter		_____ mm																																									
weight		_____ kg																																									

01/2013 DMS/DINOX reserves the right to make changes without notice.

heat exchangers - hot water systems - district heating stations

Data sheet for selecting heat exchanger

☐ Coil and Shell

shell /	coil	material	design
<input type="checkbox"/>	<input type="checkbox"/>	steel St 37	vertical/horizontal *
<input type="checkbox"/>	<input type="checkbox"/>	copper	
<input type="checkbox"/>	<input type="checkbox"/>	stainless steel	

☐ Plate-Heat-Exchanger

		Material
<input type="checkbox"/>	with gasket	<input type="checkbox"/> 1.4301
<input type="checkbox"/>	copper brazed	<input type="checkbox"/> 1.4401
<input type="checkbox"/>	nickel brazed	<input type="checkbox"/> Titanium
<input type="checkbox"/>	welded (SPS)	

capacity

		_____	kW
primary	temperature	_____ / _____	°C
	max. headloss	_____	kPa
	medium	_____	
secondary	temperature	_____ / _____	°C
	max. headloss	_____	kPa
	medium	_____	
	max. operating pressure primary / secondary	_____ / _____	bar
	max. operating temperatures primary / secondary	_____ / _____	°C

For buildings

*with and without Water Heating Systems
operating mode direct or indirect*



For each district heating network and heating systems parameter, the stations are dimensioned and manufactured according to the safety orders, the requested grade of equipment, and customers individual demand.

Capacity range from i.e. 50 kw up to several MW.

heat exchangers - hot water systems - district heating stations

Example: Operating mode indirect heating



Constructed with latest software and 3-D CAD

- individual adaptiv to any demand
- clear arranged valves and components
- optimal framework measures
- short and carefull construction time means short time of delivery

heat exchangers - hot water systems - district heating stations

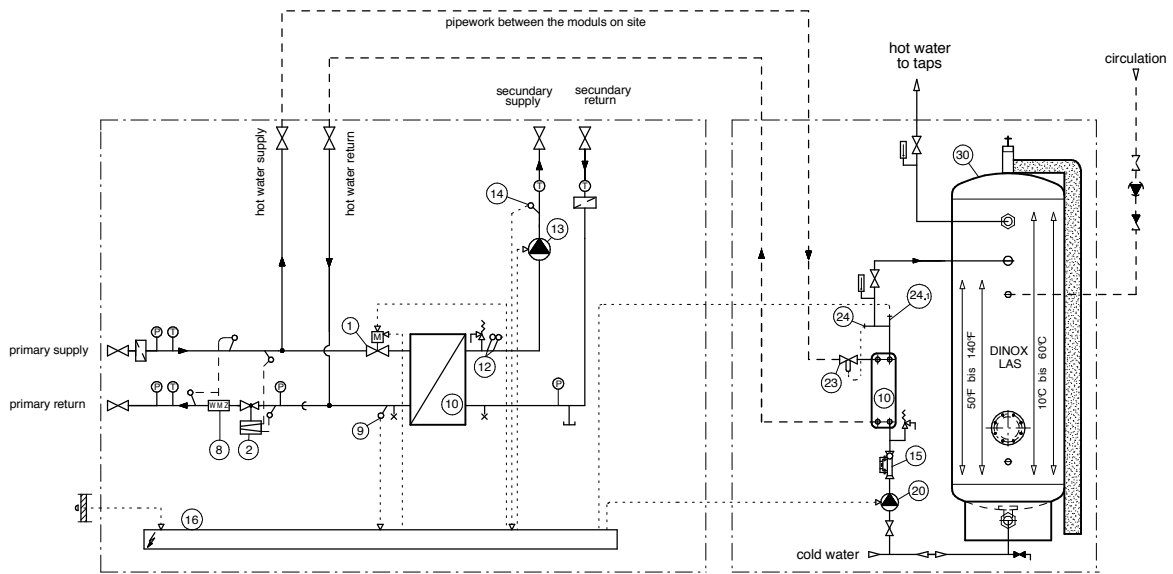
Example:

Scheme of compact district heating stations, operating mode direct with hot water system KWS-K

DMS-Compact-District-Heating-Station welded finish in a painted framework, vibrationless mounted pipe-work, electric wired, consisting of braced stainless steel heat exchanger (10) weather controlled regulator (16) with hot water priority (24.1) and return temperature limiter (9).

Primary motor valve (1), differential pressure controller with flow limiter (2), and fitting piece for heat meter (8). Secondary temperature and overheat safety controlled (12), heating water circulation pump (13), and flow line sensor (14).

DMS-KWS-K-System consisting of DMS braced plate heat exchanger (10), water temperature regulator (23,24), charging pump (20), setting valve (15), and DINOX hot water storage tank (30), welded stainless steel pipework with gun metal fittings, thermometer, and safety valve, mounted ready for use.



detailed designed to customers request - tailor made pre-mounted and wired

DMS-KWS-K-Systems consisting of braced plate heat exchanger (10) water temperature regulator (23, 24) charging pump (20) setting valve (15) and Dinox hot water storage tank (30) welded stainless steel pipework with gun metal fittings, thermometer and safety valve, mounted ready for use.

heat exchangers - hot water systems - district heating stations

Compact District Heating Stations

Questions to be able to design the optimal heating station:

Company: _____ Date: _____

Project: _____

Please answer as much questions as possible. For unanswered questions we try to use realistic assumptions.

