

## Data sheet

# DSE FLEX – Compact Substation

## General description and application



New generation substation is suitable for the already proven flexible, efficient and economical infrastructure of a low carbon city, a District Heating network. Danfoss district heating substations provides the link between district heating suppliers and customer installations. They contain all the necessary equipment to adjust the heat supplied for the needs of the object premises as specified in the heating supply contract. In this respect they must 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 that separate the systems (heat exchanger), limit the flow volume to that specified in the contract, regulate the secondary supply temperature and measure energy consumption. It is an exclusive solution designed to optimally fulfil specific requests and stringent requirements for district heating. By use of the Danfoss dimensioning program you can find out if the application you need fits DSE FLEX. The new generation substation is designed to be floor mounted, is keeps the robustness and friendly / appealing outlook of the old product with the advantage of a lighter profile, smaller size and designed for a faster and safer transport.

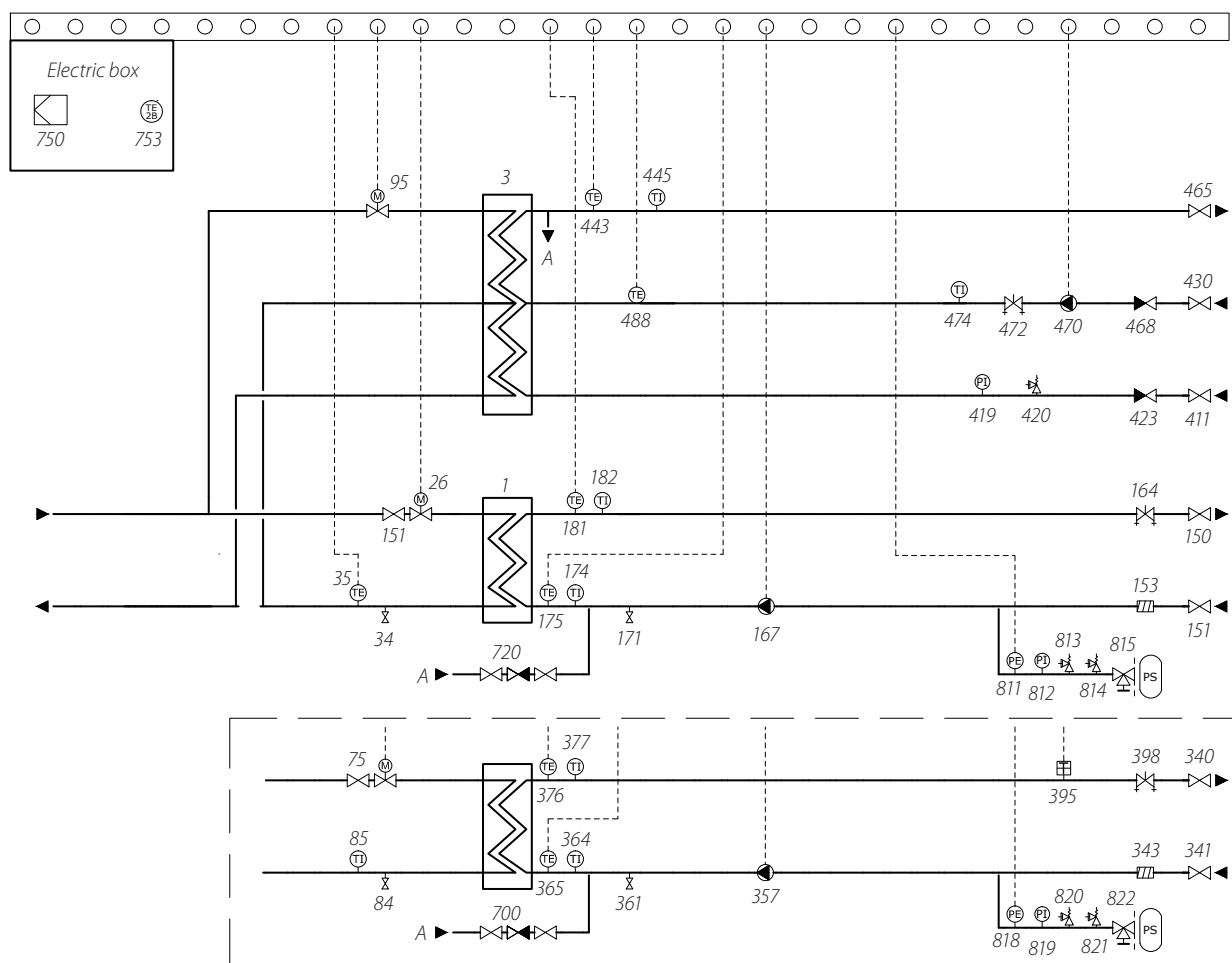
## Maximum operating parameters

<b>Primary</b>	
Maximum permissible supply temperature, primary	135°C
Maximum permissible operating pressure, primary	14,2 bar(g)
Rated pressure, primary	PN16
<b>Secondary Heating</b>	
Maximum permissible temperature, secondary	100°C
Maximum permissible operating pressure, secondary	6 bar(g)
Minimum required pressure (static), water supply	1.0 bar(g)
