



Substations

DSP 1 MAXI

Standard Welded Stations

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.

Applications

The system described here is a standard type in which one different types of applications can be connected on the secondary. Thus, this system is especially suitable for biomass applications.

Ordering

Product code numbers

codes	type	pump module DSL		BFLV	
		codes	description	codes	description
861L0880	DSP1 MAXI PD-01 LT I260	861L1396 / 861L1397	DSL 25-120F MG1 / DSL 25-120F MG3	861L1402	BFLV + thermometer in dim DN32 *
861L0884	DSP1 MAXI PD-01 HT I260				
861L0888	DSP1 MAXI PD-01 LT S035				
861L0892	DSP1 MAXI PD-01 HT S035				
861L0898	DSP1 MAXI-NA-01 HT I260				
861L0894	DSP1 MAXI-NA-01 LT I260				
861L0881	DSP1 MAXI PD-02 LT I260				
861L0885	DSP1 MAXI PD-02 HT I260				
861L0889	DSP1 MAXI PD-02 LT S035				
861L0893	DSP1 MAXI PD-02 HT S035				
861L0899	DSP1 MAXI-NA-02 HT I260				
861L0895	DSP1 MAXI-NA-02 LT I260				
861L0882	DSP1 MAXI PD-11 LT I260	861L1398 / 861L1399	DSL 32-120F MG1 / DSL32-120F MG3	861L1403	BFLV + thermometer in dim DN40 *
861L0886	DSP1 MAXI PD-11 HT I260				
861L0890	DSP1 MAXI PD-11 LT S060				
861L0904	DSP1 MAXI PD-11 HT S060				
861L0896	DSP1 MAXI-NA-11 LT I260				
861L0900	DSP1 MAXI-NA-11 HT I260				
861L0883	DSP1 MAXI PD-12 LT I260	861L1400 / 861L1401	DSL 40-120F MG1 / DSL 40-120F MG3	861L1404	BFLV + thermometer in dim DN50 **
861L0887	DSP1 MAXI PD-12 HT I260				
861L0891	DSP1 MAXI PD-12 LT S060				
861L0905	DSP1 MAXI PD-12 HT S060				
861L0897	DSP1 MAXI-NA-12 LT I260				
861L0901	DSP1 MAXI-NA-12 HT I260				

004F4855	DSP1 MAXI-NA-21 LT I300	004F5908 / 144G4157	DSL 50-120F MG3 / DSL 50-120F MG1	004F4859	BFLV + thermometer in dim DN65 **
004F5721	DSP1 MAXI-NA-21 HT I300				
004F4837	DSP 1 MAXI-PD-21 HT I300				
004F4831	DSP 1 MAXI-PD-21 LT I300				
146B5882	DSP1 MAXI PD-21 LT S100				
146B5888	DSP1 MAXI PD-21 HT S100				
004F4903	DSP1 MAXI-NA-22 LT I300				
004F5722	DSP1 MAXI-NA-22 HT I300				
004F4838	DSP 1 MAXI-PD-22 HT I300				
004F4832	DSP 1 MAXI-PD-22 LT I300				
146B5883	DSP1 MAXI PD-22 LT S100				
146B5889	DSP1 MAXI PD-22 HT S100				
004F4910	DSP1 MAXI-NA-31 LT I300				
004F5723	DSP1 MAXI-NA-31 HT I300				
004F4839	DSP 1 MAXI-PD-31 HT I300				
004F4833	DSP 1 MAXI-PD-31 LT I300				
146B5884	DSP1 MAXI PD-31 LT S100				
146B5890	DSP1 MAXI PD-31 HT S100				
004F4917	DSP1 MAXI-NA-32 LT I300	004F5909 / 144G4158	DSL 50-150F MG3 / DSL 50-150F MG1		
004F5724	DSP1 MAXI-NA-32 HT I300				
004F4840	DSP1 MAXI-PD-32 HT I300				
004F4834	DSP1 MAXI-PD-32 LT I300				
146B5891	DSP1 MAXI PD-32 HT S100				
146B5885	DSP1 MAXI PD-32 LT S100				

* Ball valve

** Butterfly valve

Functions

Hot water drawn from the pipeline of the local or district heating supply company is fed into the station at an appropriate temperature and pressure, which may be higher in winter than in summer.

In the primary supply line this hot water will flow through a shut-off valve and a dirt trap / strainer. The supply and return lines will incorporate a thermometer and a manometer to register the temperature and pressure.

There will also be regulatory equipment in the return lines of the primary as specified by the circuit design.

The cooled heating water then flows back to the local or district heating supply company via the primary return pipe.

