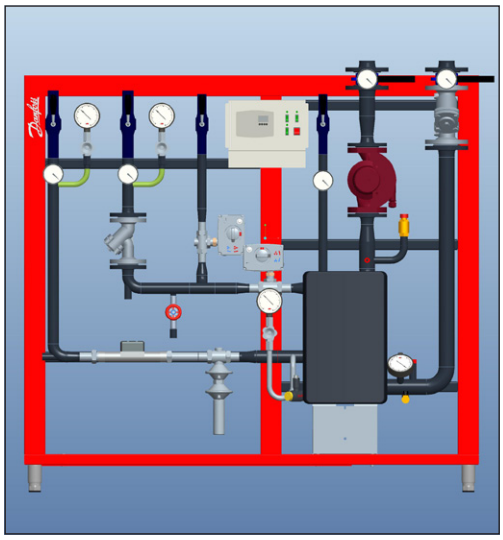
Data sheet

Welded District Heating Stations

Type DSE-I1B (one secondary circuit, DHW on primary)

General description and application



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.

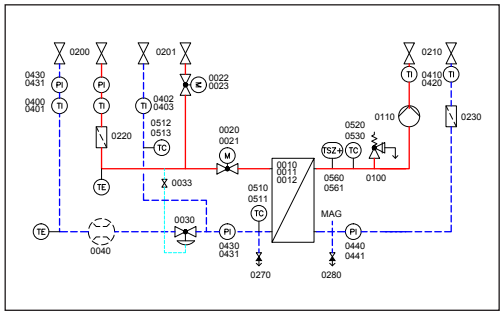
Indirect connections (in which district heating and in-house systems are hydraulically isolated) incorporate components to separate the systems (heat exchanger), to limit the flow volume to that specified in the contract, regulate the secondary supply temperature and measure the energy consumption.

The system described here is a standard type in which the secondary incorporates one regulatory / heating circuit and a domestic hot-water system can be connected on the primary.

Maximum operating parameters

Primary		
Maximum permissible supply temperature, primary	TVP	150 °C
Maximum permissible operating pressure, primary	PZP	25 or 16 bar (g)
Rated pressure, primary	PN	25 or 16
Maximum permissible pressure differential, primary	DPP	20 bar (-k_{vs}=8 m³/h) / 16 bar (k_{vs}=12.5-20 m³/h)
Maximum permissible flow volume, primary	VZP	9.0 m³/h for w <= 1.2 m/s
Secondary		
Maximum permissible supply temperature, secondary	TVS	110 °C
Maximum permissible operating pressure, secondary	PZS	10 bar or depending on the safety valve
Rated pressure, secondary	PN	10
Maximum permissible flow volume, secondary	VZS	25.0 m³/h for w <= 1.2 m/s

Circuit diagram



Options

Instead of the 0020/0030 the system can also incorporate a combined flow/temperature regulator (combo-valve), which can be installed in the supply or return line as desired.

Legend

0200/210	Shut-off device for primary/secondary
0201	Shut-off device for primary DHW
0430/431	Manometer with shut-off valve
0400/403	Thermometer with immersion sleeve
0220/230	Strainer
0040	Fitting piece for energy meter
0020/21	Motorized control valve + el. actuator (heating)
0022/23	Motorized control valve+ el. actuator (DHW)
0512/513	Return temperature limiter (DHW)
0030	Differential pressure and flow controller
0033	Needle valve
0270	High-pressure drain valve
0510/520	Return temperature limiter
0010-12	Heat exchanger with insulation
0560/561	Safety thermostat
0520/530	Supply temperature sensor
0100	Safety valve
0280	Drain valve
0440/441	Manometer with shut-off valve
MAG	Pressure retention connector
0110	Circulation pump
0410/420	Thermometer with immersion sleeve

Materials

Pipes and pipe fittings, flanges	P235GH-TC1, C22.8
Heat exchanger	1.4404 with Cu brazing compound
Fittings	CuSn5Pb5Zn5-C (RG-5), ST37.0, EN-GJS-400-18-LT (GGG40.3)

Function

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 generally flow through a shut-off valve and a dirt trap / strainer.

Depending on the system design and the stipulations of the heating provider, both the supply and return lines will normally incorporate a thermometer and a manometer to register the temperature and pressure.