1.) District heating company: _____

2.) Operating mode: indirect direct

heat system ☐ ☐

hot water ☐ ☐

ventilation ☐ ☐

3.) Primary:

temperatures (winter) flow line _____ °C return _____ °C

temperatures (summer) flow line _____ °C return _____ °C

rated pressure PN _____

pressure difference max. _____ kPa, min. _____ kPa

heat meter manufacturer _____

☐ fitting piece ☐ with heat meter

4.1) Secondary:

rated pressure PN _____

Relief pressure of safety valve _____ bar

heat exchangers - hot water systems - district heating stations

Compact District Heating Stations - part 2

4.2) Heating circuits:	HC 1	HC 2	HC 3
capacity [kW]	_____	_____	_____
with motorvalve	yes*/no*	yes*/no*	yes*/no*
temperatures flow line/return	_____ C°	_____ C°	_____ C°
residual heat capacity heating circuit pump [kPa]	_____	_____	_____
heat measurement	yes*/no*	yes*/no*	yes*/no*

5.) Heat control system: manufacturer _____ type _____

6.) Hot water system:

☐ apartments ☐ hotel ☐ hospital ☐ old people home

others see separate question sheet

pipework

	galvanized	copper	stainless steel	plastic
cold water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
hot water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7.) Maximum measures:

	width	height	depth
transportway	_____ m	_____ m	_____ m
place to installation	_____ m	_____ m	_____ m

8.) Additional remarks: _____

heat exchangers - hot water systems - district heating stations

Accessories

Products

Pumps



www.grundfos.de



or www.wilo.de

Balancing/Setting Valves



www.taconova.com

Ballvalves



www.pettinaroli.com

Thermometer/Manometer



www.sika.net or www.suku.de

Safety valves



www.honeywell.com or
www.goetze-armaturen.de

Low water protection



by Honeywell
www.fema.biz

Thermostats



www.samson.de

Venting

www.flamco.de

heat exchangers - hot water systems - district heating stations

*Instructions manual guide***1. GENERAL**

This handbook is an integral and essential part of stainless steel storage tanks or water heaters. The fitter must give it to the user, who should keep it for future reference.

This handbook must always accompany the product if it is sold or moved elsewhere.



This product is designed for heating and/or storing water for domestic use. It must be connected to a hot water distribution system, which must be compatible with its performance and power specifications. It must not be used for any other purpose as it could cause a hazard for people, animals and property.

This product must be installed in accordance with current regulations and the manufacturer's instructions in this handbook. Incorrect installation may cause injury to people or animals or damage to property, for which the manufacturer declines all liability.

The manufacturer cannot be held liable for damage caused by wrong installation or use or due to failure to follow the manufacturer's instructions. Before installing the product, check that the specifications correspond to the requirements for correct use within the system.

Check that the product is integral and has not got damaged during transport and handling. Do not install it if it is clearly damaged or faulty.

All accessory products (including electrical parts) must only be replaced with original spares supplied by the manufacturer.

Packaging materials must be disposed of correctly. All the materials can be recycled and must be disposed of separately.

After unwrapping the product, make sure all the packaging materials (staples, plastic bags, foam polystyrene, etc.) are kept well out of the reach of children and animals as they are a potential hazard.

If the product malfunctions or is faulty, switch it off but do not attempt to repair it in any way. It needs to be serviced by a qualified engineer. Only original spares must be used. Failure to do so may affect safe operation and cause injury or damage.

Non-observance of the above may affect the safe operation of the product and could be a hazard for people, animals and property.



The product must be serviced periodically according to the maintenance schedule in this handbook. Correct maintenance will enable it to operate efficiently without affecting the environment and in complete safety for people, animals and property. Incorrect or irregular maintenance may cause the product to malfunction and be a hazard for people, animals and property.

Before cleaning or servicing the product, switch it off and pull out the plug and/or deactivate other on/off switches.

For maintenance and repairs, the manufacturer recommends contacting only Authorized Service Centres, which are fully qualified to service this kind of product.

heat exchangers - hot water systems - district heating stations

2. DESCRIPTION

The USW-1 is an upright free-standing water heater with a single heat exchanger (coil) and can be connected to an independent, central or district heating system or it can be used in forced-circulation solar heating systems. The USW-2 is an upright free-standing water heater with a double heat exchanger (coil) that can be connected to a thermal solar collector, which uses solar panels to generate domestic hot water, or used when it is important to split up the heat exchanger surface due to considerable fluctuation in demand.

In both models the surface of the heating element is large enough to produce large quantities of hot water. The lower part of the exchanger is angled downwards to allow the entire volume of water in the storage tank to be heated. LAS-E electric heating elements. It is necessary to be especially careful when electric power is switched on by a qualified engineer according to the separate manual. Water must be filled up in the storage tank at anytime! Perfect insulation is provided by extra-thick high-density fleece-or soft foam.

3. OPERATION

This water heaters are designed for domestic hot water supply in residential or industrial applications heated by hot water, electricity, or indirect heated by separate heat exchangers.

It can be installed in any heat pump or solar panel heating system.

The water heater must be connected to the water supply via the cold water coupling and to the hot water utilities via the hot water coupling. When hot water is required, cold water enters the tank where it is heated to the temperature set on the thermostat, if there is one.

The ideal setting is 60-65 °C because this temperature guarantees the best performance of the water heater as well as:

- maximum hygiene
- cost effectiveness
- reduced scaling

4. INSTALLATION



This appliance is designed to heat domestic hot water to a temperature below boiling point at atmospheric pressure. It must be connected to a heating system and a domestic hot water distribution network that are compatible with its performance and power specifications.

The following operations must only be carried out by professional qualified personnel. Failure to follow this rule will invalidate the warranty.

4.1 Choosing a location

The place of installation must be protected from frost.

The product must be as close as possible to the heat generator. This is to avoid heat loss. If this is not possible, it is important to insulate the connection pipes.

It must be positioned so as to allow laying all pipes works.

heat exchangers - hot water systems - district heating stations

4.2 Plumbing connections and preliminary operations

The position and function of the couplings are shown in the label attached.

It is advisable to install the appliance as close as possible to the point where most water is used, in order to avoid heat loss along the pipes. It should also be close to a drain for convenience when emptying it.

A safety valve must be installed in the cold water pipe upstream of the heat exchanger.

It must not be possible to shut off the pipe connecting the heat exchanger and the safety valve as this would damage the heat exchanger due to overpressure.

