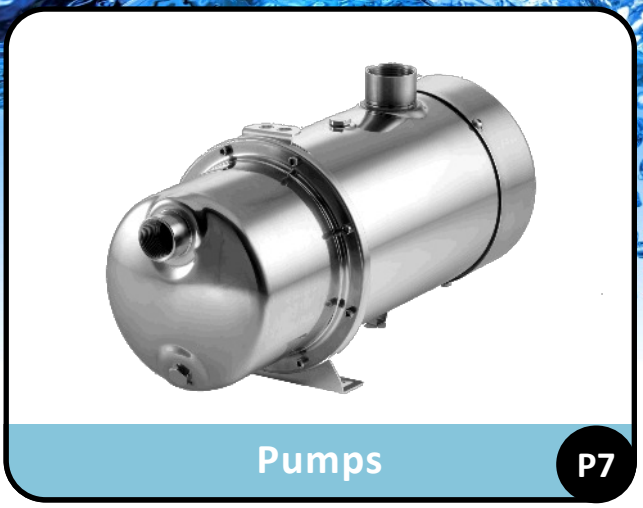
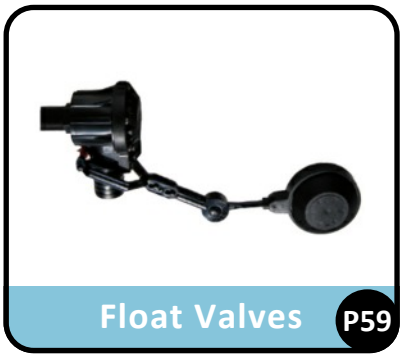
STEELPUMPS
EVOLUTION

The Smart Pump



Pumps P7

Wash Down Sets P23



Float Valves P59

Pressure Boosters P29

Controllers P39

PUMP & CONTROLLER CATALOGUE 2018

SteelPumps.co.uk

January 2018

Welcome to the SteelPumps UK Pump & Controller Catalogue

HIGH FLOW

Powerful Fully Automatic P14

NEW!

Wash Down Sets P23

NEW!

Direct On-line Controllers P44

WATER PROOF

Pressure Boosting P32

Trade discounts apply

For prices please refer to our latest price list

For ALL orders we require:
Full Address, Contact Name and Telephone Number

NEW!

Booster Tank Systems P34

STEELPUMPS EVOLUTION
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FAX – 0845 5443150

Contents

WHY CHOOSE STEELPUMPS?

Quality

We supply a range of innovative pumps and related products, assembled in Italy from entirely EU sourced components. Our pumps are individually tested during production, so that each SteelPumps product meets the high standards you would expect of an Italian made pump.

Innovation

The majority of our pumps are available with our advanced electronic pump control module. This is built into the pump itself and switches the pump on and off as required to maintain pressure in the discharge line. In addition the control module provides dry run protection and leak detection.

Durability

All of our pumps use strong, durable materials, with the PRO series being housed entirely in stainless steel, with strong brass supporting flanges. Water cooled motors provide far superior cooling than air or oil cooled pumps in enclosed or warm areas, providing for reliable operation in plant rooms and cabinets. SteelPumps do not need to be submerged to operate safely. Water cooling makes them very quiet in operation too.

Longevity

SteelPumps are designed for a long and reliable service life. In the event of damage or eventual failure due to use over time, all parts are replaceable, all parts are available. Nothing is anti-tamper or “snap-together, break-apart”. Our pumps can be fully serviced without special tools and we provide full parts listings and exploded diagrams on request.

Technology

Most of our range is available in Automatic as well as Manual versions. Automatic pumps include an in-built electronic pump control module which switches the pump on and off as required to maintain pressure in the discharge pipe. No external pressure controller is needed. Also included are safeguards such as dry run protection with automatic restart intervals, leak detection, and anti-blocking. These advanced features make Automatic SteelPumps a class leading product for water delivery applications such as rainwater harvesting, washdown, pressure boosting and irrigation.

Choice

Vertical or Horizontal body styles, various motors, and 3 build levels allow you to choose the configuration and price range to suit your application.

P Series Pumps: Designed primarily for portable and garden use.
B Series Pumps: Designed for domestic and light commercial use.
PRO Series: Extensive use of stainless steel and brass, designed for commercial and industrial use.

Warranty

SteelPumps are guaranteed for two years against materials and manufacturing defects from the date of purchase. The guarantee is not valid if the pump has been disassembled in any way.

The guarantee does not cover malfunctioning due to a failure to properly install or commission the pump in accordance with the installation instructions. Correct installation is vital in the case of automatic pumps which will run excessively if the pressure drops.

TECHNICAL ADVANTAGES

SteelPumps are a unique and distinctive design, and were intended from the outset to be unlike other pumps, not only in setting a high standard for reliability and performance, but also ease of ownership. The following key features set SteelPumps apart from competing brands.

Excellent Efficiency

With large bearings, outlet port and efficient hydraulic design SteelPumps are among the most efficient pumps in their class, achieving the same performance with less power consumption than many other pumps.

Quiet Smooth Performance

Extremely low noise and vibration levels. Due to the use of larger and smoother running motor components, a single piece rotor shaft, and a 360 degree water jacket surrounding the motor, noise absorbtion is enhanced, making them far more pleasant to live with than a traditional air-cooled pump.

Reliability

Larger bearings and motors reduce wear, stress and heat generation compared with many other brands. Our water cooled design and stainless steel stator housing remove heat from the motor faster than any other type of design. Unlike air and oil cooled pumps, which warm up quickly in hot rooms , SteelPumps stay almost as cool as the water they are pumping.

Ease of Maintenance

Many pumps are designed to last the warranty period and be thrown away, with plastic motor housings, near impossible disassembly, and even corrodable fastenings. SteelPumps are designed to be servicable long into the future, with common service components easily replaceable. The capacitor, pressure switch, flow sensor and control unit are all easily accessed.

Disassembly of the entire pump is straightforward using basic tools, and availability of ALL parts, including nuts and bolts. There are no corrodable mechanical parts within our pumps, no potted electronics, no sealed wiring (everything unplugs). Service diagrams and information are freely available. While other brands are 'production engineered' to be assembled fast and never taken apart, SteelPumps can be maintained indefinitely.

Versatility

All our submersible pumps are not only rated for continuous immersion up to 5m depth, but can also be run at 100% duty out of the water.

Support

SteelPumps are supported by our UK technical department. We can diagnose, repair and recondition from our workshop, but are just as content to supply parts, information and advice. We hold most spare parts in stock here in the UK. We operate a class leading Returns System in the event of a pump needing to be returned to us.

Troubleshooting Guides

Trouble shooting guides for Approved Service Agents, technicians and other competent persons are available in various formats at: http://www.steelpumps.co.uk/support/troubleshooting-guide/

Automatic SteelPump Features

Automatic Operation

Stops the pump by flow sensing, restarts on pressure drop.

Anti-Blocking System

Starts the pump briefly after 72 hours of inactivity.

Dry Run Protection

Stops the pump upon loss of flow.
Automatic restarts attempted at 15min, 30min, 1hr, 5hr and 24hr.

Leak Detection

Stops the pump if 40 restarts are detected within 27 minutes (B and Pro Series).

Product Code Nomenclature

Meaning	Always X	Automatic / Manual	Pump Type	Motor Power	Build Type	High Flow	Supply Voltage
Options	X	A - Automatic (if not present pump is manual)	JE - Jet Pump Horizontal JV - Jet Pump Vertical MO - Multistage Horizontal MV - Multistage Vertical MN - Single Impeller MF - Fountain Pump Multistage 2CP - Double Impeller	80 - 0.8HP 100 - 1HP 120 - 1.2HP 150 - 1.5HP 200 - 2HP (HF Models except XMV150PRO) 1204 - 1.2HP 1505 - 1.5HP 2006 - 2HP	P B Pro	HF - High Flow Model	None - ~1 230Vac T230 - ~3 230Vac T400 - ~3 400Vac

except X-MARE, X-VISCO and WP-15

X-AJE/JE P Single Stage Jet Pumps

For Garden & Portable Use

X-AJE/JE P JET SELF-PRIMING / TECHNOPOLYMER SUPPORTS

Surface/Dry

Submersible

Automatic

Single Phase 230Vac

Three Phase 230Vac 400Vac

CODE	Manual Automatic	Nominal Power		Current Amps		
		HP	KW	1~230v	3~230v	3~400v
XAJE80P	Automatic	0.8	0.6	4.5		
XAJE100P	Automatic	1	0.75	5.3		
XAJE120P	Automatic	1.2	0.9	5.9		
XJE80P	Manual	0.8	0.6	4.5		
XJE100P	Manual	1	0.75	5.3		
XJE120P	Manual	1.2	0.9	5.9		
XJE120PT 230/400	Manual	1.2	0.9		3.6	2.3

Self priming centrifugal jet pump with or without electronic pressure control, single or 3 phase. For submerged, underground or surface mounting.

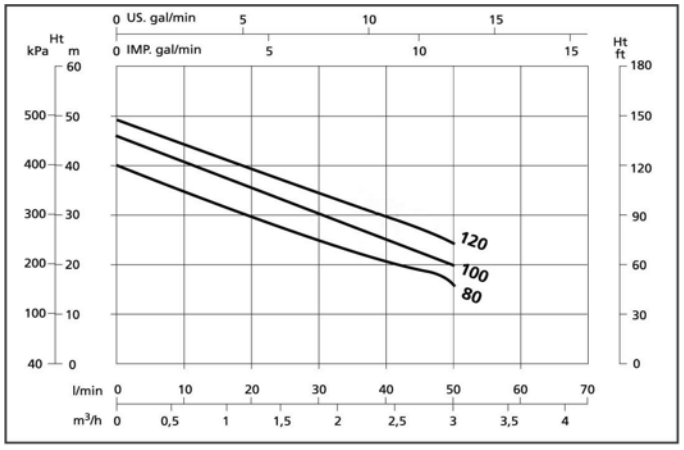
Automatic version includes pressure control, anti-blocking system, and dry run protection with automatic restart. Software designed primarily for portable and temporary installation, See X-AJEB / X-JEB / X-JEBT for permanent installations.

Available with 0.8hp, 1hp, and 1.2hp motors.

Water cooled, single stage impeller/diffuser with venturi. Supplied with 10m cable.

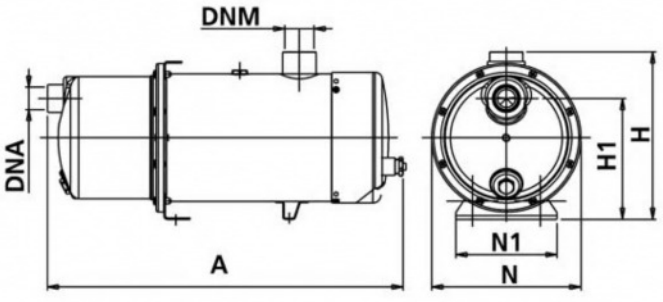
Suitable for domestic boosting, above ground rainwater harvesting, tanks, surface irrigation, tank transfer.

Pumped liquid: Clean cold water without abrasives or solids.



Materials

Pump Body:	Polypropylene
Motor Body:	Stainless 304
Rotor Shaft:	Stainless 420
Supporting Flanges:	Polypropylene
Impeller, Diffuser & Venturi:	Noryl
Electrical cover:	Polypropylene
Mechanical Seal:	Silicon Carbide
Other Seals:	NBR70



Options & Accessories

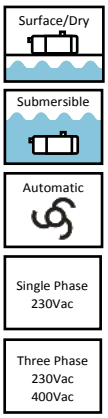
- Float Switch
- External Capacitor Kit
- Electronic Controller
- Soft Start (by special order)

Code	Measurement (mm unless indicated)							Weight
	A	N	H	H1	N1	DMN	DNA	Kg
X-AJE/JE 80P	447	200	226	163	136	1"¼	1"	11.5
X-AJE/JE 100P	477	200	226	163	136	1"¼	1"	12
X-AJE/JE 120P	477	200	226	163	136	1"¼	1"	13

X-AJV/JV P Vertical Single Stage Jet Pumps

For Garden & Portable Use

X-AJV/JV P JET SELF-PRIMING / TECHNOPOLYMER SUPPORTS



CODE	Manual Automatic	Nominal Power		Current Amps		
		HP	KW	1~230v	3~230v	3~400 v
XAJV100P	Automatic	1	0.75	5.3		
XAJV120P	Automatic	1.2	0.9	6.3		
XJV100P	Manual	1	0.75	5.3		
XJV120P	Manual	1.2	0.9	6.3		
XJV120PT 230/400	Manual	1.2	0.9		3.6	2.3

Self priming centrifugal jet pump with or without electronic pressure control, single or 3 phase. For submerged, underground or surface mounting.

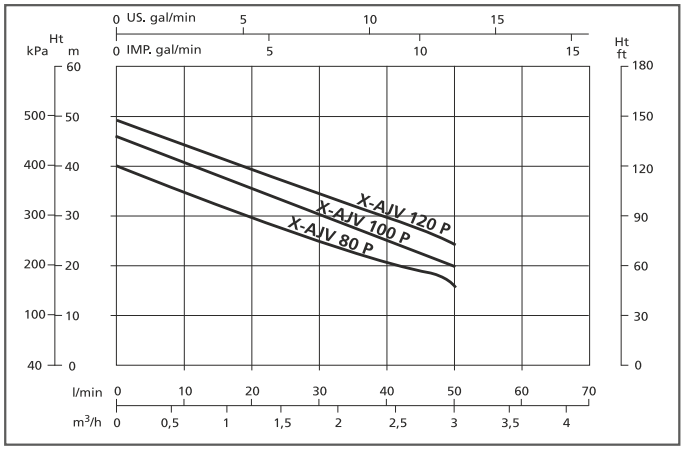
Automatic version includes pressure control, anti-blocking system, and dry run protection with automatic restart.

Available with 1hp, and 1.2hp motors.

Water cooled, single stage impeller/diffuser with venturi. Supplied with 10m cable.

Suitable for domestic boosting, above ground rainwater harvesting, tanks, surface irrigation, tank transfer.

Pumped liquid: Clean cold water without abrasives or solids.

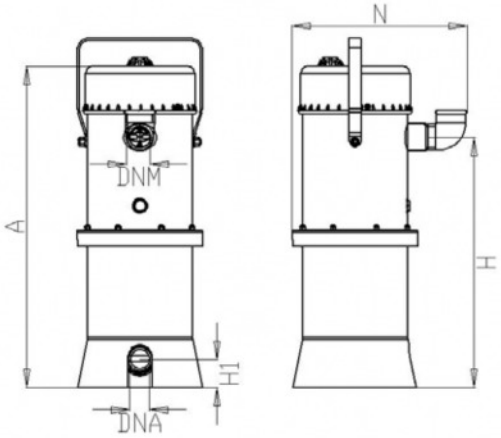


Materials

Pump Body:	Stainless 304
Motor Body:	Stainless 304
Rotor Shaft:	Stainless 420
Supporting Flanges:	Polypropylene
Impeller, Diffuser & Venturi:	Noryl
Electrical cover:	Polypropylene
Mechanical Seal:	Silicon Carbide
Other Seals:	NBR70

Options & Accessories

- Float Switch
- External Capacitor Kit
- Electronic Controller
- Soft Start (by special order)



Code	Measurement (mm unless indicated)						Weight
	A	N	H	H1	DMN	DNA	Kg
X-AJE/JE 100P	477	200	226	46	1"¼	1"	15
X-AJE/JE 120P	477	200	226	46	1"¼	1"	16

X-AJE/JE B Single Stage Jet Pumps

For Domestic & Light Commercial Uses

X-AJE/JE B JET SELF-PRIMING / STEEL BODY & TECHNOPOLYMER

CODE	Manual Automatic	Nominal Power		Current Amps		
		HP	KW	1~230v	3~230v	3~400v
XAJE80B	Automatic	0.8	0.6	4.5		
XAJE100B	Automatic	1	0.75	5.3		
XAJE120B	Automatic	1.2	0.9	6.3		
XJE80B	Manual	0.8	0.6	4.5		
XJE100B	Manual	1	0.75	5.3		
XJE120B	Manual	1.2	0.9	6.3		
XJE80BT 230/400	Manual	0.8	0.6		3.6	
XJE120BT 230/400	Manual	1.2	0.9			2.3

Self priming centrifugal jet pump with or without electronic pressure control, single or 3 phase. For submerged, underground or surface mounting.

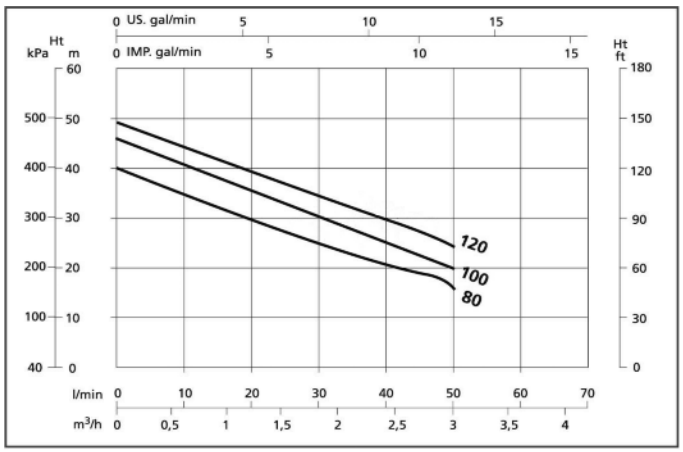
Automatic version includes pressure control, anti-blocking system, and dry run protection with automatic restart.

Available with 0.8hp, 1hp, and 1.2hp motors.

Water cooled, single stage impeller/diffuser with venturi. Supplied with 10m cable.

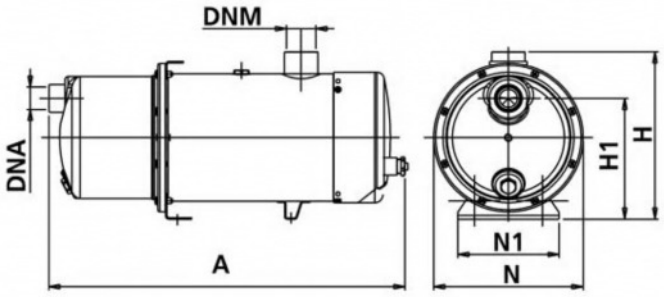
Suitable for domestic boosting, above ground rainwater harvesting, tanks, surface irrigation, tank transfer.

Pumped liquid: Clean cold water without abrasives or solids.



Materials

Pump Body:	Stainless 304
Motor Body:	Stainless 304
Rotor Shaft:	Stainless 420
Supporting Flanges:	Polypropylene
Impeller, Diffuser & Venturi:	Noryl
Electrical cover:	Polypropylene
Mechanical Seal:	Silicon Carbide
Other Seals:	NBR70



Options & Accessories

- Float Switch
- External Capacitor Kit
- Electronic Controller
- Soft Start (by special order)

Code	Measurement (mm unless indicated)							Weight
	A	N	H	H1	N1	DMN	DNA	Kg
X-AJE/JE 80B	447	200	226	163	136	1"¼	1"	11.5
X-AJE/JE 100B	477	200	226	163	136	1"¼	1"	12
X-AJE/JE 120PB	477	200	226	163	136	1"¼	1"	13

X-AJE/JE PRO Single Stage Jet Pumps

For Commercial & Industrial Use

X-AJE/JE PRO JET SELF-PRIMING / STEEL BODY & BRASS

Surface/Dry

Submersible

Automatic

Single Phase 230Vac

Three Phase 230Vac 400Vac

CODE	Manual Automatic	Nominal Power		Current Amps		
		HP	KW	1~230v	3~230v	3~400v
XAJE80PRO	Automatic	0.8	0.6	4.5		
XAJE100PRO	Automatic	1	0.75	5.3		
XAJE120PRO	Automatic	1.2	0.9	5.9		
XJE80PRO	Manual	0.8	0.6	4.5		
XJE100PRO	Manual	1	0.75	5.3		
XJE120PRO	Manual	1.2	0.9	5.9		
XJE120T 230/400	Manual	1.2	0.9		3.6	2.3

Self priming centrifugal jet pump with or without electronic pressure control, single or 3 phase. For submerged, underground or surface mounting. Main flanges in brass for extra longevity and durability against heat/frost.

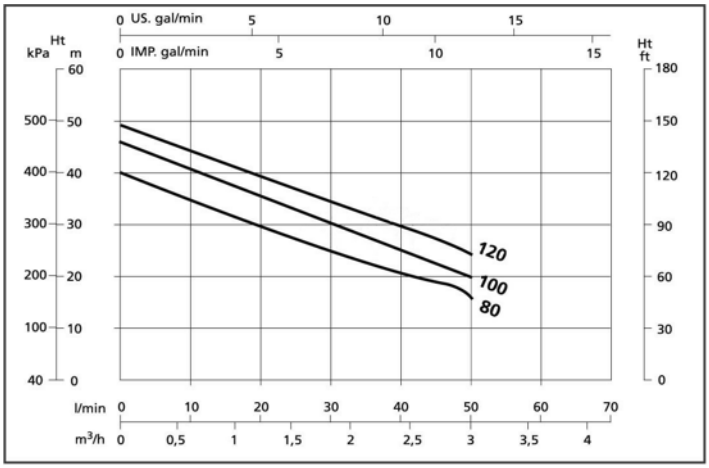
Automatic version includes pressure control, anti-blocking system, leak detection, and dry run protection with automatic restart.

Available with 0.8hp, 1hp, and 1.2hp motors.

Water cooled, single stage impeller/diffuser with venturi. Supplied with 10m cable.