<b>Secondary Domestic Hot Water</b>	
Maximum permissible temperature, secondary	90°C
Maximum permissible operating pressure, secondary	10 bar(g)
Minimum required pressure (static), water supply	1.0 bar(g)

## Materials

Pipes, fittings, flanges, valves (primary side)	P235GH, EN-JL1040 (GGC25), CuSn5Pb5Zn5-C (RG-5), EN-GJS-400-18-LT (GGG 40.3)
Pipes, fittings, flanges, valves (heating side)	P235GH, EN-JL1040 (GGC25), EN-GJS-400-18-LT (GGG 40.3), brass (DZR type)
Pipes, fittings, flanges, valves (DHW side)	1.4301, 1.4404, brass (DZR type), CuZn35Pb2Al-C (CC752S)
Heat exchanger	1.4404 with Cu solder
Insulation (casted parts)	EPP foam, $\lambda=0.038$ W/mK
Insulation (heat exchanger)	PU foam, $\lambda=0.035$ W/mK
Insulation (piping)	PU foam, $\lambda=0.029$ W/mK

Circuit diagram



26	Control valve HE	182	Thermometer	430	Ball valve
34	Drain valve	340, 341	Ball valve	443	Temperature sensor
35	Temperature sensor	343	Strainer	445	Thermometer
75	Ball valve	357	Pump	465	Ball valve
84	Drain valve	361	Drain valve	468	Check valve
85	Thermometer	364	Thermometer	470	Pump
95	Control valve DHW	365	Temperature sensor	472	Balancing valve
150, 151	Ball valve	376	Temperature sensor	474	Thermometer
153	Strainer	377	Thermometer	488	Temperature sensor
164	Balancing valve	395	Safety thermostat	488	Electronic controller
167	Pump	398	Balancing valve	750	Electronic controller
171	Drain valve	411	Ball valve	753	Outdoor sensor
174	Thermometer	419	Pressure measurement	811, 818	Pressure transmitter
175	Temperature sensor	420	Safety valve	812, 819	Pressure measurement
181	Temperature sensor	423	Check valve	813, 814	Safety valve
				815, 822	Expansion valve
				820, 821	Safety valve

