SEPAMAT F-SC

Installation and user manual

WATER, WE'RE IN OUR ELEMENT

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1. Introduction and scope of application

Congratulations on purchasing your ***SEPAMAT F-SC*** (*SMT-F-SC*).

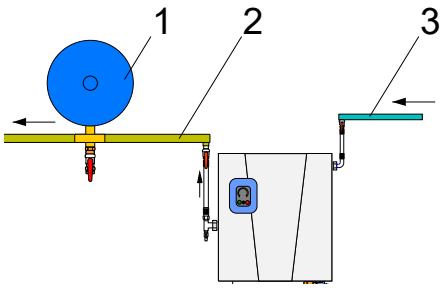
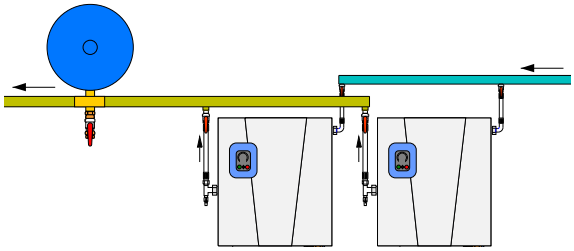
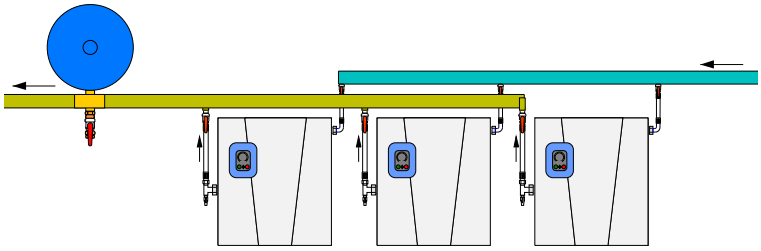
The *SMT-F-SC* is designed as a separation unit, for use in single-family homes, apartment buildings, offices and industry.

The DVGW certified, fully automatic and ready-to-connect separation unit fulfills the separation of drinking water from category 5 liquids according to DIN EN 1717.

The integrated pump supplies water on-demand from the separation chamber to the consumers. The water level in the separation chamber is controlled by a floating valve. The drinking water supply and emergency overflow are connected to the separation chamber.

The highest consumer connection point above the SMT F-SC20 can be a maximum of 20 m and with SMT F-SC 40 a maximum of 30 m.

The application range can be enlarged and the units connected in parallel series with up to three SEPAMAT F-SC. The installation control system is communicated through wireless Bluetooth.

Single application	 1. Expansion vessel 2. Pressure line to the consumer 3. Mains water connection
DUPLEX application	
TRIPLEX application	

Speed control

In both modes (automatic/maintenance), the speed of the centrifugal pump is controlled by a frequency converter corresponding to a set pressure level. The pressure is monitored via a built-in analog pressure sensor. The current is monitored with the basic controller. This ensures 100% that the pump never dry runs. All operating parameters such as time-delay, idle and load power consumption and response time for the dry-running are specified by the controller.

Bluetooth connection

Two or three units of *SEPAMAT F-SC* can communicate with each other wireless via the integrated Bluetooth and can be conveniently combined into a fully redundant, multiple pumping system. The consecutive combination, cyclic switching of the pumps, connection with peak load and the Master/Slave exchange is done automatically in case of the failure of device.

2. Safety instructions

The live components have to be installed only by a qualified electrician. In case of failure of the electronic device, the product has to be repaired by a qualified electrician before being operated again. There is a risk of electric shock!

The outlet circuit used for the device has to be secured through a protected circuit breaker (16 A in most countries). If unavailable, an FI switch with maximum operating current of 30 mA has to be connected.

These installation and operating guidelines have to be read carefully before installing the product. The instructions mentioned have to be strictly followed. Modifications to the product are not permitted, otherwise the warranty becomes void.

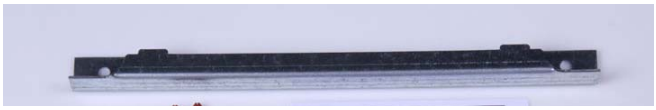
The following points have to be strictly observed during installation and operation:

- Check the product before installation for any visible defects. If defects are present, then the product must not be installed. Damaged products can be dangerous.
- Installations at the mains water pipeline system can only be performed by a qualified installation company.
- A floor drain has to be provided near the installation site, which can collect inadvertent water discharges (i.e. pump defects, pipe breakages, etc.) and prevent water damage inside the building.
- The mason work behind the water-handling unit must be protected from water damage (i.e. with water-resistant coating).
- Make sure that the existing emergency overflows are connected and adequately sized.
- Remove the mains electrical plug if you will be away for more than 24 hours.
- Close the mains water line at the inlet of the device if you will be away for more than 24 hours.
- All products must be regularly inspected to maintain proper condition. The minimum inspection interval is mentioned in the maintenance section.
- Electrical devices may be hazardous for children. Therefore children always have to be kept away from the product. Do not let children play with the product.
- Do not install the water-handling units in locations where the temperature may drop below 0°C.
- Do not install any electrical products in flood-prone areas.
- The operator is responsible for adherence to the safety and installation guidelines.