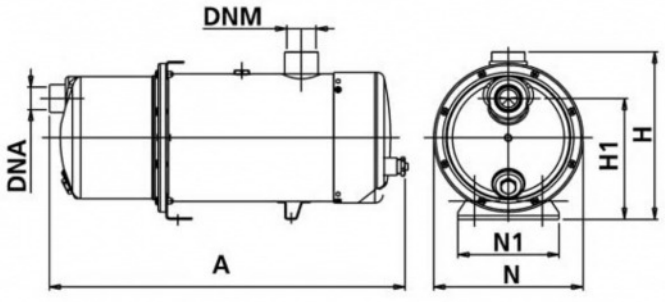
Suitable for domestic boosting, above ground rainwater harvesting, tanks, surface irrigation, tank transfer.

Pumped liquid: Clean cold water without abrasives or solids.



Materials

Pump Body:	Stainless 304
Motor Body:	Stainless 304
Rotor Shaft:	Stainless 420
Supporting Flanges:	Brass
Impeller, Diffuser & Venturi:	Noryl
Electrical cover:	Stainless 304
Mechanical Seal:	Ceramic/Graphite
Other Seals:	NBR70



Options & Accessories

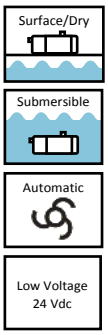
- Float Switch
- External Capacitor Kit
- Electronic Controller
- Soft Start (by special order)

Code	Measurement (mm unless indicated)							Weight
	A	N	H	H1	N1	DMN	DNA	Kg
X-AJE/JE 80PRO	447	200	226	163	136	1"¼	1"	14.5
X-AJE/JE 100PRO	477	200	226	163	136	1"¼	1"	15
X-AJE/JE 120PRO	477	200	226	163	136	1"¼	1"	16

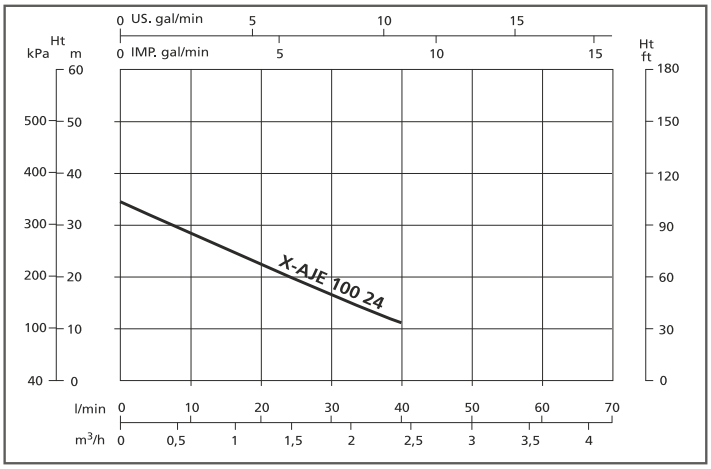
X-AJE100 24 Low Voltage 24Vdc Single Stage Jet Pump

For Vehicle Mount or off-grid Use

X-AJE100 24 JET SELF-PRIMING 24 V/ STEEL BODY & BRASS



CODE	Manual Automatic	Nominal Power		Current Amps
		HP	KW	24Vdc
XAJE100 24	Automatic	1	0.75	29



Self priming centrifugal jet pump with or without electronic pressure control, 24v DC. For submerged, underground or surface mounting. Main flanges in brass for extra longevity and durability against heat/frost.

Automatic version includes pressure control, anti-blocking system, leak detection, and dry run protection with automatic restart.

Available with 1hp motor (requires 29A current).

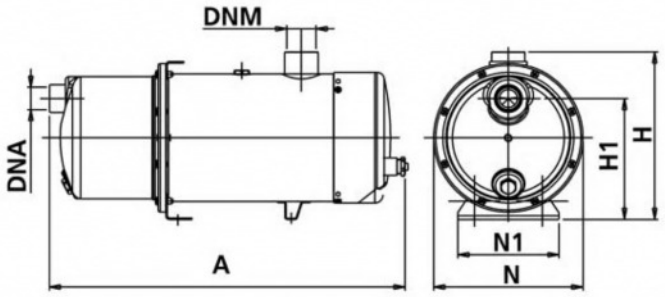
Water cooled, single stage impeller/diffuser with venturi. Supplied with 10m cable.

Suitable for domestic/industrial boosting, rainwater harvesting, surface irrigation, tank transfer, vehicle mount applications.

Pumped liquid: Clean cold water without abrasives or solids.

Materials

Pump Body:	Stainless 304
Motor Body:	Stainless 304
Rotor Shaft:	Stainless 420
Supporting Flanges:	Brass
Impeller, Diffuser & Venturi:	Noryl
Electrical cover:	Stainless 304
Mechanical Seal:	Ceramic / Graphite
Other Seals:	NBR70



Code	Measurement (mm unless indicated)							Weight
	A	N	H	H1	N1	DMN	DNA	Kg
X-AJE 100 24	477	200	226	163	136	1"¼	1"	18

X-AMO/MO B Multistage Pumps

High Flow Rate for Domestic & Light Commercial Use

X-AMO/MO B MULTISTAGE / STEEL BODY & TECHNOPOLYMER SUPPORTS

Surface/Dry

Submersible

Automatic

Single Phase 230Vac

Three Phase 230Vac 400Vac

CODE	Manual Automatic	Nominal Power		Current Amps		
		HP	KW	1~230v	3~230v	3~400v
XAMO80B	Automatic	0.8	0.6	4.8		
XAMO100B	Automatic	1	0.75	6.36		
XAMO120B	Automatic	1.2	0.9	7.2		
XMO80B	Manual	0.8	0.6	4.8		
XMO100B	Manual	1	0.75	6.36		
XMO120B	Manual	1.2	0.9	7.2		
XMO120BT 230/400	Manual	1.2	0.9		3.3	2.5

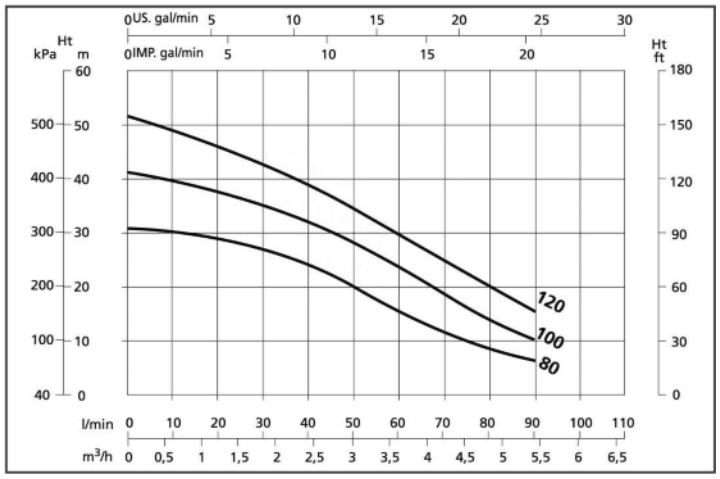
Self priming multistage centrifugal pump with or without electronic pressure control, single or 3 phase. For submerged, underground or surface mounting.

Automatic version includes pressure control, anti-blocking system, leak detection, and dry run protection with automatic restart.

Available with 0.8hp, 1hp, and 1.2hp motors.

Water cooled, multistage impeller/diffuser with venturi. Supplied with 10m cable.

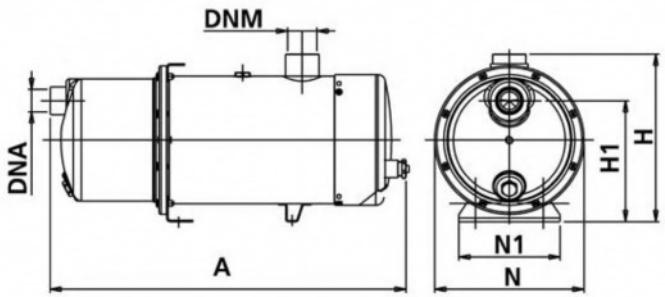
Suitable for domestic boosting, rainwater harvesting, surface irrigation, tank transfer.



Pumped liquid: Clean cold water without abrasives or solids.

Materials

Pump Body:	Stainless 304
Motor Body:	Stainless 304
Rotor Shaft:	Stainless 420
Supporting Flanges:	Polypropylene
Impellers:	Stainless 304
Diffuser & Venturi:	Noryl
Electrical cover:	Polypropylene
Mechanical Seal:	Silicon Carbide
Other Seals:	NBR70



Code	Measurement (mm unless indicated)							Weight
	A	N	H	H1	N1	DMN	DNA	Kg
X-AMO/MO 80B	447	200	226	163	136	1"¼	1"	14.5
X-AMO/MO 100B	477	200	226	163	136	1"¼	1"	15
X-AMO/MO 120B	477	200	226	163	136	1"¼	1"	16

Options & Accessories

- Float Switch
- External Capacitor Kit
- Electronic Controller
- Soft Start (by special order)

X-AMO/MO PRO Multistage Pumps

High Flow Rate for Commercial & Industrial Use

X-AMO/MO PRO MULTISTAGE / STEEL BODY & BRASS

CODE	Manual Automatic	Nominal Power		Current Amps		
		HP	KW	1~230v	3~230v	3~400v
XAMO80PRO	Automatic	0.8	0.6	4.8		
XAMO100PRO	Automatic	1	0.75	6.36		
XAMO120PRO	Automatic	1.2	0.9	7.2		
XMO80PRO	Manual	0.8	0.6	4.8		
XMO100PRO	Manual	1	0.75	6.36		
XMO120PRO	Manual	1.2	0.9	7.2		
XMO120T 230/400	Manual	1.2	0.9		3.3	2.5

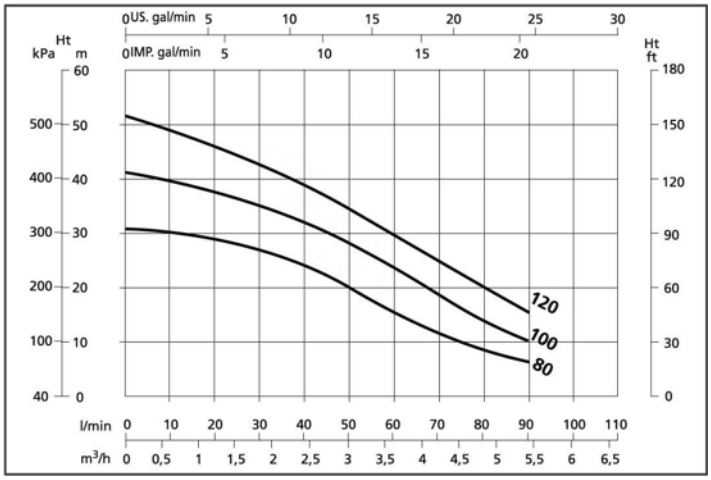
Self priming multistage centrifugal pump with or without electronic pressure control, single or 3 phase. For submerged, underground or surface mounting. Main flanges in brass for extra longevity and durability against heat/frost.

Automatic version includes pressure control, anti-blocking system, leak detection, and dry run protection with automatic restart.

Available with 0.8hp, 1hp, and 1.2hp motors.

Water cooled, multistage impeller/diffuser with venturi. Supplied with 10m cable.

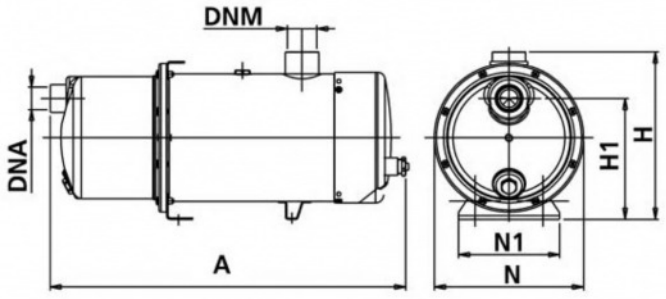
Suitable for domestic boosting, rainwater harvesting, surface irrigation, tank transfer.



Pumped liquid: Clean cold water without abrasives or solids.

Materials

Pump Body:	Stainless 304
Motor Body:	Stainless 304
Rotor Shaft:	Stainless 420
Supporting Flanges:	Brass
Impellers:	Stainless 304
Diffuser & Venturi:	Noryl
Electrical cover:	Stainless 304
Mechanical Seal:	Ceramic / Graphite
Other Seals:	NBR70



Code	Measurement (mm unless indicated)							Weight
	A	N	H	H1	N1	DMN	DNA	Kg
X-AMO/MO 80PRO	477	200	226	163	136	1"¼	1"	15.5
X-AMO/MO 100PRO	477	200	226	163	136	1"¼	1"	16
X-AMO/MO 120PRO	477	200	226	163	136	1"¼	1"	17

Options & Accessories

- Float Switch
- External Capacitor Kit
- Electronic Controller
- Soft Start (by special order)

X-AMO/MO HF Multistage Pumps

High Flow Rate for Commercial & Industrial Use

X-AMO HF MULTISTAGE HIGH FLOW / STEEL BODY

Surface/Dry

Submersible

Automatic

Single Phase 230Vac

Three Phase 230Vac 400Vac

CODE	Manual Automatic	Nominal Power		Current Amps		
		HP	KW	1~230v	3~230v	3~400v
XAMO1204 BHF	Automatic	1.2	0.9	6.4		
XAMO1505 BHF	Automatic	1.5	1.1	7.3		
XAMO2006HF	Automatic	2	1.5	10.1		
XMO1204BHF	Manual	1.2	0.9	6.4		
XMO1505BHF	Manual	1.5	1.1	7.3		
XMO2006HF	Manual	2	1.5	10.1		
XMO1204B THF 230/400	Manual	0.9			3.1	2.2
XMO1505B THF 230/400	Manual	1.1			3.5	2.5
XMO2006THF 230/400	Manual	1.5			4.2	3

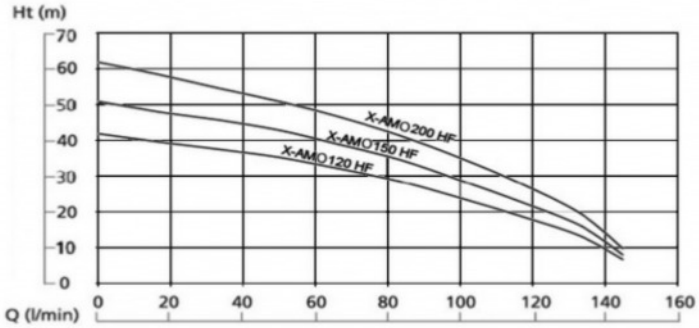
Self priming multistage centrifugal pump with electronic pressure control, single phase. For submerged, underground or surface mounting. Main flanges in brass for extra longevity and durability against heat/frost.

Includes pressure control, anti-blocking system, leak detection, and dry run protection with automatic restart.

Available with 1.2hp, 1.5hp, and 2hp motors.

Water cooled, multistage impeller/diffuser.
Supplied with 10m cable.

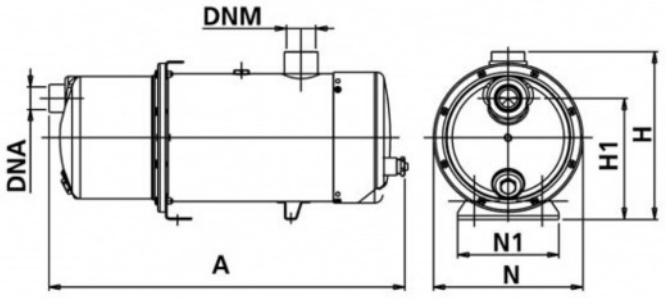
Suitable for domestic boosting, rainwater harvesting, surface irrigation, tank transfer.



Pumped liquid: Clean cold water without abrasives or solids.

Materials

Pump Body:	Stainless 304
Motor Body:	Stainless 304
Rotor Shaft:	Stainless 420
Supporting Flanges:	Polypropylene/Brass
Impellers: & Diffuser	Noryl
Electrical cover:	Polypropylene/Stainless 304
Mechanical Seal:	Ceramic / Graphite
Other Seals:	NBR70



Options & Accessories

- Float Switch
- External Capacitor Kit
- Electronic Controller
- Soft Start (by special order)

Code	Measurement (mm unless indicated)							Weight
	A	N	H	H1	N1	DMN	DNA	Kg
X-AMO1204BHF	560	200	226	95	136	1"¼	1"¼	19.5
X-AMO1505BHF	715	200	226	95	136	1"¼	1"¼	21.5
X-AMO2006HF	715	200	226	95	136	1"¼	1"¼	23

X-AMV/MV B Vertical Multistage Pumps

High Flow Rate for Commercial & Industrial Use

X-AMV/MV B MULTISTAGE/ STEEL BODY & TECHNOPOLYMER

Surface/Dry

Submersible

Automatic

Single Phase 230Vac

Three Phase 230Vac 400Vac

CODE	Manual Automatic	Nominal Power		Current Amps		
		HP	KW	1~230v	3~230v	3~400v
XAMV100B	Automatic	1	0.75	6		
XAMV120B	Automatic	1.2	0.9	7.2		
XMV80B	Manual	0.8	0.6	4.8		
XMV100B	Manual	1	0.75	6		
XMV120B	Manual	1.2	0.9	7.2		
XMV120BT 230/400	Manual	1.2	0.9		3.3	2.5

Self priming multistage centrifugal pump with or without electronic pressure control, single or 3 phase. For submerged, underground or surface mounting.

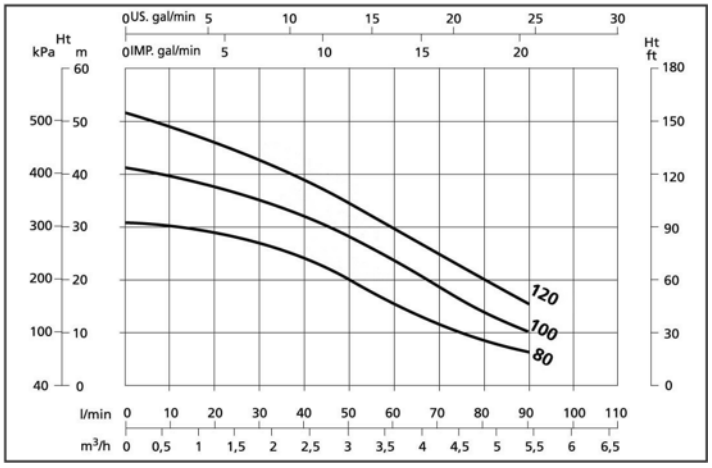
Automatic version includes pressure control, anti-blocking system, leak detection, and dry run protection with automatic restart.

Available with 0.8hp, 1hp, and 1.2hp motors.

Water cooled, multistage impeller/diffuser.
Supplied with 10m cable.

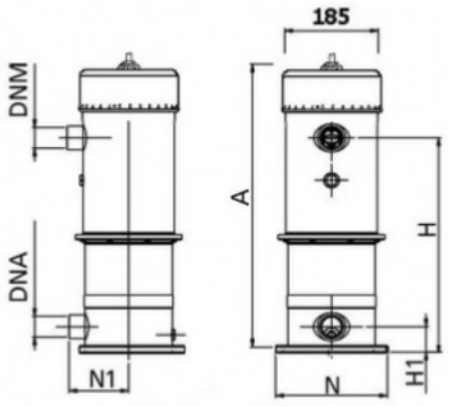
Suitable for domestic boosting, rainwater harvesting, surface irrigation and tank transfer.

Pumped liquid: Clean cold water without abrasives or solids.



Materials

Pump Body:	Stainless 304
Motor Body:	Stainless 304
Rotor Shaft:	Stainless 420
Supporting Flanges:	Polypropylene
Impellers:	Stainless 304
Diffuser:	Noryl
Electrical cover:	Polypropylene
Mechanical Seal:	Silicon Carbide
Other Seals:	NBR70



CODE	Measurement (mm unless indicated)							Weight
	A	N	H	H1	N1	DMN	DNA	Kg
X-MV 80B	570	210	394	38	112	1"¼	1"	16.5
X-AMV/MV 100B	570	210	394	38	112	1"¼	1"	17
X-AMV/MV 120B	570	210	394	38	112	1"¼	1"	18

Options & Accessories

- Float Switch
- External Capacitor Kit
- Electronic Controller
- Soft Start (by special order)

X-AMV/MV PRO Vertical Multistage Pumps

High Flow Rate, for Commercial & Industrial Use

X-AMV/MV PRO MULTISTAGE/ STEEL BODY & BRASS SUPPORTS

Surface/Dry

Submersible

Automatic

Single Phase 230Vac

Three Phase 230Vac 400Vac

CODE	Manual Automatic	Nominal Power		Current Amps		
		HP	KW	1~230v	3~230v	3~400v
XAMV80PRO	Automatic	0.8	0.6	4.8		
XAMV100PRO	Automatic	1	0.75	6		
XAMV120PRO	Automatic	1.2	0.9	7.2		
XAMV150PRO	Automatic	1.5	1.1	8.4		
XMV80PRO	Manual	0.8	0.6	4.8		
XMV100PRO	Manual	1	0.75	6		
XMV120PRO	Manual	1.2	0.9	7.2		
XMV150PRO	Manual	1.5	1.1	8.4		
XMV150T 230/400	Manual	1.5	1.1		3.6	2.7

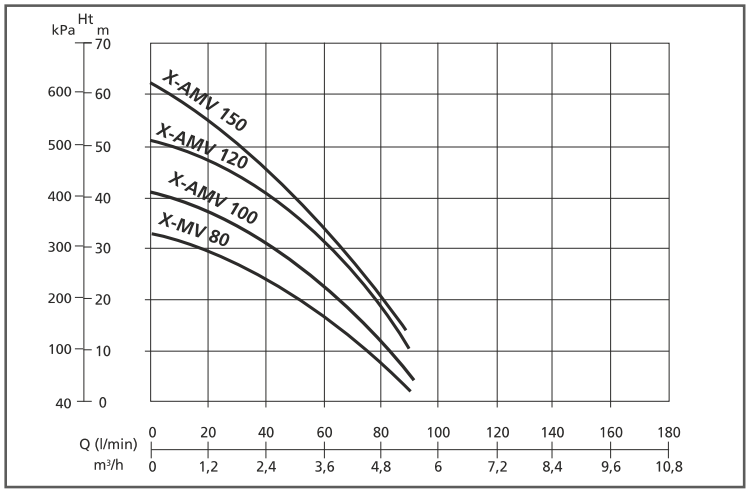
Self priming multistage centrifugal pump with or without electronic pressure control, single or 3 phase. For submerged, underground or surface mounting. Main flanges in brass for extra longevity and durability against heat/frost.