Take care when installing the safety valve. Do not force or tamper with it. The safety valve a rated setting of 6 bar. Slight dripping from the safety valve is normal during heating, so it is advisable to connect it to a trapped drain. If the mains pressure is close to the valve setting, install a suitable pressure reducer as far away from the water heater as possible.



If the system has a pressure reducer and/or a non-return valve, it is mandatory to install an expansion vessel the capacity of which is not less than 5% of the rated capacity of each heating element.

Non-return valves must not be installed between the safety valve and the expansion vessel.

In general, in order to protect the appliance and the system, it is always advisable to install an expansion vessel as specified above.

Inflate the diaphragm chamber of the expansion vessel as instructed by manufacturer.

Before connecting the appliance to the mains, fill it with water as follows:

- turn on the cold water tap;
- turn on a hot water tap (e.g. bath, sink, etc.), bleed air from the system and wait for a constant flow of water from all the water taps;
- check all the plumbing connections for leaks.

When the local water is hard, it is advisable to install specific devices to prevent excessive scale build-up.

Please note that some of them are similar to non-return valves, which means that a suitable expansion vessel must be provided.

The appliance can have a recirculation pipe connected to it. If this is done, the pipe must be insulated.

For recirculation it is necessary to install a pump fitted with a timer or a minimum contact thermostat to activate cooling of the recirculation water. If the coupling is not used, a seal cap must be provided.

The inlet and outlet pipes must be connected at the established points of the heat exchanger.

- Check that the thermal output of the heat generator is at least 15% higher than the thermal input of the water heater.
- If there are any impurities in the mains water, provide a suitable filter and check that the circulation pumps have a sufficient flow rate and pressure head and work efficiently.
- Make sure the thermostat and thermometer probes are positioned correctly.
- Check that the thermostat controls operate correctly.

The plumbing system must be connected as shown in the label attached.

heat exchangers - hot water systems - district heating stations

5. START-UP PROCEDURE

When the product has been installed, fill it with cold water for the domestic hot water system and turn on a tap to bleed air from the system.

Then fill with water for the heating system and turn on a hot tap to bleed air out.

Regulate the hot water temperature in the system on the instrument as instructed. The recommended temperature setting is 60-65 °C.

Check periodically that all the control and regulation devices are in proper working order.



The water heating system must be started up by a qualified service engineer.

5.1 Filling the heat exchanger

The heat exchanger element is connected to the heating circuit (s), so to ensure that water is circulating inside merely check that the water pressure inside the boiler is high enough for it to operate correctly. Refer to the primary head instructions for further details.

5.2 Filling the appliance

This requires a tap for filling the domestic hot water circuit. Turn on the heat exchanger tap and turn on any tap to bleed the system.

5.3 Emptying the appliance

Turn off the mains filling tap, connect one end of a hosepipe to the drain outlet and place the other end in an external drain.

Turn on a tap and leave it on; open the drain outlet and allow the system to empty completely in a slowly way.

6. MAINTENANCE AND CLEANING



Always empty the appliance before carrying out any maintenance work.

6.1 General points to remember

The outside of the product can be cleaned with a soft cloth and a suitable cleaning product. Do not use abrasive products, solvents, petrol, alcohol or the like.

Do not use water.

If the appliance is used in a room where the temperature may go below zero, it must be left running or emptied completely.

6.2 Inspecting and cleaning the inside of the tank

To clean inside the tank, drain the appliance slowly, unscrews in the plastic cap and remove the cover. Remove the counter-flange or screws from the inspection openings.

Take care during cleaning not to damage the tank and heat exchanger (heating element).

Clean with a jet of water. If necessary use a suitable tool made of wood or plastic to remove any build-up of scale.

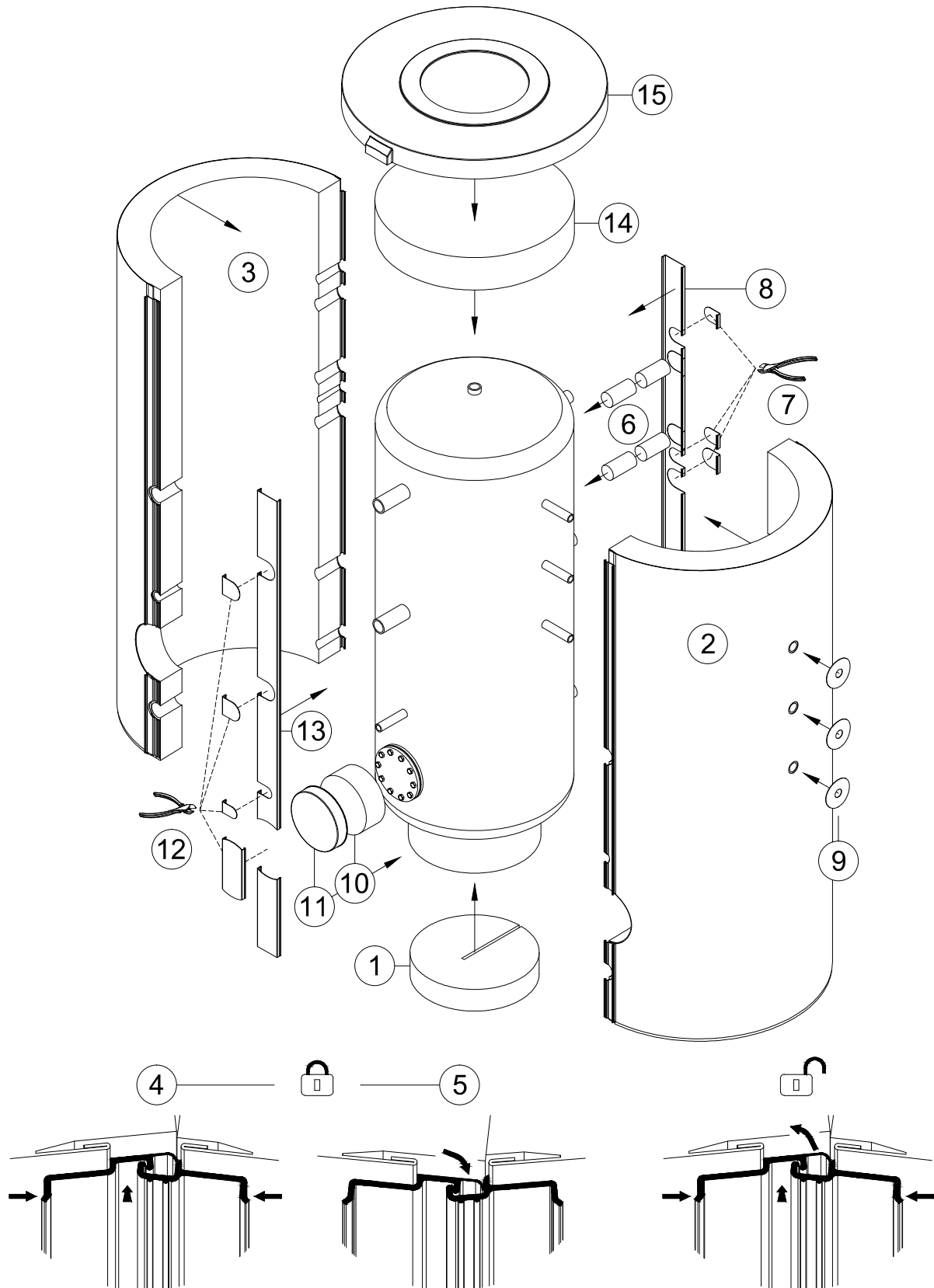
Lastly, remount the flange and gasket (replace the latter if damaged), fill the tank and check for leaks from the flange and tap.

