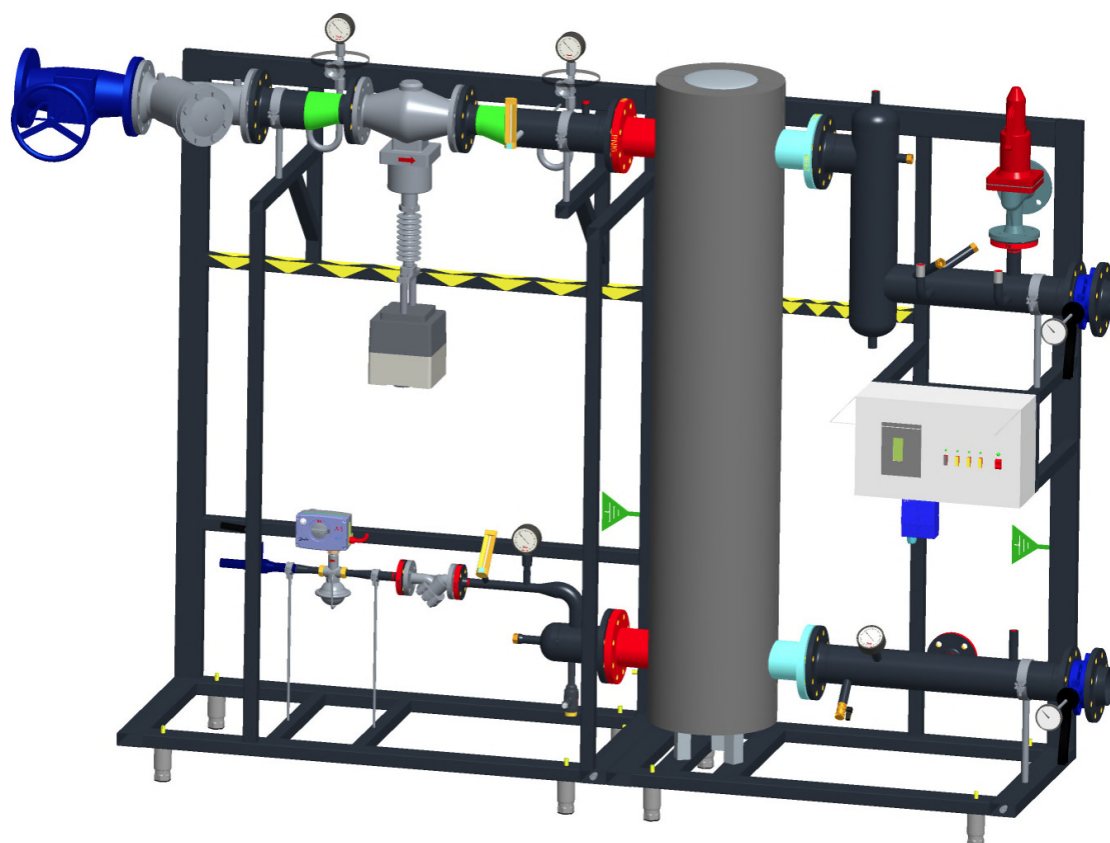




Substations

DSS1 MAXI

Description

District heating transfer stations provide the link between district heating suppliers and customers' systems. They incorporate the necessary equipment to tailor the supplied heat to the needs of the object premises as specified in the heating supply contract. In this they need to comply with all applicable standards and with the supplier's technical connection conditions. Indirect connections (in which district heating and in-house systems are hydraulically isolated) incorporate components to separate the systems (heat exchanger), to limit the flow volume to that specified in the contract, regulate the secondary supply temperature and measure the energy consumption. The system described here is a standard type where primary medium is steam. On secondary heating circuits or modules can be connected optional.

