

Project: Project number: NG-50
 Date: 2021.03.26. Administrator:
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Data of the heating system

No.	Heat generator Type	Output [in kW]	Water content [Litre]	Expansion pipe	
				L ≤ 10m	10 < L ≤ 30m
1	Steel boiler/blast burner	16	53	DN 20	DN 20
	Total	16	53	DN 20	DN 20

Lay out design according to

EN 12828, VDI 4708

Flow temperature	tv	85,0 °C
Return temperature	tr	60,0 °C
Expansion	n	3,6 %
Antifreeze		0,0 %
Setpoint safety temperature limiter (-controller)		95,0 °C
Static pressure	pst	0,3 bar (ü)
Minimum operation-/precharge pressure	po	0,5 bar (ü)
Safety valve opening pressure	psv	2,0 bar (ü)
Maximum system pressure	pe	1,5 bar (ü)
Setpoint value minimum pressure limiter		0,0 bar (ü)
Setpoint safety pressure limiter		0,0 bar (ü)
Requirements regarding functioning: Pressure maintainance / automatic water make-up / Protection of the system by a dirt separator equipped with a magnet rod.		
Water make-up supply pressure	pn	3,0 bar (ü)
Maximum vessel diameter		2 000 mm
Maximum vessel height		8 000 mm

Type of heating surface	Share in kW	Content in litre
1. Flat radiator	16	109
Content of the long distance pipelines		0
Content of other equipment (e.g. storage tanks)		0
System/circuit content		109
Content heat generator Vk		53
Buffer tank		300
Total system content Va		462
Expansion volume	Ve	17 Litre
Water reserve		0,6 %
DIN 4807: min. 0,5% or 3 litres	or	3 Litre
Real water reserve		1,9 %
	or	9 Litre

Approximate values for the system operating pressure = filling pressure at corresponding temperature

max. system temp. in °C	10	20	30	40	50	60	70	80
Pressure in bar (ü)	0,8	0,8	0,9	1,0	1,1	1,2	1,3	1,4

The indicated values in this table can only be accurate if the real system data are in accordance with the calculation criteria.

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1. Protection system/circuit

Position	Article no.	quantity	Item text	Price	Total price
1.1	8001011	1	<p>Reflex NG, diaphragm expansion vessel for sealed heating and cooling systems, built acc. to EN 13831. Approval acc. to EU Pressure Equipment Directive 97/23/EC.</p> <p>-welded construction -foot construction from 35 ltr and above -durable external epoxy powder coated finish -fixed diaphragm</p> <p>Type : NG 50 Nominal volume : 50 l Useful volume max: 45 l perm. flow temp. supp. Ins.: 120 °C perm. op. temp. diaphragm : 70 °C perm. op. overpressure : 6 bar Gas inlet press. Ex works : 1,5 bar Gas inlet press. set : 0,5 bar Diameter : 409 mm Height : 469 mm Net weight : 5,7 kg System connection : R 3/4 Colour : grey</p>	81,10€	81,10€
1.2	7613000	1	<p>Reflex Lockshield valve, shut off/drain, for membrane expansion vessels in sealed heating and cooling systems. With a protected shut-open facility against inadvertent closing, also with drain outlet (draining vessel contents) acc. to EN 12828.</p> <p>Type: SU R 3/4 x 3/4 Connection: G 3/4 x G 3/4 perm. op. pressure: PN 10 perm. op. temperature: 120 °C</p>	26,70€	26,70€
1.3	6811500	1	<p>Reflex Fillcontrol Plus Compact, automatic make-up and filling unit for heating and cooling systems equipped with gas pre-charged membrane expansion vessels.</p> <p>The device continuously monitors the pressure of the installation and will recharge the system from the drinking water supply when the system pressure goes below the set tolerance limit. The device conforms to the European standard EN 1717 and has been approved for permanent connection to heating and cooling systems.</p> <p>The set consists of the following: isolation valve, backflow preventor BA type (RPZ), inline filter, actuated motor valve (fail safe close), pressure reducer and microprocessor with LCD display.</p> <p>The automatic refill is entirely moni- tored so the process will interrupt the water make up if the maximum running time or the pre-set number of replenishments is exceeded within a 2 hours operational time.</p>	632,00€	632,00€