Fill the appliance, referring to the start-up instructions, and check for leaks.

If the local water is particularly hard, it is advisable to de-scale the water heater at least once a year.

heat exchangers - hot water systems - district heating stations

Tank Insulation Installation Instruction



heat exchangers - hot water systems - district heating stations

Hot Water System for Hotels

Questionnaire to obtain information about the heat requirement and the combination of heat exchanger and hot water tank for a potable hot water system.

Company: _____ Date: _____

Please answer as much questions as possible. For unanswered questions we try to use realistic assumptions.

1.) **Pipework material:**

	galvanized	copper	stainless stell	plastic
cold water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
hot water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.) **Number of beds:** _____

3.) **Number of 1-bed-rooms:** _____, with a shower: _____, with a tub: _____
2-bed rooms: _____, with a shower: _____, with a tub: _____

4.) **Kind of Hotel:**

Garni** ☐ standard** ☐ improved standard*** ☐ first class**** ☐

5.) **Food offered:**

breakfast only / no breakfast _____

breakfast + restaurant _____

number of meals offered _____

6.) **Hotel own laundry requiring hot water?** yes ☐ no ☐

If so, no. of washing-mashines: _____

hot-water requirement for each operation _____ l/in _____ °C

no. of operations per hour and machine _____

Is soft hot water required?

If so, degree of hardness _____ °dH, _____ ppg/ppm

quantity required _____ m³/h

heat exchangers - hot water systems - district heating stations

7.) Primary energy:

gas-/oilfired boiler: number of capacity of min. flow how many boilers
boilers each boiler temperature of which capacity
 kW in summer are in use
 _____ °C ____/____ kW

district heating:

max. flow temperature in winter _____ °C
min. flow temperature in summer _____ °C
hot water quantity per MW _____ m³/h
primary return flow _____ °C
(at nominal rated power of the hot water system)

electric heating: _____ kW available 230 V 50 Hz* 400 V 3 ph*

8.) Max. operating pressuere: primary _____ bar
secondary _____ bar

9.) Head losses incl. regulation: primary _____ kPa
secondary _____ kPa

10.) For equipment transportation to the place of installation:

min. interior width of the door _____ mm
Overhead clearance of the room of _____ mm

11.) Other remarks:

*paint out not applicable details

heat exchangers - hot water systems - district heating stations

Hot Water System for Hospitals

Questionnaire to obtain information about the heat requirement and the combination of heat exchanger and hot water tank for a potable hot water system.

Company: _____ Date: _____

Project: _____

Please answer as much questions as possible. For unanswered questions we try to use realistic assumptions.

1.) Pipework material:	galvanized	copper	stainless stell	plastic
cold water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
hot water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.) Number of beds: _____

3.) Number of 1-bed-rooms: _____, with a wash basin: _____, with a shower: _____
 2-bed rooms: _____, with a wash basin: _____, with a shower: _____
 _-bed rooms: _____, with a wash basin: _____, with a shower: _____

4.) Therapy department:

_____tubs of _____ I used _____ - times for _____ hours a day

5.) How much water of which temperature °C will be used for the first filling of the tubs?

6.) Other potential facts for the hot-water requirement in the therapy department:

7.) Bathrooms for employees:

No. of bathrooms _____, with showers _____, with wash-basins _____

8.) Are nurse's living quarters available nearby, which will be supplied by the same hot water system? If yes, how many rooms/flats etc.?

heat exchangers - hot water systems - district heating stations

9.) What is the sanitary equipment like in the bathrooms?

10.) Is own laundry requiring hot water?

yes ☐

no ☐

If so, no. of washing.mashines:

hot-water requirement for each operation

_____ l/min _____ °C

no. of operations per hour and machine

Is soft hot water required?

