

# FLOWFLEX™ INVERTER CONTROLLED COLD WATER BOOSTER SETS



- **Space Saving Range of Booster Sets**
- **Flow Rates up to 3 l/s Per Pump**
- **Pressures up to 5 bar**
- **Single, Twin and Triple Pump Sets**
- **Built in Dry Run Protection**
- **Pump Mounted Inverters**
- **Anti-Surge Soft Start**
- **Digital Interface on All Units**
- **GaardExe™ Surge Protection Module (Optional)**
- **EVSD Anti-Legionella Device (Optional)**

## FlowFlex™ Cold Water Booster Sets

The FlowFlex™ range of single, twin and triple pump cold water booster sets utilise quality stainless steel single and multistage end suction pumps with a factory mounted frequency inverter unit for each pump. The speed of each pump is varied by means of the frequency inverter, enabling the pumps to operate in a cascade system. The control of each pump is via a pressure transducer installed in the discharge flow manifold. This relays a 4-20 mA signal to the inverter to vary the motor speed.

FlowFlex booster sets are available single phase with a low water VF contact or, three phase incorporating both low water and common fault contacts. As an optional extra the 3 phase sets are also available with RS485 connectivity. All units incorporate high/low pressure alarm, dry run protection, auto change-over, fault history, protection against high/low voltage, over current, current surge, inverter overheat, communication error.

For ease of use and set up the FlowFlex™ inverter drives have a digital interface. The display shows the output frequency, actual pressure, pressure setting, output current, transducer error, high/low pressure, low water, drive error.

### Booster Set Selection

Once the required pressure and flow rates are known then the decision has to be made regarding the number of pumps preferred. Although a single pump may be seen to be the simplest option the importance of ensuring the water supply must be considered. For example, a hotel or hospital will almost certainly require a standby pump capable of supplying the full duty, this is referred to as duty/standby (D/S). The duty can also be shared amongst two pumps with or without a standby and this would then be referred to as duty/assist (D/A) or duty/assist/standby (D/A/S). As the flow is divided between two pumps the pumps will be smaller. Additionally in cases where only a 230-V-50 supply is available, then triple smaller pumps may be the only option.

### Equipment Details

#### Pumps

Horizontal single/multistage. Three phase T.E.F.V 2900 rpm

#### Pump Control Vessel

Suitable for 10 bar working pressure with E.P.D.M rubber diaphragm.

### Manifolds

Piping is AISI 304 grade stainless steel (or AISI 316 to special order request). An option of copper pipework is available. Single pump modules use brass, bronze and stainless steel.

### Power supply

Single phase and three phase up to 2.2 kW.

### Features of the FlowFlex™

- Frequency inverters with digital display
- Built in dry run protection
- Set mounted inverters
- IP55 control panel with on/off indication, MCB(s) and door interlocked isolator (Midi and Maxi sets only)
- All booster sets are complete with isolating and non return valves
- Pump control vessel fitted as standard
- Stainless steel pumps with carbon-ceramic mechanical seals

### Optional Items

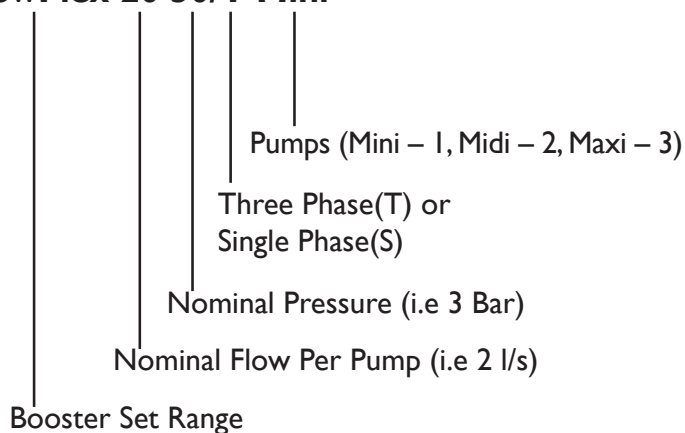
- GaardExe™ SPM module - (see page 3)
- EVSD Anti-Legionella Device - (see page 3)