3. Scope of delivery

Separation unit
SEPAMAT F-SC

Wall mounting material,
installation and user manual

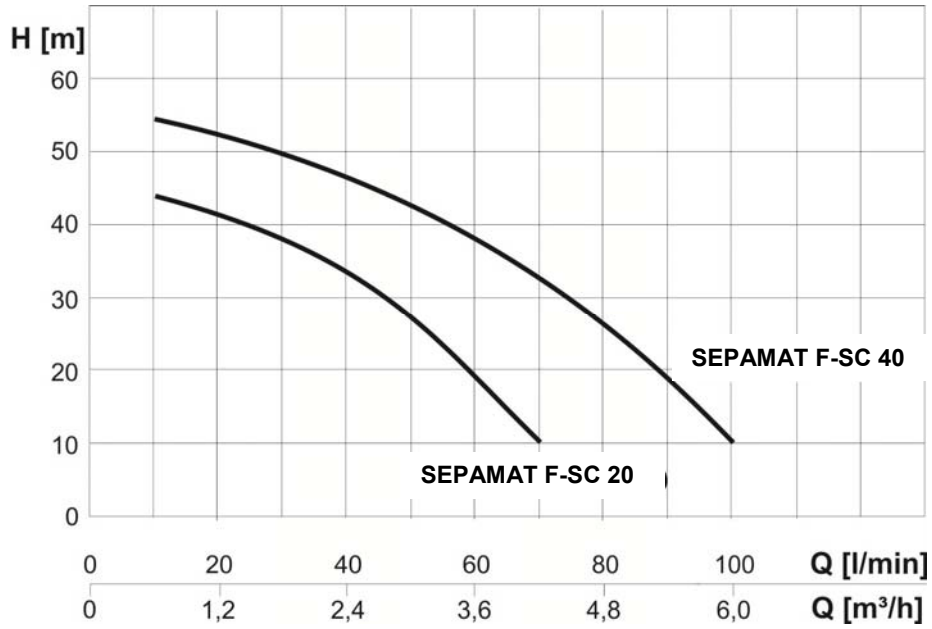


Standard accessory A
(Mains water connection)

Standard accessory B
(Pressure line set)

4. Technical Data

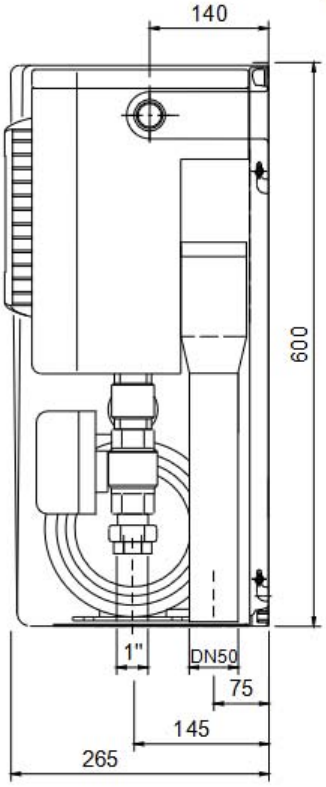
	SEPAMAT F-SC 20	SEPAMAT F-SC 40
Dimensions (H x W x D):	595 x 550 x 265 mm	595 x 550 x 265 mm
Weight:	33 kg	34 kg
Nominal voltage / frequency :	230 V / 50-60 Hz	230 V / 50-60 Hz
Rated voltage:	207 ... 244 V	207 ... 244 V
Rated power:	max. 0.8 kW	max. 1.25 kW
Supply voltage / frequency:	3 x 230 V / 0-55Hz	3 x 230 V / 0-55Hz
Rated current:	max. 2.6 A	max. 3.5 A
Discharge pressure:	2.0 – 4.5 bar (adjustable)	2.0 – 5.5 bar (adjustable)
Max. flow rate:	80 l/min	110 l/min
Noise level (speed dependent):	35 - 60 dBA	ca. 35 - 65 dBA
Protection class:	IP 54	IP 54
Mains water pressure:	2.5 - 6 bar	2.5 - 6 bar
Max. highest connected fixture:	20 m	30 m