If so, degree of hardness

_____ °dH, _____ gpg/ppm

quantity required

_____ m³/h

11.) Primary energy:

gas-/oilfired boiler:

number of
boilers

capacity of
each boiler
kW

min. flow
temperature
in summer
_____ °C

how many boilers
of which capacity
are in use
_____/____ kW

district heating:

max. flow temperature in winter

_____ °C

min. flow temperature in summer

_____ °C

hot water quantity per MW

_____ m³/h

primary return flow

(at nominal rated power of the hot water system)

_____ °C

electric heating:

_____ kW available

230 V 50 Hz* 400 V 3 ph*

12.) Max. operating pressuere:

primary

secondary

_____ bar

_____ bar

13.) Head losses incl. regulation:

primary

secondary

_____ kPa

_____ kPa

14.) For equipment transportation to the place of installation:

min. interior width of the door

_____ mm

Overhead clearance of the room of

_____ mm

15.) Other remarks:

*paint out not applicable details

heat exchangers - hot water systems - district heating stations

Hot Water System for Domestic Construction

Questionnaire to obtain information about the heat requirement and the combination of heat exchanger and hot water tank for a potable hot water system.

Company: _____ Date: _____

Project: _____

Please answer as much questions as possible. For unanswered questions we try to use realistic assumptions.

1.) New building ☐

2.) Refurbishing ☐

3.) Pipework material:

galvanized

copper

stainless stell

plastic

cold water

☐
☐
☐
☐

hot water

☐
☐
☐
☐

4.) Total number of flats: _____

of these:

1 - room _____

3 - rooms _____

1 ½ - rooms _____

3 ½ - rooms _____

2 - rooms _____

4 - rooms _____

2 ½ - rooms _____

__ - rooms _____

5.) Sanitary equipment of the flats:

No. of flats with complete bathrooms _____, complete tub and shower _____

No. of flats with shower bathrooms _____, other equipment _____

heat exchangers - hot water systems - district heating stations

6.) Primary energy:

gas-/oilfired boiler: number of capacity of min. flow how many boilers
boilers each boiler temperature of which capacity
 kW in summer are in use
 _____ °C ____/____ kW

district heating:

max. flow temperature in winter _____ °C
min. flow temperature in summer _____ °C
hot water quantity per MW _____ m³/h
primary return flow _____ °C
(at nominal rated power of the hot water system)

electric heating: _____ kW available 230 V 50 Hz* 400 V 3 ph*

7.) Max. operating pressuere: primary _____ bar
secondary _____ bar

8.) Head losses incl. regulation: primary _____ kPa
secondary _____ kPa

9.) For equipment transportation to the place of installation:

min. interior width of the door _____ mm
Overhead clearance of the room of _____ mm

10.) Other remarks:

*paint out not applicable details

heat exchangers - hot water systems - district heating stations

Hot Water System for old people residences

Questionnaire to obtain information about the heat requirement and the combination of heat exchanger and hot water tank for a potable hot water system.

Company: _____ Date: _____

Project: _____

Please answer as much questions as possible. For unanswered questions we try to use realistic assumptions.

1.) Pipework material:	galvanized	copper	stainless stell	plastic
cold water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
hot water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.) Number of beds: _____

3.) Number of 1-bed-rooms: _____, with a wash basin: _____, with a shower: _____
 2-bed rooms: _____, with a wash basin: _____, with a shower: _____

4.) Therapy department:

_____ tubs of _____ I used _____ - times for _____ hours a day

5.) Other potential facts for the hot-water requirement in the therapy department:

6.) Kitchen:

number of meals offered _____

7.) Other potential facts for the hot-water requirement in the kitchen:

8.) Bathrooms for employees:

No. of bathrooms _____, with showers _____, with wash-basins _____

heat exchangers - hot water systems - district heating stations

9.) Primary energy:

gas-/oilfired boiler:	number of boilers	capacity of each boiler kW	min. flow temperature in summer °C	how many boilers of which capacity are in use / kW

district heating:

max. flow temperature in winter °C

min. flow temperature in summer _____ °C

hot water quantity per MW m³/h

primary return flow _____ °C
(at nominal rated power of the hot water system)

electric heating: _____ kW available 230 V 50 Hz* 400 V 3 ph*

10.) Max. operating pressure:

primary	<u> </u>	bar
secondary	<u> </u>	bar

11.) Head losses incl. regulation: primary _____ kPa
secondary _____ kPa

12.) For equipment transportation to the place of installation:

min. interior width of the door _____ mm
Overhead clearance of the room of _____ mm

13.) Other remarks:

*paint out not applicable details

heat exchangers - hot water systems - district heating stations

Hot Water System for Bathrooms

Questionnaire to obtain information about the heat requirement and the combination of heat exchanger and hot water tank for a potable hot water system.

Company: _____ Date: _____

Project: _____

Please answer as much questions as possible. For unanswered questions we try to use realistic assumptions.

1.) Pipework material:	galvanized	copper	stainless stell	plastic
cold water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
hot water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.) Multi-station wash units / single wash basins:

Quantity of washbays _____, which are used within a washing period.

fittings:	mix fittings	yes <input type="checkbox"/>	no <input type="checkbox"/>
	with self acting time limiter	yes <input type="checkbox"/>	no <input type="checkbox"/>
	flow rate of fitting	_____ l/min	

3.) Multi-shower benches / single showers:

Quantity of shower _____

fittings:	mix fittings	yes <input type="checkbox"/>	no <input type="checkbox"/>
	with self acting time limiter	yes <input type="checkbox"/>	no <input type="checkbox"/>
	rose head flow rate	_____ l/min	

4.) How many persons will take showers to wash themselves?

a. industry	after shifts	_____
b. sports ground	after games	_____
c. camping ground	during the main time more than 1h	_____
d. swimming pools	during the main time more than 1h	_____

heat exchangers - hot water systems - district heating stations

5.) Primary energy:

gas-/oilfired boiler: number of capacity of min. flow how many boilers
boilers each boiler temperature of which capacity
_____ kW in summer are in use
_____ °C ____/____ kW

district heating:

max. flow temperature in winter _____ °C

min. flow temperature in summer _____ °C

hot water quantity per MW _____ m³/h

primary return flow _____ °C
(at nominal rated power of the hot water system)

electric heating: _____ kW available 230 V 50 Hz* 400 V 3 ph*

6.) Max. operating pressuere: primary _____ bar
secondary _____ bar

7.) Head losses incl. regulation: primary _____ kPa
secondary _____ kPa

8.) For equipment transportation to the place of installation:

min. interior width of the door _____ mm
Overhead clearance of the room of _____ mm