### Optional Additional Items

- Flexible pipe connectors
- Anti-vibration mounts
- Packaged sets assembled with integrated cold water break tanks that are WRAS Cat 5 compliant

### Model Identification

#### FlowFlex 20 30/T Mini



(see page 7 for pump curves and selection)

## GaardExe™ SPM Module - Optional Add On



### Enhanced Capability

The FlowFlex™ SPM Series of cold water booster sets is an enhancement of the well tried and tested FlowFlex™ Range. Both single and three phase

booster sets may be fitted with GaardExe™ SPM Module. Further more the module offers added features including high/low pressure indication with mutable audible alarm and break tank refill timer to prevent rapid pump cycling. A BMS telemetric relay board is also available.

The GaardExe™ SP Module is designed to prevent water surge in initial start up and on start up after a power failure. Furthermore, the module will, once the system fill pressure is achieved, monitor for burst pipes. Disabling the burst pipe protection will then enable the booster set to restart even if there are open taps. The module is simple to disable for system set-up.

For additional details relating to the GaardExe™ SPM Module see separate data sheet.

## EVSD Anti-legionella Device - Optional Add On

### Advantages of the Expansion Vessel Safety Device

- The EVSD signals the circumstances under which the Legionella bacteria could thrive and sustain themselves
- When an alarm is generated, this might also be an indication of a technical failure or an incorrectly adjusted installation

The risk of growth of Legionella, the bacterium that causes Legionnaire's Disease, increases when drinking water is stagnant for longer periods. In a booster system a leaking membrane tank or an incorrectly adjusted booster system can be a potential threat to the quality of drinking water. Especially in rooms with an average ambient temperature above 25 °C the risk is elevated.

### Easy Control for Every Situation

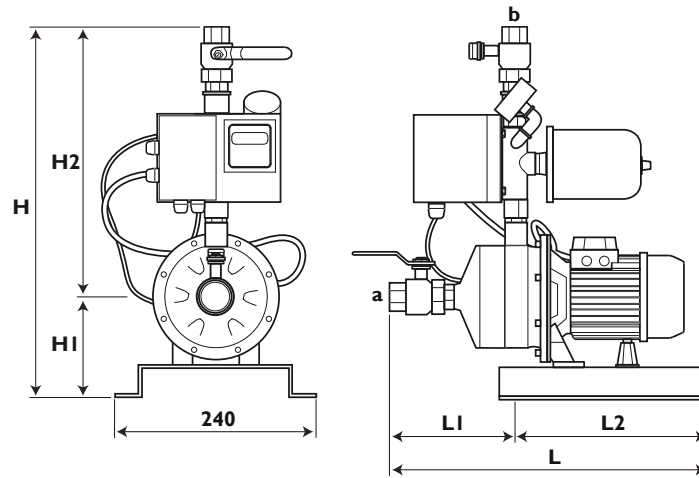
To control water quality in booster systems, Smedegaard offers the EVSD, which detects the refreshment of water by registering the filling and consequently, the draining of the membrane tank. When water fails to move in and out of the expansion vessel then a signal is sent to the Building Management System, alternatively an acoustic or optical alarm can be generated. By means of a reset button on the EVSD-Control module, the signal can be cancelled. Optionally, the booster set may be switched off through its control panel.