Features & Benefits

- Steam-based indirect district heating substation
- Tube & Shell Heat Exchanger (HEX)
- Integrated control valves
- Optional vacuum breaker
- Custom-engineered substation
- Precise temperature control
- Operational safety
- Ease of installation

Ordering

Product code numbers

Type: DSS1 IT xxx-xxx-0000-MD ->			040-040	050-050	065-065	080-080	100-100	125-125
SAP Code ->			148L2285	148L2286	148L2287	148L2288	148L2289	148L2290
MZP [kg/h] max. ~			150	225	450	600	1200	1650
VZS [m ³ /h] dT 20K			4300,0	6450	12900	17200	34400	47300,0
DN size steam			DN 40	DN 50	DN 65	DN 80	DN 100	DN 125
DN size condensate			DN 20	DN 20	DN 20	DN 20	DN 20	DN 20
DN size secondary			DN 40	DN 50	DN 65	DN 80	DN 100	DN 125
Type	Producer	capacity ca. ->	100 kW	150 kW	300 kW	400 kW	800 kW	1100 kW
Motorized valve	DANFOSS	VFGS2 PN16	32 / KVS16	32 / KVS16	50 / KVS32	65 / KVS50	80 / KVS80	100 / KVS125
Combi valve	DANFOSS	AVQM PN16	15 / 1,0	15 / 1,0	15 / 1,6	15 / 1,6	15 / 2,5	15 / 4,0
Heat exchanger	SECESPOL	SHR-VAS X	2.11	3.18	5.38	6.50	9.88	12.114
		DN size	DN 40	DN 50	DN 65	DN 80	DN 100	DN 100
Safety valve	GÖTZE/ARI	851H4/12903	½"	¾"	1"	1"	32 / 50	40 / 65

Accessories code numbers

Depending on the requirements / regulations or norms, additional components (in particular safety elements) can be required:

Code	Construction type	Producer	Type (Detail)
004F3100	Vacuumbreaker (optional on request)	SPIRAX	VB 21
004F1710	Safety thermostat STL (optional if requested)	JUMO	AT 70
017B0038	Pressure transmitter max. (optional if requested)	DANFOSS	BCP3H PRESSOSTAT
017B0062	Pressure transmitter min. (optional if requested)	DANFOSS	BCP3L PRESSOSTAT

See local norms and requirements

Functions

Operation

Steam substations provides special kind of indirect systems. Mainly steam is existing, if due to industrial processes of this must be generated and can also be used for heating.

Here, the most common application of the condensing control is shown. The main part of these systems is a standing Tube&Shell heat exchanger (HEX). The steam is here placed inside the tube of the device. Via control valve (24/25) on the condensing side of the system is the necessary secondary supply temperature (S3) is adjusted according to demand. On the steam side there is an integrated control valve (20/21) which in accordance with the statutory regulations is aware of the beyond the acceptable parameters on the secondary side. For this are DIN-security proven thermostats (560/565) and, if necessary, safety pressostate (570/571) placed on secondary circuit. The use of depend on the present parameters of the system and can be adjusted individually as an option.

An optional selectable vacuum breaker (50) ensures that after switch off, for example, the system (steam safety control valve 20/21 and condensing control valve 24/25 closed) can give rise to no operation of the heat exchanger Depending on the state is via the condensing control valve in tube of the heat exchanger precisely control the secondary supply temperature is possible.

Secondary additional heating modules can be connected. This can be adapted to the application of the electronic controller, if necessary.

Steam substations are always individually planned and explaining systems, where a high level of the accuracy already in designing is required.

With questions to design and individual adaptation to the conditions, please contact our sales engineers or the technical support.

Maximum operating parameters

Primary		
Maximum permissible supply temperature, primary	TVP	200°C
Maximum permissible operating pressure, primary	PZP	12,4 bar(g)
Rated pressure, primary	PN	16
Maximum permissible pressure differential, primary	DPP	10 bar
Maximum permissible mass volume, primary	MZP	2.200 kg/h
Secondary		
Maximum permissible supply temperature, secondary	TVS	110°C
Maximum permissible operating pressure, secondary	PZS	10 bar or pending from safety valve
Rated pressure, secondary	PN	10
Maximum permissible flow volume, secondary	VZS	73 m ³ /h bei w ≤ 1,5 m/s

Regulator (Electronic controller):

Depending on the requirements/applications various application keys can be used. This is depending from secondary module which can be connected in addition. Base version will be delivered with A337.