9.) Other remarks:

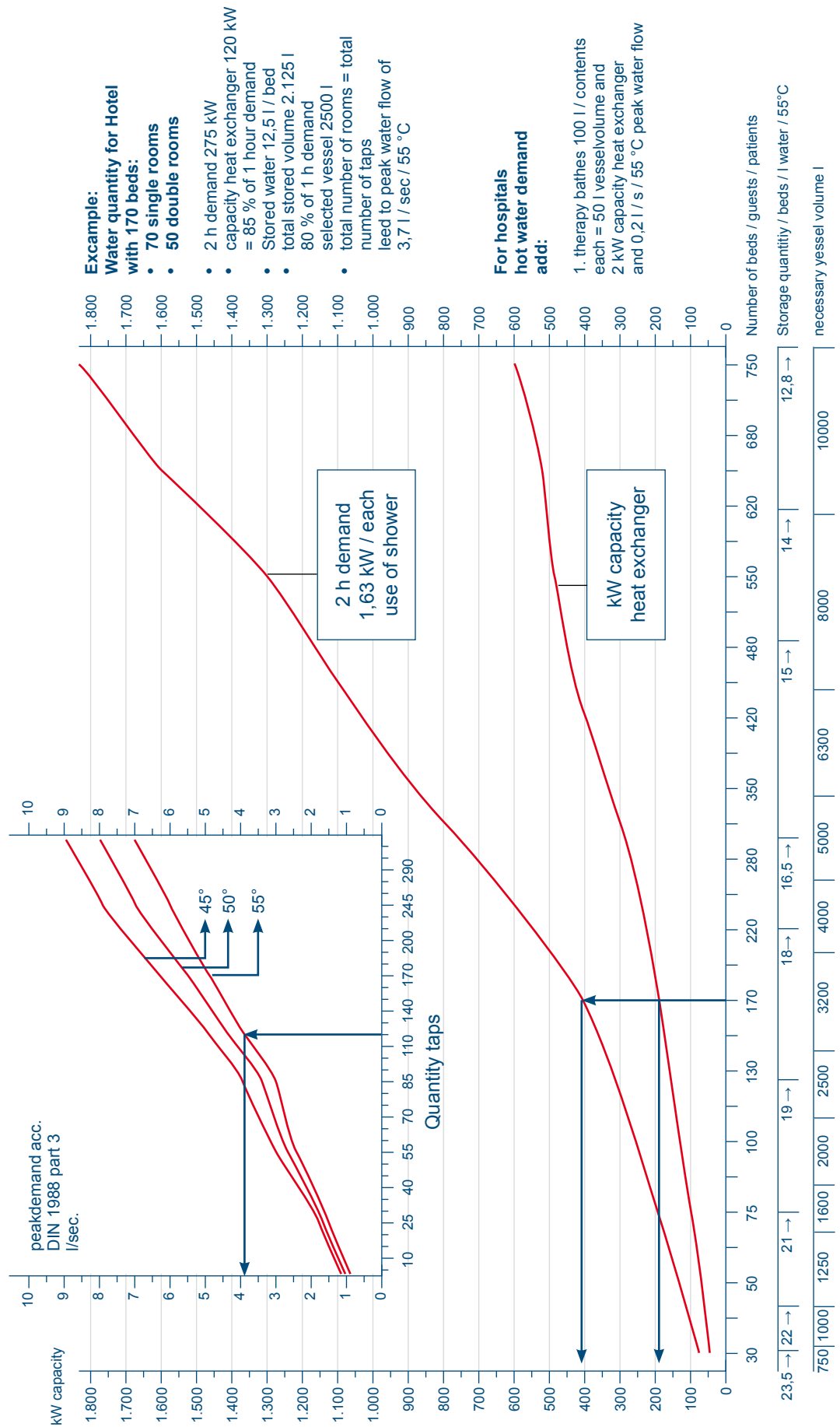
*paint out not applicable details

heat exchangers - hot water systems - district heating stations

Diagram to design hot-water-systems for Hotels / Hospitals / Old-People Homes

Conditions:

1. Morning shower- washperiod = 2 h
2. Sanitary equipment shower with thermostatic mixing armature
3. Quantity of hot-water within 2 h period (1.)
ca. 50 l / 45 °C = ca. 60 l / 39 °C