*\* In certain countries regulations state that the membrane tank must be filled and emptied 30 times per 24 hours. Check your local regulations.*



# FlowFlex™ Mini Booster Set

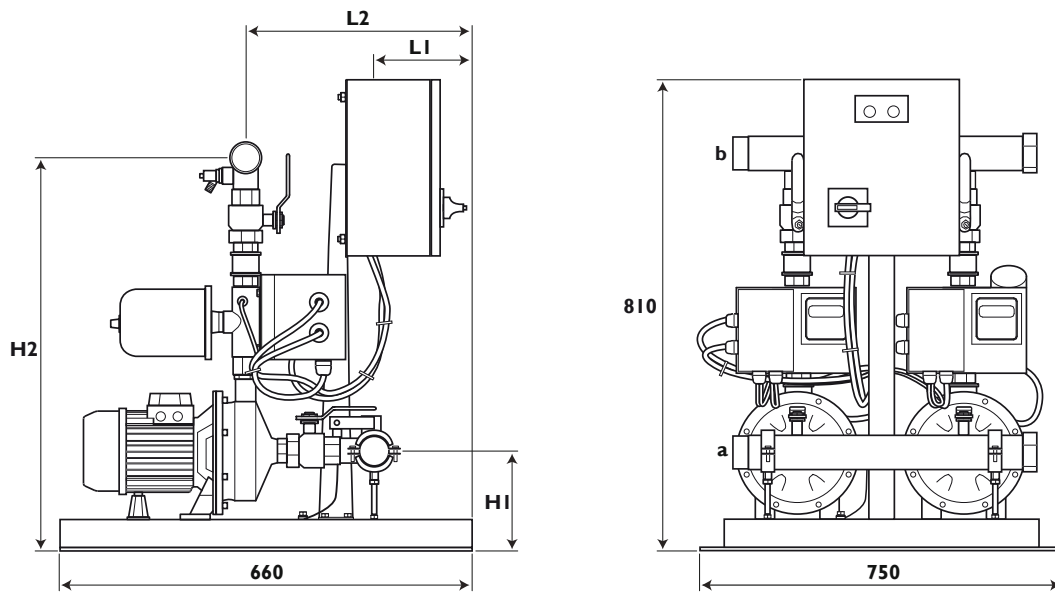


## Dimensions in millimetres

To select the FlowFlex Mini, refer to the pump performance curves on page 6.

Model	L	L1	L2	H	H1	H2	a Inlet	b Outlet	kW	FLC		Weight (approx.)
										1 Phase	3 Phase	
1015	433	168	265	590	136	454	1 1/4"	1"	0.37	3.1	1.4	17
1020	433	168	265	590	136	454	1 1/4"	1"	0.55	4.6	2.2	18
1025	433	168	265	590	136	454	1 1/4"	1"	0.75	5.6	2.3	20
1030	470	202	268	590	136	454	1 1/4"	1"	0.75	5.6	2.3	22
1035	470	202	268	590	136	454	1 1/4"	1"	0.9	6.9	2.9	22
1040	470	202	298	605	148	454	1 1/4"	1"	1.1	8.0	3.2	24
1050	470	202	298	605	148	454	1 1/4"	1"	1.5	9.3	4.0	26
2015	433	168	265	590	136	454	1 1/4"	1"	0.55	4.6	1.9	19
2020	433	168	265	590	136	454	1 1/4"	1"	0.9	6.9	3.0	20
2030	460	195	265	590	136	454	1 1/4"	1"	1.5	9.3	4.0	21
2035	495	202	293	590	136	454	1 1/4"	1"	1.1	8.3	3.2	23
2040	495	202	293	590	136	454	1 1/4"	1"	1.5	9.9	4.0	25
2045	508	202	306	602	148	454	1 1/4"	1"	2.2	-	5.0	31
3015	433	168	265	590	136	454	1 1/2"	1"	0.9	6.6	2.7	33
3025	460	168	292	590	136	454	1 1/2"	1"	1.5	10.7	4.0	19
3030	460	168	292	602	148	454	1 1/2"	1"	1.8	-	4.8	23
3040	509	202	307	602	148	454	1 1/2"	1"	2.2	-	6.0	26

