DEDICATED PRESSURE SYSTEMS LTD.

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the Institute of Plumbing IP INDUSTRIAL ASSOCIATE

9-19 Manor Green Road, Epsom, Surrey KT19 8RA
Company No.: 2963502 V.A.T. No.: 608 9597 89

PUMPED HEAT BANK
DESIGN 8996-1

Customer Requirements:

Hot and cold water supplies at 3 bar pressure at 45 litres per minute combined.

To work on a 1 bar mains water supply with a flow rate that may fall short of maximum demand.

Any pumps are to be as quiet as possible.

All equipment to fit into a cupboard space of 750mm x 750mm x 2400mm.

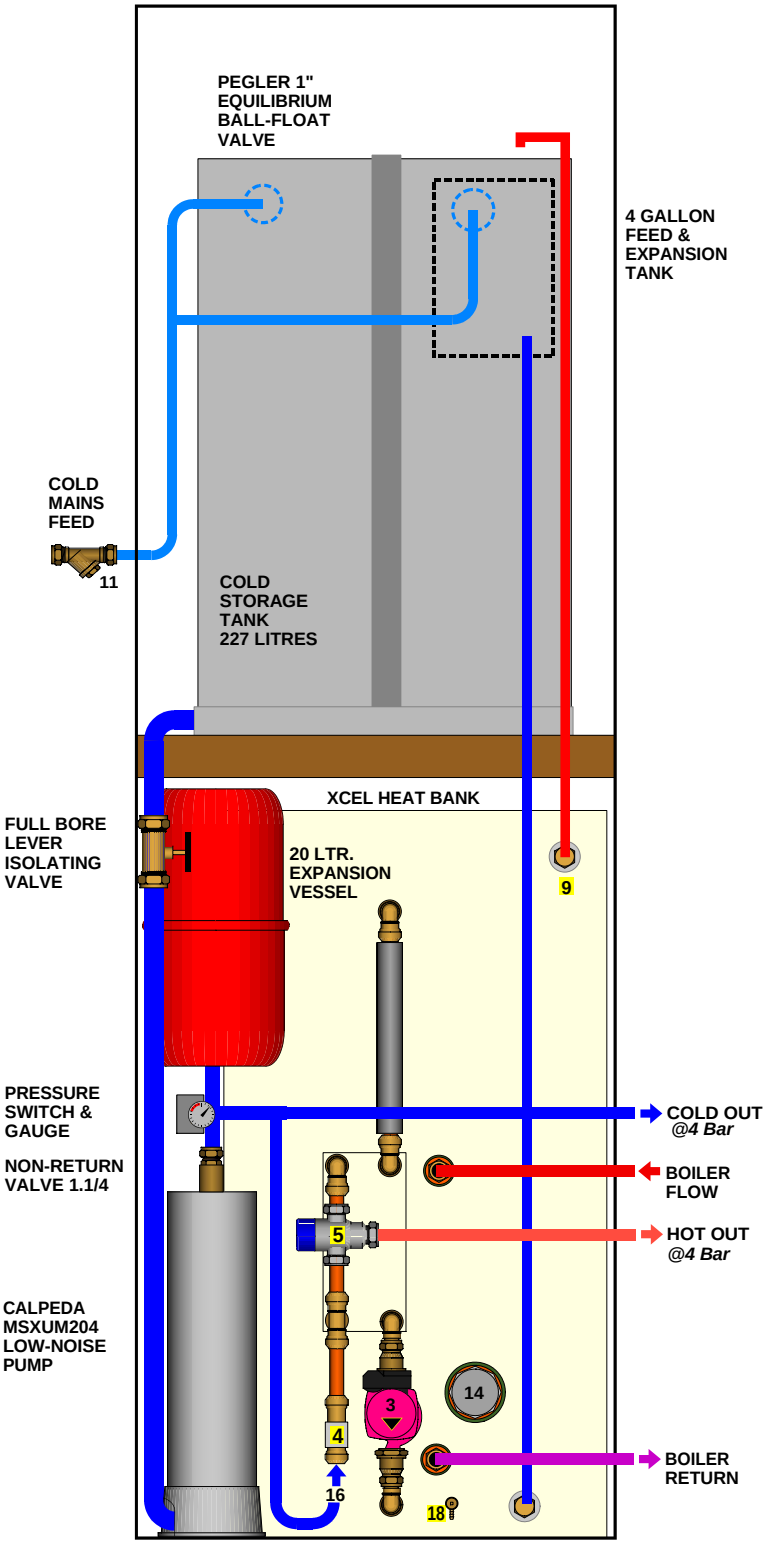
Solution:

To provide pressure and flow rates we have selected the Calpeda MSXUM204 Pump, which is also a quiet operation pump, and has a footprint of only 190mm square. The pump is connected using flexible hoses to cut any vibration transition, reducing noise.

The pump is fed from a 227 litre cold water storage tank, 590x590x890mm, which is in turn fitted with a Pegler 1" equilibrium ball float valve, to maximise the rate the tank will fill from the mains.

A 20 litre expansion vessel is fitted to buffer the pump, and allow small quantities of water to be drawn without the pump operating. Additional vessels can be added. Pressure switches and low water cut out are fitted and pre-wired to control the pump automatically.

The hot water is generated from a rectangular Xcel Heat Bank, 590x480mm with height to suit capacities from 130 to 250 litre. This is fitted with a very high efficiency plate heat exchanger (M18-30) that will heat up the pressurised cold supply to provide hot water up to 45 litres per minute.


PEGLER 1"
EQUILIBRIUM
BALL-FLOAT
VALVE
4 GALLON
FEED &
EXPANSION
TANK
COLD
MAINS
FEED
11
COLD
STORAGE
TANK
227 LITRES
XCEL HEAT BANK
FULL BORE
LEVER
ISOLATING
VALVE
20 LTR.
EXPANSION
VESSEL
9
PRESSURE
SWITCH &
GAUGE
NON-RETURN
VALVE 1.1/4
COLD OUT
@4 Bar
BOILER
FLOW
5
HOT OUT
@4 Bar
CALPEDA
MSXUM204
LOW-NOISE
PUMP
3
14
4
16
18
BOILER
RETURN

polytank

<< Back to Tank Selection

All these tanks come complet with PT2/C package and extra ball valve back plate

- Snap on lid
- POLYTANK Byelaw 30 kit and fitting instructions
- 1/2" BS1212 Part 2 ball valve and 4 1/2" float
- 22mm compression tank connector
- 15mm x 1/2" angled servic valve

204 litres • 45 gallons

ORDER CODE 23-23-34			
Actual Capacity		litres	gallon
Min to water level		204	45
Max Dimensions		mm	inch
Before Fixing	length	590	23
	width	590	23
	height	870	34

MXSU

Vertical multi-stage close coupled pumps

Construction

Vertical multi-stage close coupled pumps **in chrome-nickel stainless steel, with motor shields in brass**.
Suction connection on the lower casing and delivery connection on the top casing. Motor cooled by the pumped water passing between the motor jacket and the external jacket.
Double mechanical shaft seal with interposed oil chamber.