See Data Sheet ECL 310

Product details

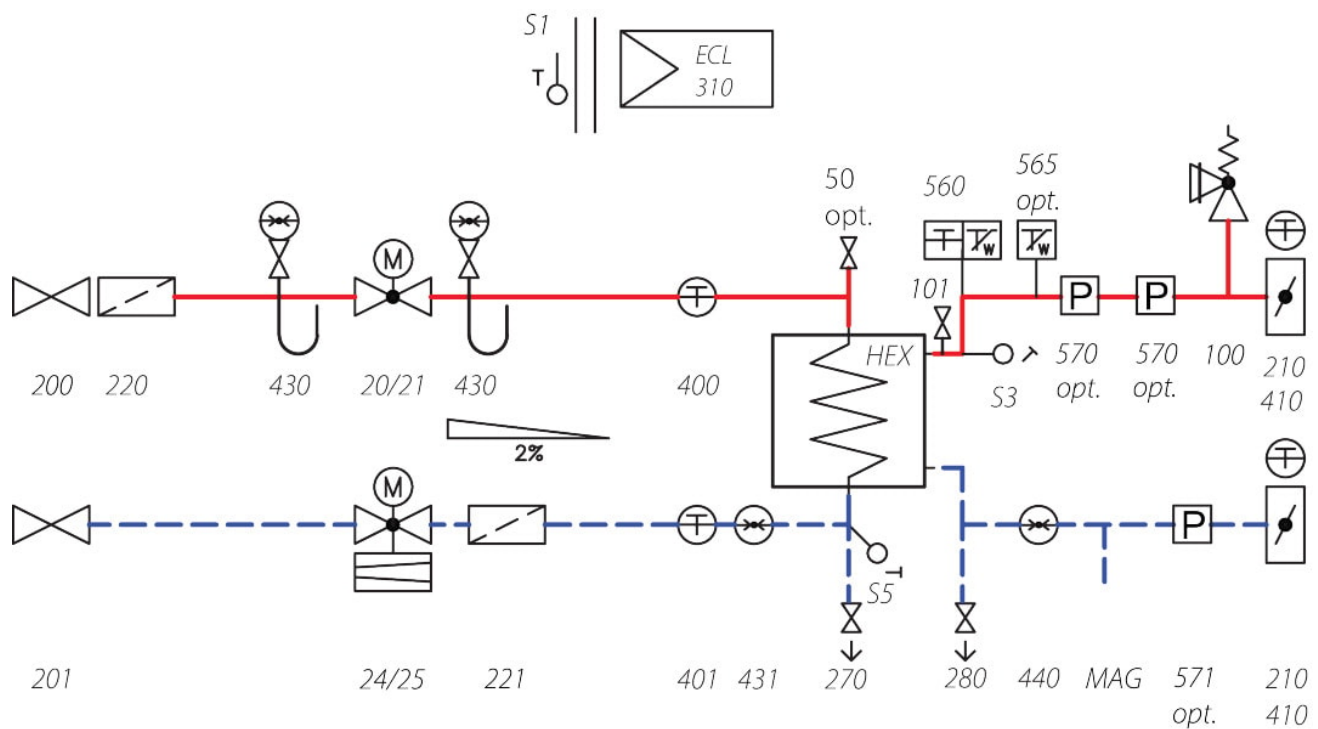
General data

Types / designation

DSS1	IT	040	040	0000	MD
Base Type	Indirect	DN size	DN size	no	Metal
Danfoss	1 Heat	primary	secondary	additional	sheet
Station	exchanger	(steam)		connections	box
Steam	(Tube&Shell)			(Primary/ Secondary)	Danfoss ECL-Controller