# FlowFlex™ Midi Booster Set

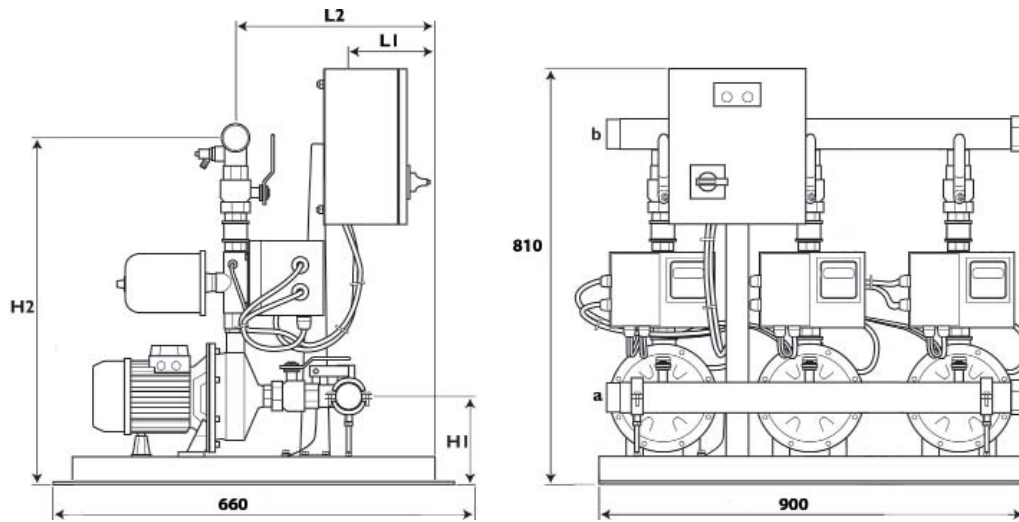


## Dimensions in millimetres

To select the FlowFlex Midi, refer to the pump performance curves on page 6.

Model	L1	H1	L2	H2	a Inlet	b Outlet	kW	FLC		Weight (approx.)	
								1 Phase	3 Phase	1 Phase	3 Phase
1015	160	156	210	650	1 1/2"	1 1/2"	0.37	3.1	1.4	59	62
1020	160	156	210	650	1 1/2"	1 1/2"	0.55	4.6	2.2	61	64
1025	160	156	210	650	1 1/2"	1 1/2"	0.75	5.6	2.3	64	67
1030	126	156	210	650	1 1/2"	1 1/2"	0.75	5.6	2.3	67	70
1035	126	156	244	650	1 1/2"	1 1/2"	0.9	6.9	2.9	68	71
1040	126	168	244	671	1 1/2"	1 1/2"	1.1	8.0	3.2	73	76
1050	126	168	244	671	1 1/2"	1 1/2"	1.5	9.3	4.0	77	80
2015	160	156	244	650	1 1/2"	1 1/2"	0.55	4.6	1.9	61	64
2020	160	156	210	650	1 1/2"	1 1/2"	0.9	6.9	3.0	65	68
2030	133	156	210	650	1 1/2"	1 1/2"	1.5	9.3	4.0	71	74
2035	126	156	210	650	1 1/2"	1 1/2"	1.1	8.3	3.2	71	74
2040	126	156	244	650	1 1/2"	1 1/2"	1.5	9.9	4.0	74	77
2045	126	168	244	671	1 1/2"	1 1/2"	2.2	-	5.0	87	90
3015	160	156	210	650	2"	1 1/2"	0.9	6.6	2.7	93	96
3025	160	156	210	650	2"	1 1/2"	1.5	10.7	4.0	66	69
3030	160	168	244	671	2"	1 1/2"	1.8	-	4.8	75	78
3040	126	156	244	650	2"	1 1/2"	2.2	-	6.0	77	80