Applications

For clean water without abrasives or additives aggressive for the materials of the pump.
For domestic, civil and industrial applications.
For installation in confined space with minimum ventilation.
For installation in locations subject to risk of temporary flooding.
For installation in areas exposed to water jetting.
When low-noise operation is required.

Operating conditions

Water temperature up to 35 °C.
Maximum permissible pressure in the pump casing: 10 bar.
Continuous duty.

Motor

2-pole induction motor, 50 Hz (n = 2900 rpm).
MXSU : three-phase 230 V ± 10%;
three-phase 400 V ± 10%.
MXSUM : single-phase 230 V ± 10% , with thermal protector.
Control box with capacitor, on request.
Cable: H07RN-F, 4 x 1 mm², length 2 m.
Insulation class F.
Protection IP 68 (for continuous immersion).
Triple impregnation humidity-proof dry winding.
Constructed in accordance with EN 60335-2-41.

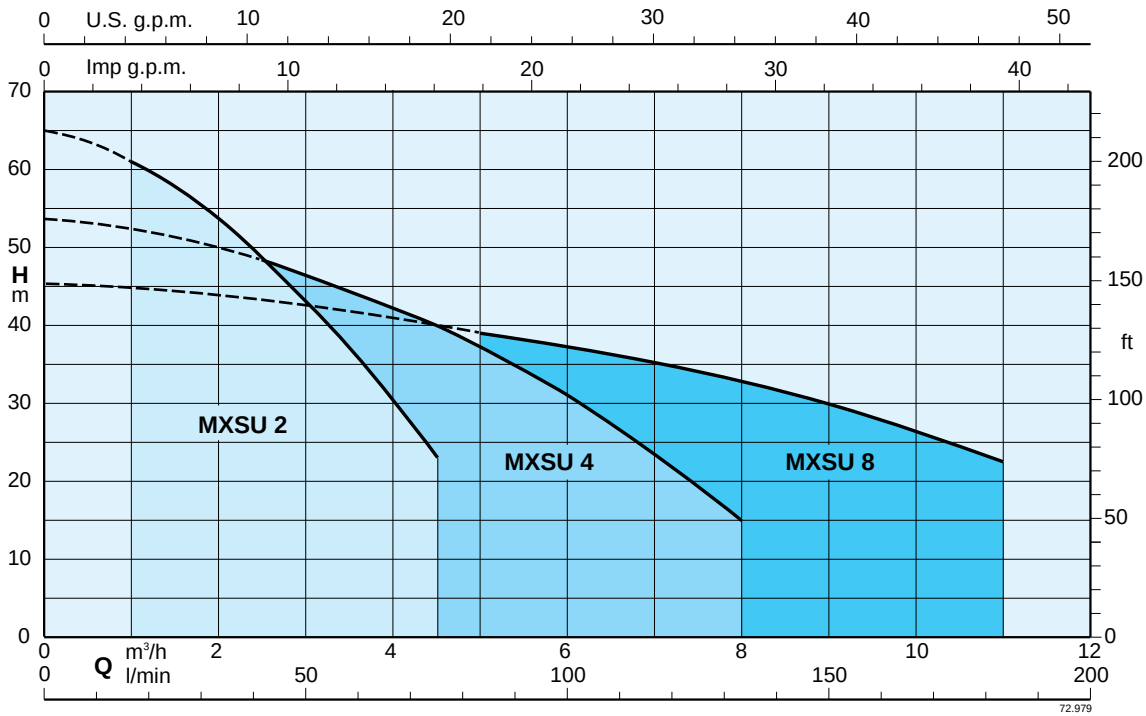
Special features on request

- Other voltages.
- Frequency 60 Hz (as per 60 Hz data sheet).

Materials

Component	Material
External jacket Suction casing Stage casing Impeller Oil chamber cover Spacer sleeve Motor jacket	Chrome-nickel steel 1.4301 EN 10088 (AISI 304)
Shaft	Chrome-nickel steel 1.4305 EN 10088 (AISI 303)
Motor shield Elbow	Brass P- Cu Zn 40 Pb 2 UNI 5705 Brass P- Cu Zn 40 Pb 2 UNI 5705 nickel-plated
Upper mechanical seal Lower mechanical seal	Steatite, carbon, NBR Ceramic alumina, carbon, NBR
Seal lubrication oil	Oil for food machinery and pharmaceutic use

Coverage chart *n ≈ 2900 rpm*



MXSU

Vertical multi-stage close coupled pumps

Performance $n \approx 2900$ rpm

3 ~ 230 V	400 V	1 ~ 230 V		Capacitor		P1	P2		Q m³/h	0	1	1,5	2	2,5	3	3,5	4	4,5	
A	A		A	µF	V	kW	kW	HP	l/min	0	16,6	25	33,3	41,6	50	58,3	66,6	75	
MXSU 203	2,4	1,4	**MXSUM 203**	3,5	20	450	0,8	0,55	0,75		33	31	29,5	27,5	25	22	19	16	12	
MXSU 204	2,7	1,6	**MXSUM 204**	4,1	20	450	0,95	0,55	0,75		44	41,5	39,5	36,5	33,5	29,5	25,5	21	16	
MXSU 205	3,3	1,9	**MXSUM 205**	5	20	450	1,1	0,75	1	**H** m	53	49,5	47	44	40	35	30	25	19	
MXSU 206	3,8	2,2	**MXSUM 206**	6	25	450	1,3	0,9	1,2		65	61	58	54	49	43	37	30,5	23	

3 ~ 230 V	400 V	1 ~ 230 V		Capacitor		P1	P2		Q m³/h	0	2,5	3	3,5	4	4,5	5	6	7	8
A	A		A	µF	V	kW	kW	HP	l/min	0	41,6	50	58,3	66,6	75	83,3	100	116	133
MXSU 404	3,8	2,2	**MXSUM 404**	6	25	450	1,3	0,9	1,2		43	39	38	36,5	34,5	33	30,5	25,5	19,5	13
MXSU 405	4,5	2,6	**MXSUM 405**	7	25	450	1,55	1,1	1,5	**H** m	53	48	46,5	45	42,5	40	37,5	31	24	15

3 ~ 230 V	400 V	1 ~ 230 V		Capacitor		P1	P2		Q m³/h	0	5	6	7	8	9	10	11		
A	A		A	µF	V	kW	kW	HP	l/min	0	83,3	100	116	133	150	166	183		
MXSU 803	4,5	2,6	**MXSUM 803**	7	25	450	1,55	1,1	1,5	**H** m	34,5	29,5	28	26,5	24,5	22,5	20	16,5		
MXSU 804	6,6	3,8						1,5	2		45,5	39	37	35	32,5	30	26,5	22,5		