Design

Circuit diagram



20	Bellows shut-off valve
201	Shut-off valve
220	Dirt trap / Strainer
221	Dirt trap / Strainer (fine screen)
101	Air separator
20	Motorized control valve
21	Electrical actuator
24	Combi (control) valve
25	Electrical actuator
400	Industrial thermometer
401	Industrial thermometer
430	Manometer with shut-off valve
431	Manometer
50	Vacumbreaker (optional)
HEX	Tube & Shell heat exchanger

270	Drain valve
280	Drain valve
560	Safety double thermostat TC/STM
565	Safety thermostat STL (optional)
570	Pressure transmitter max. (optional)
100	Safety valve
440	Manometer
MAG	Pressure retention connector
571	Pressure transmitter min. (optional)
210	Butterfly valve
410	Integrated bimetal thermometer
S1	Outdoor temperature sensor (loose)
S3	Supply temperature sensor
S5	Return temperature limiter (sensor)
ECL310	Electronic regulator

List of components

No.	Construction type	Producer	Type (detail)
200	Bellows shut-off valve	ARI	FABA 12.046
220	Dirt trap / Strainer	DANFOSS	FVF
101	Air separator	DANFOSS	SST PN25
20	Motorized(safety shut-off) control valve	DANFOSS	VFGS2 PN16
21	Electrical actuator with certified safety function	DANFOSS	AME 659 SD
400	Industrial thermometer	SIKA	NG150 200°C
432	Manometer shut off valve & siphon	DANFOSS	JIP-WE
50	Vacuumbreaker (optional)	SPIRAX	VB 21
201	Shut-off valve	DANFOSS	JIP-WW
221	Dirt trap / Strainer (fine screen)	DANFOSS	FVF
24	Combi(control)valve (incl. Flow limiter)	DANFOSS	AVQM PN16
25	Electrical actuator with stroke limitation	DANFOSS	AMV 20 SL
401	Industrial thermometer	SIKA	NG150 120°C
431	Manometer	DANFOSS	NG80/16BAR/KL 1.0
270	Drain valve	DANFOSS	JIP-WE
HEX	Tube & Shell heat exchanger	SECESPOL	SHR-VAS X
280	Drain valve	OVENTROP	OPTIFLEX
560	Safety double thermostat TC/STM	JUMO	AT 220
565	Safety thermostat STL (optional)	JUMO	AT 70
570	Pressure transmitter max. (optional)	DANFOSS	BCP3H PRESSOSTAT
100	Safety valve	GÖTZE/ARI	851BHK/12.903 pab = 5 bar(g)
440	Manometer	DANFOSS	NG80/6BAR/KL 1.0
MAG	Pressure retention connector	DANFOSS	R thread
571	Pressure transmitter min. (optional)	DANFOSS	BCP3L PRESSOSTAT
210	Butterfly valve	ARI	ZESA 22.012
410	Integrated bimetal thermometer	ARI	Thea D80/120°C/KL1.0
S1	Outdoor temperature sensor (loose)	DANFOSS	ESMT
S3	Supply temperature sensor	DANFOSS	ESMB-12
S5	Return temperature limiter (sensor)	THERMOKON	SFK02
ECL310	Electronic regulator	DANFOSS	ECL310

