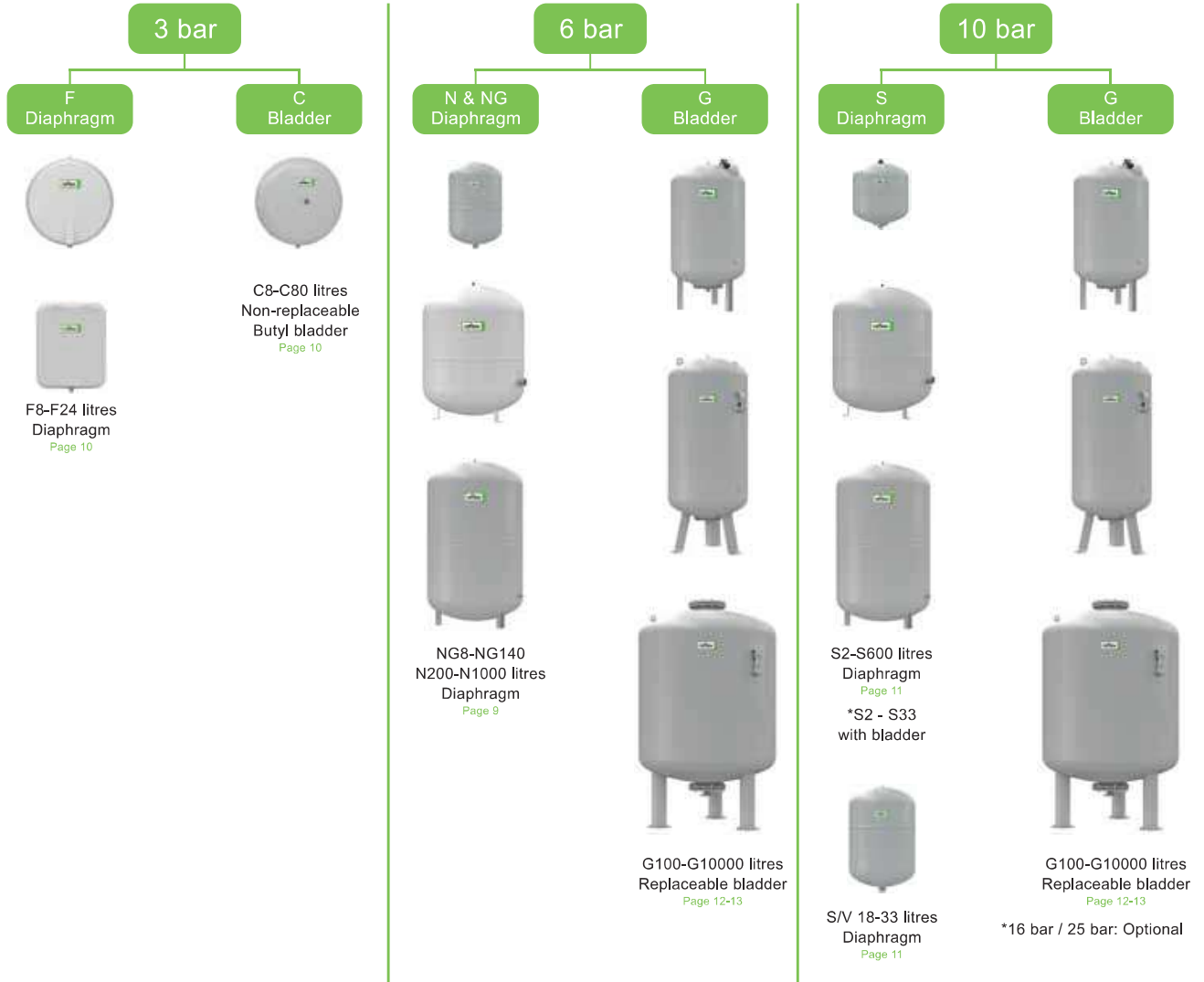


Expansion Vessels For Heating & Chilled Water

Heating, Chilled Water and Solar Applications



V Intermediate Tank



V500-V5000 litres - 6 bar/120°C
V6-V5000 litres - 10 bar/120°C
Page 14



Expansion Vessels For Heating & Chilled Water

Quick Selection Table For Diaphragm Expansion Vessels

For detailed calculations, refer to our brochure "Pressurisation Systems - Planning, Calculation, Equipment" or visit www.reflex.de to use our Reflex Pro calculation software