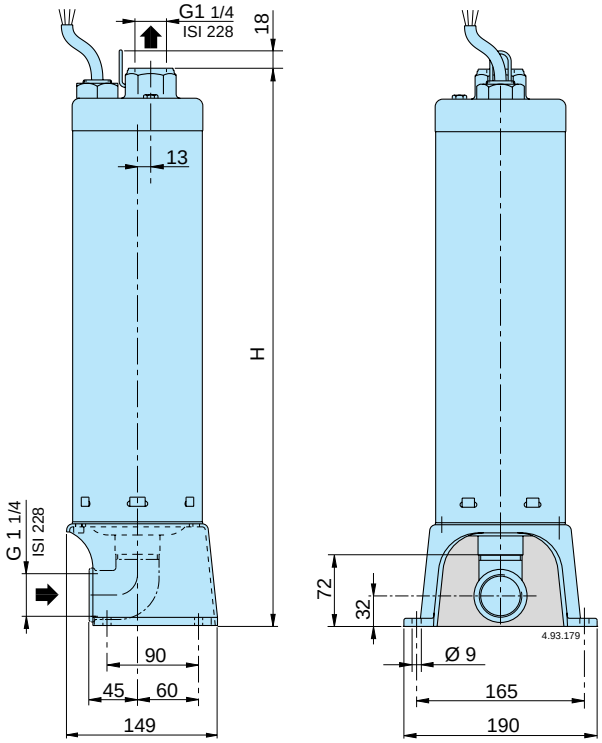
P1 Max. power input.
P2 Rated motor power output.

Tolerances according to ISO 9906, annex A.
Test results with clean cold water, without gas content.

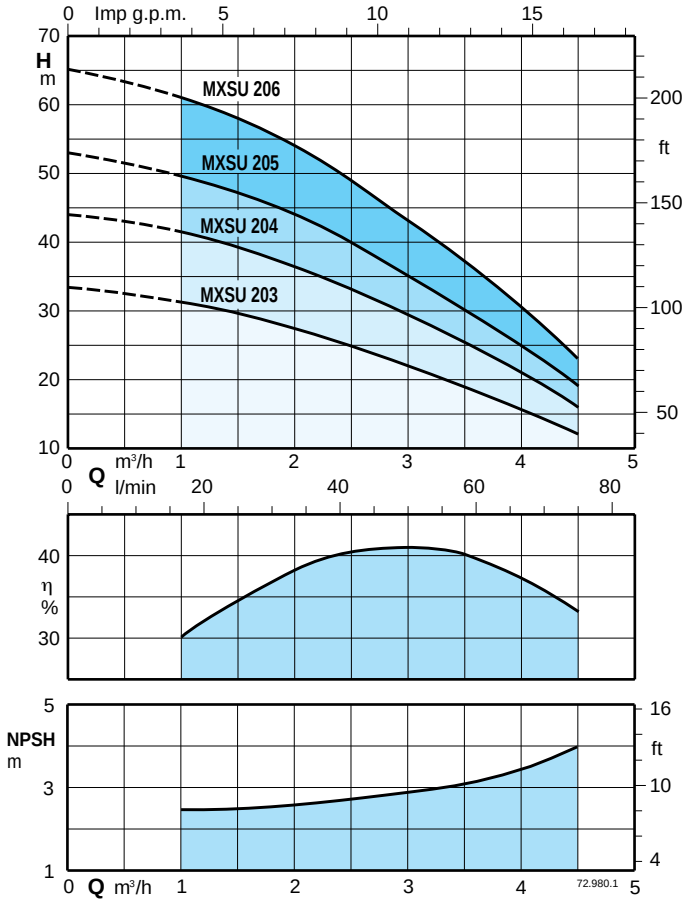
Dimensions and weights

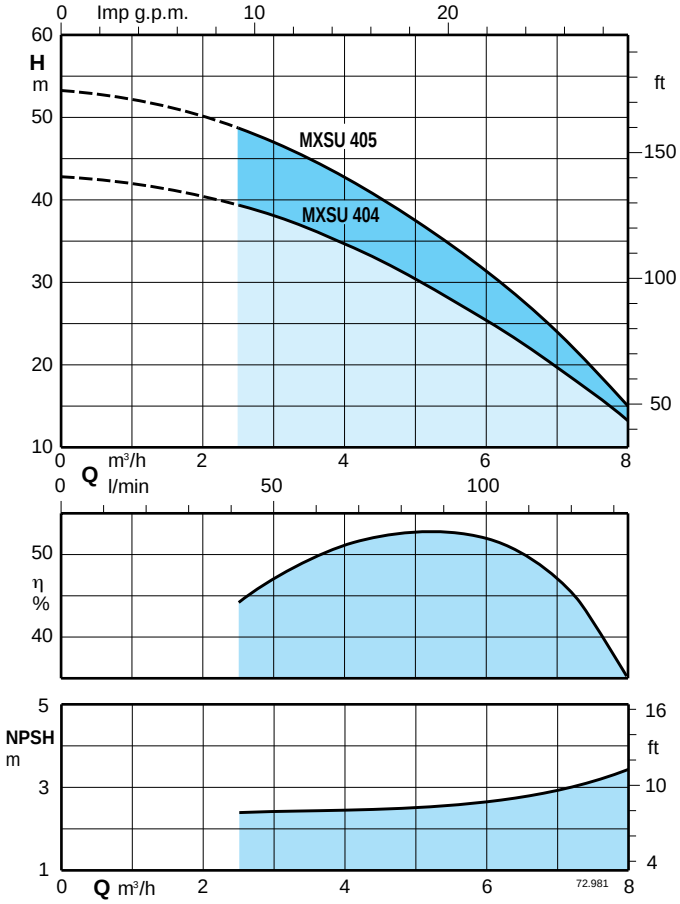
Pump	H mm	kg
MXSU 203	524	11,3
MXSU 204	524	11,5
MXSU 205	548	12
MXSU 206	572	13,3
MXSU 404	524	12,4
MXSU 405	548	12,9
MXSU 803	548	12,5
MXSU 804	548	14,7

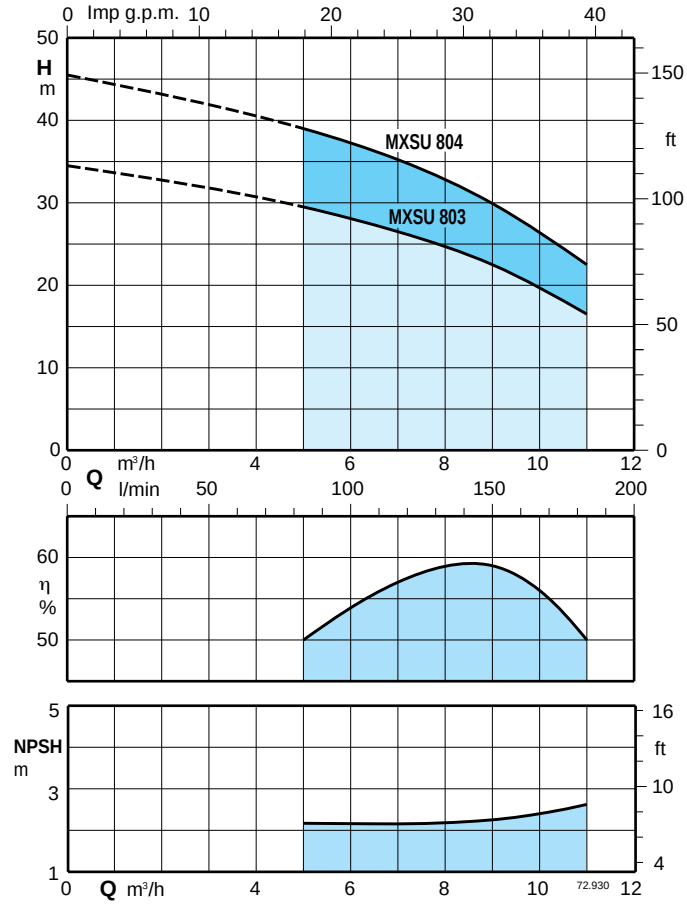
Pump	H mm	kg
MXSUM 203	524	12,3
MXSUM 204	524	12,5
MXSUM 205	548	13,6
MXSUM 206	572	14,8
MXSUM 404	524	14
MXSUM 405	548	14,4
MXSUM 803	548	14,1