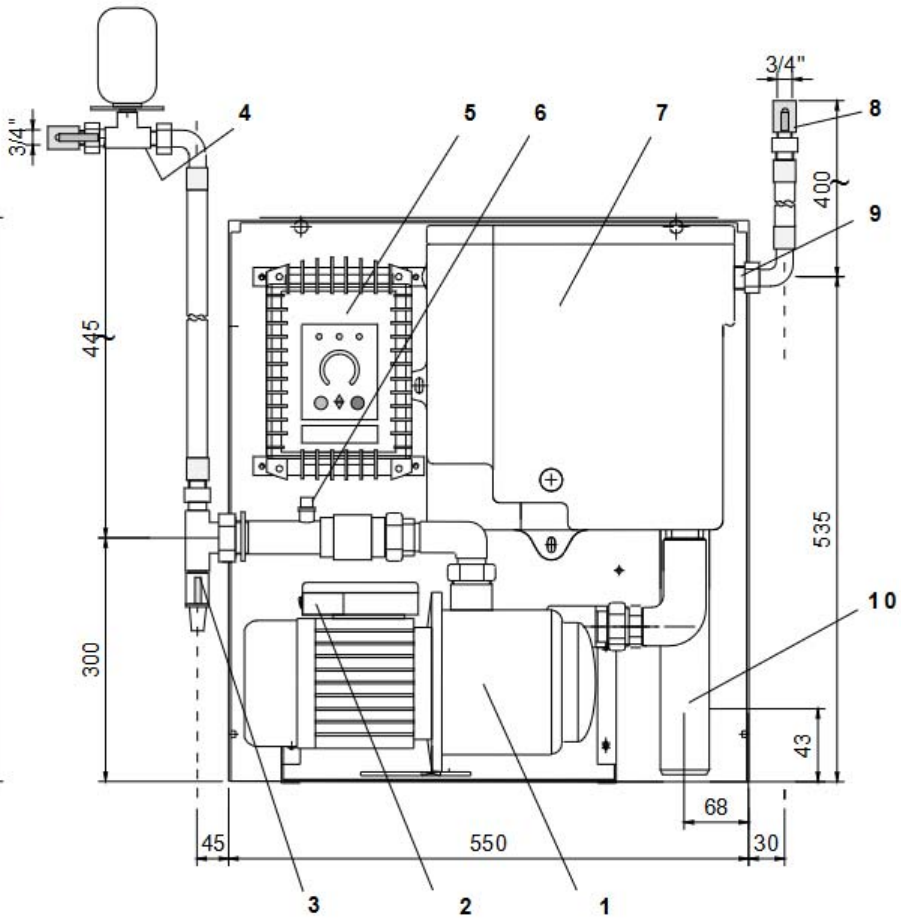
Performance curves for SEPAMAT F-SC20/40 Single

4.1 Device overview and dimensions

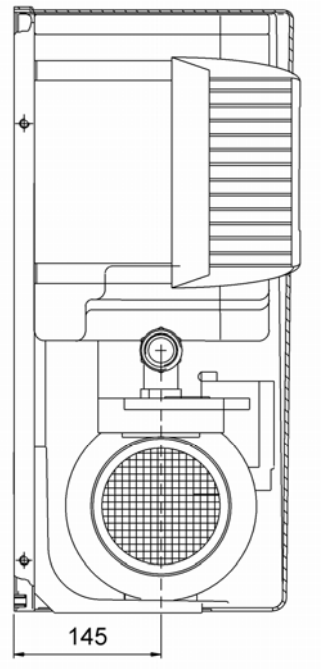
Right side view



Front view



Left side view

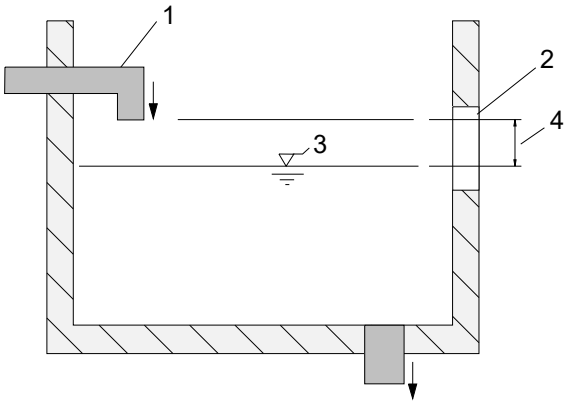


1. Multistage centrifugal pump SEPAMAT F-SC 20 / 40
2. Pump terminal box with basic controller
3. Vent cock
4. Pressure line shut-off valve (1" female)
5. Pump controller
6. Pressure sensor 4-20 mA, ¼" male
7. Separation chamber
8. Stopcock for mains water (3/4" female)
9. Mains water floating valve
10. Emergency overflow (DN50)

4.2 *Standards, directives, tests*

4.2.1 Secure separation Categorie 5 according EN 1717

The *SMT F-SC* meets the DIN 1989-4 "Components for Control and Supplemental Supply" standard. The DVGW mark of approval confirms the presence of the mandatory "air gap" (as per DIN EN1717) for secure separation of processed water from the mains water line, which is integrated into the *SMT F-SC*.