There will also be regulatory equipment in the supply or return lines of the primary as indicated by the requirements and the circuit design.
The cooled heating water then flows back to the local or district heating supply company via the primary return pipe.

A pump in the secondary circuit of the in-house system then circulates the hot water to the heating surfaces or other consumers (e.g. ventilators, domestic hot-water systems, etc.).

A domestic hot-water system connected on the primary is controlled separately by a regulator.

Technical data

Primary		Primary DHW		Secondary			
DN	**max. V_p [m³/h]**	**DN DHW**	**max. V_p [m³/h]**	**DN**	**max. V_p [m³/h]**	**Pump MAGNA(*)**	**Residual delivery head [kPa]**
20	1.8	20	1.1	40	6.0	32-120	70
25	2.5	20	1.8	50	9.0	40-120	60
32	3.5	25	2.8	50	10.0	40-120	55
40	5.7	32	3.6	65	15.0	50-120	70
50	7.3	32	4.5	80	20.0	65-120	60
65	9.0	40	7.2	80	25.0	65-120	45

Primary control valve (20/30) / Energy meter (40)					
DN	**k_{vs} (20/30) [m³/h]**	**DN**	**k_{vs} (22) [m³/h]**	**QN**	**Dimensions G [''] * L [mm]**
20	.. 4.0	20	2.5	.. 2.5	1 x 190
25	6.3	20	4.0	3.5	¾ x 260
32	8.0	25	6.3	3.5	¾ x 260
40	12.5	32	8.0	6	¾ x 260
50	16.0	32	10.0	10	2 x 300
65	20.0	40	16.0	10	2 x 300

Types:

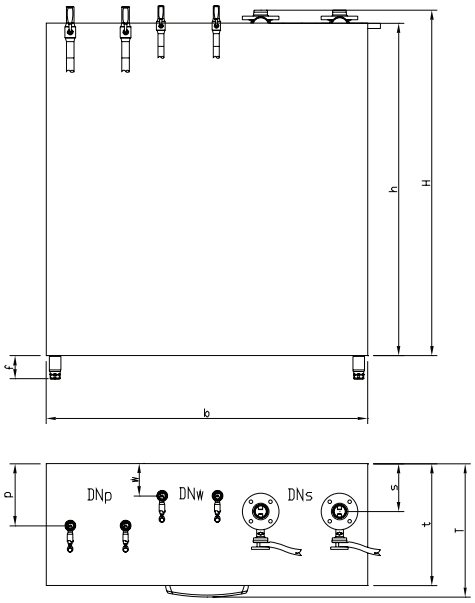
0020/21	VM2/AMV10/13/20/23
0022/23	VM2/AMV10/13/20/23
0030	AVPQ or AVPB

(*) other pumps on request

Dimensions

Dimensions											
pr. DN	pr. DHW	sec. DN	Width		Depth		Height		Distance		
			b	B	t	T*	h	H	p	w	s
20	20	40	1600	1600	550	~ 600	1500	1500	215	155	203
25	20	50	1600	1600	550	~ 650	1500	1560	286	208	222
32	25	50	1750	1750	750	750	1500	1560	256	140	216
40	32	65	1900	1900	750	~ 750	1500	1660	299	183	231
50	32	80	1900	1900	750	~ 800	1700	1755	307	165	255
65	40	80	2060	2060	750	~ 800	1700	1755	274	101	255

* *Depending on the number of plates in the heat exchanger*
f *the foot can be adjusted between: 105 … 160 mm*



Example of performance				
Primary V_p [m³/h]	Secondary		0010 type	Q_p [kW]
	V_p [m³/h]	0100		
1.8	5.9	R1-3 bar	XB30	**170**
2.4	8.0	R1/2-5 bar	XB51H	**230**
3.0	10.0	R1/2-5 bar	XB51H	**285**
4.6	15.0	R1/2-5 bar	XB51H	**430**
6.1	20.1	R1/2-5 bar	XB51H	**575**
7.4	24.5	R1/2-5 bar	XB51H	**700**

Dimensioning example:
primary 130 -> 47 °C / secondary: 45 -> 70 °C

Optionally on left or right

Regulation

System will generally incorporate one or more electronic heating controllers, depending on the requirements and/or application.