Characteristic curves $n \approx 2900$ rpm







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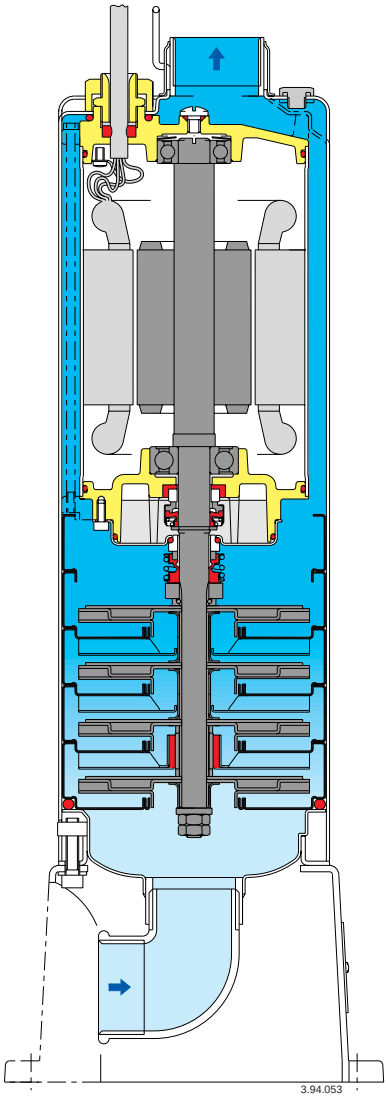
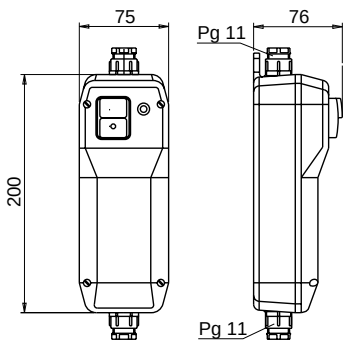
Features



Control box for single-phase pumps (on request)

Pump	Control box	Capacitor	
MXSUM 203	**QM 11**	20 µF	450 V
MXSUM 204			
MXSUM 205			
MXSUM 206	**QM 12**	25 µF	450 V
MXSUM 404			
MXSUM 405			
MXSUM 803			



kg 0,4

HEAT BANK INSTALLATION
AND USER INSTRUCTIONS

CFT-210-DBHCA

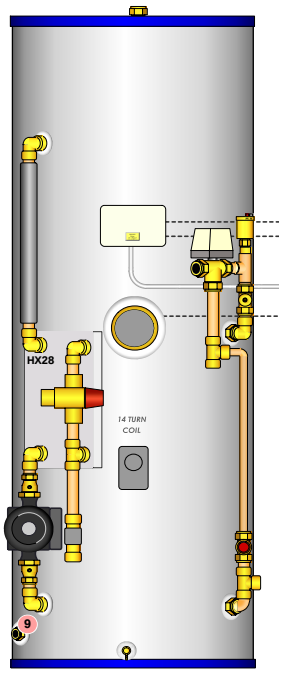
Xcel (low head, 2m) Heat Bank. 160kW Plate Heat Exchanger with 28mm Thermostatic Mixing Valve. Indirectly Heated. Cylinder Thermostat.

- Connects to a Feed and Expansion Tank (max. 2m head).
- 160kW Plate Heat Exchanger can heat 45 ltr/min of mains hot water, up to 6 bar pressure.

210 litres, 590 wide x 470mm x 1300mm high

General Technical Specifications:

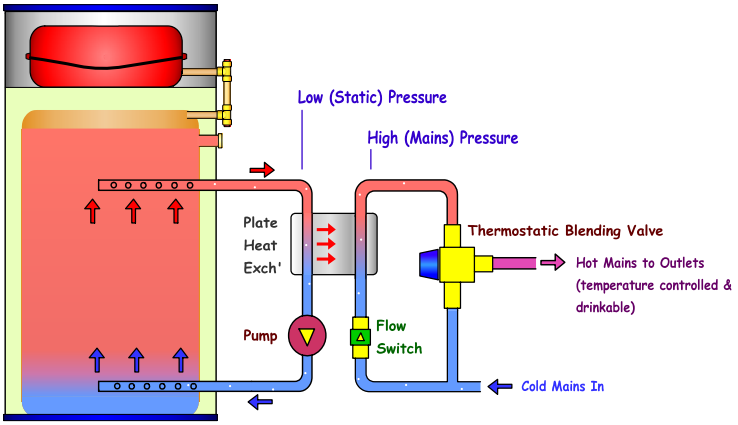
System Classification	Mains Fed Unpressurised Thermal Store
Maximum Mains Supply Pressure	6 Bar Continuous, 8 Bar Peak
Minimum Mains Pressure	0.5 Bar
Hot Water Supply Temperature	35-65°C User Set, Lockable
HW Heat Exchanger Max. Output	160 kW (100 kW & 320 kW available)
HW Heat Exchanger Material	Stainless Steel Plates & Connections, Copper Brazed
HW Heat Exchanger Test Pressure	76 Bar
Operating Store Pressure	Max. 2m Static Head (from F+E Tank)
Storage Temperature	70 to 85°C
Store Construction Material	Unspecified (Copper or Stainless Steel)
Casing Material	Plastic Coated Steel
Insulation	Injected CFC Free Polyurethane.
Discharge Pipe	Overflow from F&E Tank
Power Supplies	3A Fused Spur for Controls 16A for each Immersion Heater to be fired simultaneously.
Servicing Requirements	1 litre Corrosion Inhibitor added every 1-2 years. Min of 1% of system volume must be added at installation.
Guarantees	25 years on Stainless Steel Stores, 10 years on Copper. 2 years on Components. 1 year On-Site Backup (9am-5pm weekdays).



Not to Scale

A Heat Bank is an Advanced Thermal Store providing very high flow rates of Mains Pressure (drinkable) Hot Water. The Heat Bank stores Heat Energy which can be utilised to provide domestic hot water. This heat energy is retained within the Heat Bank by the use of 'HCFC free' foam insulation. The unit is further protected by steel casing with an attractive white finish.