On secondary side different types of applications and systems can be connected.

Product details

General data

Technical data

type no.	VPP max. [m³/h]	DN pri.	QP [m³/h]	AVQM Kvs [m³/h]	HEX type	VPS max. [m³/h]	DN sec.	max. dpp * [kPa]	max. dpp ** [kPa]	max. dps *** [kPa]	DSL type
01	3	25	3	6,3	XB12 H 90	4,5	32	51	60	19	DSL 25-120F MG1
01	3	25	3	6,3	XB12 H 90	4,5	32	51	60	19	DSL 32-120F MG3
02	3,5	32	3,5	8	XB12 M 110	6,2	32	54	59	21	DSL 25-120F MG1
02	3,5	32	3,5	8	XB12 M 110	6,2	32	54	59	21	DSL 32-120F MG3
11	6	32	6	12,5	XB52 M 50	7,1	40	69	81	19	DSL 32-120F MG1
11	6	32	6	12,5	XB52 M 50	7,1	40	69	81	19	DSL 32-120F MG3
12	6	32	6	12,5	XB52 M 70	11,5	50	65	79	23	DSL 40-120F MG1
12	6	32	6	12,5	XB52 M 70	11,5	50	65	79	23	DSL 40-120F MG3
21	8,2	40	10	16	XB59 M 80	11,5	65	64	70	20	DSL 50-120F MG1
21	8,2	40	10	16	XB59 M 80	11,5	65	64	70	20	DSL 50-120F MG3
22	8,2	40	10	16	XB59 M 110	15,8	65	63	69	22	DSL 50-120F MG1
22	8,2	40	10	16	XB59 M 110	15,8	65	63	69	22	DSL 50-120F MG3
31	10	50	10	20	XB59 M 110	15,8	65	57	66	21	DSL 50-150F MG1
31	10	50	10	20	XB59 M 110	15,8	65	57	66	21	DSL 50-150F MG3
32	10	50	10	20	XB59 M 140	19,3	65	61	72	23	DSL 50-150F MG1
32	10	50	10	20	XB59 M 140	19,3	65	61	72	23	DSL 50-150F MG3

* without heatmeter (HM) / include insert

** include heatmeter (HM) SonoMeter 40

*** inside the Station

Type designation

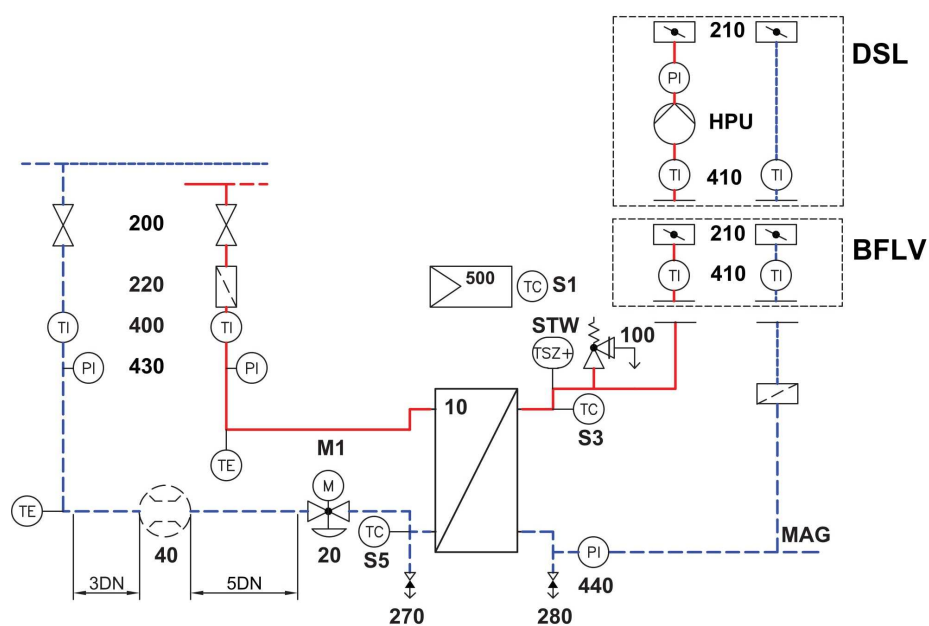
type DSP 1 MAXI:	PD	32	HT	S100
Base type	P=Electrical box Controller Danfoss	Type No.	LT: Variant PN16/100°C	Lenght of insert for HM or HM SonoMeter 40 QP ..
	D = ECL310 NA = not available		HT: Variant PN25/140°C	S035 = SonoMeter 40 QP 3,5 230V S060 = SonoMeter 40 QP 6,0 230V S100 = SonoMeter 40 QP 10,0 230V I260 = Insert 260 mm I300 = Insert 300 mm