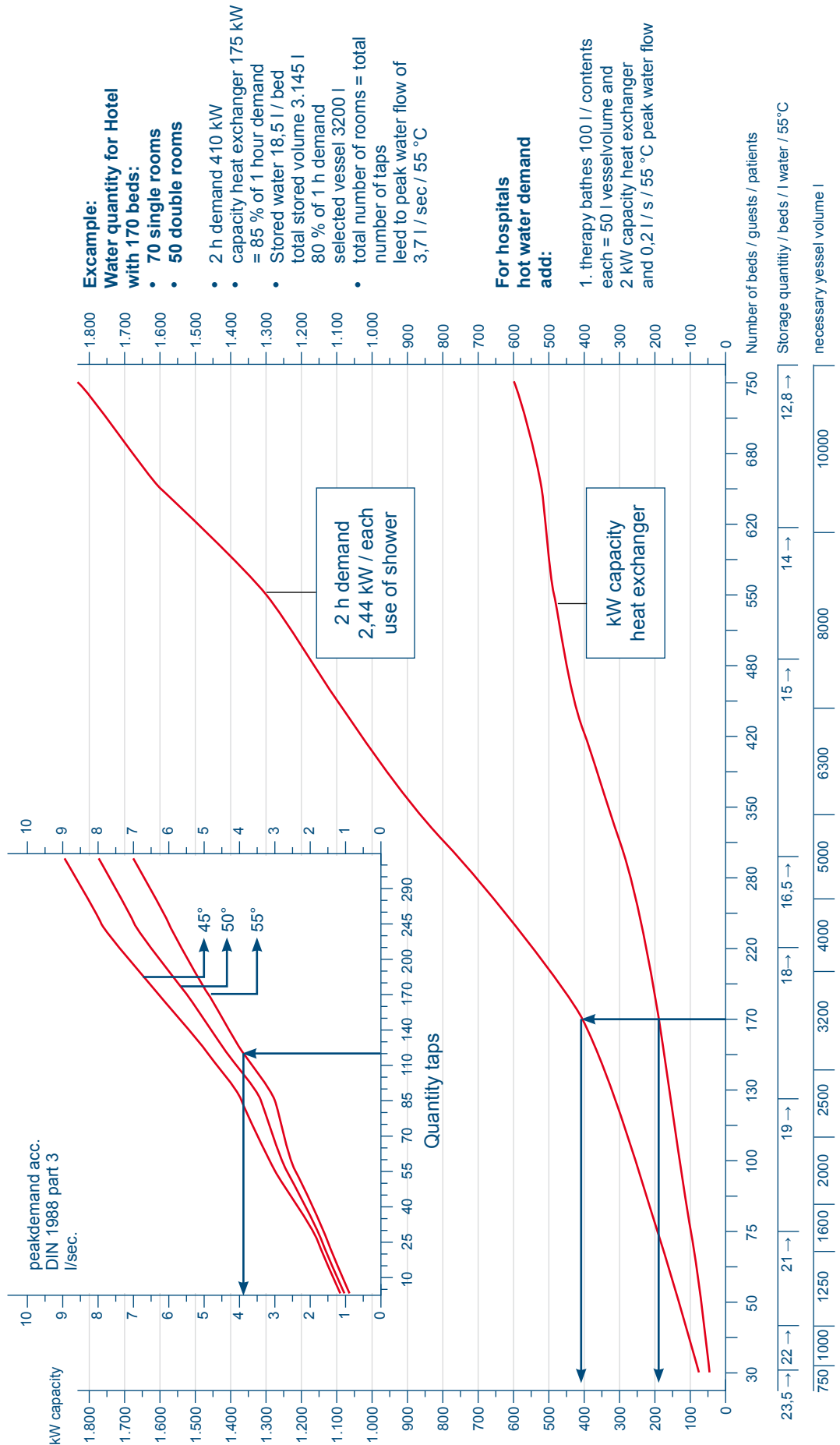


heat exchangers - hot water systems - district heating stations

Diagram to design hot-water-systems for Hotels / Hospitals / Old-People Homes

Conditions:

1. Morning bath-, shower- washperiod = 2 h
2. Sanitary equipment bath tub 150 l with handshower
3. Quantity of hot-water within 2 h period (1.)
ca. 75 l / 45 °C = ca. 90 l / 39 °C



heat exchangers - hot water systems - district heating stations

Selected Reference Projects of Hot Water Systems

Algeria	Forensic-Science-Institute
Austria	some hundred locations *
Germany	some thousand locations *
Hong Kong	Tuen Mun Swimming Pool Disneyland Hotel Development at Jervois Street Cheshire Home for elderly and div. others
Hungary	AUDI, Győr OTAN, Veszprem Some hundred locations *
Italy	some hundred locations *
Kuwait	Kuwait Airways Sharaton Hotel Center of research & studies
Luxembourg	some hundred locations *
Malaysia	Petaling Jaya
Mexico	Volkswagen factory
Poland	public Pool Wroclaw
Singapore	US-Naval Base Novena Hospital
South Africa	Volkswagen factory
South pole	German research location
Ukraine	Radison Hotel Kiev

* Systems for: Hotels, Hospitals, Old-people residences,
Barracs, Sport-facilities, Prisons, Industries,
Apartmenthouses etc.

heat exchangers - hot water systems - district heating stations

General Terms and Conditions of Contract

1.1 Deviating Conditions

We sell and deliver on the basis of the following conditions only. The application of deviating orderer's conditions of purchase, ordering and commissioning is excluded.

1.2 Scope of delivery and service

The scope of the delivery and services provided by the contractor shall be set forth in the hardware and software scope specified in the offer or order. Our deliveries and services shall not exceed the scope of the offer or order. Any services not stipulated shall not form part of the offer or our obligation to deliver. Our equipment prices shall apply for the specified model. Compliance with manufacturing requirements, factory norms, drawings on customer paper, special varnishing and other deviations from the DMS-DINOX delivery standard may give rise to additional costs that shall be invoiced separately upon filling of the order. Should it emerge during planning of the details or production of the equipment that it is necessary to deliver additional hardware or software, any associated additional expenses in this respect shall be separately invoiced.

The contractor may send an interim invoice for the additional expenses in accordance with the payment conditions of the principal order.

2. Transition of Risk

We have to fulfil our duty on site of our plant in Wismar or of our sales offices. The risk passes with the dispatch of the goods to the orderer. If the place of delivery is abroad, we bear the transportation and packaging costs up to the German border or, respectively, up to the seaport or airport (normal freight and customary packaging). Additional costs for express shipping or special packaging are charged extra.

3. Prices

All prices are net prices

4. Default

The delivery times start after complete technical clarification. In the case of technical amendments requested by the orderer after the order confirmation, the delivery times are extended accordingly. In the case of default,

the orderer can grant us an appropriate grace period with the express statement that acceptance of the delivery will be refused after the expiry of that period, and he can withdraw from the contract, if the new deadline is not met. If the orderer experiences damage due to our default, then our liability is limited to ½ % of the delivery value per week of default, however, not more than a maximum of 5 % of the order value. The limitation of liability does not apply in the case of gross negligence or intent from our side. If the non-compliance with the delivery time is due to Force Majeure, industrial disputes or other events that are outside of our influence, then the delivery time shall be extended accordingly. We will notify the orderer of the beginning and ending of such circumstances as soon as possible.