A plate heat exchanger separates the pressurised mains water from the stored water, while allowing rapid transfer of heat. While the mains water pressure can be anything from 0.5 to 6 bar, the stored water is not pressurised. The mains hot water is not stored and is therefore drinkable, and removes the need for a cold water storage tank. The stored water does not change. The build up of scale within the cylinder is therefore eliminated and extra system protection is achieved by the factory addition of inhibitor.



When a hot water tap is opened, the Flow Switch detects this and switches the Pump on. This in turn circulates the hot sotore water through the Heat Exchanger.

The Exchanger uses the heat in the stored water to heat up the mains water. A Thermostatic Blending Valve controls the final hot water temperature by mixing hot and cold mains water to obtain the correct output temperature.

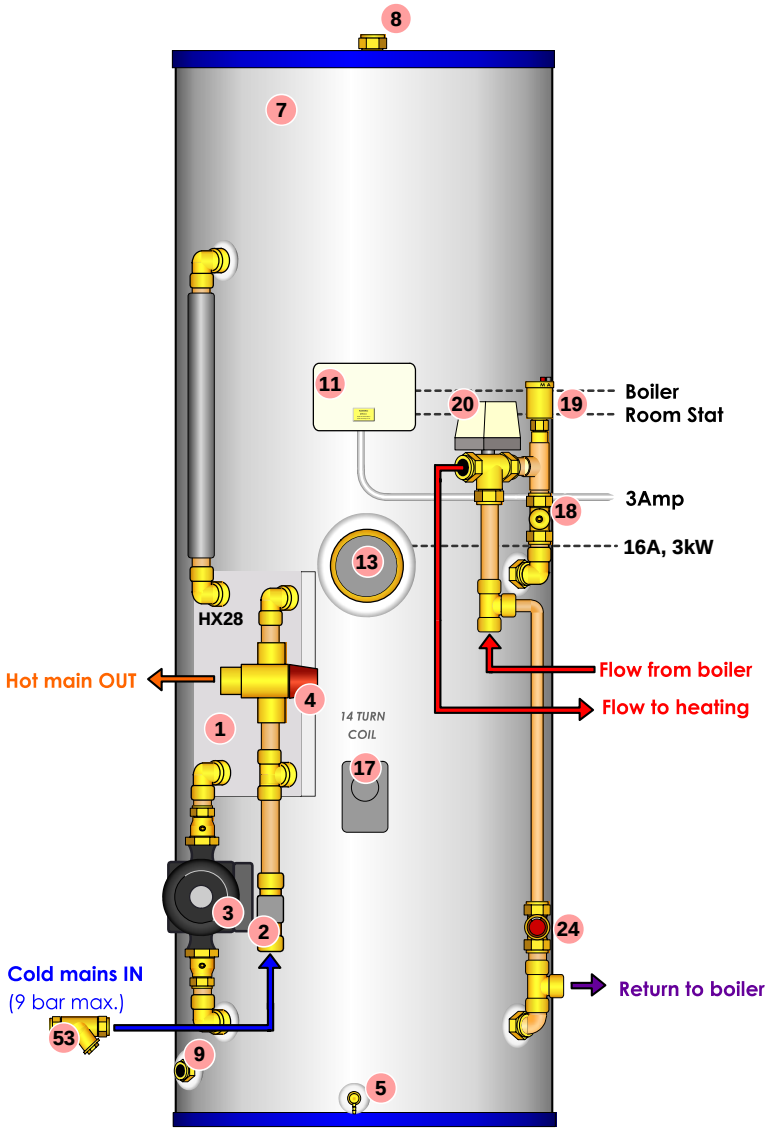
INSTALLATION INSTRUCTIONS
COMPONENTS & CONNECTIONS

CFT-210-DBHCA

The following diagram details the components that are supplied with the Pandora Heat Bank, as well as the connections (mechanical and electrical) to the uniit.

KEY:

1 Plate heat exchanger, L18-28 (160kw+)
2 Flow switch
3 Heat exchanger pump
4 Thermostatic mixing valve, RWC Heatguard 28mm
5 Drain off cock
7 White plastic coated steel casing
8 Vent
9 Cold Feed
11 Wiring Centre
13 Boost Immersion Heater
17 Cylinder Thermostat, Immersed [70°C]
18 Lockshield Balancing Valve, 22mm
19 Automatic Air Vent with Manual Vent
20 Three Port Motorised Valve, 22mm
24 Automatic By-Pass Valve, 22mm
53 Y-Pattern Strainer



Not to Scale

Connections onto the unit are compression or Tectite push-fit. When connecting into a push-fit fitting, ensure that a wheel-type pipe citter is used and that there are no burs that may damage the o-rings. A dicsonnecting tool is supplied to enable release of pipes from push-fit connections.

Please ensure that the lowest point on the cold mains supply (after isolating valve) is fitted with a drain cock to both assist in servicing.

INSTALLATION INSTRUCTIONS
WIRING

CFT-210-DBHCA

The Heat Bank, and all connected equipment, must be installed by a competent person. Correct function and operation must be checked. It is important that the incoming mains power supply has sufficient current and voltage, taking into account the supply requirements of the rest of the property.

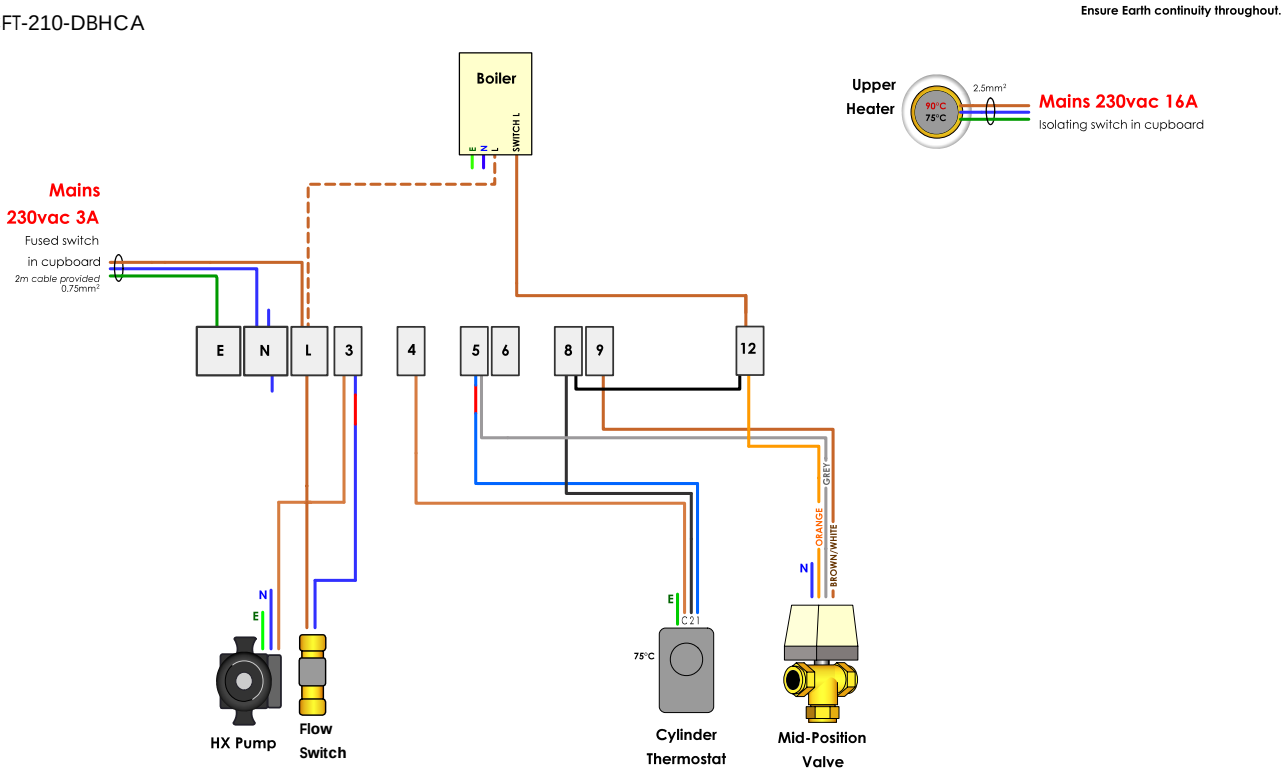
All power supplies must be fitted with double pole isolation within the cylinder cupboard, as well as suitably rated MCB protection at distribution box.