## Function

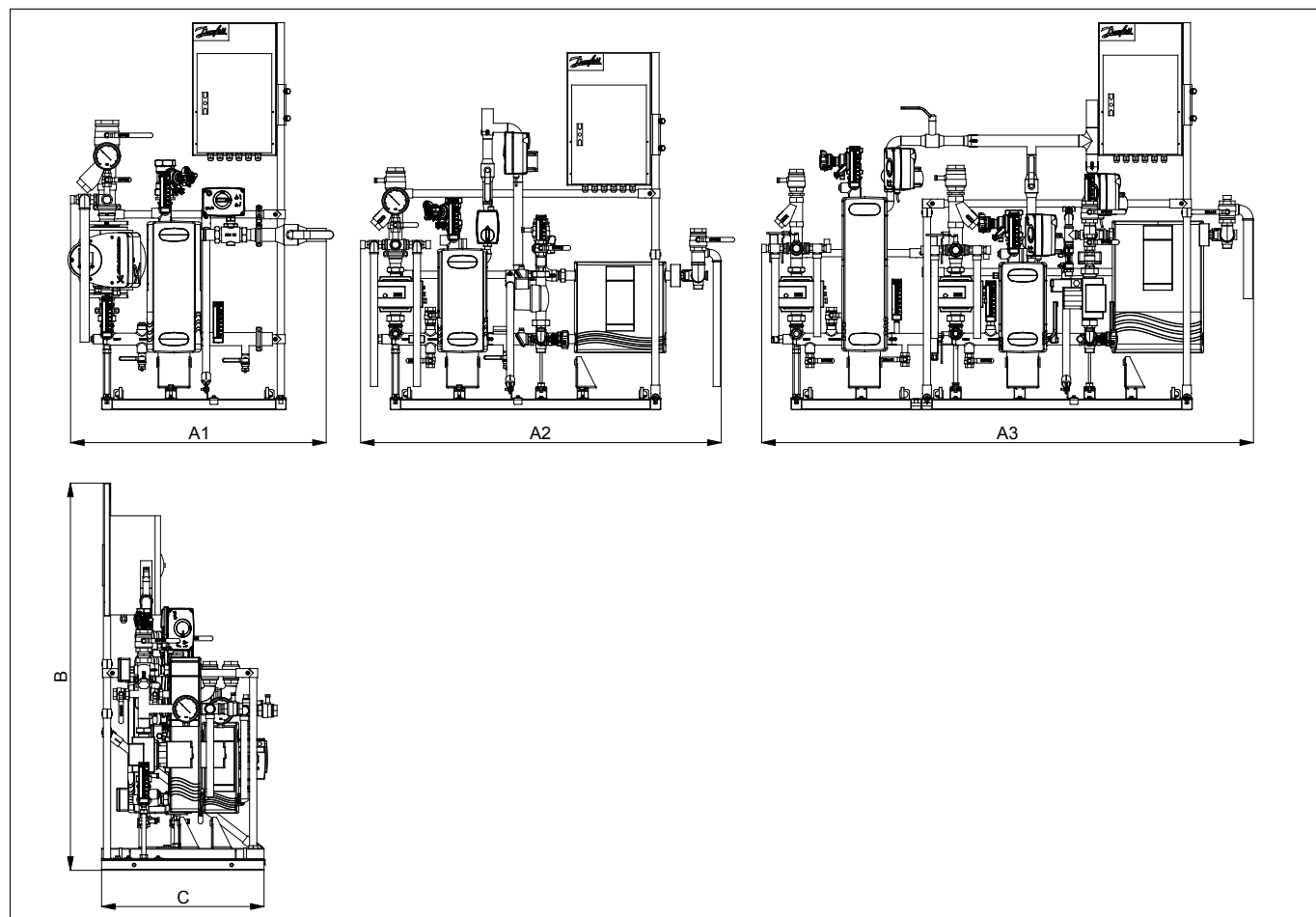
The DSE FLEX platform can be used for various applications such as heating, domestic hot water and / or other water based heating system. Due to its flexibility, it is possible to deliver a 1-, 2- or 3-circuit substation with possibility to make combinations between modules if more circuits are required. This is based on customer requests and the needed application(s). The construction allows easy access to all components for maintenance and servicing purposes. Heat transfer

between the district heating network and the building installation is achieved by way of a micro plate heat exchanger, which ensures better heat transfer, higher energy efficiency and reduced pressure loss. In addition to the standard controller functions, the ECL310 offers easy remote access via an internet page with data logging possibilities and energy optimization functions such as weather compensation and auto-tuning (adaptive settings for domestic hot water parameters).

## Dimensions

Capacity [kW]			Pipe diameter				External dimensions (max)					Weight		
Heating 1	Heating 2	DHW	Heating 1	Heating 2	Cold/warm water	DHW circulation	Length (A1)	Length (A2)	Length (A3)	Height (B)	Depth (C)	Weight 1 circuit	Weight 2 circuits	Weight 3 circuits
115-45/ 50-80	115-65/ 60-80	70-25/ 10-58	[DN]	[DN]	[DN]	[DN]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]	[kg]	[kg]
60	40	70	25	25	25	15	900	1000	1600	1300	500	54	71	99
95	60	100	25	25	25	15	900	1100	1600	1300	500	59	77	109
120	80	150	32	32	25	15	900	1150	1700	1300	500	65	83	119
150	100	195	32	32	32	20	900	1150	1700	1300	500	70	88	127
190	125	245	40	40	32	20	950	1200	1750	1300	610	87	110	170
235	160	300	40	40	40	25	950	1200	1750	1300	610	102	129	199
295	200	380	50	50	40	25	1150	1400	1900	1400	650	110	140	215
370	245	395	50	50	50	25	1150	1400	1900	1400	650	141	180	276
560	410	590	65	65	50	32	1200	1500	2000	1500	650	164	210	322

These are only few examples of all the possible combinations. Depending on the customer requirements, type of heat exchangers, application, DN combinations, etc. the dimensions may vary. Depth dimension C is considered for 2 and 3 circuit stations. Height dimension B is considered with the electrical box in the minimum height position and the heating pump on the return line.





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### Accessories

The DSE FLEX platform is designed for Full Insulation. This reduces significantly the energy loss in the heating room.

In order to receive this accessory and also for additional details and quotations please contact the sales responsible.

### Configuration

Contact the sales staff responsible for additional details and a quotation for the DSE FLEX.

### Danfoss A/S

Heating Segment • [heating.danfoss.com](http://heating.danfoss.com) • +45 7488 2222 • E-Mail: [heating@danfoss.com](mailto:heating@danfoss.com)

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