5. Payment

Following payment conditions are applied:

- 50 % of the order value following confirmation of the order
- 25 % of the order value after half of the delivery time
- 25 % of the order value after delivery or as offered

Should the purchaser default in payment, the payments shall accrue interest at a rate 8 % above the respective base interest rate for the term of the default. Additional damage may be asserted.

Cheques are accepted for processing only. Any costs connected with their clearing are to the account of the orderer. If the orderer does not comply with his payment obligations, in particular if cheques are not cleared, or if the orderer's financial standing declines significantly – in particular if he files for bankruptcy or composition with creditors, then we shall be entitled not to execute the delivery, until the orderer, at our discretion, provides us with a security or an advance payment for our claim from the contract. The orderer shall be entitled to set-off or retention only, if we have expressly agreed in writing, or if the counterclaims are undisputed or have been legally established.

heat exchangers - hot water systems - district heating stations

General Terms and Conditions of Contract

6. Intellectual Property Rights

The intellectual property rights in our offers, technical drawings, product information in our products shall remain our property whatever the case may be. Without our express consent, it is not allowed to copy them in whatever manner or to disclose them to third parties. The orderer is only entitled to use these internally within the limits of the contract.

7.1 Material Defects and Notice of Defects

If a product that we have delivered should show a material defect within two years from the date of delivery, then we will, at our discretion, either remove the defect or replace the product with a faultless one, provided that the cause of the material defect had been present already at the time of the transition on risk. If we choose to remove the defect (repair), then the orderer must give us the opportunity to remove the defect within a reasonable term, in mutual agreement. If the supplementary performance fails, then the orderer can, at his discretion, -regardless of possible damage claims - either withdraw from the contract, reduce the purchase price or demand the refund of his costs. This does not apply, if the law demands longer respites. The orderer must notify us in writing of any material defects within a term of two weeks after the delivery of the goods - in the case of hidden defects within two weeks after their discovery; otherwise, the enforcement of the liability for material defects shall be excluded. The orderer shall bear the full burden of proof with regard to any claim requirements, in particular with regard to the defect itself, for the time of the discovery of the defect and for the timeliness of the notice of defects. If a notice of defect is given without justification, then we shall be entitled to demand from the orderer to compensate us for our costs. Defect claims do not exist in the cases of only insignificant deviations from the agreed features, only insignificant impairment of usability, natural wear and tear, or damages that occur after the transition of risk due to wrong or negligent handling, immoderate use, inappropriate equipment, arbitrary amendments, or due to external influences, which are not in correspondence with the contract. If the orderer or third parties make any improper amendments or repairs, no liability claims may be raised for these works and their conse-

quences. Claims of the orderer with regard to necessary expenses for the purpose of supplementary performance, in particular transport travel, labour and material costs, shall be excluded, if such expenses increase due to the fact that the subject of the delivery is brought to another location than the orderer's place of business.

As for the rest, clause 9 below shall apply for any damage claims. Any further claims of the orderer, or claims other than specified in this clause 8, for material defects raised against us or our vicarious agents shall be excluded.

7.2 Additionally purchased third party equipment

The warranty for third party equipment shall be 12 months from acceptance, and a maximum, however, of 18 months following delivery. The warranty for third party equipment shall be restricted to DMS-DINOX warranty claim vis-à-vis its own sub-supplier.

7.3 Licensed software

The warranty shall be based on the terms and conditions of the software license agreement.

7.4 Services and individual software

The warranty for services and individual software shall be 12 months from acceptance, and a maximum, however, of 18 months following delivery. The purchaser is aware that based on current state-of-the-art technology it may be guaranteed that software is free and clear of errors only to the extent that the software functions were tested in accordance with an agreed test specification.

8.5 Warranty for deliveries abroad

The user agrees to send defective equipment free of charge to DMS-DINOX with a description of the error. Repairs shall be carried out free of charge for the user, or DMS-DINOX shall, at its discretion, deliver substitute equipment free of charge. Transport back to the user shall be free of charge until the German border. Should guarantee work by DMS-DINOX employees be necessary abroad, DMS-DINOX shall assume the personnel costs and travel costs until the German border. Any and all additional expenses (overnight accommodation costs, travel costs, expenses, etc.) shall be borne by the purchaser.

General Terms and Conditions of Contract

9. Provision

The ordering party shall be responsible for timely and proper provision (material, personnel, etc.). The ordering party shall be liable for the quality and suitability of the provided material and shall bear the risk associated therewith. We shall not be liable for any defective work on the part of personnel provided.

10. Liability

Damage claims and claims for the refund of expenses raised by the orderer – for whatever legal reason, in particular for a violation of duties from the obligation and for tortious act, shall be excluded. This does not apply, if there is a compulsory liability, e.g. pursuant to the Product Liability Act, in cases of intention, gross negligence, injury to life, body or health, or violation of significant contractual duties. However, the damage claim for the violation of significant contractual duties shall be limited to the foreseeable damage typical for such contracts. The replacement of pecuniary losses, lost profit and the costs of interruption of operation are excluded.

Damages caused by improper handling or measures contrary to the contract, e.g. related to transport, setup, connections, operation or storage, do not constitute grounds for any claims against us. The impropriety or contrariness to the contract is defined in particular according to the details given in our data sheets as well as in our installation and operation manuals.

11. Data Protection

We point to the fact that the customer data collected in connection with the fulfilment of the contract are processed in accordance with the legal privacy regulations. The data are used for the intended purpose only and are not made available to unauthorised third parties. However, for rendering the services in accordance with the purpose, we reserve the right to have data processed by other partner companies, who have been carefully selected and given an assignment pursuant to Art.11 BDSG.

12. Export provisions

The products may be subject to European, German and/or US export provisions. Any export requiring authorisation shall require the consent of the authorities. In addition, a duty to acquire authorisation for export may arise due to the purpose and final location of the products. The purchaser shall review the relevant export provisions.

13. Partial Validity

The legal invalidity of individual provisions shall not affect the validity of the remaining provisions.