# FlowFlex™ Maxi Booster Set



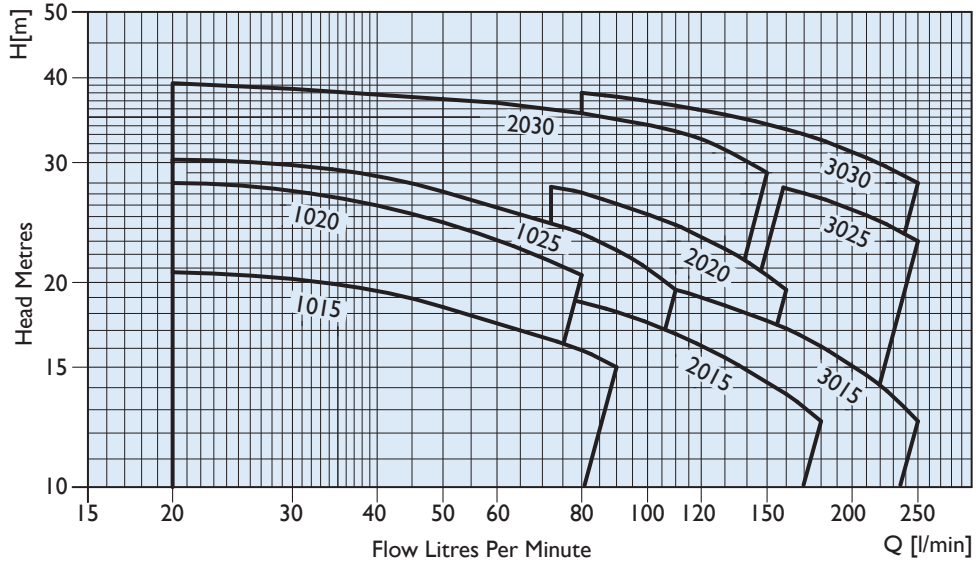
## Dimensions in millimetres

To select the FlowFlex Maxi, refer to the pump performance curves on page 6.

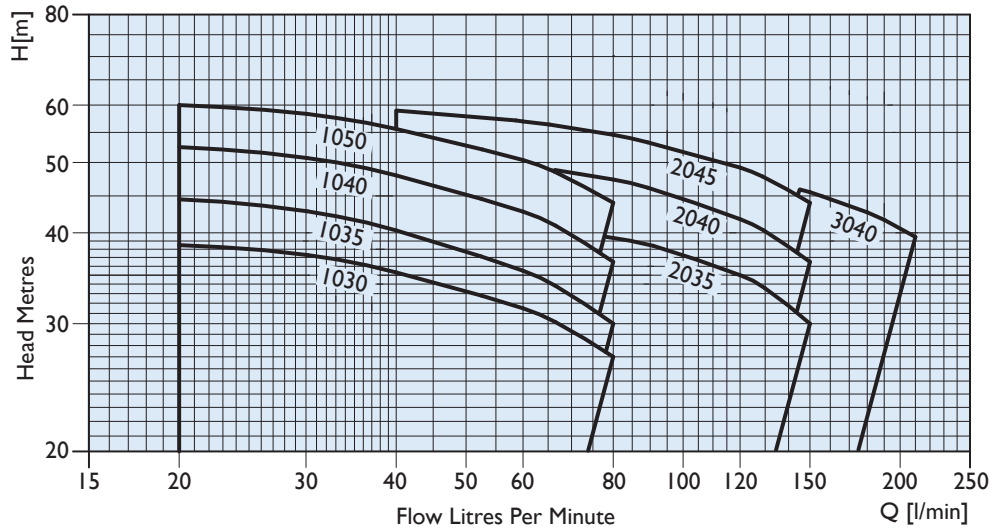
Model	L1	H1	L2	H2	a Inlet	b Outlet	kW	FLC		Weight (approx.)	
								1 Phase	3 Phase	1 Phase	3 Phase
1015	160	156	210	650	2"	2"	0.37	3.1	1.4	87	91
1020	160	156	210	650	2"	2"	0.55	4.6	2.2	90	94
1025	160	156	210	650	2"	2"	0.75	5.6	2.3	95	99
1030	126	156	210	650	2"	2"	0.75	5.6	2.3	129	133
1035	126	156	244	650	2"	2"	0.9	6.9	2.9	131	135
1040	126	168	244	671	2"	2"	1.1	8.0	3.2	138	142
1050	126	168	244	671	2"	2"	1.5	9.3	4.0	140	144
2015	160	156	244	650	2"	2"	0.55	4.6	1.9	117	121
2020	160	156	210	650	2"	2"	0.9	6.9	3.0	123	127
2030	160	156	210	650	2"	2"	1.5	9.3	4.0	134	138
2035	126	156	210	650	2"	2"	1.1	8.3	3.2	131	135
2040	126	156	244	650	2"	2"	1.5	9.9	4.0	136	140
2045	126	168	244	671	2"	2"	2.2	-	5.0	155	151
3015	160	156	210	650	2"	2"	0.9	6.6	2.7	120	124
3025	160	156	210	650	2"	2"	1.5	10.7	4.0	126	130
3030	160	168	244	671	2"	2"	1.8	-	4.8	134	138