Automatic version includes pressure control, anti-blocking system, leak detection, and dry run protection with automatic restart.

Available with 0.8hp, 1hp, 1.2hp and 1.5hp motors.

Water cooled, multistage impeller/diffuser.
Supplied with 10m cable.

Suitable for domestic boosting, rainwater harvesting, surface irrigation and tank transfer.



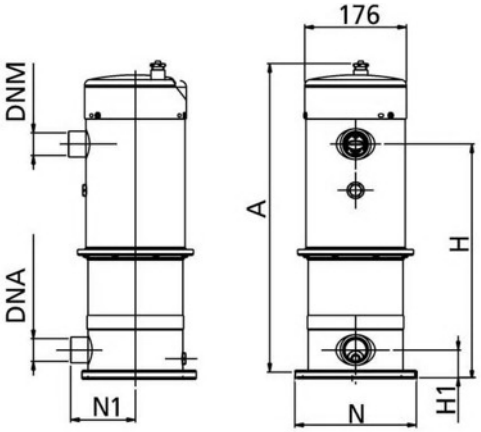
Pumped liquid: Clean cold water without abrasives or solids.

Materials

Pump Body:	Stainless 304
Motor Body:	Stainless 304
Rotor Shaft:	Stainless 420
Supporting Flanges:	Brass
Impellers:	Stainless 304
Diffuser:	Noryl
Electrical cover:	Stainless 304
Mechanical Seal:	Ceramic / Graphite
Other Seals:	NBR70

Options & Accessories

- External Capacitor Kit
- Electronic Controller
- Soft Start (by special order)



Code	Measurement (mm unless indicated)							Weight
	A	N	H	H1	N1	DMN	DNA	Kg
X-AMO/MO 80PRO	533	210	394	38	112	1"¼	1"	16.5
X-AMO/MO 100PRO	533	210	394	38	112	1"¼	1"	17
X-AMO/MO 120PRO	533	210	394	38	112	1"¼	1"	18
X-AMO/MO 150PRO	533	210	394	38	112	1"¼	1"	19

01239 623506

X-AMV/MV HF High Flow Vertical Multistage Pumps

Extra High Flow Rate, for Commercial & Industrial Use

X-AMV/MV HF MULTISTAGE HIGH FLOW / STEEL BODY & BRASS

Surface/Dry

Submersible

Automatic

Single Phase 230Vac

Three Phase 230Vac 400Vac

CODE	Manual Automatic	Nominal Power		Current Amps		
		HP	KW	1~230v	3~230v	3~400v
XAMV1204BHF	Automatic	1.2	0.9	6.4		
XAMV1505BHF	Automatic	1.5	1.1	7.3		
XAMV2006HF	Automatic	2	1.5	10.1		
XMV1204BHF	Manual	1.2	0.9	6.4		
XMV150HF	Manual	1.5	1.1	8.9		
XMV1505BHF	Manual	1.5	1.1	7.3		
XMV2006HF	Manual	2	1.5	10.1		
XMV1204BTHF	Manual	1.2	0.9		3.1	2.2
XMV1505BTHF	Manual	1.5	1.1		3.5	2.5
XMV2006THF 230/400	Manual	2	1.5		4.2	3

Self priming high flow rate multistage centrifugal pump, single or 3 phase. For submerged, underground or surface mounting. Main flanges in brass for extra longevity and durability against heat/frost.

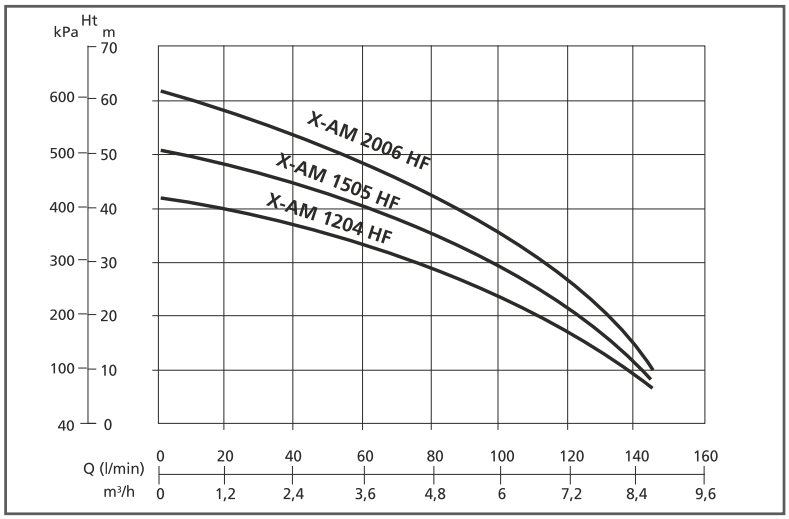
Automatic version includes pressure control, anti-blocking system, leak detection, and dry run protection with automatic restart.

Available with 1.2hp, 1.5hp and 2hp motors.

Water cooled, multistage impeller/diffuser.
Supplied with 10m cable.

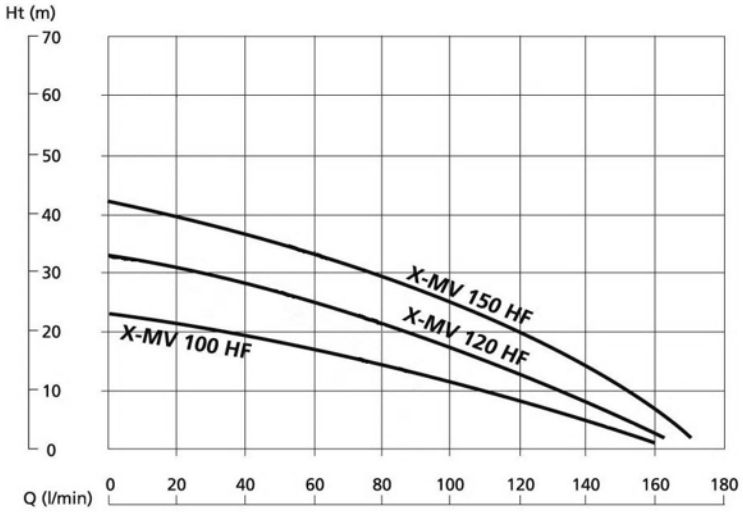
Suitable for domestic boosting, rainwater harvesting, surface irrigation and tank transfer.

Pumped liquid: Clean cold water without abrasives or solids.



Materials

Pump Body:	Stainless 304
Motor Body:	Stainless 304
Rotor Shaft:	Stainless 420
Supporting Flanges:	Polypropylene/Brass
Impellers:	Stainless 304
Diffuser:	Noryl
Electrical cover:	Polypropylene/Stainless 304
Mechanical Seal:	Ceramic / Graphite
Other Seals:	NBR70



Options & Accessories

- External Capacitor Kit
- Electronic Controller
- Soft Start (by special order)

X-MN Single Stage Tank Transfer Pumps

For Domestic & Light Commercial Uses

X-MN80 B

MANUAL CENTRIFUGAL
SINGLE IMPELLER
STEEL BODY
TECHNOPOLYMER SUPPORTS

Surface/Dry

Submersible

Single Phase 230Vac

Three Phase 230Vac 400Vac

CODE	Nominal Power		Current Amps		
	HP	KW	1~230	3~230	3~400
XMN80B	0.8	0.6	4.8		
XMN80BT230	0.8	0.6		2.4	
XMN80BT400	0.8	0.6			1.6

Self priming centrifugal pump, single phase. For submerged, underground or surface mounting.

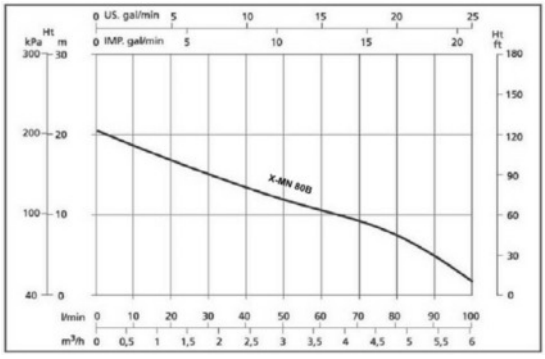
Water cooled, single stage impeller/diffuser.
Supplied with 10m cable.

Suitable for rainwater harvesting, low pressure surface irrigation, tank transfer.

Pumped liquid: Clean cold water without abrasives or solids.

Materials

Pump Body:	Stainless 304
Motor Body:	Stainless 304
Rotor Shaft:	Stainless 420
Supporting Flanges:	Polypropylene
Impeller and Diffuser:	Noryl
Electrical cover:	Polypropylene.
Mechanical Seal:	Silicon Carbide
Other Seals:	NBR70



X-MN80 PRO

MANUAL CENTRIFUGAL
SINGLE IMPELLER
STEEL BODY
BRASS SUPPORTS

Surface/Dry

Submersible

Single Phase 230Vac

Three Phase 230Vac 400Vac

CODE	Nominal Power		Current Amps		
	HP	KW	1~230	3~230	3~400
XMN80PRO	0.8	0.6	4.8		
XMN80T230	0.8	0.6		2.4	
XMN80T400	0.8	0.6			1.6

Self priming centrifugal pump, single phase. For submerged, underground or surface mounting. Main flanges in brass for extra longevity and durability against heat/frost.

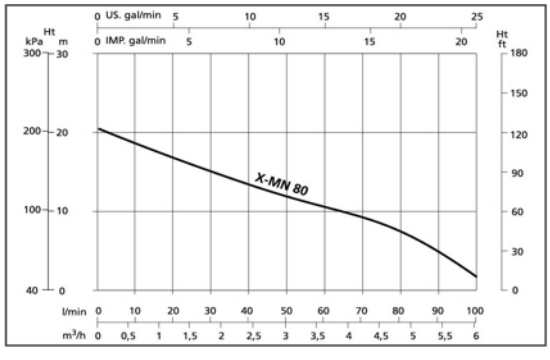
Water cooled, single stage impeller/diffuser.
Supplied with 10m cable.

Suitable for domestic/industrial rainwater harvesting, low pressure surface irrigation, tank transfer.

Pumped liquid: Clean cold water without abrasives or solids.

Materials

Pump Body:	Stainless 304
Motor Body:	Stainless 304
Rotor Shaft:	Stainless 420
Supporting Flanges:	Brass
Impeller and Diffuser:	Noryl
Electrical cover:	Stainless 304
Mechanical Seal :	Ceramic / Graphite
Other Seals :	NBR70



X-2CP Single Stage Tank Transfer Pump

For for Domestic & Light Commercial Uses

X-A2CP/2CP DOUBLE IMPELLER / STEEL BODY & TECHNOPOLYMER

Surface/Dry

Submersible

Automatic

Single Phase 230Vac

Three Phase 230Vac 400Vac

CODE	Manual Automatic	Nominal Power		Current Amps		
		HP	KW	1~230v	3~230v	3~400v
XA2CP	Automatic	0.8	0.6	4.8		
X2CP	Manual	0.8	0.6	4.8		
X2CPT230	Manual				2.4	
X2CPT400	Manual					1.6

Self priming single stage centrifugal pump with electronic pressure control, single phase. For submerged, underground or surface mounting.

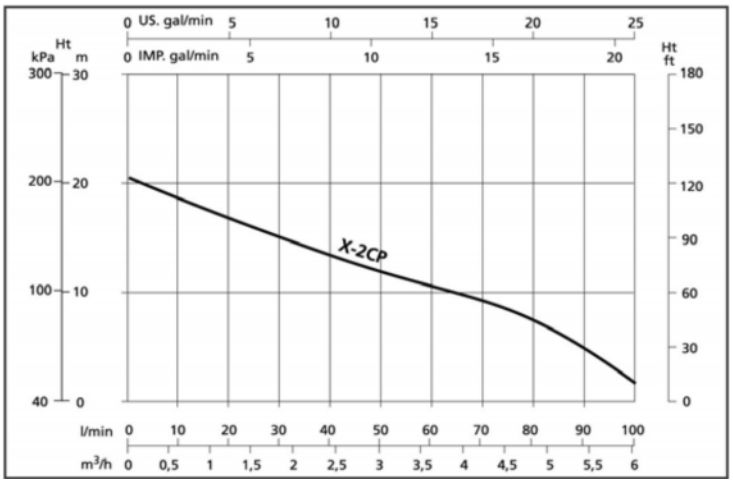
Automatic version includes pressure control, anti-blocking system, leak detection, and dry run protection with automatic restart.

Available with 0.8hp motor.

Water cooled, single stage impeller/diffuser.
Supplied with 10m cable.

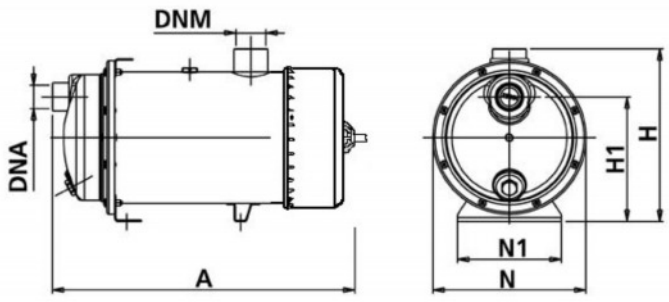
Suitable for rainwater harvesting, low pressure surface irrigation, tank transfer.

Pumped liquid: Clean cold water without abrasives or solids.



Materials

Pump Body:	Stainless 304
Motor Body:	Stainless 304
Rotor Shaft:	Stainless 420
Supporting Flanges:	Polypropylene
Impellers::	Stainless 304
Diffuser:	Noryl
Electrical cover:	Polypropylene
Mechanical Seal:	Silicon Carbide
Other Seals:	NBR70



Options & Accessories

- External Capacitor Kit

Code	Measurement (mm unless indicated)							Weight
	A	N	H	H1	N1	DMN	DNA	Kg
X-A2CP / 2CP	396	200	226	163	136	1"¼	1"	14

X-MF B Fountain Pumps

For Large or Municipal Water Features

X-MF/ B MULTISTAGE / STEEL BODY & TECHNOPOLYMER SUPPORTS

Submersible

Single Phase 230Vac

Three Phase 230Vac 400Vac

CODE	Manual Automatic	Nominal Power		Current Amps		
		HP	KW	1~230v	3~230v	3~400v
XMF80B	Manual	0.8	0.6	4.8		
XMF100B	Manual	1	0.75	6		
XMF120B	Manual	1.2	0.9	7.2		
XMF150B	Manual	1.5	1.1	7.6		
XMF1204BHF	Manual	1.2	0.9	6.4		
XMV1505BHF	Manual	1.5	1.1	7.3		
XMV2006HF	Manual	2	1.5	10.1		
XMF80BT 230/400	Manual	0.8	0.6		2.4	1.6
XMF100BT 230/400	Manual	1	0.75		3	2
XMF120BT 230/400	Manual	1.2	0.9		3.3	2.5
XMF150BT 230/400	Manual	1.5	1.1		3.6	2.7
XMF1204THF 230/400	Manual	1.2	0.9		3.1	2.2
XMF1505THF 230/400	Manual	1.5	1.1		3.5	2.5
XMF2006THF 230/400	Manual	2	1.5		4.2	3

A manual, self priming multi stage centrifugal pump, single or 3 phase. For submerged, use. Ideal for larger water features and fountains.

Available with 0.8hp, 1hp, 1.2hp, 1.5hp and 2hp motors.

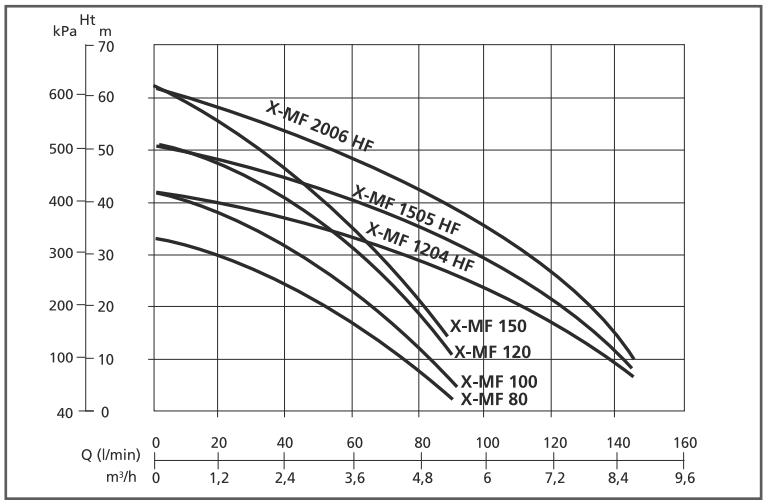
Water cooled, multistage impeller/diffuser.
Supplied with 10m cable.

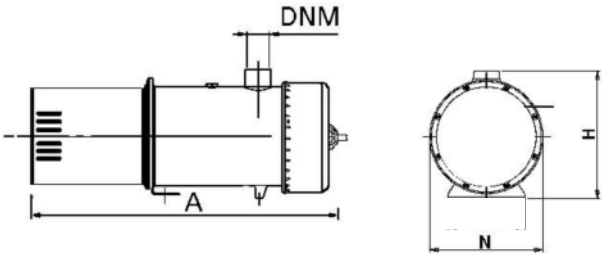
Pumped liquid: Clean cold water without abrasives or solids.

Materials

Pump Body:	Stainless 304
Motor Body:	Stainless 304
Rotor Shaft:	Stainless 420
Supporting Flanges:	Polypropylene
Impellers::	Stainless 304
Diffuser:	Noryl
Electrical cover:	Polypropylene
Mechanical Seal:	Silicon Carbide
Other Seals:	NBR70

Code	Measurement (mm unless indicated)				Weight
	A	N	H	DMN	Kg
X-MF 80B	533	210	394	1"¼	16.5
X-MF 100B	533	210	394	1"¼	17
X-MF 120B	533	210	394	1"¼	18
X-MF 150B	533	210	394	1"¼	19
X-MF 1204 HF	560	200	226	1"¼	20
X-MF 1505 HF	715	200	226	1"¼	22
X-MF 2006 HF	715	200	226	1"¼	23

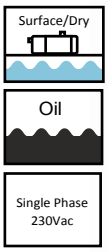




PROGRESSIVE CAVITY PUMPS Flexible Impeller

Oil, Hot Water, and Salt Water Pumps

WP - 15
FOR WARM OIL/WATER UP TO +65c
FLEXIBLE IMPELLER
BRASS BODY



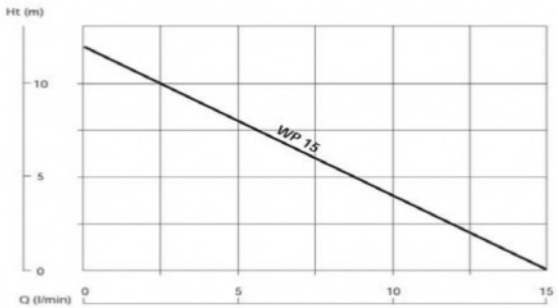
CODE	Nominal Power		Current Amps
	HP	KW	
WP15	0.16	0.12	1.6

Self priming flexible impeller progressive cavity pump for hot water, diesel and heating oil. Single phase, surface mounted/portable. No automatic pressure control.

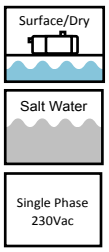
Pumped liquid: Clean water, diesel, kerosene (up to 65 deg c)

Materials

Pump Body:	Brass
Motor Body:	Aluminium
Impeller:	Stainless 304
Electrical cover:	Polypropylene
Other Seals:	NBR70



X - MARE
SALT WATER PUMP
FLEXIBLE IMPELLER
STEEL BODY



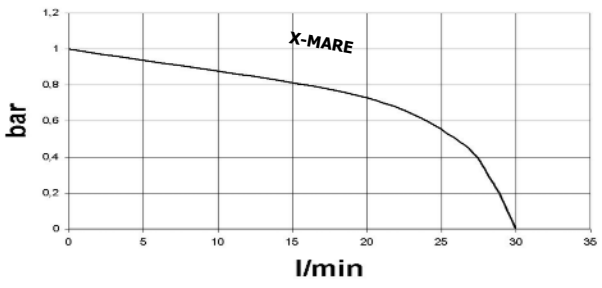
CODE	Nominal Power		Current Amps
	HP	KW	
XMARE	0.4	0.29	1.5

Sea water pump, flexible impeller progressive cavity, for water with few impurities. Suitable for washdown, bilge, etc.

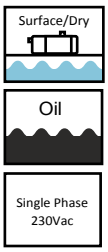
Pumped liquid: Water or seawater with few impurities.