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Position	Article no.	quantity	Item text	Price	Total price
			<p>The duration and frequency of fill cycles in a 2 hour operation period is restricted. In the event of leakage the water make up will be stopped. Built-in pressure reducer prevents any overfilling of the installation in case of total malfunction. Information messages are shown displayed on the screen.(i.e. system pressure/error messages etc.) Included is a volt free output and sound signalfor common fault.</p> <p>max. operating pressure : 10 bar max. operating temperature: 70 °C Flow value kvs : 0,4 m3/h Power supply : 230 V,50 Hz Net weight : 3 kg Connections Inlet : Rp 1/2 Outlet : Rp 1/2 Length/Depth/Height : 208/91/305mm</p>		
1.4	9256010	1	<p>Reflex Exdirt Magnet, dirt and sludge separator for heating and cooling systems respectively for sealed system circuits.</p> <p>Suitable for use with water and water/glycol mixture to a maximum of 40% concentration.</p> <p>Fitting for the removal of dirt particles up to a size of 0,5 µm out of the liquid flow by way of a specifically designated insert.</p> <p>The collection area can be easily emptied at regular intervals using a drain ball valve while the system remains in operation. The flanged collection chamber can be removed for inspection.</p> <p>Type : D 3/4 M Housing material : brass Installation model: horizontal Connection type : thread System connection : Rp 3/4 Drain connection : Rp 3/4 max. operating pressure: 10 bar max. operating temperature: 110 °C max. flow : 1,25 m³/h kvs : 10,7 m³/h Length : 85 mm Heigth : 116 mm Diametre : 65 mm Weight : 1 kg</p>	119,00€	119,00€
1.5	9254811	1	<p>Reflex Exiso, Thermal EPP foam insulation for Reflex Exvoid microbubble separators or Exdirt dirt separators. Consists of two formed sections which are easily individually adaptable using cut off marks. Inclusive snap closure or tightening strap.</p> <p>Type : A/D 22- 1 1/2 Height : <=275 mm</p>	22,00€	22,00€

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Position	Article no.	quantity	Item text	Price	Total price
			Diameter : 125 mm Lagging thickness : 15 mm max. operating temperature: 110 °C		
1.6		1	Separator is also available in an in line vertical installation design to suit your application.

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2. Protection for the heat generator 1

Position	Article no.	quantity	Item text	Price	Total price
2.1	9250000	1	<p>Reflex Exvoid-T, high venting capacity automatic air vent for heating and cooling systems respectively sealed system circuits.</p> <p>Designed to facilitate venting or admitting air into the system with high reliability. Safe operation even if the system medium is charged with impurities.</p> <p>Type : 1/2 Housing material : brass System connection : Rp 1/2 max. operating pressure: 10 bar max. operating temperature: 110 °C Height: 112 mm Diameter : 65 mm Weight : 0,7 kg</p>	50,00€	50,00€
2.2		1	<p>Safety valve for heat generators, code letter D/G/H acc. to TRD 721.</p> <p>Make/Type : Ari, Leser Nominal input width : DN 20/PN 16 Nominal outlet width : DN 32/PN 16 Drainage rate required : 16 kW Opening pressure : 2,0 bar T H I R D P A R T Y P R O D U C T</p>
2.3		1	<p>Water level limiter, for water level monitoring of heat generators, type tested acc. to data sheet water level 100/2</p> <p>Also it is possible to integrate:</p> <p>-a minimum pressure limiter or flow limiter or -another suitable method</p> <p>against inadmissible heating in case of water deficiency. T H I R D P A R T Y P R O D U C T</p>

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