Type designation for pump module

DSL	40-120 F	MG1
Pump module	Pump characteristics	Pump model MG1 = MAGNA 1 MG3 = MAGNA 3

Design

Circuit diagram



200	Shut-off device for primary (left/right conn.)	MAG	Pressure retention connector
220	Dirt trap / strainer	280	Drain valve
430	Manometer	440	Manometer
400	Thermometer	230	Dirt trap / strainer
40	Insert or Heatmeter	500	Electronic controller
20	Motorized Combi (Control) valve	S1	Outdoor sensor
M1	Electrical actuator	DSL	Pump group - optional
S5	Return temperature limiter primary	HPU	Heating pump
270	High-pressure drain valve	210	Shut-off device secondary
10	Heat exchanger	BFLV	Shut-off valve set - optional
100	Safety valve	210	Shut-off device secondary
S3	Supply temperature sensor secondary	410	Thermometer
STW	Safety thermostat (optional for HT)		

Materials

Pipes and pipe fittings, flanges	P235GH-TC1, C22.8, CuSn5Pb5Zn5-C (RG-5)
Heat exchanger	1.4404 with CU brazing compound
Fittings	CuSn5Pb5Zn5-C (RG-5), ST37.0, EN-GJS-400-18-LT (GGG40.3)
Insulation	PU-Hardfoam, black, $\lambda = 0,027 \text{ W/mK}$

Capacity

Capacity range Temperature programs (HT)

Temperatures primary/secondary	Capacity [kW]											
	100	125	150	175	200	250	300	350	400	450	500	550
130->60/80<-55°C	M	01	02	02	11	12	12	12	22	22	32	32
120->50/70<-45°C	M	01	02	02	11	12	12	22	22	22	32	32
110->50/90<-45°C	M	01	01	02	02	02	11	11	21	21	21	21
110->55/70<-50°C	M	02	11	12	12	12	22	22	32	-	-	-
110->50/70<-45°C	M	01	02	02	11	12	12	22	22	22	32	32

Please be aware, that in case of high differential temperature primary heatmeters or inserts for can be oversized!

M = Please choose for these capacity standard station type **DSA1 MINI** - = Use impossible

Capacity range Temperature programs (LT)

Temp. prim./sec.	Capacity [kW]											
	75	100	125	150	175	200	250	300	350	400	450	500
95->65/85<-60°C	M	01	02	11	11	11	21	21	31	32	-	-
95->65/80<-55°C	M	01	02	02	11	11	21	21	22	31	32	-
95->60/75<-55°C	M	01	02	11	12	12	12	22	22	32	-	-
95->60/80<-57°C	M	01	02	02	11	12	12	21	22	31	32	-
95->60/80<-55°C	M	01	01	02	11	11	12	21	22	31	32	-
95->55/75<-50°C	M	01	01	02	11	11	12	12	22	22	32	32
95->55/75<-52°C	M	01	02	02	11	12	12	12	22	22	32	32
90->60/70<-50°C	M	01	02	11	12	12	21	22	32	32	-	-
90->60/75<-50°C	M	01	02	02	11	11	21	21	22	31	32	-
90->60/75<-55°C	M	01	02	11	12	12	21	22	31	32	-	-
90->60/80<-55°C	M	01	02	11	11	11	21	21	31	32	-	-
90->50/70<-47°C	M	01	02	02	11	12	12	12	22	22	32	32
90->50/75<-45°C	M	01	01	02	11	11	12	12	22	22	32	32
85->55/70<-50°C	M	01	02	11	12	12	21	22	31	32	-	-
80->55/70<-50°C	M	02	02	11	12	21	21	31	32	-	-	-
80->50/65<-45°C	M	01	02	11	12	12	21	22	31	32	-	-
75->55/70<-50°C	02	11	11	12	21	21	31	-	-	-	-	-