Materials

Pump Body:	Stainless 303 coated polymer
Rotor Shaft:	Stainless 303
Impeller:	NBR
Electrical cover:	Polypropylene
Other Seals:	NBR70



X - VISCO
HEAVY OIL AND VISCOUS LIQUID GEAR PUMP
BRASS BODY



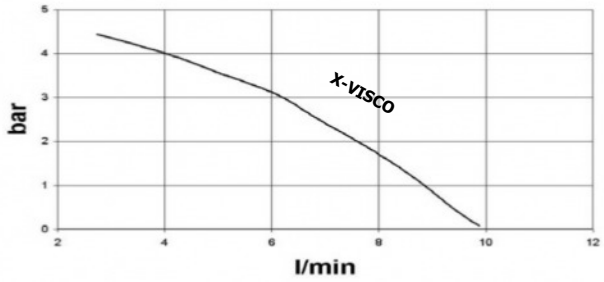
CODE	Nominal Power		Current Amps
	HP	KW	
XVISCO	0.46	0.35	1.5

Bronze gear pump (progressive cavity) for pumping of non-corrosive viscous fluids with few impurities.

Pumped liquid: Water, Oil, Heavy Oil, etc.

Materials

Pump Body:	Brass
Rotor Shaft:	C43 Steel
Gears :	Bronze
Electrical cover:	Polypropylene



WDKIT
Waterproof Wash Down Pump Sets

NEW!

High-flow IP68 rated pump kits and accessories for agricultural and commercial washdown applications. Each kit contains the following.

1. **Waterproof low-noise pump** up to 145 lpm (22 gpm) and 6.3 Bar pressure (92 psi) with integrated flow controller.
2. **Suction kit** in heavy-duty steel reinforced food grade hose.
3. **Discharge kit** in medium duty yellow Torsino hose , double layer with braided reinforcement, or heavy duty steel reinforced food grade hose for demanding environments.
4. **Spray nozzle** ranging from basic spray nozzles to heavy duty fire hose nozzles.

The entire system is submersible and can itself be washed down, making it suitable for installation in humid environments or in locations where fluids or slurry are present.

Flow control is built into the pump

Suctions kits are available in 3 or 6m lengths with a non-return valve (footvalve) and stainless steel strainer mesh, or as a tank connection kit supplied with all adapters to fit female BSP fittings from 1” up to 2”.

Discharge hoses are available in 12.5 and 25m lengths in 2 grades of hose and do not include the spray nozzle, which is selected separately.

All sub-assemblies can be purchased individually as needed.

All hoses are joined to the pump with familiar quarter-turn ‘Geka’ style brass quick connectors.

Features

- Volumes from 100 to 145 litres per minute (22 to 31 gallons)
- Electronic flow control built into the pump (start/stop on demand), no external controller needed.
- Waterproof (IP68 rated) pump can be run fully submerged to 5m
- 1.2 to 2hp 230VAC single phase quiet running water cooled motors
- No Corrodible parts
- Medium and Heavy-Duty Hose kits available
- Nedlac RP adjustable spray nozzle or heavy duty lever operated fire hose nozzle
- Pump carrying handle for portable use (detachable)
- All spare parts available (including every pump component)

WDKIT
Waterproof Wash Down Pump Sets

Full Kits					
Code	**Performance**	**Discharge Hose**	**Suction Hose**	**Nozzle**	**Handle**
Standard Kits					
WDKIT1	5.1Bar 100lpm	12.5m Torsino (Yellow)	3m Heavy Duty	Basic Spray Nozzle	Not Included
WDKIT2	4.3Bar 145lpm				
WDKIT3	5.1Bar 145lpm				
WDKIT4	6.3Bar 145lpm				
Longer Kits					
WDKIT1L	5.1Bar 100lpm	25m Torsino (Yellow)	6m Heavy Duty		
WDKIT2L	4.3Bar 145lpm				
WDKIT3L	5.1Bar 145lpm				
WDKIT4L	6.3Bar 145lpm				
Heavy Duty Kits					
WDKIT1H	5.1Bar 100lpm	12.5m Heavy Duty	3m Heavy Duty		
WDKIT2H	4.3Bar 145lpm				
WDKIT3H	5.1Bar 145lpm				
WDKIT4H	6.3Bar 145lpm				
Longer Heavy Duty Kits					
WDKIT1HL	5.1Bar 100lpm	25m Heavy Duty	6m Heavy Duty		
WDKIT2HL	4.3Bar 145lpm				
WDKIT3HL	5.1Bar 145lpm				
WDKIT4HL	6.3Bar 145lpm				

WDKIT
Waterproof Wash Down Pump Sets

Separate Sub-Assemblies			
Pumps		**Discharge Kits**	
X-AMO120B	5.1Bar 100lpm	WDD1	12.5 metre Torsino yellow hose
X-AMO1204BHF	4.3Bar 145lpm	WDD2	25 metre Torsino yellow hose
X-AMO1505BHF	5.1Bar 145lpm	WDDHD1	12.5 metre heavy duty hose
X-AMO2006HF	6.3Bar 145lpm	WDDHD2	25 metre heavy duty hose
Suction Kits		**Spray Nozzles**	
WDS1	3 metre suction kit for 100lpm pumps	WDDN1	Nedlac RP Spray Nozzle
WDS2	6 metre suction kit for 100lpm pumps	WDDN2	1" Fire Hose Nozzle
WDS3	3 metre suction kit for 145lpm pumps	WDDN3	Basic Spray Nozzle
WDS4	6 metre suction kit for 145lpm pumps		
Tank Connection Kits			
WDT1	3 metre kit for 100lpm pumps 1" to 2" BSP	WDT3	3 metre kit for 145lpm pumps 1.25" to 2" BSP
WDT2	6 metre kit for 100lpm pumps 1" to 2" BSP	WDT4	6 metre kit for 145lpm pumps 1.25" to 2" BSP

Performance

Code	Q (l/m) FLOW						
	0	30	50	70	100	120	145
	H HYDRAULIC HEAD (m)						
WDKIT1(inc L/H/HL)	52	43	35	25			
WDKIT2(inc L/H/HL)	43	38	34	30	24	16	6
WDKIT2(inc L/H/HL)	51	46	43	38	30	21	9
WDKIT2(inc L/H/HL)	62	55	55	45	34	24	10

Electrical Specifications

Code	P2 Nom.		1~ 50Hz Amps	Cap.
	KW	HP	230V	µF
WDKIT1(inc L/H/HL)	0.9	1.2	7.2	20
WDKIT2(inc L/H/HL)	0.9	1.2	6.4	20
WDKIT2(inc L/H/HL)	1.1	1.5	7.3	25
WDKIT2(inc L/H/HL)	1.5	2.0	10.1	30
Class F insulated motor			S1 Motor Service Factor	

CONTROLLERS, PUMP SETS AND ACCESSORIES

3P TECHNIK UK CONTROLLERS & BESPOKE DESIGN

Pressure Boosting, Pressure Control, Level control

3P RCMFP1 ELECTRONIC CONTROLLERS

A multi-function electronic controller designed to work with almost any pumps or control valves for boosting, filling, de-watering, rainwater harvesting and complex level control applications.

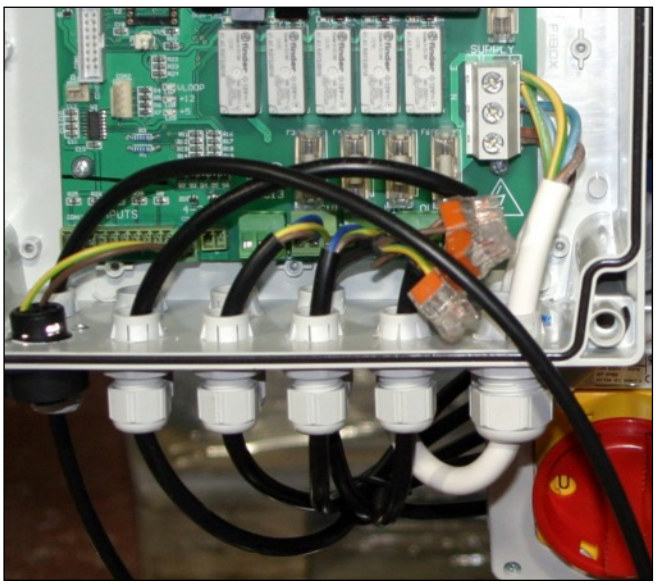
Supplied with various software and sensor configurations the RCMFP1 control unit is a common-platform control solution used in the following 3P products.

- P Series Booster Pump Controller
- TC340 Single/Twin Tank Level Controller
- RF300T Advanced Direct Rainwater Controller
- H Series Advanced Header Tank Rainwater Controller
- TH/TS Series Hybrid Direct Pressure Rainwater Controller
- BPM Series Pressure Boosting Sets

This product, when configured with TH/TS series software in also functions as a direct aftermarket replacement for the control panel in many popular European commercial rainwater systems such as SP100, SP50, Aqua-Control, ACU, and some others.

When supplied un-configured, RCMFP1 can be rapidly deployed as a pressure set controller, level controller, or direct, indirect or hybrid rainwater controller by installing the appropriate software chip and external sensors, allowing multiple solutions to be provided from limited stock.

Fault tracking and BMS outputs provide required functionality for commercial projects, while embedded



design and microcontroller architecture reduce complexity and increase resilience when compared to electro-mechanical (panel built) or PLC based alternatives.

Both hardware and software are designed to be tolerant of power interruptions, non-function or over-current failure of attached pumps and other devices, and sensor faults and disconnections (where possible) and will continue normal or limited operation in the event of a fault.

Our PCB is designed to control equipment in outdoor locations which may experience transient high voltage and current or wiring faults, and will in most cases will continue to operate when an output or input is destroyed, as long as the system still retains sufficient functionality to continue.

Software can be modified or changed upon request and installed easily.

Our controllers need minimal configuration and where possible operate immediately upon installation with basic default settings. Pump groups do not need to be matched and their electrical parameters do not need to be pre-programmed. Devices with high voltage, high current or multiple phases can be controlled using contactors, with no current-sensing limitations.

Our software is developed by ourselves and supplied on a replaceable chip. Our PCB is also our own design, for which we offer full repair/exchange facilities, providing total assurance as to our after sales support.

Available to Trade Customers, call us on 01239 623506 or email technical@steelpumps.co.uk

BESPOKE DESIGN

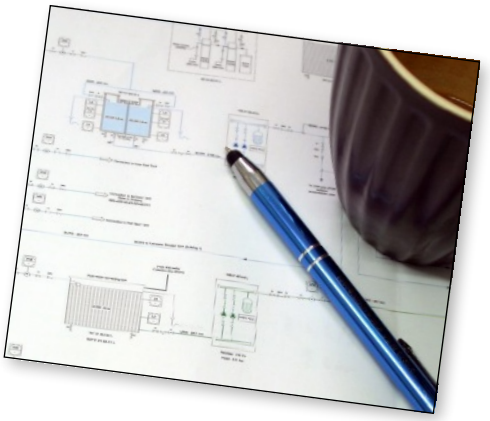
Our in-house technical design team can provide a pump control system to suit your clients requirements.

Simply email your design specification or telephone and ask to speak to our technical team.

Along with our electronic Controllers, we can customise float switches, cable lengths and pipe and hose lengths to suit your requirements.

Our parent company 3P Technik UK holds compact pressure booster sets to supply water under pressure to single or multiple points of use. They are available in variable or fixed speed options. Both are quiet and reliable solutions for domestic and light commercial pressure boosting.

If you don't find the item you need please call 01239 623506 or email Technical@steelpumps.co.uk.



BPM SERIES PRESSURE BOOSTING SETS

3P BPM series pressure booster sets are designed to supply water under pressure to multiple points of use.

Multi-Point Pressure Control manages both the start and stop pressure of each pump, achieving high efficiency without the increased cost of variable speed sets, but with enhanced reliability, reduced component count, and lower cost. Pressure is measured at the outlet manifold by an electronic pressure sensor with greater reliability than mechanical switches.

Features include adjustable pressure, duty standby/assist with alternation at each pump cycle, and BMS output, whilst remaining extremely compact. Pressure control is achieved by modulation of the pumps which are run as required to maintain pressure within a specified range.

An optional level sensor probe can be situated in a break tank or Well and indicates the current water level, as well as providing an adjustable safety shut-off water level which can be adjusted from the control panel.

BPM Series booster sets are controlled by the 3P Technik P Series Controller (Page 39).

Surface/Dry

Splashproof IP65

Automatic

Single Phase 230Vac

Three Phase 230Vac 400Vac

CODE	PUMPS	PERFORMANCE		NOISE LEVEL @ 1m (approx)	SUPPLY TANK MONITORING	POWER	
		MAX PRESSURE bar	MAX FLOW l/min			VOLTAGE	CURRENT
BPM1202	2 x XMO120PRO	5.3	180	60db	Float	~1 230Vac	14.4
BPM12042	2 x XMO1204BHF	4.3	290	60db	Float	~1 230Vac	12.8
BPM15052	2 x XMO1505BHF	5.2	290	60db	Float	~1 230Vac	14.6
BPM20062	2 x XMO 2006HF	6.3	290	60db	Float	~1 230Vac	20.2
BPM1202L	2 x XMO120PRO	5.3	180	60db	Pressure transmitter	~1 230Vac	14.4
BPM12042L	2 x XMO1204BHF	4.3	290	60db	Pressure transmitter	~1 230Vac	12.8
BPM15052L	2 x XMO1505BHF	5.2	290	60db	Pressure transmitter	~1 230Vac	14.6
BPM20062L	2 x XMO2006HF	6.3	290	60db	Pressure transmitter	~1 230Vac	20.2
BPM12023	2 x XMO120PRO	5.3	180	60db	Float	~3 400Vac	5
BPM120423	2 x XMV 1204BHF	4.3	290	60db	Float	~3 400Vac	4.4
BPM150523	2 x XMV 1505BHF	5.2	290	60db	Float	~3 400Vac	5
BPM200623	2 x XMV 2006HF	6.3	290	60db	Float	~3 400Vac	6
BPM1202L3	2 x XMO120PRO	5.3	180	60db	Pressure transmitter	~3 400Vac	5
BPM12042L3	2 x XMV 1204BHF	4.3	290	60db	Pressure transmitter	~3 400Vac	4.4
BPM15052L3	2 x XMV 1505BHF	5.2	290	60db	Pressure transmitter	~3 400Vac	5
BPM20062L3	2 x XMV 2006HF	6.3	290	60db	Pressure transmitter	~3 400Vac	6
BPMCUSTOM	Built with pumps of your choice. Contact us for further details.						

PRESSURE BOOSTING

Fixed Speed Multi-point Pressure Control

BPM SERIES PRESSURE BOOSTING SETS

Features

- Adjustable pressure control
- Duty Standby/Duty Assist with alternation
- Quiet water cooled pumps fixed on anti-vibration mounts for extremely quiet operation
- Single sided bolt removal (no need to reach backnut on other side)
- Integral lifting point for ease of installation
- Union joints for quick pump removal
- Water cooled motors, low noise, no ventilation required
- Twin 24L pressure vessels
- Highly Accurate Digital Pressure Display
- Break Tank Level Display (optional)
- Control Panel Failover to Automatic pumps (optional)
- Adjustable viewing angle Control Panel
- Modular 'hot swap' of pumps and solenoids
- Lockable isolator switch
- Automatic Tank Level Calibration
- Multiple pump model support at 230Vac 50Hz or any supply voltage/phase via contactors/overloads
- 20A supply cable, 2 m length (other lengths by special order)
- BMS Switched output
- Optional BMS serial output
- Advanced Fault Tracking - Full diagnostics with input test, output test, restore factory defaults, etc.
- Fault Warning LED
- Auto hunt for redundant spare pump during pump failure in single pump mode
- Swappable MCU chip (software)
- System Overpressure Alarm - protects pipework and attached appliances (UV system, etc) from overpressure due to faulty installation or incorrect pressure setting.
- Overvoltage protection
- Automatic pump test / anti-blocking cycle
- Brownout protection
- Watchdog timer
- Fused Outputs
- Power-cut tolerant software (auto restart, no reset to defaults, no loss of diagnostic data or pump settings)
- Highly tolerant of power spikes and noise
- Component level repairs available in the event of damage

Adjustable Settings

- Pump cut-in/cut-out pressure (for each pump)
- System Overpressure Alarm
- Pump failure pressure
- Pump Mode (Pump 1, Pump 2, Twin pump assist/standby)
- Minimum Water Level (dry run prevention)
- Pump restart delay
- Fault code display
- Fault code erase
- Input test diagnostic screen
- Output test diagnostic screen
- Manual Stop - with BMS activation
- Restore Factory Default Settings

PRESSURE BOOSTING

Variable Speed Multi-point Pressure Control

BVM SERIES PRESSURE BOOSTING SETS

3P BVM series pressure booster sets are designed to supply water under pressure to multiple points of use.

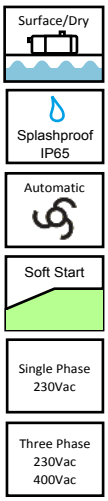
Variable Speed Pressure Control maintains a near constant pressure by regulating the motor speed of each pump, providing considerable gains in efficiency compared to basic fixed speed pressure control. Pressure is measured at the outlet manifold by an electronic pressure sensor with greater reliability than mechanical switches.

Features include adjustable pressure, duty standby/assist with alternation at each pump cycle, and BMS output, whilst remaining extremely compact.

An optional float switch can be situated in a break tank or well providing an adjustable safety shut-off to prevent dry running.

Adjustable Settings

- Pump cut-in/cut-out pressure (for each pump)
- System Overpressure Alarm
- Pump failure pressure
- Pump Mode (Pump1,Pump2,Twin pump assist/standby)
- Minimum Water Level (dry run prevention)
- Pump restart delay
- Fault code display
- Fault code erase
- Input test diagnostic screen
- Output test diagnostic screen
- Manual Stop - with BMS activation
- Restore Factory Default Settings



Features

- Adjustable pressure control
- Duty Standby/Duty Assist with alternation
- Quiet water cooled pumps fixed on anti-vibration mounts for extremely quiet operation
- Single sided bolt removal (no need to reach backnut on other side)
- Integral lifting point for ease of installation
- Twin pressure vessels
- Highly Accurate Digital Pressure Display
- Lockable isolator switch
- BMS Switched output
- Swappable MCU chip (software)
- Overvoltage protection

CODE	PUMPS	PERFORMANCE		NOISE LEVEL @ 1m (approx)	SUPPLY TANK MONITORING	POWER	
		MAX PRESSURE bar	MAX FLOW l/min			VOLTAGE	CURRENT
BVM1202	2 x XMO120PRO	5.3	180	60db	Float	~1 230Vac	14.4
BVM12042	2 x XMO1204BHF	4.3	290				12.8
BVM15052	2 x XMO1505BHF	5.2	290				14.6
BVM20062	2 x XMO 2006HF	6.3	290				20.2
BVM12023	2 x XMO120PRO	5.3	180			~3 400Vac	5
BVM120423	2 x XMV 1204BHF	4.3	290				4.4
BVM150523	2 x XMV 1505BHF	5.2	290				5
BVM200623	2 x XMO2006HF	6.3	290				6
BVM200623V	2 x XMV 2006HF	6.3	290				6

CBB COMPACT PRESSURE BOOSTERS
Fixed Speed - Basic Pressure Control

CBB series pressure booster sets are a compact, safe, very quiet and reliable solution for domestic and light commercial pressure boosting.

An automatic pump supplies water on demand, eliminating the need for an additional pressure controller.

Fully water resistant. IP68 fully waterproof, suitable for use in wet environments. All sensors and electronics are inside the pump. Safe in humid environments.

Includes automatic dry run protection with periodic restarts, anti blocking system and thermal protection as standard.

Suitable for use with static heads not exceeding 15 metres.

Large 24L pressure vessel increases efficiency and prolongs pump life.

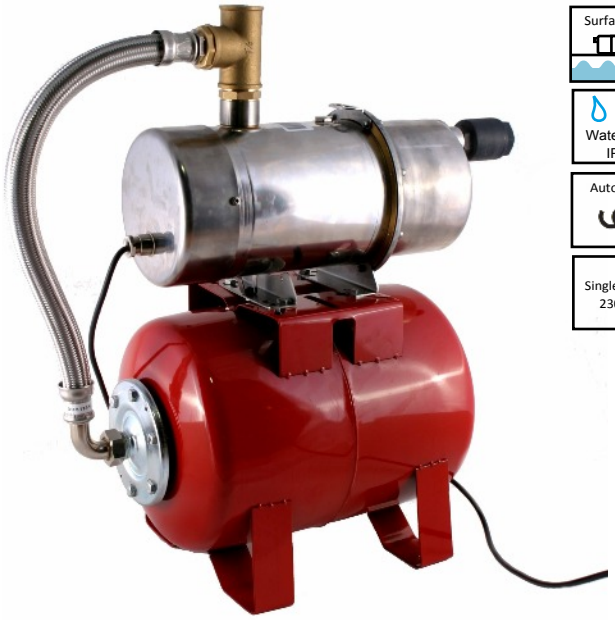
Quiet, water cooled pumps are self-cooling without the need for fans or ventilation. Suitable for installation in confined spaces.

Optional carrying handle available for portable and site use.

Optional pressure gauge available.

Robust and easy to operate, no external controls, no configuration necessary.

Supplied with 10m mains cable. Longer lengths are available.