It is important that power supplies to a seperate gas/oil boiler are taken from the unit wiring centre. It is unacceptable to have two independant power supplies/spurs connecting to the same circuit. Take a 5 core wire from store to boiler for safety.

Ensure earth continuity throughout. In wiring diagrams, earth and neutral wires may be abbreviated for clarity.

Wiring Diagram:

CFT-210-DBHCA



INSTALLATION INSTRUCTIONS
COMMISSIONING

CFT-210-DBHCA

Connections onto the unit are compression or Tectite push-fit. When connecting into a push-fit fitting, ensure that a wheel-type pipe cutter is used and that there are no burs that may damage the o-rings. A dicsonnecting tool is supplied to enable release of pipes from push-fit connections.

Filling the Heat Bank:

The unit is filled by the opening the supply to the Feed and Expansion tank, and any isolating valves on the feed from the FE tank. The FE tank will start to fill, followed by the store and any circuits directly connected to it. Always check that the water level in the FE tank is at least 3 inches below the overflow, when the system is full.

It is advised to temporarily remove the ball from the ball valve in the FE tank to test the overflow operates under failure conditions. Always replace securely.

Filling the Primary System:

The primary (boiler) system is filled seperately to the Heat Bank. The primary system must be properly cold/hot flushed prior to final filling. **Always use the correct dose of a reputable corrosion inhibitor to protect the system.**

Please ensure that all air is properly vented from primary pipework and radiators prior to turning on the boiler.

Testing of Primary System:

The aim of testing is to ensure correct operation of boiler and controls, as well as TRVs and general operation of the heating. It also allows hot water to be tested.

1. Check balancing valve(s) on the primary flow the the coil is open, and all radiator valves are open or set to MAXIMUM.
2. Turn system power on, turn the Boiler to FULL ON, and the system controls to HOT WATER ON.
3. The boiler pump should start circulating water and the boiler should start firing.
4. The boiler flow and the flow to the store heating coil should start to heat up.
5. Turn the system controls to HEATING ON and any room thermostats to MAXIMUM.
6. The flow to the central heating should now start to get hot, and in turn radiators.
7. Check all radiators for heat, and bleed air as required. Adjust By-Pass if required.
8. Turn the system controls to HEATING OFF and allow the system to continue heating the Pandora.
9. Check that the Pandora fully heats up (70°C on stat) and that the boiler switches off and the primary pump stops.

Also, turn on power to the immersion heater (if fitted) and check that it is operating. If not then check heater control thermostat is set to around 77°C, the overheat thermostat is set to 90°C, and that the overheat does not need re-setting (see below).

Immersion Heater Overheat and Dry-Fire protection is provided within each heater by the use of an additional reset thermostat. If the heater power supplies are turned on before the unit is filled then there is a very good chance that the thermostat will need re-setting. Simply remove the immersion heater cap and push in the small black button on the thermostat - if it clicks it has reset.

Testing of Hot Water Services:

Once the store has fully heated up, it is important to check that hot water is available at all hot water outlets, and with the required flow rates and temperatures.

The hot water supply temperature should be checked, and if required adjusted using the fitted thermostatic blending valve. Once set, the blending valve can be locked in position (see valve instruction sheet).

INSTALLATION INSTRUCTIONS
USER NOTES & FAULT FINDING

CFT-210-DBHCA

Thermostatic Mixing Valve(s)

Controls hot water temperature. It s setting can be locked by removing and replacing the cap with grooves aligned. Factory set at 55°C.

Similar valves used for hot water an UFH.

Store hot, but no hot water (or hot water for up to 30 seconds only).

- 'Store Hot' means the store is heated to the required 70°C. To check, carefully touch a brass elbow connecting into the store near the top - it should be too hot to keep in contact long. If the store is cold then refer to section 'Store not heating up'. If the problem is the store is not quite hot enough, then you should obtain hotter water at a low flow rate.
- Check controls/programmer is set to provide hot water for at least 1 hour.
- You can heat up the store by using the backup immersion heater. If hot water is then available, it is a sure sign that the boiler is not heating up the store properly.
- Check the cylinder thermostat(s) set to 70°C.
- Check the boiler is turned up full.
- Check the mixing valve is set high enough. If increasing setting on valve does not improve hot water tempratures then check that the hot inlet to the mixing valve (with red cable tie) is hotter than the outlet. If it is hotter then the valve needs servicing or replacing. If the hot inlet is cold or luke warm then look elsewhere for a fault.
- Check power is turned on to controls. Set heat exchanger pump temporarily to speed III and check that the pump turns on and off as a hot tap is opened. If not, then try to 'kick' start the pump manually, by removing the bleed cap on the pump and using a screw driver to turn the spindle. If the pump spindle moves freely, then check that the flow switch has a live supply, and it is passing a live to the pump when a hot tap is opened. If it doesn't pass the live when a hot tap is opened it requires replacement (very rare - more common for hot and cold pipes to be cross-connected).
- Check that the feed and expansion tank contains water, and if not then check ball valve is working and has a water supply. Also check any isolating valves on cold feed to store are open.

Store not heating up - completely cold to touch.