Data sheets ECL 110/210/310

Energy meter fitting

Design with threaded joints (e.g.)

R ½" X G ¾" x 110 mm	=	QN … 1.5	☐
R ¾" X G 1" x 130 mm	=	QN 2.5	☐
R ¾" X G 1" x 190 mm	=	QN … 3.0	☐
R 1" X G 5/4" x 260 mm	=	QN 3.5 / 6.0	☐
R 1 ½" X G 2" x 300 mm	=	QN 10.0	☐

Other (e.g. riser/down pipe meter):
R: ☐ " x G: ☐ " x ☐ mm

Design with flanges (e.g.)

			PN 16	PN 25
DN20 x 190 mm	=	QN … 3,0	☐	☐
DN25 x 260 mm	=	QN 3,5 / 6,0	☐	☐
DN40 x 300 mm	=	QN 10,0	☐	☐
DN50 x 270 mm	=	QN 15,0	☐	☐
DN65 x 300 mm	=	QN 25,0	☐	☐
DN80 x 300 mm	=	QN 40,0	☐	☐
DN100 x 360 mm	=	QN 60 / 100	☐	☐

Other (e.g. riser/down pipe meter):
DN: ☐ x ☐ mm ☐ ☐

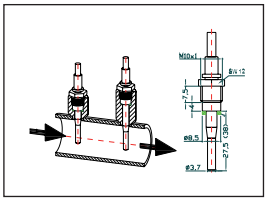
Number of sensors

One sensor: ☐ **Two sensors** ☐

Sensor installation

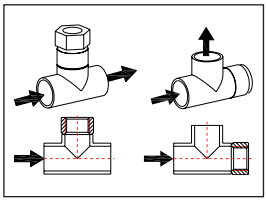
Variant: Installed directly M10*1 (with no sleeve): QN … 6.0
(only PN16!)

☐ **A** AGFW sensor 27.5 mm (possible only in DN20 and 25)
☐ **B** AGFW sensor 38.0 mm (possible only in DN20 and 25)

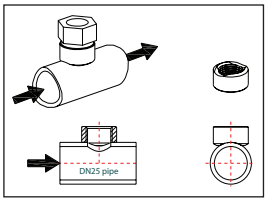


Variant: Immersion sleeve R ½" x … 37.0 mm: QN … 2.5

☐ **C** Installed in a DN20 T-piece (26.9 mm)



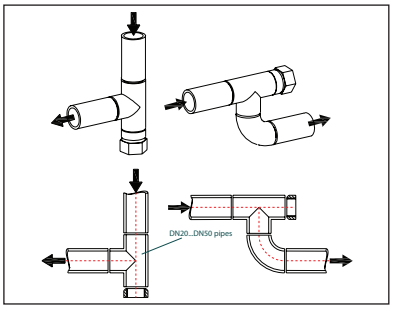
☐ **D** Installed in a DN25 pipe (33.7 mm) 90° truncated



Variant: Immersion sleeve R ½" x … 150 mm: QN … 15.0

☐ **E** Installed in a T-piece, flat-sealing, minimum necessary / maximum possible sleeve length:

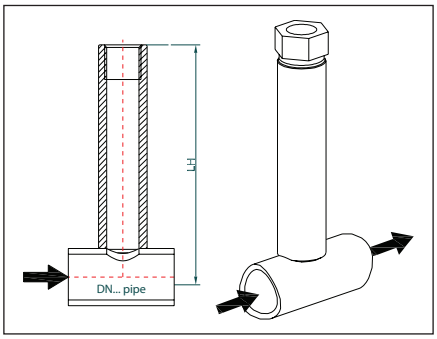
DN	min. L in [mm]	max. L in [mm]
20	44,0	155,0
25	53,0	155,0
32	63,0	155,0
40	73,0	155,0
50	80,0	155,0



Variant: Immersion sleeve R ½" x **xxx** mm: QN 15.0 …

☐ **F** Installed in a DN50 pipe ... (60.3 ... mm) 90° truncated

Sleeve length LH (specify precisely!): ☐☐☐☐ mm
(sleeve / sensor may be inside the insulation)



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