Features

- Fully Water Resistant (including temporary immersion)
- Dry Run Protection
- Low Noise, 60db or Less
- Thermal Protection
- Continuous Duty
- Pressure up to 5.2 Bar
- Flow Rates up to 100 Litres/min
- 24l Pressure Vessel
- Optional Carrying Handle for Portable Use

CODE	PUMP	PERFORMANCE		POWER	
		MAX PRESSURE bar	MAX FLOW L/min	VOLTAGE	CURRENT
CBB5041P	X-AJE80P	4.1	50	~1 230	4.5
CBB5051P	X-AJE120P	5.1			6.3
CBB5041B	X-AJE80B	4.1			4.5
CBB5051B	X-AJE120B	5.1			6.3
CBB5041PRO	X-AJE80PRO	4.1			4.5
CBB5051PRO	X-AJE120PRO	5.1			6.3
CBB9031B	X-AMO80B	3.1	90		5.1
CBB9052B	X-AMO120B	5.2			7.5
CBB9031PRO	X-AMO80PRO	3.1			5.1
CBB9052PRO	X-AMO120PRO	5.2			7.5
CBB10021B	X-A2CP	2.1	100		4.8
CBB14543B	X-AMO1204BHF	4.3	145		6.4
CBB14543B2					
CBB14543B3					
CBB14551B	X-AMO1505BHF	5.1			7.3
CBB14551B2					
CBB14551B3					
CBB14562PRO	X-AMO2006HF	6.2			10.1
CBB14562PRO2					
CBB14562PRO3					

CBV COMPACT PRESSURE BOOSTERS
Variable Speed

CBV series pressure booster sets are a compact, quiet and reliable solution for domestic and light commercial pressure boosting.

A variable speed inverter runs the pump at the correct speed to maintain the desired pressure with low noise and power consumption.

Large 24L pressure vessel increases efficiency and prolongs pump life.

Automatic dry run protection, with periodic restarts.

Current and pressure sensors integrated into the control unit.

LCD status display, shows pressure, fault status and other operating parameters.

Hour and start counter, alarm/fault logging with BMS output.

Two booster sets can be connected together for increased flow and will operate as duty assist/standby with alternation.

Anti Ice System detects temperatures below 5 °C and performs periodic starts to avoid freezing.

Surface/Dry

Splashproof IP65

Automatic

Soft Start

Single Phase 230Vac

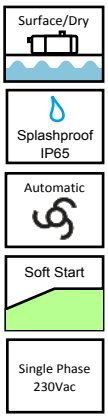
Short circuit and overcurrent protection between output phases.

Quiet, water cooled pumps are self-cooling without the need for fans or ventilation. Suitable for installation in confined spaces.

Built-in LCD pressure display.

CODE	PUMP	PERFORMANCE		POWER	
		MAX PRESSURE bar	MAX FLOW L/min	VOLTAGE	CURRENT
CBV5041P	X-JE80P	4.1	50	~1 230	4.5
CBV5051P	X-JE120P	5.1			6.3
CBV5041B	X-JE80B	4.1			4.5
CBV5051B	X-JE120B	5.1			6.3
CBV5041PRO	X-JE80PRO	4.1			4.5
CBV5051PRO	X-JE120PRO	5.1			6.3
CBV9031B	X-MO80B	3.1	90		5.1
CBV9052B	X-MO120B	5.2			7.5
CBV9031PRO	X-MO80PRO	3.1			5.1
CBV9052PRO	X-MO120PRO	5.2			7.5
CBV10021B	X-MN80B	2.1	100		4.8
CBV10021PRO	X-MN80PRO	2.1			4.8
CBV14543B	X-MO1204BHF	4.3	145		6.4
CBV14543B2					
CBV14543B3					
CBV14551B	X-MO1505BHF	5.1			7.3
CBV14551B2					
CBV14551B3					
CBV14562PR	X-MO2006HF	6.2			10.1
CBV14562PR2					
CBV14562PR3					

BT230/57/1000 BOOSTER TANKS
Variable Speed Combined Pressure Booster & Tank



Quiet and economical supply of pressurised water to multiple points of use within a building. Ideal in domestic and light commercial uses where the enclosed design and low noise and vibration are desirable.

A variable speed inverter runs the pump only as fast as necessary to maintain the desired pressure, achieving high efficiency, minimising noise and vibration and reducing running costs.

The pump motor is protected by the inverter against failure caused by overload/stall conditions and dry running. A slow start and stop of the pump eliminates sudden pipe vibration and water hammer.

Features include adjustable pressure, overcurrent protection, soft start and stop, and connectivity to building management systems.

The WRAS approved water storage tank is quickly filled by a large 1" solenoid valve and the water level in the tank is controlled by safe and reliable 24v low voltage sensors. A display panel clearly shows when the system is powered, filling the tank, or in a fault condition.

Overflow warning and protection is provided by a high level sensor which displays a fault and halts the solenoid valve, providing an additional failsafe mechanism in the event of a failure or jam of a lower sensor.

Designed, and assembled in the UK. With full UK based technical support , rapid spares availability, and spare parts supply from UK stocks.

Full repair/recon service to component level.

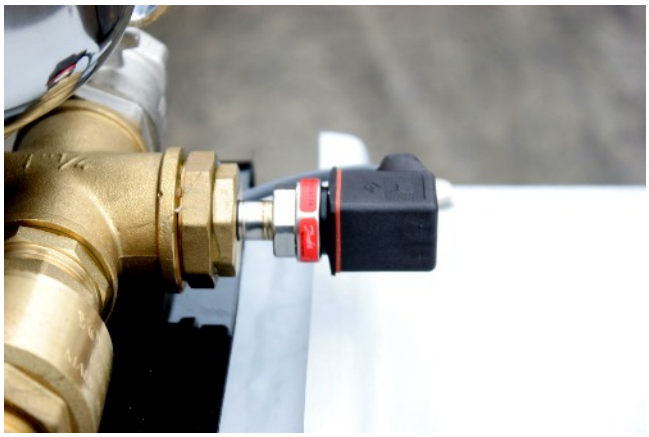
Features

- Combined Pump and Storage Tank
- Adjustable Pressure
- Variable Speed
- Low Energy Consumption
- Low Noise/Vibration
- WRAS Approved Tank
- Easy Maintenance and replacement of partsMaintains constant system pressure
- WRAS approved water tank
- Reliable air cooled inverter with IGBT technology.
- High quality stainless steel pumps
- Quiet water cooled pump located within the tank for extremely quiet operation
- Single sided lid bolt removal (no need to reach backnut on other side)
- 8 litre stainless steel pressure vessel
- Highly accurate digital pressure display
- Pump Fault display
- Highly visible tank status display & tank level fault warning
- Type AB Air Gap available (optional) for compliance with WRAS regulations up to Category 5, BS EN 13077.
- System Overpressure Alarm - protects pipework and attached appliances (UV system, etc) from overpressure due to faulty installation or incorrect pressure setting.
- 620mm wide. Fits through a doorway (230L models only).
- Easily replaceable parts, designed for easy maintenance.

BT230/57/1000 BOOSTER TANKS
Variable Speed Combined Pressure Booster & Tank

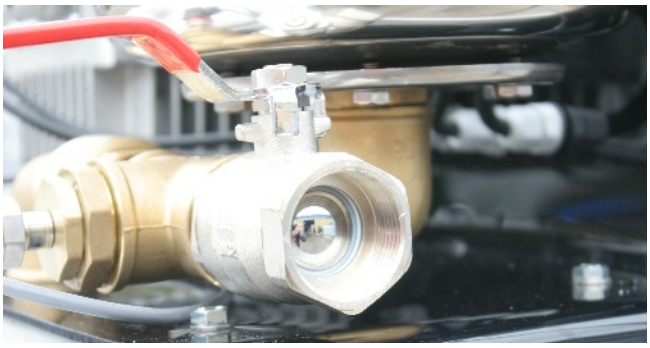
Adjustable Settings

- Adjustable pump pressure
- Maximum and Minimum Pressure Alarms
- Auto-restart after fault on/off
- Runtime duration counters for inverter and pump
- Adjustable ramp time for soft start/stop
- Adjustable Delta start value (deviation from set pressure before the pump starts)
- Restore factory default settings



Options

- Remote alarm panel
- GSM Remote Alarm by Text Messaging
- BMS Connectivity by volt-free output
- Fixed speed



CODE	PUMP	TANK SIZE Litres	PERFORMANCE			POWER	
			MAX PRESSURE bar	RECOMMENDED OPERATING PRESSURE bar	MAX FLOW L/min	VOLTAGE	CURRENT
BT2309031	X-MV80PRO	230	3.1	2.6	90	~1 230	5.3
BT23010063	X-MV150PRO		6.3	5	100		9.3
BT23014562	X-MV2006HF		6.2	5.1	145		11.1
BT5709031	X-MV80PRO	570	3.1	2.6	90		5.3
BT57010063	X-MV150PRO		6.3	5	100		9.3
BT57014562	X-MV2006HF		6.2	5.1	145		11.1
BT10009031	X-MV80PRO	1000	3.1	2.6	90		5.3
BT100010063	X-MV150PRO		6.3	5	100		9.3
BT100014562	X-MV2006HF		6.2	5.1	145		11.1

BT230/57/1000 B BOOSTER TANKS
Variable Speed Combined Pressure Booster & Tank

Quiet and economical supply of pressurised water to multiple points of use within a building. Ideal in domestic and light commercial uses where the enclosed design and low noise and vibration are desirable.

A variable speed inverter runs the pump only as fast as necessary to maintain the desired pressure, achieving high efficiency, minimising noise and vibration and reducing running costs.

The pump motor is protected by the inverter against failure caused by overload/stall conditions and dry running. A slow start and stop of the pump eliminates sudden pipe vibration and water hammer.

The break tank is quickly filled by a high speed float valve with diaphragm mechanism for rapid fill speeds and an articulated arm to eliminate excessive operation.

Features include adjustable pressure, overcurrent protection, soft start and stop, over/undervoltage and overcurrent protection.

The WRAS approved water storage tank is quickly filled by a high speed float valve. An articulated ball arm provides additional movement reducing unnecessary valve activity.

Designed, and assembled in the UK. With full UK based technical support , rapid spares availability, and spare parts supply from UK stocks.

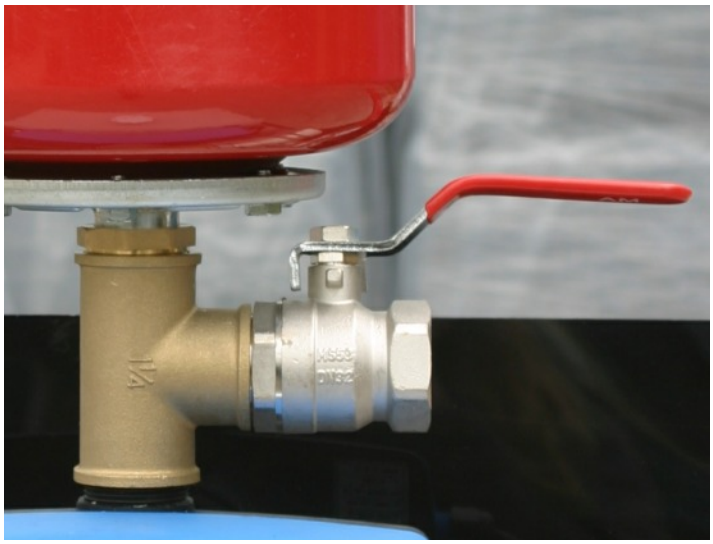
Full recon/repair service available to component level.

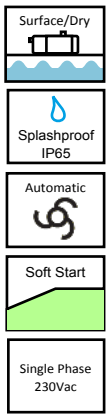
Features

- Combined Pump and Storage Tank
- Adjustable Pressure
- Variable Speed
- Low Energy Consumption
- Low Noise/Vibration
- WRAS Approved Tank
- Easy Maintenance and replacement of parts
- Maintains constant system pressure
- WRAS approved water tank

BT230/57/1000 B BOOSTER TANKS
Variable Speed Combined Pressure Booster & Tank

- Reliable air cooled inverter with IGBT technology.
- High quality stainless steel pumps
- Quiet water cooled pump located within the tank for extremely quiet operation
- Single sided lid bolt removal (no need to reach backnut on other side)
- 8 litre pressure vessel
- Highly accurate digital pressure display
- Pump Fault display
- Type AB Air Gap available (optional) for compliance with WRAS regulations up to Category 5, BS EN 13077.
- 620mm wide. Fits through a doorway (230L models only).
- Easily replaceable parts, designed for easy maintenance.





Adjustable Settings

•Adjustable pump pressure
•Auto-restart after fault on/off
•Runtime duration counters for inverter and pump
•Adjustable ramp time for soft start/stop
•Adjustable Delta start value (deviation from set pressure before the pump starts)
•Restore factory default setting

CODE	PUMP	TANK SIZE Litres	PERFORMANCE			POWER	
			MAX PRESSURE bar	RECOMMENDED OPERATING PRESSURE bar	MAX FLOW L/min	VOLTAGE	CURRENT
BT2309031B	X-MV80PRO	230	3.1	2.6	90	~1 230	5.3
BT23010063B	X-MV150PRO		6.3	5	100		9.3
BT23014562B	X-MV2006HF		6.2	5.1	145		11.1
BT5709031B	X-MV80PRO	570	3.1	2.6	90		5.3
BT57010063B	X-MV150PRO		6.3	5	100		9.3
BT57014562B	X-MV2006HF		6.2	5.1	145		11.1
BT10009031B	X-MV80PRO	1000	3.1	2.6	90		5.3
BT100010063B	X-MV150PRO		6.3	5	100		9.3
BT100014562B	X-MV2006HF		6.2	5.1	145		11.1

BT22710063C BOOSTER TANK
Fixed Speed Combined Pressure Booster & Tank

Quiet and economical supply of pressurised water to multiple points of use within a building. Ideal in domestic and light commercial uses where the enclosed design and low noise and vibration are desirable.

A stainless steel automatic pump is situated within the tank. The internal electronic control system of the pump activates upon demand, removing the need for a separate pressure controller or inverter drive. Dry run protection, leak detection, thermal overload protection and an anti-blocking cycle are also incorporated into the pumps internal control system. The reduced component count of such a design allows easy maintenance and reduced installation costs.

The polyethylene WRAS approved water storage tank is quickly filled by a high speed float valve. An articulated ball arm provides additional movement reducing unnecessary valve activity.

A galvanised steel frame provides the tank with additional support against flexing, and an insulation jacket is provided (not shown) which may be optionally used to protect the system against cold weather conditions when installed in unheated locations such as garages and outbuildings.

Designed, and assembled in the UK. With full UK based technical support, rapid spares availability, and spare parts supply from UK stocks.

Features

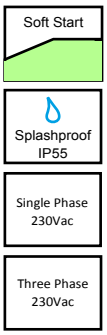
- Combined Pump and Storage Tank
- Fixed Speed Automatic Operation
- Low Noise/Vibration
- WRAS Approved Tank
- Easy Maintenance and replacement of parts
- High quality Italian manufactured pump

CODE	PUMP	TANK SIZE Litres	PERFORMANCE		POWER	
			MAX PRESSURE bar	MAX FLOW L/min	VOLTAGE	CURRENT
BT22710063C	X-AMO150PRO	227	6.3	100	~1 230	8.4

PUMP CONTROLLERS

Inverters/Soft Start

SINGLE / THREE PHASE 230V PUMP OUTLET MOUNTED SELF CONTAINED



CODE	Pressure		Flow	Current
	Max	Operating Range	Max m3/hr	Max per Phase
XINV101110	15	0.5 to 12 bar	15	~1 9A ~3 10A
XINV101165	10	0.5 to 8 bar	10	~1 5A ~3 6A

Inverter for single and 3 phase 230v pumps.

Adjusts pump motor speed to maintain constant pressure. The desired pressure can be adjusted from the keypad.

Reduces the size of pressure vessel required.

Soft starting eliminates water hammer.

Connection for float switch for level control / dry run avoidance.

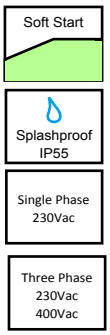
Can be joined in pairs for duty assist / duty standby.

Can run 230v 3 phase pumps from a single phase supply.

Features

- Male 1.25in connections
- Dry run protection
- Overcurrent protection
- Anti-ice system
- Digital pressure / status display
- Max 10A ~3, 9A ~1
- Max operating pressure 15bar
- Max set pressure 12bar
- Max water temp. 40 deg C
- Max flow 15m3/hr
- Ingress Protection IP55

SINGLE / THREE PHASE 230V and 400V INVERTERS WITH EXTERNAL SENSORS



CODE	Power			
	Input	Output	Output Current	Typical Motor Power P2
INV209	~1 x 230vac	~1 x vin ~3 x vin	~1 9A ~3 7A	~1 1.1kw ~3 1.5kw
INV214	~1 x 230vac	~1 x vin ~3 x vin	~1 9A ~3 11A	~1 1.1kw ~3 3kw
INV406	~3 x 380-460vac	~3 x vin	6A	2.2kw
INV409	~3 x 380-460vac	~3 x vin	9A	4kw
INV414	~3 x 380-460vac	~3 x vin	14A	5.5kw
INV418	~3 x 380-460vac	~3 x vin	18A	7.5kw
INV425	~3 x 380-460vac	~3 x vin	25A	11kw
INV430	~3 x 380-460vac	~3 x vin	30A	15kw

Highly versatile variable frequency drives, designed to control and protect commercial pumping systems by varying on changing pump speed.

Features

- Single and 3 phase models
- Can connect up to 8 together for large pump groups
- Can control a secondary fixed speed pump
- External sensors
- 2 x 4-20mA inputs, 2 x 4-20mA or 0-10v (selectable)

Can be connected to any manual pump on the market, and will manage the operation of the pump to maintain a constant desired physical dimension (such as pressure, flow, temperature or other). The pumping system runs only at the speed necessary to meet user's requirements, ensuring energy savings and extending the life of the system.

Also provides motor protection and monitoring , such as:

- Protection against overload and dry running
- Integrated soft start and soft stop functions, extending the life of the system and reducing peak absorption
- Not suitable for use with automatic pumps

PUMP CONTROLLERS

Fixed Speed Pump Control - Variable Pressure

P SERIES
Multiple Booster Pump Controller

Splashproof IP65

Single Phase 230Vac

CODE	Pumps Controlled	Supply Tank Control	POWER HANDLING	
			Pump outlets	Control Panel Power Consumption
PF120P	2	Float Switch	2 x 10A	7w
PF130P	3		3 X 10A	
PF140P	4		4 X 10A	
PF320P	2	Level Sensor	2 X 10A	
PF330P	3		3 X 10A	
PF340P	4		4 X 10A	

Pressure control of multiple pumps from a single Control Panel and pressure sensor. Fixed speed variable pressure pump control with adjustable start and stop pressures per pump, and intuitive menu driven options.

The pump pressure sensor is separate from the Control Panel allowing installation either close to the pumps as in a chassis mounted pump set, or for use with submerged pump sets for maximum performance, silent operation and reduced space requirements.

Monitoring of the supply tank/break tank via either float switch or analogue level sensor. Level sensor models have accurate level display and minimum level adjustment from the Control Panel.

Advanced Fault Tracking logs faults as they occur. Fault codes are stored in memory until you choose to erase them, allowing easy identification of intermittent and historical Faults.

Clever design of the circuit board provides the most robust unit on the market today, with overvoltage and brownout protection, immediate recovery from power failures with no loss of setting and auto reboot, individually fused outputs, oversized power supply to electronics, removable MCU chip (software) for easy upgrades, automatic failover of pumps, and automatic search for spare pumps even if not configured for twin pump use.

Modular connector design and tolerant software allows pumps to be 'hot-swapped' without switching off the Controller or remaining pump.

Designed, programmed, built and assembled in the UK. With full UK based technical support , rapid spares availability, and spare parts supply from UK stocks, with full repair/recon service to component level.

Features

- Adjustable pressure control (10bar max) Duty Standby/Duty Assist with alternation
- Modular 'hot swap' of pumps and solenoids
- Automatic Tank Level Calibration
- Multiple pump model support at 230Vac 50Hz or any supply voltage/phase via contactors/overloads
- BMS Switched output
- Optional BMS serial output
- Advanced Fault Tracking
- Fault Warning LED
- Auto hunt for redundant spare pump during pump failure in single pump mode
- Swappable MCU chip (software)
- System Overpressure Alarm - protects pipework and attached appliances (UV system, etc) from overpressure due to faulty installation or incorrect pressure setting.
- Overvoltage protection
- Brownout protection
- Watchdog timer
- Fused Outputs

Adjustable Settings

- Pump cut-in/cut-out pressure (for each pump) System Overpressure Alarm
- Pump failure pressure
- Pump Mode (Pump 1, Pump 2, Twin pump assist/standby) Minimum Water Level (dry run prevention)Pump restart delay
- Fault code display
- Fault code erase
- Input test diagnostic screen
- Output test diagnostic screen
- Manual Stop - with BMS activation
- Restore Factory Default Settings

PUMP CONTROLLERS

Pump Status Display Panel

XDISP SERIES
SteelPump Status Display Panel

Splashproof IP65

Single Phase 230Vac

The X-DISP Display Panel provides a remote display facility for all automatic SteelPumps models. It indicates the presence of a power supply to the pump and the activation status of the pump (whether the pump is idle or pumping water).

As well as monitoring the activity and status of your SteelPump it can also help determine frequent restarts due pipe leaks or faulty float valves (ballcocks).

The green “On” light indicates a power supply to the pump. This light is constantly energised as long as there is power to the pump system. It indicates that the pump is ready to operate automatically as and when required, and that there has been no disconnection from the supply or trip of any circuit protective device (MCB or RCD).

The amber “Active” light shows that the pump is currently operating and pumping water. Under normal conditions the pump will switch on when there is a demand for water and stay on as long as the outlet or appliance continues to draw water.

