

# TRANSFLO

## TRANSFER SEALED SYSTEMS



### TRANSFLO EXPANSION AND PRESSURIZER SYSTEMS FOR HEATING AND COOLING APPLICATIONS

Transflo combination expansion and pressurizer systems automatically accommodate the thermal expansion within a sealed water system, whilst maintaining the system pressure within preset limits.

#### CONSTRUCTION

- Factory assembled basemounted transfer type pressurizer with single pump or duplicate pumps arranged to operate automatically in sequence.
- Integral controller for automatic pump control, outgoing terminals are provided for fail-safe high and low pressure interlock and remote alarm. Optional low water pump protection and alarm.
- Expansion tank, selected to accommodate the increased system water content, incorporating - float operated valve, overflow, drain, pump suction strainer and loose cover. Optional overhead tank arrangement with heavy duty supporting frame or base-mounted tank arranged adjacent to the pressurizer module.

#### DESIGN CONSIDERATIONS

##### Operating limits

TYPE CODE	TL	TH
Water temperature range - °C at pressurizer	Minus 10 to +70	
Maximum flow temperature - °C	90	
- with cooling vessel	110	140
Minimum initial pressure - bar	1.5	
Maximum final pressure - bar	6.3	9.3

##### Operation

The selected duty pump automatically maintains the initial system design pressure. The increased system water volume resulting from an increase in temperature is initially contained within the diaphragm vessel - as a consequence of raising the system water temperature the system pressure will increase to the final system design pressure whilst the expansion volume is automatically modulated to the expansion tank. The system pressure will smoothly fluctuate between the initial and final pressures. When the temperature in the system drops - the duty pump will operate intermittently to maintain the initial pressure. The pressure differential between the final and pump start pressure is relatively small - an especially beneficial operational feature when updating old installations.

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### SELECTION

Equipment selection is based on the following design stage data-

**Total system volume** (litres) - the total volume of water in the complete system.

**System flow temperature** (°C) - the maximum design temperature of the water circulating in the system.

**System boiler power** (kW) - the capacity and number of each boiler.

**Static height pressure** (bar) - the pressure created by the system height between the uppermost part of the circuit and the expansion tank level.

**Final system design pressure** (bar) - the pressure occurring at the maximum design temperature.

### SELECTION PROCEDURE

Determine the **initial system design pressure** at the **initial cold water fill temperature**, taken to be 4 °C, calculated as:

**initial pressure = static pressure + pressure margin** (see table) - bar

As a consequence of raising the system water content to the **maximum design temperature**, the system pressure will increase to the **final system design pressure** - controlled at approximately 0.4 bar above the **initial pressure**.

#### Pressure margin

System flow temperature -°C	82	90	100	110	120	130	140
Pressure margin - bar	1.1	1.5	1.8	2.0	2.5	3.4	4.8

#### Pressurizer selection

PRESSURIZER SIZE	202	203	204	205	206	402	403	404	405	
Single boiler kW	1000	2.1	3.1	4.2	5.3	6.4				
	2000	1.8	2.8	3.8	4.8	5.9				
	3000	1.5	2.4	3.3	4.1	5.1	2.0	3.0	4.0	
	4000						1.9	2.8	3.7	4.7
	5000						1.7	2.5	3.3	4.4
	6000						1.4	2.2	3.0	3.8

Maximum initial pressure - bar

The **pressurizer** can be selected from the table above using the **system boiler power** and **initial pressure**.

#### Expansion tank selection

EXPANSION TANK SIZE	840	1230	1730	2140	3000NOM
System flow temperature °C	82	21,200	32,350	46,890	78,750
	100	14,320	27,960	31,820	40,910
	120	10,500	16,200	23,350	30,000
	140	9,000	13,860	20,000	25,720

Maximum total system volume - litres

The expansion tank can be selected from the table above using the **total system volume** and **system flow temperature**.

#### Coding example

TRANSFLO TYPE	PRESSURIZER SIZE	EXPANSION TANK SIZE	INITIAL PRESSURE BAR
TL	203-	840-	2.0