# FlowFlex™ Individual Pump Performance

## Single Stage



## Twin Stage



## Pump Selection

All pump curves shown above relate to single pump duties, not multiple pump complete booster set duties. For multiple pump applications it is necessary to decide if a standby pump is to be used. In cases where a standby pump is utilised then divide the set duty by the number of pumps required to meet the specified flow rate of the booster set.

For example if a duty/assist/standby unit is required and the booster set duty has a flow rate of 200 litres per minute divide this by two which equals 100 litres per minute and choose the pump curve relative to this flow and pressure requirement, so if 3 bar is required

then the pump model is either the 2030 (1.5kW) or the 2035 (1.1kW). In order establish the full model reference please refer to the details on page 2. The example detailed here of a three pump booster set in three phase power supply would give a model identification of either a FlowFlex 2030T Maxi or a FlowFlex 2035T Maxi.

It can be seen from the pump graphs that the duties of certain models overlap. The data tables give the kW for each model and we would normally suggest using the lowest kW motor to meet the requirement.



*Copenhagen Bispebjerg Hospital*



*Cardiff St. David's Hotel & Spa*



*Paris Grand Louvre*



*Moscow Vorobyovy Gory*



*Stockholm Waterfront*



*Bilbao Airport*

**There are millions of Smedegaard pumps in operation all over the world.  
A few examples of our installations are:**

National Bank, Copenhagen  
Glostrup Hospital, Denmark  
KPMG Canary Wharf, London  
Attunda Courthouse, Sweden  
Saughhall Primary School, Cheshire  
The King's Palace, Morocco  
Tesco Stores (Throughout UK)  
Bilbao Airport, Spain  
Bokenäs Resort & Conference Centre, Sweden  
Honda UK HQ, Slough  
MFH Quartiersüberbauung Gland, Switzerland  
Chelsea FC Training Ground, London  
Te Papa Museum, New Zealand  
Stockholm Waterfront, Sweden  
Arsenal Emirates Stadium, London  
Donstroi Buildings, Moscow  
St. Davids Hotel & Spa, Cardiff  
Poole Hospital, England  
Gamla Ullevi Stadium, Göteborg  
The Grand Louvre, Paris

University of Exeter, England  
Palacio de la Zarzuela, Madrid  
Halmstad Arena, Sweden  
Highfield Primary School  
Whole Foods, Kensington  
Carlsberg Breweries, Copenhagen  
The Globe Theatre, London  
World Culture museum Gothenburg, Sweden  
Turnberry Hotel, Troon (2009 Open Golf Venue)  
Red Cross Building, Oslo  
H M Prison Morton Lane, England  
Roskilde Hospital, Denmark  
Ringhals Power Plant, Sweden  
Birmingham Retirement Village, England  
Waitrose, UK (John Lewis partnership)  
Bispebjerg Hospital, Copenhagen  
Akzo Nobel, Sweden  
UWE University, Bristol  
Cadbury's Berkley Square, London  
Wyke Regis Junior School, Dorset

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