The “Active” light therefore indicates the frequency of pump startups, failure to start, or continuous running, alerting the user to problems which may otherwise cause premature pump failure.

Specification

Dimensions	180mm x 110mm x 90mm
Enclosure Material	Polystyrene
Ingress Protection	IP66
Electrical Protection	Class 2
Voltage	230VAC 1~

Installation

The control panel must be installed in a sheltered location. It can be mounted outside as long as it is protected from the weather for example in a barn or covered area.

Four recesses (one in each corner of the panel) allow the control panel to be easily attached to a wall or suitable support without compromising its ingress protection rating.

Installation requires the replacement of the power supply flex to the pump with a 4 core cable. To ensure this cable is fitted when a new pump is purchased use product reference DISPFITT. Full instructions are provided.

Suitable circuit protection must be installed including a suitable earth, overcurrent protection, and residual current protection at 30mA, ideally on it's own circuit, but always in accordance with BS7671 and applicable regulations.

Included Components

- X-DISP Series Control Panel
- Attached mains cable
- Installation & Operation Manual
- 20m of 4 core flex cable (X-DISPFITT only)

Not included: Wall/Panel fixings.

CODE	4 CORE CABLE
XDISP	None
XDISPFITT	20m

RCPM SERIES
Timeout / Leakage Detection Alarm

Splashproof IP65

Single Phase 230Vac

The RCPM Series Display Panels provide a visual and audible alarm in the event of a pump run-time exceeding a pre-set limit, typically indicating a suspected leak or over-use due to an outlet being left open, faulty control system, or disconnected pipework.

As standard, the visual indicators include a green light indicating that the pump is live, and a red light with audible alarm indicating excessive run-time.

The panels can also be wired into some automatic pumps wherever it is possible to obtain a return live from the pump's common motor pole. In the case of automatic pumps by using this alarm it is possible to gain advance warning of unintended over-running due to poor installation, limiting the potential for damage to the pump itself.

Options available for outputs into Building Management Systems (BMS) and to auto-shut off the pump when the alarm is triggered.

CODE	ALARM		BMS	PUMP AUTO SHUT-OFF
	LIGHT	BUZZER		
RCPM1	✓	✓		
RCPM1B	✓	✓	✓	
RCPM1BR	✓	✓	✓	✓
RCPM1R	✓	✓		✓

Installation

The control panel must be installed in a sheltered location. It can be mounted in outside as long as it is protected from the weather for example in a barn or covered area.

Four recesses (one in each corner of the panel) allow the control panel to be easily attached to a wall or suitable support without compromising its ingress protection rating.

Suitable circuit protection must be installed including a suitable earth, overcurrent protection, and residual current protection at 30mA, ideally on it's own circuit, but always in accordance with BS7671 and applicable regulations.

Adjustable Timer Settings

The maximum time duration achievable is 24 hours, and minimum is 0.1 seconds.

We would generally recommend a setting of between 20 minutes and 2 hours depending on expected usage, although commercial and industrial installations may expect longer periods of continuous use and so require a longer delay.

Included Components

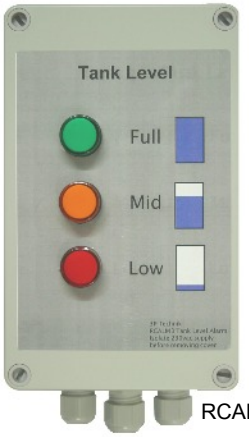
- Alarm Panel
- Attached mains cable
- Installation & Operation Manual

Not included:

- Wall/Panel fixings.
- 4 core flex (for use with automatic pumps with in-built pressure controller)

LEVEL CONTROLLERS
Tank Level Display

RCALM SERIES
Tank Level Warning Display Kit



RCALM3

Splashproof IP65

Single Phase 230Vac

The 3P RCALM Series Display Panels provide a highly effective low water level warning for liquid tanks. Alternatively float switch wiring can be reversed on the RCALM 1 and 2 Series panels to provide a high level warning instead.

Fluid compatibility will depend upon the float switches used (not supplied)

Choose from a visible (light), or audible (repeating buzzer) alert or both.

Options available for outputs into Building Management Systems (BMS).

24vdc or 230vac options also available.

There are three versions of the RCALM series with further options available in each type:

RCALM1
- Low/High level warning (amber light)

RCALM2
- Power status (green light)
- Low/High level warning (amber light/buzzer)

RCALM3
- Full tank (green light)
- Mid water level (amber light)
- Low water level (red light/buzzer)

Included Components
- Control panel
- Attached mains cable
- Installation & Operation Manual

Required Components (not included)
- RCALM1 - Float switch
- RCALM2 - Double acting float switch
- RCALM3 - 2 x Float switch, of which at least 1 must be double acting

Features
- Visible and/or Audible Alarm
- Low or High Level Warning (RCALM 1 and 2)
- Adjustable Level Warning
- Reliable Level Indication (RCALM3)
- Works with almost all pumps

CODE	LIGHT(S)	BUZZER	BMS	FLOAT SWITCH
RCALM1	1	✓	✓	230vac
RCALM1L		✓	✓	24vdc
RCALM1Q			✓	230vac
RCALM1LQ			✓	24vdc
RCALM1B		✓		230vac
RCALM1LB		✓		24vdc
RCALM1QB				230vac
RCALM1LQB				24vdc
RCALM2	2	✓	✓	230vac
RCALM2L		✓	✓	24vdc
RCALM2Q			✓	230vac
RCALM2LQ			✓	24vdc
RCALM2B		✓		230vac
RCALM2LB		✓		24vdc
RCALM2QB				230vac
RCALM2LQB				24vdc
RCALM3	3	✓	✓	230vac
RCALM3L		✓	✓	24vdc
RCALM3Q			✓	230vac
RCALM3LQ			✓	24vdc
RCALM3B		✓		230vac
RCALM3LB		✓		24vdc
RCALM3QB				230vac
RCALM3LQB				24vdc

LEVEL CONTROLLERS

Direct on-line Pump Controller - 400vac

PC3S
Direct On-Line Pump Controller 400VAC

NEW!

Splashproof IP65

Three Phase 230Vac 400Vac

A 3 Phase 400v Direct On-Line pump controller with on-demand activation from 2 inputs (float switch or pressure switch),manual override and long range remote operation options for commercial and industrial environments.

Typical Applications

- Dewatering
- Sewage Pumping
- Filling Agricultural Tanks/Troughs
- Tank Transfer
- Industrial Processes

Suitable for drainage, tank transfer, drawing water from boreholes, streams and watercourses, and pressure boosting applications. Controls a single three-phase pump at 400vac via Direct-On Line (DOL) starting. Dual pump and star-delta versions are also available.

Thermal overload protection provides standard protection against seizure and motor failure.

Voltage and phase monitoring provide enhanced protection for generators and temporary/remote installations . Optional undercurrent protection provides dry run protection in situations where a float switch or other level switch is not possible.

Low voltage sensor operation accommodates various level switch types including floats, reed switches, vibrating fork, optical, ultrasonic and other electronic types with switching capacity of 1A@24v or greater. All devices on the front panel are run at 24v for enhanced operator safety.

The optional GSM control module allows the pump set to be enabled/disabled via mobile phone and alerts up to 5 mobile phones if a fault occurs. The optional remote control panel connected by VHF radio link provides a wireless remote control panel at ranges of up to 16km with duplication of lights and relocation of the control switch to the remote panel. Remote panels are built to order and may control up to 64 PC3S systems from a single panel.

Features

- **Undercurrent Protection** - Detects reduced current caused by dry-running and shuts the system down to prevent damage.
- **Scheduling Timer** - Program the control panel to operate only at preset times during a 7 day cycle.
- **GSM Control** - Enable/Inhibit the system and receive fault alerts via text message.
- **1km VHF Radio Remote Panel** - Duplicates display panel lights and optionally relocates the control switch to the remote panel. Operates via a radio link with a maximum range of 1km.
- **16km VHF Radio Remote Panel** - As 1km radio but with increased range to 16km.
- Hand/Off Auto Operating Modes
- Indicators for Power-On, Pump Running and Fault
- Thermal Overload Protection
- Overvoltage Protection
- Undervoltage Protection
- Phase Loss Protection
- Incorrect Phase Rotation Protection
- Undercurrent Dry Run Protection (Optional)
- Safe 24 volt operation of external float switches and front panel controls/lamps.
- Strong fully earthed steel enclosure
- IP65 Ingress Protection

We supply float switches and sensors for use with this product in various lengths and types.

LEVEL CONTROLLERS

Direct on-line Pump Controller - 400vac

PC3S

Direct On-Line Pump Controller 400VAC

NEW!

CODE	Pumps	Output Current (Amps)	Inputs (Switches,Floats etc)	Pump Protection		
				Thermal Overload	Overvoltage	Undervoltage
PC3S04	1	2.8 - 4	2	Yes	Yes	Yes
PC3S063		4 - 6.3				
PC3S08		5.6 - 8				
PC3S10		7 - 10				
PC3S125		8 - 12.5				
PC3S150		10 - 15				
PC3S170		11 - 17				
PC3S230		15 - 23				

Additional Options	Suffix				
CODE	Undercurrent Monitoring (Dry Run Detection)	Scheduling Timer (7 Day Scheduling)	GSM Activation/Alarm By Mobile Phone	Radio (Remote Control Panel) 1 km Range	Radio (Remote Control Panel) 16 km Range
PC3Sxxx	C	T	GSM	R1	R16

Radio Remote Display Panel (display only shown without control switch)

TCS5JB Series
Level Control / Mains Water Top-up

Control of water supply through a high flow solenoid valve to maintain the level of water in a tank.

Optional pump isolation versions for both direct pressurised, and indirect (header tank) systems. All TCS5JB Controllers are designed to work in conjunction with an automatic pump.

The new low voltage options, TCS5JBL and TCS5JBLA, are suitable for irrigation applications .

Splashproof IP65

Single Phase 230Vac

Features

- Control of mains water through a high flow solenoid valve.
- Type A-A air gap meets UK and EU water regulations, with a unique integrated tundish overflow.
- Float switch lengths of 2m, 15m and 20m, or bespoke to order.
- Pump Control options available.
- Low voltage 24v options available.
- All components are designed for wall mounting.
- Available with optional pump isolation for dry run protection, in the event water demand is likely to exceed mains water top-up rate.
- Designed for use with automatic pumps.
- Supplied with electrical connectors for ease of installation.
- 2 metre version can be used for header tank systems.
- Ingress protection IP65 (main unit), IP54 or IP67 (solenoid).

CODE	FLOAT SWITCH	VOLTAGE	SOLENOID	IP RATING
TCS5JB1	15m	~1 230	1/2"	IP54
TCS5JB1A			3/4"	
TCS5JB1B			1"	
TCS5JB1C			1.25"	
TCS5JB2	20m		1/2"	
TCS5JB2A			3/4"	
TCS5JB2B			1"	
TCS5JB2C			1.25"	
TCS5JB3	2m		1/2"	
TCS5JB3A			3/4"	
TCS5JB3B			1"	
TCS5JB3E			2"	
TCS5JB4	5m		1/2"	
TCS5JB4B			1"	
TCS5JB3IP67	2m		1/2"	IP67
TCS5JB4IP67	5m			
TCS5JB3AIP67	2m			
TCS5JB4AIP67	5m		3/4"	
TCS5JBL	Supplied Separately	24Vdc	Solenoid Valve Supplied Separately	
TCS5JBLA				

TCS6JB Series
24V + 230VAC Level Control / Mains Water Top-up

Splashproof IP65

Single Phase 230Vac

Features

- For Indirect Rainwater Systems With Outdoor Storage/header Tank
- Controls 1 x 230VAC Rainwater Pump and 1 x 24V Mains Top-up Solenoid Valve
- Safe 24v Solenoid Valve Control
- Safe 24v Float Switch Operation
- Ideal for Agricultural and Industrial Process Use
- IP66 Suitable for Outdoor Installation in Sheltered Locations

The TCS6JBL Low Voltage Top-up Switch maintains the level of water in a header tank or rainwater break tank by controlling a pump operating at mains voltage and a solenoid operating at 24 volts. The level of water in the header tank is monitored by float switches and filled if the level becomes low. Rainwater is prioritised and fill levels are determined by adjusting the level of float switches.

The control panel uses 2 float switches to detect the water level in the header tank and activates the rainwater or mains water-top up accordingly to maintain a sufficient level of water whilst giving priority to rainwater usage when possible.

A 230VAC output controls the rainwater pump while mains water top-up is controlled by a 24V DC or AC output (depending on model).

The each output will be activated when its float switch reaches a downward angle of approx 45 degrees or more, the top-up cycle will then continue until the float switch reaches an upward angle of approx 45 degrees, thereby ensuring a measured quantity of water is introduced to the tank and avoiding unnecessarily frequent activation.

Adjustment of fill volume is achieved by altering the free length of cable attached to the float switches.

Front panel indicators indicate the correct function of the 24v power supply (green), and provide activity status of the 230Vac pump output (amber – middle), and of the 24Vdc/24Vac solenoid valve output (amber - lower).

Float switch and solenoid circuits are both powered by a safe low-voltage, either 24Vdc (TCS6JBL) or 24Vac (TCS6JBLA) with limited maximum current and over-voltage protection.

Pump control by a low voltage control circuit rather than direct attachment to the float switch enables longer float switch distances to be achieved without the detrimental effects of voltage drop usually encountered when mains voltages are switched using long float switch cables.

An ingress protection rating of IP66 makes the unit suitable for outdoor installation in sheltered locations.

CODE	Pump		Float Switch	Mains Top-up		
	Outputs	Max Current	Inputs	Solenoid Valve Outputs	Voltage	Max Current
TCS6JBL	1	10	2	1	24VDC	1A
TCS6JBLA					24VAC	

We supply a range of float switches and solenoids for use with this product.

TCA5000950
Electronic Mains Water Top-up With Pump Isolation and Alarm

Single Phase 230Vac

CODECABLE	PROBE	SOLENOID VALVE	PUMP OUTLET
TCA5000950	15m	1/2"	10A @ 230vac
TCA5000950ECON			

Electronic control of mains water top-up and pump for domestic sized direct pressure rainwater harvesting installations.

Uses a solid state conductivity sensor to sense low water level, avoiding the movement and accuracy issues of a float switch. Conductivity sensors experience no mechanical wear during use leading to long lifespan and reliability.

Electronically timed top-up overrun alarm, halts operation and alerts the user in the event that the tank level fails to be replenished by the top-up cycle. Prevents potential wastage of water due to tank or duct failure. Alerts the user to failure of the solenoid valve.

Pump isolation is optional using the front power socket, and allows the Controller to isolate the pump during a top-up cycle to avoid water useage exceeding the rate of replenishment.

Water is topped up via a BSEN13076 and BS8515 compliant tundish.

Supplied with 15metre conductivity probe, 1/2" solenoid valve, tundish, stainless steel braided mains water connection hose, and 50mm tundish.

TCA5000950ECON Economy version supplied without braided hose and isolation valve.

- Max 10A ~1 230vac pump output for pump isolation control
- Ingress Protection IP20
- Pump Outlet fused at 10A
- Electronic overvoltage protection
- Solenoid test function (push button)
- Halt and Reset
- Mains top-up indicator
- Mains top-up failure alarm indicator

TCS9 Series
Time Controlled Tank Level Switch

Splashproof IP65

Single Phase 230Vac

CODE	FLOAT SWITCH	PUMP OUTPUT
TCS9JB	None	10A @ 230vac
TCS9JB1	2m	

Provides scheduled level control to fill or drain a tank to a pre-set level only within a specified time window.

Designed for use where available water pressure, noise limits or usage restrictions require the scheduling of operation.

Modular assembly with easily replaceable parts.

Also available with a secondary over-ride float switch to initiate emergency level top-up or drain regardless of timing.

Float switch length does not contribute to voltage drop and does not affect maximum connectable load.

- Supplied with or without 2m float switch
- Max 20A output load 1~230vac
- Daily and Weekly Timing Programs
- LCD Display and push button programming
- 3 way manual override, on - off - auto
- Waterproof front cover
- Minimum time interval 1 minute
- Double Pole Output Switching

We supply float switches and sensors for use with this product in various lengths and types.

TSR SERIES
Smart Header Tank Controller

Splashproof IP65

Single Phase 230Vac

CODE	OUTPUTS	POWER HANDLING		INPUTS	HIGH LEVEL SAFETY SHUT-OFF
		Outputs	Control Panel Power Consumption	Level Detection Points	
TSR23012	1	10A	3.5w	1	
TSR23012A					✓
TSR23012D	2			2	
TSR23012DA					✓

A replacement for float switch or ball valve control, allowing a header tank to be filled at high speed and vastly improved efficiency compared with twin ball-cock systems.

Pumps run with reduced temperature and runtime, reducing failures.

A reed sensor detects a low water level and activates the pump allowing it to run on for a period of time after reaching the sensor. In this way the system behaves in a manner similar to a float switch, but with far greater reliability, accuracy, and ease of construction. The problem of overlapping float switches is also eliminated.

TSR series Controllers remove the need to pump through the narrow orifice of a ball-cock, giving a substantial increase in efficiency, allowing smaller header tanks to be selected, and eliminating pump failures due to persistent overheating.

Pump operation is started by the low level sensor, and keeps running after the sensor has been reached for a given time period, thus avoiding the need for the pump to start too frequently, while also ensuring there is sufficient water delivered to the header tank to meet instantaneous demands.

As a safeguard against overflow, a second sensor mounted higher on the header tank will stop pump operation if reached.

Sensors are operated at extra low voltage (12v) and low current, preventing sensor failure and voltage drop issues which affect float switches.
There are no cables within the header tank, no loose floats to become jammed or entangled.

Features

- Safe 24vdc Low Voltage Sensors
- Safety shutdown on TSR23012A/TSR23012DA in the event of sensor failure (back up sensor)
- Controls pump or solenoid up to 10A

TDSR23024AC
Break Tank Level Controller

NEW!

Splashproof IP65

Single Phase 230Vac

Features

- Compact And Reliable
- Precise Level Control Of Small Tanks Even With High Fill Rates
- Safe 24v Sensor Voltage
- Alert & Shut-Off On Overfill To Prevent Spillage
- Designed For OEM Integration
- 230VAC Output For Solenoid, Pump Or Motorised Valve
- Optional Audible Alarm
- Ideal For Category 5 Booster Tanks And Header Tank Systems
- Stable Operation In Tanks With Turbulence/Wave Motion

The TDSR23024AC is a compact mains powered control module aimed at the OEM market and designed to control the rapid filling of a small tank accurately, with a failsafe shut-off/alert function, and at minimal cost. It is ideal for break tank, booster tank, or header tank systems.

A variety of sensors can be fitted. Reed switch sensors are most often used and fitted through the wall of the tank. The start and stop levels of the fill function are then fixed permanently and accurate to typically 20mm or less.

Three sensors are used. Low and high level sensors start and stop the fill cycle. An additional failsafe sensor halts the fill cycle if triggered and displays a visual alert (audible alert also available).

Once triggered by a low level the fill function is activated. Once activated the fill continues regardless of the lower sensor state until the high level sensor is reached. The fill cycle is therefore immune to turbulence and wave action which would cause rapid cycling of other fill devices, making it suitable for small rapidly filling tanks.

An additional alarm sensor installed above the upper sensor acts as a back-up in the event of sensor failure, shutting down the system and triggering a warning light. An optional

Removing float valves from system designs increases fill speed allowing smaller tank sizes and reduced product footprint. Pumps used to fill break tanks can be controlled directly and operated at full flow for increased cooling, improved performance, reduced run-time, and reduced electricity consumption.

Sensors operate at 24v and the product is encased in a high impact polystyrene housing for optimum safety and reliability.

Typical Applications

- Booster Sets
- Break Tanks
- Header Tanks

CODE	Outputs		Inputs		Power Supply	
	230VAC	Max Current	24VDC	Emitted Current	Voltage	Power Consumption
TDSR23024AC	1	20A	3	150mA	220-240VAC 50-60Hz	4w

We supply float switches and sensors for use with this product in various lengths and types.

TC340
Single/Twin Tank Level Controller

Splashproof IP65

Single Phase 230Vac

CODE	Product Level Control	POWER HANDLING		INPUTS	
		230v Outputs	Control Panel Power Consumption	Analogue 4-20mA	Digital
TC340	Quad Output Tank Controller	4 X 10A	7w	2	5
RCPT06S20	Additional Level Sensor for 2nd Tank Use				

The 3P TC Series Tank Controller maintains and monitors the level of water in a storage tank. A precise level sensing probe detects the exact height of water present in the tank. The Controller then uses any of four mains voltage outputs which can be connected to pumps, solenoids, motorised valves or any other type of filling or draining device to maintain the level between defined limits.

Each pump or valve connected to the Controller is assigned high and low switch levels, and configured to drain or fill the tank. Additionally, each output can be linked to any of 5 switch inputs, which must be closed for the output to operate. This is in addition to the minimum and maximum levels that the output must operate within and is useful in cases where water is to be transferred from point to point. Filling a tanker for example could be conditional on sufficient water in the main supply tank, and also depend on a shut-off or level switch on the tanker or filling hose. Alternatively a pumped stormwater attenuation system could be linked to a rain sensor to stop emptying the tank when rainfall is detected.

Level sensing is achieved via a single pressure sensor installed on the base of the tank. This reads the actual water depth and the Control Panel then shows the exact level and operates accordingly, thereby removing the reliability issues associated with float switch based systems.

All level settings are set from the Control Panel. There is no need to enter the tank to fit and adjust float switches. High and low level alarms are also set from the control panel, and a switched BMS output (volt free contact) is provided, which can be also used to activate sirens/strobes.