Heating systems: 90/70°C

Safety valve P _{sv} bar	2.5		Vn	3.0				Vn	4.0				Vn	5.0					Vn
Pre-set pressure bar P ₀	1.0	1,5	litres	0.5	1.0	1,5	1,8	litres	1,5	2.0	2,5	3.0	litres	2.0	2,5	3.0	3,5	4.0	litres
Content litres V _A	30	-	8	85	50	19	-	8	55	30	5	-	8	55	37	16	-	-	8
	45	-	12	120	75	29	-	12	80	45	7	-	12	85	55	24	-	-	12
	85	-	18	200	130	60	17	18	140	85	28	-	18	140	100	55	8	-	18
	150	33	25	320	220	120	55	25	230	150	70	-	25	230	170	110	43	-	25
	240	80	35	470	340	200	110	33	330	240	130	25	33	360	270	180	95	5	33
	380	110	50	700	510	320	200	50	540	380	230	70	50	550	420	300	170	43	50
	500	170	80	1120	840	440	260	80	870	650	410	120	80	890	710	530	320	95	80
	620	210	100	1400	1050	540	330	100	1090	820	430	150	100	1110	890	670	420	120	100
	870	300	140	1960	1470	760	460	140	1530	1140	610	200	140	1560	1250	940	510	170	140
	1240	420	200	2800	2100	1090	660	200	2180	1630	870	290	200	2230	1780	1340	720	240	200
	1550	530	250	3500	2630	1360	820	250	2720	2040	1090	370	250	2790	2230	1670	900	300	250
	1860	630	300	4200	3150	1630	990	300	3270	2450	1300	440	300	3340	2670	2010	1080	360	300
	2480	850	400	5600	4200	2180	1320	400	4360	3270	1740	580	400	4460	3570	2670	1440	480	400
	3100	1060	500	6920	5250	2720	1650	500	5450	4080	2170	730	500	5570	4460	3340	1800	600	500
	3720	1270	600	8400	6300	3260	1980	600	6540	4900	2610	880	600	6680	5350	4010	2170	730	600
	4970	1690	800	11200	8400	4350	2640	800	8710	6540	3480	1170	800	8910	7130	5350	2890	970	800
	6210	2120	1000	13830	10500	5440	3300	1000	10890	8170	4350	1460	1000	11140	8910	6680	3610	1210	1000

Approximate water content:

Radiators

$$V_A = Q \text{ [kW]} \times 13.5 \text{ l/kW}$$

Panel-type radiators

$$V_A = Q \text{ [kW]} \times 8.5 \text{ l/kW}$$

Selection example

$$P_{sv} = 3 \text{ bar}$$

$$H = 13 \text{ m}$$

$$Q = 40 \text{ kW (plates 90/70°C)}$$

$$V_{PH} = 1000 \text{ l (V buffer storage tank)}$$

Calculate

$$V_A = 40 \text{ kW} \times 8.5 \text{ l/kW} + 1000 = 1340 \text{ l}$$

$$P_0 \geq \left(\frac{13}{10} \times 0.2 \text{ bar} \right) = 1.5 \text{ bar}$$

From the table:

With $P_{sv} = 3 \text{ bar}$, $P_0 = 1.5 \text{ bar}$

$V_A = 1340 \text{ litres}$

$V_n = 250 \text{ litres (for } V_A \text{ max. 1360)}$

Selected:

1 x Reflex N 250.6 bar

1 x cap ballvalve



Visit www.reflex.de/pro for further information and the option of downloading free of charge.

Reflex recommendations:

- Select sufficiently high safety valve actuation pressure: $P_{sv} \geq P_0 + 1.5 \text{ bar}$
- If possible, apply a 0.2 bar margin when calculating the gas input pressure: $P_0 \geq \frac{H \text{ [m]}}{10} + 0.2 \text{ bar}$
- Due to the required supply pressure for the circulating pumps, select an pre-set pressure of at least 1 bar for roof-mounted systems also: $P_0 \geq 1 \text{ bar}$
- In a vented system in cold conditions, set the water-side filling or initial pressure at least 0.3 bar higher than the pre-set pressure: $P_{fill} \geq P_0 + 0.3 \text{ bar}$