- To get hot water temporarily, you can heat up the store by using the backup immersion heater.
- Check power is on (lights work on programmer) and controls/programmer is set to provide hot water for at least 1 hour.
- Does the central heating work? If not then the fault probably lies with the programmer or the boiler.
- Check the boiler is turned up full.
- Check the cylinder thermostat(s) set to 70°C.
- Check the coil balancing valve is open.
- Check the motorised valve for hot water has opened - if it has the lever will swing easily without returning. If not, then problem is with either the programmer, cylinder stat or motorised valve actuator. The valve can be manually locked open to temporarily obtain hot water.
- The programmer is faulty if terminal 4 (HW On) is not live with the programmer set HW On.
- The cylinder stat is faulty if terminal 4 is live but 8 is not, with the cylinder stat set to 70°C.
- The motorised valve is faulty if terminal 8 is live (brown wire to valve) but the valve is not opening. The fault will be with either

Heat Bank Design

CFT-210-DBHCA

- **Connects to a Feed and Expansion Tank (max. 2m head).**
- **160kW Plate Heat Exchanger can heat 45 ltr/min of mains hot water, up to 6 bar pressure.**

KEY:

1 Plate heat exchanger, L18-28 (160kw+)
2 Flow switch
3 Heat exchanger pump
4 Thermostatic mixing valve, RWC Heatguard 28mm
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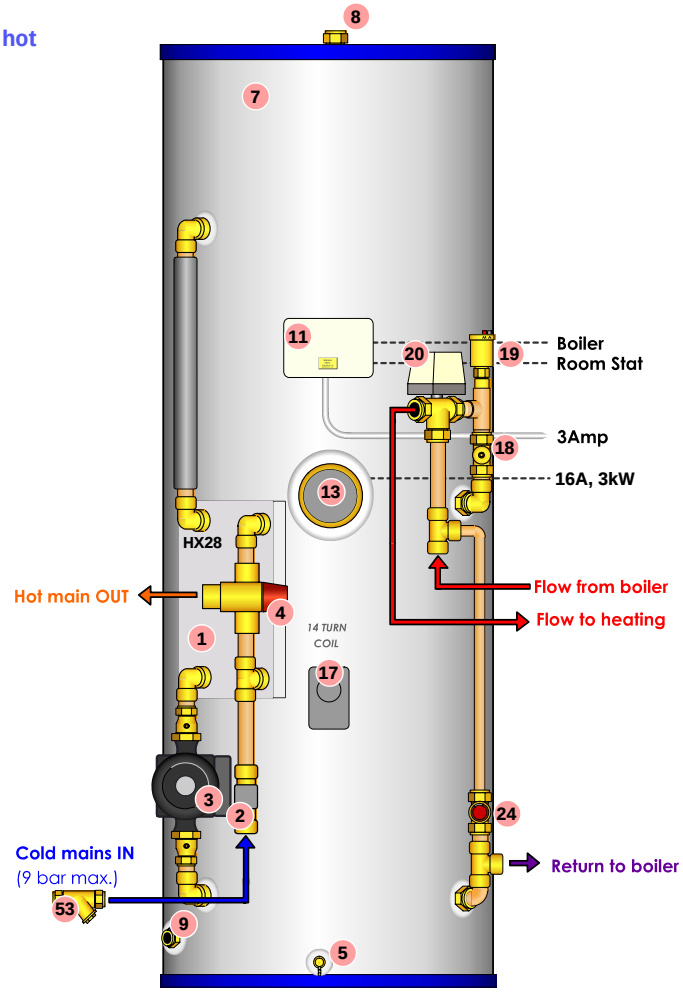
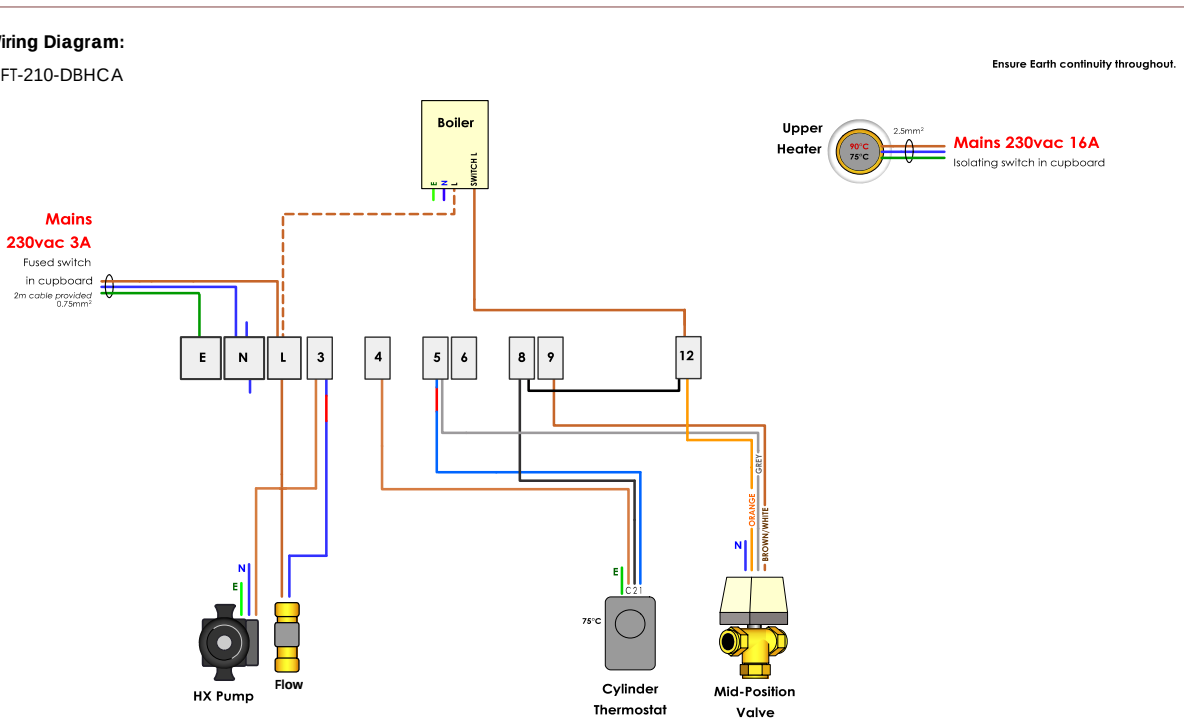


Not to Scale

Wiring Diagram:

CFT-210-DBHCA



ACCESSORIES

calpeda
CREATIVE TECHNOLOGY

VALVES

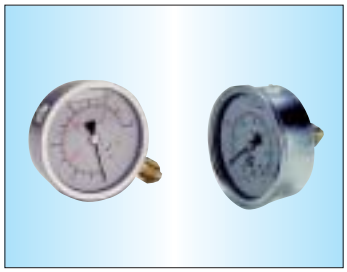
check valve

VNR 1
VNR 1 1/4
VNR 1 1/2
VNR 2

foot valve

VDF 1
VDF 1 1/4
VDF 1 1/2
VDF 2

PRESSURE GAUGES



axial connection type

MA 0-6
MA 0-6 ABS

radial connection type

MR 0-10
MR 0-12
MR 0-16

CONNECTOR

type	connection
RA5 H 92	G 1
RA5 H 105	G 1

PRESSURE SWITCHES

type	standard setting	max pressure
FSG 2	1,4 - 2,8 bar	4,5 bar
FYG 22	5,4 - 7 bar	7 bar
FYG 32	8 - 10,5 bar	10,5 bar

SPHERICAL VESSEL

type	connect.	capacity
SS 24	G 1	24 l

BUTYL rubber diaphragm.

CYLINDRICAL VESSEL

vessel with base and feet

type	connect.	capacity
SC 20 BP	G 1	20 l

BUTYL rubber diaphragm.