Advanced Fault Tracking detects and logs faults in memory until you choose to erase them, allowing easy identification of intermittent and historical faults.

Overvoltage and brownout protection, immediate recovery from power failures with no loss of setting and auto reboot, individually fused outputs, oversized power supply to electronics, removable MCU chip (software) for easy upgrades. Modular connector design and tolerant software allows pumps and sensors to be 'hot-swapped' without switching off the Controller or remaining pump.

Designed, programmed, built and assembled in the UK. With full UK based technical support , rapid spares availability, and spare parts supply from UK stocks. Full repair/recon service to component level.

Features

- Modular 'hot swap' of pumps and solenoids
- No need for tank level calibration
- Multiple pump model support at 230Vac 50Hz or any supply voltage/phase via contactors/overloads
- IP68 available on request
- BMS Switched output
- Optional BMS serial output
- Advanced Fault Tracking
- Fault Warning LED
- Auto failover to redundant spare pump/valve can be set using spare output
- Swappable MCU chip (software)
- High and Low Level alarms, linked to BMS output.
- Overvoltage protection
- Brownout protection
- Watchdog timer
- Fused Outputs

Adjustable Settings

- High/Low level settings for each output
- Link any output to any input switch
- Link and output to either level probe
- Switch inputs can be shared between outputs
- High Level/Low Level alarms
- Fault code display
- Fault code erase
- Input test diagnostic screen
- Output test diagnostic screen
- Manual Stop - with BMS activation
- Restore Factory Default Settings

T SERIES
Advanced Direct/Top-up Rainwater Controller

Splashproof IP65

Single Phase 230Vac

CODE	Product Level Control	POWER HANDLING		INPUTS
		Outputs	Control Panel Power Consumption	Analogue 4-20mA
RF300T	Analogue Pressure Sensor 4-20mA	2 x 10A Pumps 1 x 10A Solenoid	7w	1 x Tank Level 1 x Line Pressure

The 3P RainForce T Series commercial Rainwater Controller performs all the functions you would expect of a commercial system such as adjustable pressure, duty standby/assist and BMS output, whilst remaining extremely compact. Pressure control is achieved by modulation of the pumps which are run as required to maintain pressure within a specified range, avoiding the loss of efficiency associated with variable speed systems when running at low demand.

2 Modes of operation are available, Auto Mode adds mains water to the rainwater tank as necessary. Rain Mode uses only available rainwater without mains water top-up.

Unlike suction based systems which typically need adaptation for UK use in above ground plant rooms (an extra in-tank pump) Rainforce T Series can operate with pumps in any location. Submersible pumps let you take advantage of maximum pumping efficiency whilst reducing the overall component count of the system. Pumps can also be installed above ground, with an optional booster pump if required to meet specification.

No water ever needs to go through the Control Panel. Operation of the pumps and solenoid can be remote from the Control Panel or not.

Any electric pumps, solenoids, motorised valves, etc can be used. Single or 3 Phase (via optional contactor unit), Rainforce does not need to 'know' the pumps it uses.

Optional hardware allows pumps of any power up to the limit of your electrical supply. Pumps can be replaced with other makes and models at any time and don't need to be matched. Downtime due to reprogramming or lead times for a specific pump are eliminated.

A precise pressure transmitter is used to determine the exact level of stored rainwater. No other float switches or probes are needed for top-up activation or pump protection, which are all software controlled. This provides the user with the added flexibility of being able to select pump shut-off and top-up levels from the panel, with no need to access the tank.

All RainForce systems have intuitive menu driven settings. There are no hidden menus, and almost everything is adjustable, including pump cut-in and cut-out pressures, overpressure alarm, pump failure pressure, top up level, overfill duration, time-out alarm, etc. Safe default settings (3 bar) will operate straight away in single pump mode with auto tank level calibration.

Rainforce incorporates Advanced Fault Tracking. Fault codes are stored in memory until you choose to erase them, allowing easy identification of intermittent and historical faults.

Clever design of the circuit board makes Rainforce the most robust unit on the market today, with overvoltage and brownout protection, immediate recovery from power failures with no loss of setting and auto reboot, individually fused outputs, oversized power supply to electronics, removable MCU chip (software) for easy upgrades, automatic failover of pumps, and automatic search for spare pumps even if not configured for twin pump use.

Modular connector design and tolerant software allows pumps to be 'hot-swapped' without switching off the Controller or remaining pump.

Designed, programmed, built and assembled in the UK. With full UK based technical support , rapid spares availability, and spare parts supply from UK stocks. Full repair/recon service to board level.

Like all variable pressure systems, a pressure vessel is required for correct operation.

RAINWATER CONTROLLERS

DIRECT PRESSURE DUTY ASSIST/STANDBY

T SERIES

Advanced Direct/Top-up Rainwater Controller

Features

- Adjustable pressure control (10bar max)
- Duty Standby/Duty Assist with alternation
- Modular 'hot swap' of pumps and solenoids
- Automatic Tank Level Calibration
- Multiple pump model support at 230Vac 50Hz or any supply voltage/phase via contactors/overloads
- Single Sphase (3 phase via additional connection kit)
- BMS Switched output
- Optional BMS serial output
- Advanced Fault Tracking
- Fault Warning LED
- Auto hunt for redundant spare pump during pump failure in single pump mode
- Swappable MCU chip (software)
- Solenoid valve isolation on fault - reducing fire risk from overheat.
- System Overpressure Alarm - protects pipework and attached appliances (UV system, etc) from overpressure due to faulty installation or incorrect pressure setting.
- Overvoltage protection
- Brownout protection
- Watchdog timer
- Fused Outputs

Adjustable Settings

- Pump cut-in/cut-out pressure (for each pump)
- System Overpressure Alarm
- Pump failure pressure
- Pump Mode (Pump1,Pump2,Twin pump assist/standby)
- Minimum Rainwater Level (dry run prevention)
- Top-up level
- Top-up overfill delay
- Top-up timeout alarm
- Pump restart delay
- Fault code display
- Fault code erase
- Input test diagnostic screen
- Output test diagnostic screen
- Manual Stop - with BMS activation
- Restore Factory Default Settings

H SERIES
Advanced Header Tank Rainwater Controller

Splashproof IP65

Single Phase 230Vac

CODE	Product Level Control	POWER HANDLING		INPUTS	
		Outputs	Control Panel Power Consumption	Analogue 4-20mA	Digital
RF200H	Float Switch	2 x 10A Pumps 1 x 10A Top-up Solenoid 1 x 10A Drain Solenoid	7w	2 x unused	1 x Tank Sensor 4 x Header Tank Sensors
RF300H	Pressure Sensor			1 x Pressure Sensor 1 x Unused	4 x Header Tank Sensors 1 x unused

The 3P RainForce H series commercial Rainwater Controller performs all the functions you would expect of a commercial indirect system such as multiple pump control, duty standby, BMS output, whilst remaining extremely compact. Header tank level control control is achieved by software with the emphasis on providing maximum availability of water without the efficiency losses associated with ball cocks, or the reliability problems of a float switch based system.

Unlike many other systems which are often continental direct pressure systems feeding a ball cock, RainForce H Series are designed specifically for commercial header tanks. Filling the header tank without flow restriction guarantees maximum efficiency.

Smart software employs a maximum availability strategy, adapting to the supply conditions and increasing the level of mains water top-up when rainwater is unavailable. In addition, Top-up Assist mode activates all pumps (if possible) and mains water if the water in the header tank falls to a critical level. No water ever needs to go through the Control Panel.

Operation of the pumps and solenoid can be remote or not. Any electric pumps, solenoids, motorised valves, etc can be used. Single or 3 Phase (with optional contractor unit), Rainforce does not need to 'know' the pumps it uses. Optional hardware (contactors) allows pumps of any power up to the limit of your electrical supply.

Pumps can be replaced with other makes and models at any time and don't need to be matched. Downtime due to reprogramming or lead times for sourcing a specific pump are eliminated.

2 Versions are available:

200H - Tank level sensing by float switch. A standard float switch operated at low voltage (+15Vdc) for enhanced durability detects water in the rainwater tank, with top-up and pump isolation controlled by float switch height. (Usually needs someone to enter the tank to install).

300H - Tank level sensing by pressure transmitter
A precise pressure transmitter is used to determine the exact level of stored rainwater, and displaying an automatically calibrated reading in % to the user. No other float switches or probes are needed for pump protection. This provides the user with the added flexibility of being able to select the minimum water level from the panel, with no need to access the tank.

All RainForce systems have intuitive menu driven settings. There are no hidden menus, and almost everything is adjustable, including minimum level, operation mode, etc. Safe default settings will operate straight away in single pump mode with auto tank level calibration (300H only).

RainForce incorporates Advanced Fault Tracking. Fault codes are stored in memory until you choose to erase them, allowing easy identification of intermittent and historical faults.
Clever design of the circuit board makes Rainforce the most robust unit on the market today, with overvoltage and brownout protection, immediate recovery from power failures with no loss of setting and auto reboot, individually fused outputs, oversized power supply to electronics, removable MCU chip (software) for easy upgrades, automatic failover of pumps, and automatic search for spare pumps even if not configured for twin pump use.

INDIRECT HEADER TANK DUTY ASSIST/STANDBY

H SERIES
Advanced Header Tank Rainwater Controller

Modular connector design and tolerant software allows pumps to be 'hot-swapped' without switching off the Controller or remaining pump.

Designed, programmed, built and assembled in the UK, with full UK based technical support, rapid spares availability, and spare parts supply from UK stocks. Full repair/recon service to board level.

Features

- 3 Modes or operation, Automatic, Mains Only, and Rainwater Only
- 2 Top-up strategies, Eco and Max
- Duty Standby/Duty Assist with alternation
- Modular 'hot swap' of pumps and solenoids
- Automatic Tank Level Calibration
- Multiple pump model support at 230Vac 50Hz or any supply voltage/phase via contactors/overloads
- Single Sphase (3 phase via additional connection kit)
- BMS Switched output
- Optional BMS serial output
- Advanced Fault Tracking
- Fault Warning LED
- Auto hunt for redundant spare pump during pump failure in single pump mode
- Swappable MCU chip (software)
- Solenoid valve isolation on fault - reducing fire risk from overheat.
- Overvoltage protection
- Brownout protection
- Watchdog timer
- Fused Outputs

Adjustable Settings

- Operation Mode, Auto/Mains/Rain
- Top-up Mode, Eco/Max
- Pump Mode (Pump 1, Pump 2, Twin Pumps - Simultaneous, Twin Pumps - Duty Standby/Assist with alternation.
- Minimum Rainwater Level (dry run prevention)
- Fault code display
- Fault code erase
- Input test diagnostic screen
- Output test diagnostic screen
- Manual Stop - with BMS activation
- Restore Factory Default Settings

RainForce TH /TS SERIES
Hybrid Direct Pressure Rainwater Controller

Splashproof IP65

Single Phase 230Vac

CODE	Mains Top-Up Method	RW Supply to Break Tank	POWER HANDLING		INPUTS	
			Outputs	Control Panel Power Consumption	Analogue 4-20mA	Digital
RF500TH	Solenoid via Break Tank	Submerged Pump	2 x Main Pumps 1 x Submerged Pump 1 x Mains Water Solenoid 1 x BMS volt free contact	7w	1 x RW Tank Level Sensor 1 x Line Pressure Senso	4 x Break Tank Sensors (reed switch)
RF500TS	3 Way Valve	Suction				
RF600TH	Solenoid via Break Tank	Submerged Pump				
RF600TS	3 Way Valve	Suction				

The 3P RainForce TH and TS series control panels are an advanced rainwater management solution, designed to manage the supply of water from an underground rainwater harvesting tank to supply points within the building under direct pressure, with mains water back up supplied via an intermediate break tank. Like all RainForce commercial Controllers it has been designed to prioritise maximum availability of water (preferring rainwater where possible) with minimal power consumption, whilst keeping possible points of failure to a minimum.

This control panel may be installed within a 3P Technik commercial rainwater harvesting unit, but is also a compatible replacement or upgrade for several rainwater harvesting units manufactured by others.

Pump control is provided via direct mains voltage outputs from the control panel, operating as necessary to maintain an optimum pressure range (adjustable). Duty standby and duty assist are supported. Pumps may be run either in alternation, or with 1 active and 1 redundant spare. Faulty pumps are automatically retired.

There is no requirement for pumps to be matched, or for any specific model to be used in conjunction with this Controller so long as they meet the minimum required pressure. Automatic pumps may also be used if the additional security of dry run protection is desired, although pump cut in/out function will be taken over by the RainForce Controller.

Mains water backup is provided by a top-up solenoid, filling a break tank situated locally to the control system. The break tank is either used exclusively for mains water, with a motorized valve switching the pump inlet between rainwater supply and break tank supply, or it may be a combined mains and rainwater break tank, supplied with water both by a mains water solenoid and an in-tank supply pump within the main rainwater harvesting tank.

RainForce TH /TS SERIES
Hybrid Direct Pressure Rainwater Controller

Features

- Adjustable pressure control (10bar max)
- Duty Standby/Duty Assist with alternation
- Modular 'hot swap' of pumps and solenoids
- Automatic Tank Level Calibration
- Multiple pump model support at 230Vac 50Hz or any supply voltage/phase via contactors/overloads
- Single Sphase (3 phase via additional connection kit)
- BMS Switched output
- Optional BMS serial output
- Advanced Fault Tracking
- Fault Warning LED
- Auto hunt for redundant spare pump during pump failure in single pump mode
- Swappable MCU chip (software)
- Solenoid valve isolation on fault - reducing fire risk from overheat.
- System Overpressure Alarm - protects pipework and attached appliances (UV system, etc) from overpressure due to faulty installation or incorrect pressure setting.
- Overvoltage protection
- Brownout protection
- Watchdog timer
- Fused Outputs

Adjustable Settings

- Pump cut-in/cut-out pressure (for each pump)
- System Overpressure Alarm
- Pump failure pressure
- Pump Mode (Pump1,Pump2,Twin pump assist/standby)
- Minimum Rainwater Level (dry run prevention)
- Fault code display
- Fault code erase
- Input test diagnostic screen
- Output test diagnostic screen
- Manual Stop - with BMS activation
- Restore Factory Default Settings

FLOAT SWITCHES

MATIC
Minimatic/C

CODE	CABLE LENGTH
FS2M	2m
FS3M	3m
FS5M	5m
FS10M	10m
FS15M	15m
FS20M	20m
FS25M	25m

General purpose.

Double acting operation for emptying and filling.

MAC3
Mac3

NEW!

CODE	CABLE LENGTH
FS2MAC3	2m
FS5MAC3	5m
FS10MAC3	10m
FS15MAC3	15m
FS20MAC3	20m

General purpose, with increased buoyancy and double housing.

Suitable for clean and waste water.

Double acting operation for emptying and filling.

MAC3
Key

NEW!

CODE	CABLE LENGTH
FS2KEY	2m
FS5KEY	5m
FS10KEY	10m
FS15KEY	15m
FS20KEY	20m

General purpose.

Double acting operation for emptying and filling.

MAC3
Mac5

NEW!

CODE	CABLE LENGTH
FS10MAC5	10m
FS20MAC5	20m

For sewage and waste water. Designed with sufficient weight and correct shape to allow reliable movement through liquid slurry and waste water heavily contaminated with solids.

Double acting operation for emptying and filling.

MAC3
Cable Weight

NEW!

CODE	CABLE LENGTH
CONTR	220g
CONTRP	300g

For use on float switch cables to provide a weighted point around which correct on/off operation will occur.

Removes the need to enter the tank and constrain the cable.

Double acting operation for emptying and filling.

MAC3
Reka

NEW!

CODE	OPERATING VOLTAGE
REKA230	230VAC

Capacitive level switch with the ability to directly switch 230VAC loads up to 2300VA.

Ideal for shallow break tanks or where a non-moving sensor is required.

Double acting operation for emptying and filling.

FLOAT VALVES
QUICKSTOP ADVANCE

The Quickstop Advance valve is a high speed diaphragm type float valve, with an articulating arm, designed to replace traditional ballcocks in break tanks, header tanks and troughs.

The diaphragm mechanism ensures it will never half-close or dribble, protecting a water-cooled pump from overheating due to lack of flow.

The articulating arm then further ensures the valve stays closed until the water level drops around 3cm, preventing overheating of the pump motor due to excessively frequent starts.

Quickstop Advance Adjustable valves also feature an adjustable arm length for greater versatility.

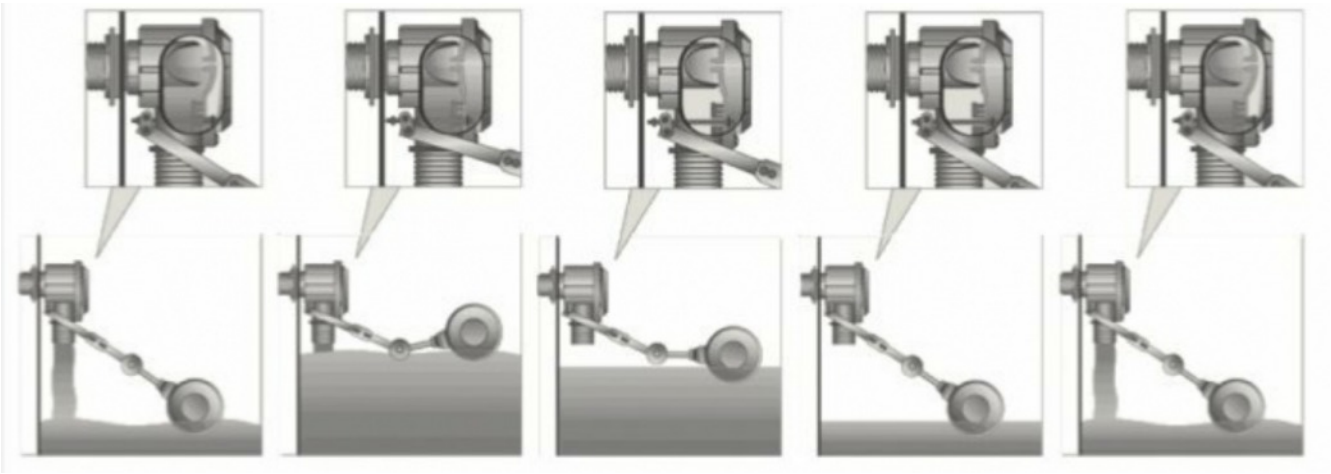
Specification

- BSP Connection: 1/2", 3/4", 1" or 1 1/4" see options above.
- Operating Pressure: 0.2 to 6 bar
- Max Pressure: 15 bar
- Bursting Pressure: >20 bar
- Operation: Continuous
- Operating Temperature: 0 to 50°C

Materials

- Body: ABS and Nylon
- Float: Polypropylene
- Levers: ABS
- Membrane: Rubber SEBS
- Screws: Stainless Steel

NEW!



QUICKSTOP ADVANCE STANDARD

CODE	SIZE (BSP MALE)
QS050	0.5"
QS075	0.75"
QS100	1"
QS125	1.25"
QS150	1.5"

QUICKSTOP ADVANCE ADJUSTABLE

CODE	SIZE (BSP MALE)
QS050A	0.5"
QS075A	0.75"
QS100A	1"
QS125A	1.25"
QS150A	1.5"

FILTERS & ACCESSORIES

FILTERS 5"- 7"- 10" CARTRIDGES BOX

CODE	SIZE	FITTING
XFC5	5"	1" BSP
XFC7	7"	
XFC10	10"	
880803	10"	1.5" BSP
880804	10"	2" BSP

FILTER CARTRIDGES FOR XFC5/7/10

CODE	SIZE	TYPE	MESH SIZE
XNY5	5"	Nylon Mesh	60 Micron
XNY7	7"		
XNY10	10"		

BIG BLUE 20" FILTER

CODE	DESCRIPTION
USWF20BB12	20" filter with 1" BSP
USBR3BB	Triplle mounting bracket (3 x 20" filter)
USPS1M20BB	1 micron Polypropylene meltblown filter

SUBMERSIBLE CABLE JOINTS IP68 32A 450V

CODE	CABLE CAPACITY				COLOUR
	MIN	MAX	POLES	CABLE ENTRIES	
X20BKSD	5	13	3	2	BLACK
X20GYSD				2	GREY
X3JOIN		17	5	3	BLACK

CARRYING HANDLE

CODE
XHANDLE

REPLACEMENT CHECK VALVES

CODE
XNRV
01PCP107C

FLOATING INTAKES (without hose)

CODE	Hose Fitting
4000600	1"
4000A00	1.25"
4000B00	1.5"
4000C00	2"

PRESSURE VESSELS AND SHOCK ARRESTORS




CODE	VOLUME	CONNECTION	MAX PRESSURE (bar)	ORIENTATION
920557	300ml	0.5" MBSP	10	Vertical
920800	8 L	1" MBSP		
920801	24 L			
920803	50 L			
920804	60 L			
920805	80 L			
910806	100 L			
920808	200 L	1.25" MBSP		
920809	300 L			
920810	500 L	2" MBSP		
920811	750 L			
920813	1000 L			
920821	24 L	1" MBSP		Horizontal
920822	50 L			
922823	60 L			
920824	80 L			
920825	100 L			
920827	19 L - WRAS			Vertical

REPLACEMENT MEMBRANES / BLADDERS

CODE	SIZE RANGE (Litres)
920830	8
920831	19-24
920832	50-60
920834	200
920835	500
920836	300
7008933	80
7008934	100

PUMP TERMINOLOGY GLOSSARY

Activated Carbon
Used to reduce organic compounds in water.