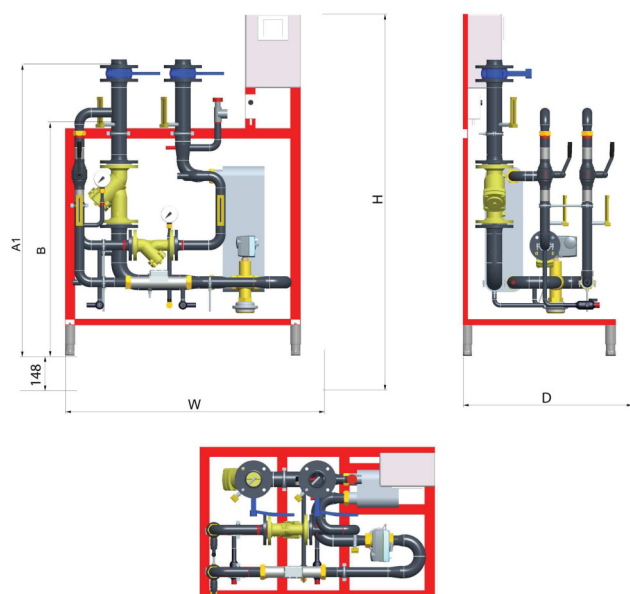
M = Please choose for these capacity standard station type **DSA 1 MINI** - = Use impossible

Pressure and temperature data

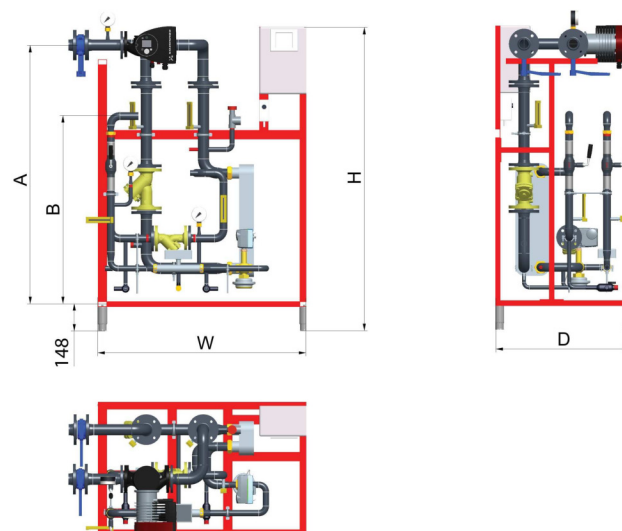
Primary		
Maximum permissible supply temperature, primary	TVP	100°C (PN16=LT) / 140 °C (PN25 = HT)
Maximum permissible operating pressure, primary	PZP	16 bar(g) = LT / optional 25 bar(g) = HT
Rated pressure, primary	PN	16 = LT / optional 25 = HT
Maximum permissible pressure differential, primary	DPP	12 bar (PN16=LT) / 16 bar (PN25=HT)
Maximum permissible flow volume, primary	VZP	10,0 m3/h for w <= 1,5 m/s
Secondary		
Maximum permissible supply temperature, secondary	TVS	100 °C
Maximum permissible operating pressure, secondary	PZS	3 bar(g)
Rated pressure, secondary	PN	10
Maximum permissible flow volume, secondary	VZS	19,5 m3/h for w <= 1,5 m/s

Dimensions

dimensions with BFLV



dimensions with DSL



type no.	DSL type	D [mm]	W [mm]	H [mm]	A [mm] with DSL	A1 [mm] with BFLV	B [mm]	mass with DSL [kg]	mass with BFLV [kg]
01	DSL 25-120F MG1	750	1150	1670	1409	1190	1038	131	104
01	DSL 25-120F MG3	750	1150	1670	1409	1190	1038	131	104
02	DSL 25-120F MG1	750	1150	1670	1409	1190	1038	136	107
02	DSL 25-120F MG3	750	1150	1670	1409	1190	1038	136	107
11	DSL 32-120F MG1	750	1150	1670	1409	1190	1038	144	114
11	DSL 32-120F MG3	750	1150	1670	1409	1190	1038	144	114
12	DSL 40-120F MG1	750	1150	1670	1409	1190	1038	153	123
12	DSL 40-120F MG3	750	1150	1670	1409	1190	1038	153	123
21	DSL 50-120F MG1	750	1150	1670	1423	1297	1038	166	133
21	DSL 50-120F MG3	750	1150	1670	1423	1297	1038	166	133
22	DSL 50-120F MG1	750	1150	1670	1443	1297	1038	175	142
22	DSL 50-120F MG3	750	1150	1670	1423	1297	1038	175	142
31	DSL 50-120F MG1	750	1150	1670	1443	1297	1038	175	149
31	DSL 50-120F MG3	750	1150	1670	1443	1297	1038	175	149
32	DSL 50-150F MG1	750	1150	1670	1423	1297	1038	195	158
32	DSL 50-150F MG3	750	1150	1670	1423	1297	1038	195	158

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	LVD, EU RoHS, MD, EMC, RED, PED, Pressure
Declaration of Incorporation	Danfoss DOI PL32DOI000001en-000001.01	Danfoss	MD
Export Control Declaration	Sub stations and DHW systems	Danfoss	

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