INOX CYLINDRICAL VESSEL

vertical cylindrical vessel

type	connect.	capacity
SCX 20	G 1	20 l

BUTYL rubber diaphragm.

INOX CYLINDRICAL VESSEL

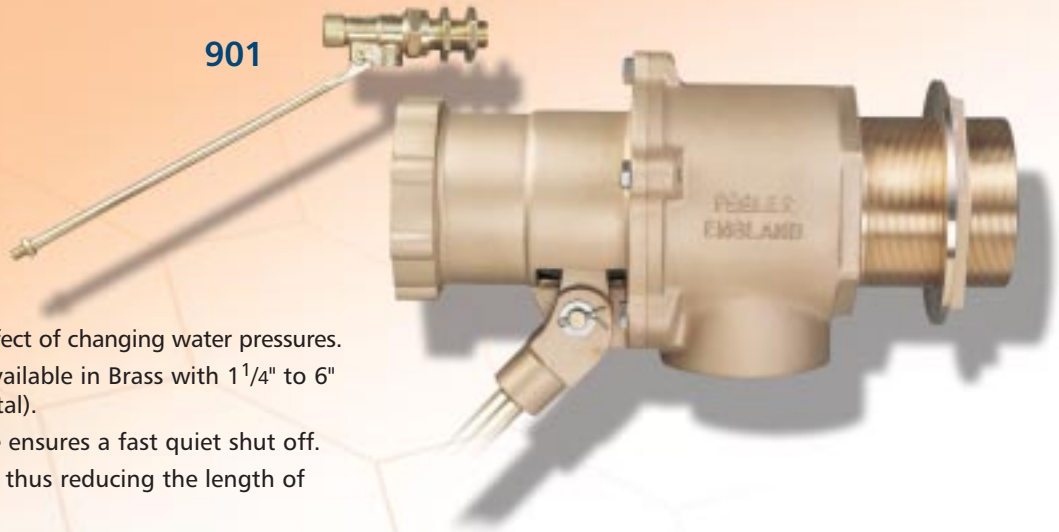
vessel with base and feet

type	connect.	capacity
SCX 20 BP	G 1	20 l

BUTYL rubber diaphragm.

EQUILIBRIUM PATTERN FLOATVALVES

901



FEATURES

- Designed to minimise the effect of changing water pressures.
- Size range from 1/2" to 1" available in Brass with 1 1/4" to 6" available in Bronze (Gunmetal).
- Smoothly controlled closure ensures a fast quiet shut off.
- Line pressure assists closing thus reducing the length of lever required.
- One size of seat and one size of ball float suits any working pressure up to 14 bar or the maximum recommended (detailed below).
- Recommended for temperatures from 0-85˚C.

FLOW RATE & SIZE SELECTION CHART (GPM)

Static Pressure		901 – Floatvalve Size									
BAR	PSI	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"
0.5	7.2	4.9	12.5	28.0	50.0	70.0	110.0	250.0	310.0	450.0	800.0
1.0	14.5	6.9	17.7	38.0	71.0	100.0	150.0	350.0	440.0	630.0	1130.0
1.5	21.7	8.4	21.7	48.0	87.0	120.0	190.0	430.0	540.0	770.0	1380.0
2.0	29.0	9.7	25.0	55.0	100.0	140.0	220.0	500.0	620.0	890.0	1600.0
2.5	36.2	10.9	28.0	62.0	112.0	150.0	250.0	560.0	690.0	1000.0	1780.0
3.0	43.5	11.9	31.0	68.0	122.0	170.0	270.0	610.0	760.0	1100.0	1950.0
4.0	58.0	13.8	35.0	80.0	142.0	190.0	320.0	710.0	880.0	1270.0	2250.0
5.0	72.0	15.3	39.0	88.0	157.0	220.0	350.0	790.0	980.0	1400.0	2500.0
6.0	87.0	16.8	43.0	96.0	173.0	240.0	380.0	870.0	1070.0	1550.0	2750.0
7.0	101.0	18.2	46.0	104.0	186.0	260.0	420.0	940.0	1160.0	1670.0	2950.0
8.0	116.0	19.5	50.0	110.0	200.0	280.0	440.0	1000.0	1250.0	1800.0	3200.0
9.0	130.0	20.7	53.0	118.0	212.0	300.0	470.0	1060.0	1320.0	1900.0	3400.0
10.0	145.0	21.7	56.0	125.0	223.0	315.0	500.0	1120.0	1390.0	2000.0	3550.0
11.0	159.0	22.8	59.0	130.0	234.0	330.0	520.0				
12.0	174.0	23.8	61.0	136.0	245.0	340.0	540.0	NOT SUITABLE FOR PRESSURES ABOVE 10 BAR			
13.0	188.0	24.9	64.0	142.0	255.0	360.0	570.0				
14.0	203.0	25.7	66.0	148.0	264.0	370.0	590.0				

Flow Rate and Size Selection Chart general Notes

The discharge through a floatvalve is governed by the running pressure maintained at its inlet. In practice this is difficult to measure and so the tables shown indicate the 'estimated' flow rate in G.P.M. that will occur at various static heads for each size of floatvalve or for each size of seat in floatvalves that accept a variety of seat sizes. The flow rates quoted will only occur when the floatvalve is fully open and will reduce as the water level in the tank rises. Excessive pipe runs to the floatvalve will result in lower running pressures and thus reduced flowrates.

RANGE

WEIGHT

		Patt. No.	Size	Piston Material	Backnut Material	Seat Bore	Tail Length	Lever Length	Recommended Float Size		Approx KG
									Copper	Plastic	
REDUCED BORE	BRASS CONSTRUCTION	901	1/2"	brass	brass	5/16"	1 1/4"	11"	4 1/2" x 5/16"W	4 1/2" x 5/16"W	0.52
		901	3/4"	brass	brass	1/2"	1 1/4"	12 7/8"	5 1/2" x 5/16"W	5" x 5/16"W	0.81
		901	1"	bronze	bronze	3/4"	1 1/2"	10 1/16"	6" x 7/16"W	6" x 7/16"W	1.65
	BRONZE CONSTRUCTION	901	1 1/4"	bronze	bronze	11/64"	1 7/8"	10 13/16"	8" x 9/16"W	8" x 9/16"W	3.40
		901	1 1/2"	bronze	bronze	13/16"	1 7/8"	10 13/16"	10" x 9/16"W	10" x 9/16"W	3.44
		901	2"	bronze	bronze	1 1/2"	2 1/8"	11 1/8"	12" x 5/8"W	12" x 5/8"W	5.98
		901	2 1/2"	bronze	bronze	2 1/4"	3"	19"	12" x 9/16"W	-	6.18
		901	3"	bronze	bronze	2 1/2"	3 1/2"	20"	14" x 3/4"W	-	8.80
		901	4"	bronze	bronze	3"	4"	21"	15" x 3/4"W	-	12.20
		901	6"	bronze	bronze	4"	5"	23"	16" x 7/8"W	-	24.5

Note: Where two sizes or two patterns of floatvalve are capable of providing the required flow rate, select the smaller size if the indicated flow rate is more than 10% in excess of the flow rate required.