Anti-Blocking System
Brief periodic activation of pumps, solenoids or motorised valves to prevent either jamming of pump shafts due to lubricant settlement and valves due to limescale, corrosion or contaminants.

Autoclave
A term not used in this catalogue but often used in Europe to denote automatic operation of pressure controllers and automatic pumps.

Automatic Pump
Automatic pumps contain their own electronic control system designed to shut off the pump when a tap or outlet valve is closed and restart it when opened. They can be left permanently energised, and will pump only when water is required. The control system senses both pressure and flow to control it's operation.

BMS Output
An output provided on a control system which integrates with a Building Management System. BMS outputs may be in the form of a closing contact, or a data connection providing advanced functionality.

Centrifugal Pump
The majority of pumps used for moving water in domestic and commercial buildings are centrifugal, consisting of an induction motor whose rotor shaft is directly fixed to an impeller. Water enters the centre of the impeller and is thrown outwards by shaped vanes causing fluid to exit the pump under flow and pressure. Suction is then created at the inlet by evacuation.

Condenser
Capacitor (Alternative word).

Diffuser
A static (non-moving) plate containing steeply angled vanes surrounding the impeller of a pump, altering the flow of water to create increased pressure. The majority of general purpose and pressure boosting centrifugal pumps contain a diffuser.

Duty Assist
An arrangement of 2 or more pumps in which pumps are set to start at different pressures, to enable both pumps to work together when a substantial demand for water (drop in pressure) is detected. Duty Assist systems usually operate a Duty Standby function as well.

Duty Standby
An arrangement of 2 or more pumps in which only one pump at a time is used. The pump used may alternate by start-up or by timing. In the event of a pump failure the failed pump is isloated and the duty changes over to the remaining pump(s).

Flexible Impeller
An impeller made of soft material, usually NBR or silicone, which is composed of flexible fins and is mounted eccentrically within a circular housing, compression of the fins on the outlet side reduces each cavity and forces water through the pump.

PUMP TERMINOLOGY GLOSSARY

Floating Intake
A short length of intake hose with a strainer and float ball mounted at the far end to suspend the strainer just beneath the surface of the water. A normal fitment in rainwater installations to minimise the intake of debris.

Float Switch
An electrical switch which floats on the end of a cable and switches depending on its angle. Often found on drainage pumps to produce automatic operation.

Gear Pump
A type of progressive cavity pump consisting of 2 intermeshed gear wheels enclosed in a housing with fine clearance around the gears. As the gears contra-rotate, fluid is carried around the outside edge. These are suited to viscous fluids such as heavy oils.

Hot-Swap
A feature of a pump installation whose design facilitates the isolation and safe replacement of a pump while the system remains powered and operating, removing the need to shut down the pump set.

Inox
European terminology for Stainless Steel, as in “Inoxidisable”.

IP Rating
A standard rating for devices specifying ingress protection from dirt, water and objects. The first digit denotes protection from dirt and solid objects, the second digit is the protection against water entry. A full chart of IP ratings is shown at the end of this catalogue.

Jet Pump
A jet pump is a centrifugal impeller/diffuser pump which includes a venturi situated within the inlet. Some of the pumped water is recirculated and passes through the venturi at high velocity, creating increased suction. Jet pumps are well suited to surface mounting above a well or water tank.

Leak Detection
Monitoring of the startup intervals of a pump to determine the likely presence of a leak and to effect a subsequent shutdown of the pump, if necessary.

Manometer
Pressure Gauge (Alternative word)

Polyphosphate
A water dosing medium which reduces the tendency of water to form limescale deposits.

Pressure Vessel/Expansion Vessel
A steel cylinder with a water connection at one end, an air valve at the other, and a flexible membrane in between. When pre-charged with compressed gas the membrane fills the tank, and compresses a side when water enters under pressure from the water inlet. Used with pressure based pump controllers and automatic pumps to store pressurized water, increasing efficiency, prolonging pump life, and providing smoother and more precise operation.

PUMP TERMINOLOGY GLOSSARY

Progressive Cavity
Pumps that do not rely on centrifugal action, but the use of one or more cavities which are progressed from inlet to outlet. Pressure is not related to shaft rotation speed and so the usual pump affinity laws do not apply, they can operate effectively at very low speed without loss of pressure. Common technologies include flexible impeller, screw, vane, gear, piston, swash plate, and diaphragm.

Self Priming
Refers to pumps which are designed so as to automatically evacuate air when submerged and so can be started without seperately filling with water. Self priming pumps which can be used surface mounted usually need priming in this configuration and have a suitable filling port. Self priming depends on the outlet being sufficiently open to allow air movement, and also may be inhibited by floating intakes with attached non-return valves. Self priming does not mean an empty pump will suck water up through the inlet hose, installations of that type will still need to be initially primed.

Single/Multi Stage
Single stage pumps contain a single impeller/diffuser set, Multi stage pumps contain several, each set being a Stage, with the flow exiting the diffuser of one stage and passing into the centre of the impeller of the next stage. Multi stage pumps have increased performance.

Single/Multipoint Pressure Control
Basic pressure control switches on at a fixed pressure and switches off by flow sensing. By this method it can reach maximum pump pressure regardless of the characteristics of the pump. Most multi-purpose consumer pressure controllers work in this way. Multi-point pressure controllers are programmed with a start and stop pressure to suit the performance curve of the pump, resulting in much higher efficiency.

Technopolymer
Plastic (often polypropylene) mechanically strengthened with fibres. Very strong and able to be moulded precisely. Used to create cost-effective parts where cast metals would otherwise be needed.

NRV
Non-return valve, a.k.a. Backflow valve. Allows water to flow in one direction only, essential to the operation of all automatic pumps and most pressure based control systems based on centrifugal pumps.

Venturi
A pump inlet component into which a small amount of the pumped water is recirculated, entering in the direction of flow at high velocity creating a venturi effect (suction). Pumps with a venturi are also often known as Jet Pumps.

VFD/VSD/Inverter Drives
A type of multi-point pressure control which varies the speed of the motor by re-inverting the power supply at varying speeds. Variable speed pump controllers provide high efficiency as well as a soft-start function. Losses are incurred by power conversion making these solutions less efficient than other methods at full speed, particular attention should be given to correct sizing of the pump.

Pump and Controller Protection Glossary

Brownout Protection
Protection of logic circuits against temporary loss or dip in voltage, incorporated into a circuit during design.

Dry Run Protection
Detection of lack of flow, change in current, or lack of pressure to identify a pump running dry (sucking air), and shut it down before damage occurs.

Fused Output
An output from a controller with individual fusing to prevent the entire system from going offline in the event of a live short between phases or to ground. The selection of glass quickblow, passivated or HRC fuses depends on the connected device and it's intended usage. Fuses should always be replaced with the correct rating and type.

GFCI
Ground Fault Circuit Interruptor, performs the same function as RCD and often confused as being the same device. GFCIs typically also include active protection against disconnected neutral or CPC. Unlike passive RCDs, active GFCIs cannot be connected in series. Uncommon in the UK, usually rated at 10mA and installed per socket outlet and not at the consumer unit.

Leak Detection
Monitoring of either the frequency of start-ups or run duration to determine the likely presence of a pipe leak (Leak detection by duration rarely implemented as it causes false alarms in commercial applications).

Overcurrent Protection
A circuit breaker such as an MCB designed to protect the supply circuit against the connection of excess load.

Overvoltage/Undervoltage Protection
Protection against overvoltage is included on most electronic products by means of a metal oxide varistor at 275vac. Over/under voltage relays may be used as more accurate supplementary protection or to provide alarm or BMS functionality.

Phase Loss Protection
Detects the loss of a single phase which would result in poor running and excess heat generation in a pump.

RCBO
A single module combining overcurrent and residual current protection.

Residual Current Protection / Residual Current Device (RCD)
Detects phase current imbalance to identify loss of current from either phase to ground or protective earth. RCD will often not function correctly with small temporary power sources that use a floating earth, such as small generators and inverters, even if the test button works. Usually rated to trip at 30mA, but sometimes higher on some commercial installations, or as low at 10mA for garden use.

Phase Reversal Protection
Detects incorrect 3 phase wiring which would otherwise cause a pump motor to run backwards.

Thermal Overload Protection
Used on most 3 phase motor installations to shut down a pump if excess current is detected. Can be adjusted precisely for optimum protection.

Watchdog Timer
A software feature that monitors program program execution and resets if a problem occurs.

TABLES AND CONVERSION DATA

Reduction of capacity with temperature

Temperature °C	Head Loss mwc*
20	0.20
30	0.40
40	0.75
50	1.20
60	1.90
70	3.10
80	4.70
90	7.10
100	10.32

Reduction of capacity with altitude

Altitude (m)	Head Loss mwc*
0	0.00
500	0.60
1000	1.15
1500	1.70
2000	2.20
2500	2.65
3000	3.20
3500	3.60

*mwc – metres water column

Pressure Conversions

Bar	Metres water	Kilopascal kPa	Megapascal mPa	Pounds per square inch psi
1.000	10.200	100.000	0.100	14.504
0.098	1.000	9.804	0.010	1.422
0.010	0.102	1.000	0.001	0.145
10.000	101.998	1000.000	1.000	145.038
0.069	0.703	6.895	0.007	1.000

Volumetric Flow Rate

Litres/second l/s	Litres/minute l/m	Cubic metres per hour m^3/hr	Cubic feet per minute CFM	Gallons per minute (imperial) GPM
1	60	3.6	127.133	13.2
0.017	1	0.06	0.0353	0.22
0.278	16.667	1	0.5886	3.666
0.472	28.317	1.699	1	6.229
0.076	4.546	0.2728	0.1605	1

INGRESS PROTECTION (IP) RATINGS

1st Digit	Definition	Test Requirement	2nd Digit	Definition	Test Requirement
0	No Protection	None	0	No Protection	None
1	Any large surface of the body, such as the back of a hand, but no protection against deliberate contact with a body part	>50 mm	1	Dripping water (vertically falling drops) shall have no harmful effect.	Test duration: 10 minutes Water equivalent to 1 mm rainfall per minute
2	Fingers or similar objects	>12.5 mm	2	Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle up to 15° from its normal position.	Test duration: 10 minutes Water equivalent to 3 mm rainfall per minute
3	Tools, thick wires, etc.	>2.5 mm	3	Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect.	Test duration: 5 minutes Water volume: 0.7 litres per minute Pressure: 50–150 kPa
4	Most wires, slender screws, ants etc.	>1 mm	4	Water splashing against the enclosure from any direction shall have no harmful effect.	Test duration: 5 minutes Water volume: 10 litres per minute Pressure: 50–150 kPa
5	Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment.	Dust protected	5	Water projected by a nozzle (6.3 mm) against enclosure from any direction shall have no harmful effects.	Test duration: at least 3 minutes Water volume: 12.5 litres per minute Pressure: 30 kPa at distance of 3 m
6	No ingress of dust; complete protection against contact (dust tight)	Dust tight	6	Water projected in powerful jets (12.5 mm nozzle) against the enclosure from any direction shall have no harmful effects.	Test duration: at least 3 minutes Water volume: 100 litres per minute Pressure: 100 kPa at distance of 3 m
The declared IP rating of a product demonstrates compliance with the standards on this page. Please note the limited time duration of tests below IP68. The suitability of devices with protection level below IP68 for outdoor installation will vary depending on exposure and installed location. Devices and connections installed within tank turrets or in drainage systems (permanent condensing humidity) should be IP68 or higher, the same as for continuous immersion. All submerged devices may be immersed only within the limits stated by the manufacturer.			6K	Water projected in powerful jets (6.3 mm nozzle) against the enclosure from any direction, under elevated pressure, shall have no harmful effects.	Test duration: at least 3 minutes Water volume: 75 litres per minute Pressure: 1000 kPa at distance of 3 m
			7	Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion).	Test duration: 30 minutes Tested with the lowest point of the enclosure 1000 mm below the surface of the water, or the highest point 150 mm below the surface, whichever is deeper.
			8	The equipment is suitable for continuous immersion in water under conditions which shall be specified by the manufacturer. However, with certain types of equipment, it can mean that water can enter but only in such a manner that it produces no harmful effects.	Test duration: continuous immersion in water Depth specified by manufacturer, generally up to 3 m
			9K	Protected against close-range high pressure, high temperature spray downs.	Test duration: - Water volume: 14–16 litres per minute Pressure: [8000–10000 kPa / 80–100 Bar] at distance of 0.1–0.15 m Water temperature: 80 °C

System Design Notes

PRESSURE LOSS IN PIPES

Pipe length, internal diameter, roughness of the pipe surface, number and type of fittings and orifices, and water temperature all cause friction between the flow medium and the pipe itself. The greater the friction, the more pressure is needed to overcome it in order to maintain the intended flow rate.

Precise calculation of friction loss is usually achieved via software, however in most circumstances an estimation of friction loss will suffice. The chart on the next page allows for estimation of friction losses in common pipe diameters. Simply place a ruler so that it intersects the pipe diameter and desired flow rate (the first 2 vertical scales), the flow velocity and pressure loss resulting will now be indicated where they intersect the ruler. You can now multiply the pressure loss in mbar by the length of pipe.

Note – remember to also add 0.1 bar of pressure loss per m of vertical lift. If the pump is drawing water from beneath by suction, this is much harder for a centifugal pump and reduces pump output capacity by roughly 0.5 bar per vertical metre of suction.

Efficiency of Pumps

Automatic pumps are designed to supply pressurised water directly to appliances. Remember that the pump will run at full power until there is no more demand for flow to the outlet. Ideally toilets and header tanks supplied by an automatic pump via a float valve (ballcock) should utilise the more modern diaphragm or 'quick stop' type valves. Old style brass float valves will result in the pump spending most of it's time pumping against an ever decreasing orifice, which is inherently inefficient.

Efficiency and longevity can both be greatly enhanced by the addition of a pressure vessel between the pump and the appliances it is supplying. The larger the vessel the greater the improvement in efficiency.

ELECTRICAL NOTES

Most of our pumps are supplied with a 1mm flex cable, at a length of 10m. If longer cables are to be used attention must be given to the necessary voltage drop calculations, and the correct cable chosen accordingly.

Electrical junctions, isolators, plugs, and fittings within a water tank, well or other wet area must be suitably protected against water ingress, even if non submerged. The humidity and vapour pressure inside a tank turret are constant, and far exceed the conditions faced by ordinary outdoor enclosures.

Float switches are intended to switch electrical loads near the appliance. Switching of loads over long cable runs can can be problematic due the the limited size of the cable supplying most float switches. It is therefore recommended that a relay or contactor be used to switch the load at the point of supply.

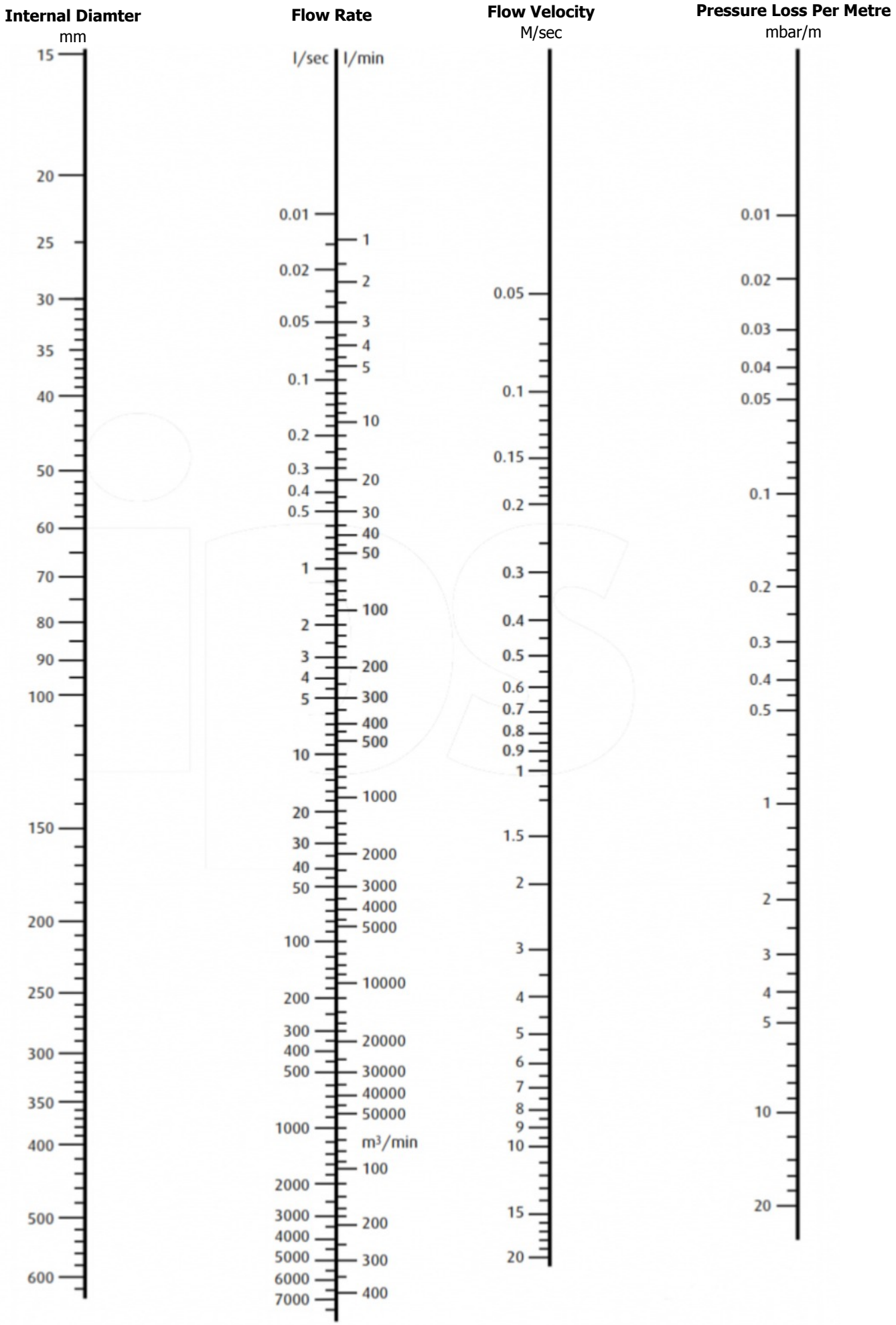
During startup, inrush current often exceeds 5x the rated current draw of the pump, designs for off grid use systems must take this into account. Additionally a typical power factor of 0.9 should be considered.

Incorrect phase rotation of 3 phase pumps will of course result in their running backwards.

Overcurrent and Residual Current Protection should be used to supply any pump system, ideally on a separate circuit. We recommend Type C overcurrent and 30mA residual current protection. An RCD trip is usually indicative of a phase to earth fault. Circuit protective conductors (earth) must be connected and verified throughout any pump installation (submerged plastic tanks are effectively insulated pools, with no natural fault path to ground).

Remember that outdoor tank and pump installations should be inspected with only correctly rated test equipment due to their position outside of the building envelope.

PRESSURE LOSS NOMOGRAM



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PUMP APPLICATIONS MATRIX

STEELPUMPS EVOLUTION

				Typical Applications									Medium						Installation	
Page	Model	Type	Sub-Type	Pressure Boosting	Tank Transfer	Washdown	Fire Sprinkler	Rainwater Harvesting	Irrigation	Municipal Water Features (Fountains)	Clean Water	Pool Water (chlorinated)	Marine and Seawater	Light Oil	Heavy Oil	Warm Water/Oil	Submerged	Surface
7	X-AJE/JE P	Centrifugal	Single Stage Jet Pump	●		●		●	●		●						●	●
8	X-AJV/JV P	Centrifugal	Single Stage Jet Pump			●		●	●		●						●	●
9	X-AJE/JE B	Centrifugal	Single Stage Jet Pump	●		●		●	●		●						●	●
10	X-AJE/JE PRO	Centrifugal	Single Stage Jet Pump	●		●		●	●		●						●	●
11	X-AJE100 24	Centrifugal	Single Stage Jet Pump			●		●	●		●						●	●
12	X-AMO/MO B	Centrifugal	Multi Stage Pump	●		●		●	●	●	●						●	●
13	X-AMO/MO PRO	Centrifugal	Multi Stage Pump	●		●		●	●	●	●						●	●
14	X-AMO/MO HF	Centrifugal	Multi Stage Pump	●		●	●	●	●	●	●						●	●
15	X-AMV/MV B	Centrifugal	Multi Stage Pump	●		●		●	●	●	●						●	●
16	X-AMV/MV PRO	Centrifugal	Multi Stage Pump	●		●		●	●	●	●						●	●
17	X-AMV/MV HF	Centrifugal	Multi Stage Pump	●	●	●	●	●	●	●	●						●	●
18	X-MN80 B/PRO	Centrifugal	Single Stage Pump		●	●		●			●						●	●
19	X-A2CP/X-2CP	Centrifugal	Double Impeller Pump		●	●		●			●						●	●
20	X-MF B	Centrifugal	Multi Stage Pump							●	●						●	
21	WP-15	Progressive Cavity	Flexible Impeller		●						●			●		●		●
21	X-MARE	Progressive Cavity	Flexible Impeller		●	●					●	●	●					●
23	X-VISCO	Progressive Cavity	Gear Pump		●										●			●
25	BPM	Booster Set	Dual Variable Speed	●				●			●							●
27	BVM	Booster Set	Dual Fixed Speed	●				●			●							●
28	CBB	Booster Set	Single Fixed Speed	●				●			●							●
29	CBV	Booster Set	Single Variable Speed	●				●			●							●

STEELPUMPS
EVOLUTION

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