Materials

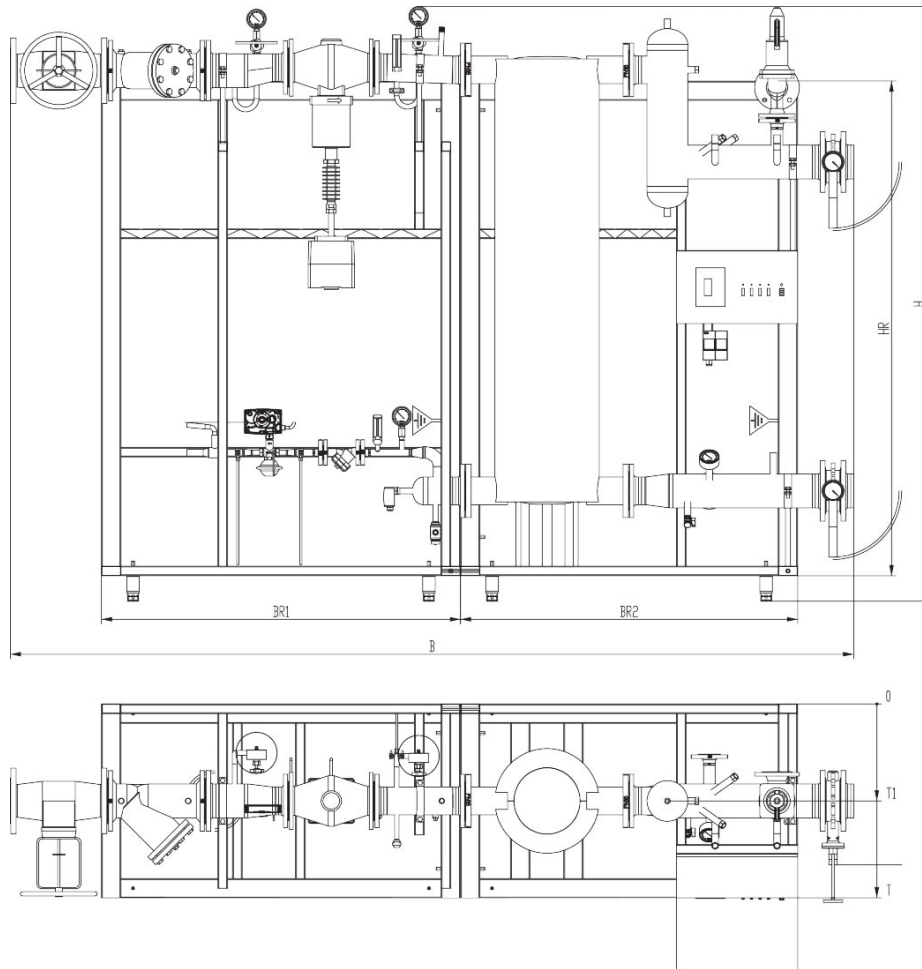
Pipes and pipe fittings, flanges, moulded parts, sleeve nuts	1.0352, P235GH-TC1, CC491K (RG-5)
Heat exchanger	1.0038 / 1.4301 / 1.4307 / 1.4541
Fittings	0.6025 (GG25), 0.7043 (GGG-40.3), CC491K (RG-5)
Insulation (heat exchanger)	Mineral fiber mats/sheet metal coated RAL5000
Insulation (secondary)	EPP/PUR Insulation

Capacity

Capacities are average values for temperatures of saturated steam between 120 ... 150°C (~1-4 bar(g)) and secondary temperature differences of $\Delta T_K = 20K$. Depending on overheating and secondary temperature difference checking/recalculating of heat exchanger with respect to the suitability or the permissible velocities and performance is required.

Please contact your local sales responsible or technical support in headquarters.

Dimensions & weights



Type / Designation	Code	B [mm]	BR1 [mm]	BR2 [mm]	H [mm]	HR [mm]	T [mm]	T1 [mm]	Weight net [kg]
DSS1 IT 040-040-0000-MD	148L2285	2238	-	-	2088	1750	570	330	220
DSS1 IT 050-050-0000-MD	148L2286	2386	-	-	2122	1790	600	370	270
DSS1 IT 065-065-0000-MD	148L2287	2743	1325	1000	2156	1820	600	370	340
DSS1 IT 080-080-0000-MD	148L2288	2957	1300	1130	2204	1865	660	370	400
DSS1 IT 100-100-0000-MD	148L2289	3306	1480	1240	2261	1940	700	440	500
DSS1 IT 125-125-0000-MD	148L2290	3477	1480	1390	2453	2040	800	400	660

Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
EU Declaration	Danfoss EU PL32DOC000002en-000004.04	Danfoss	EU RoHS
Declaration of Incorporation	Danfoss DOI PL32DOI000001en-000001.01	Danfoss	MD

Contact details

Online support

Danfoss offers a wide range of support along with our products, including digital information, software, mobile apps and expert guidance. See the possibilities below.



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