1. Mains water inlet to separation chamber
2. Emergency overflow opening
3. Max. possible water level (in case of malfunction)
4. Air gap between inlet and max. possible water level = secure separation of mains water and usage water

Mains water separation device, Type AB as per DIN EN 1717

Mains water supplemental supply device:	DVGW CERT Anschlusssicher W 540 · BELGAQUA · SVGW SSIGE
Mains water supplemental valve: WRAS mark certified	WRAS Water Regulations Advisory Scheme

4.2.2 EU - Konformitätserklärung

Diese EU-Konformitätserklärung wurde in alleiniger Verantwortung von INTEWA GMBH ausgestellt.
This declaration of conformity is issued under the sole responsibility of INTEWA GmbH.

Dokument-Nr.: *Document-No.:*	**03/10/2021**

Hersteller: *Manufacturer:*	INTEWA GmbH	Anschrift: *Address:*	Auf der Hüls 182 D – 52068 Aachen
Produktbezeichnung: *Product designation:*	Pumpenstation *pump station*	Typenbezeichnung: *Type:*	RM-Fxx, SMT-Fxx

Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union:
The object of the declaration described above is in conformity with the relevant Union harmonization legislation:

2006/42/EU: *2006/42/EU:*	**Maschinenrichtlinie** *Directive Machinery*
2014/30/EU: *2014/30/EU:*	**EMV Richtlinie** *Directive relating to electromagnetic compatibility*
2011/65/EU: *2011/65/EU:*	**RoHS-Richtlinie II** *RoHs Directive II*
2015/863/EU *2015/863/EU*	**RoHS-Richtlinie III** *RoHS-Richtlinie III*

Angewandte harmonisierte Europäische Norm:
Applied harmonised European Standard:

EN60335-1:2012/A11:2014:2014/A13:2010/A15:2011, ENISO 12100:2010

EN 61000-6-3:2007/A1:2011, EN 61000-6-1: 2007, EN 61000-6-4: 2007/A1:2011
EN 61000-6-2: 2005, EN55014-1:2006/A2:2011

EN50581:2012

Weitere normative Dokumente
Other normative documents

EN 60335-2-41:2003/A2:2010

Ort, Datum: **Aachen, 12.10.2021**
Place, Date:

Rechtsverbindliche Unterschrift:
Legal signature:

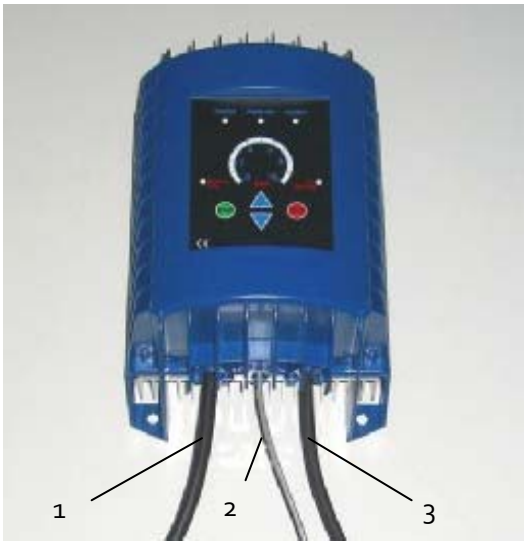
Geschäftsführer Oliver Ringelstein
Manager

5. Overview of components

The *SMT-F-SC* has a modular design. Each component can be separately exchanged.

5.1 Components of the pump controller

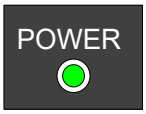
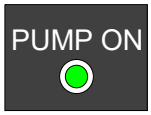
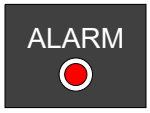
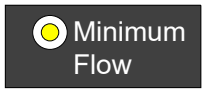
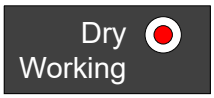
The pump controller (see section 4.1) monitors the pressure in pressure line system and maintains it at a constant level by speed controller. The controller reduces power consumption especially with small flow rates and increases the service life of the pump.



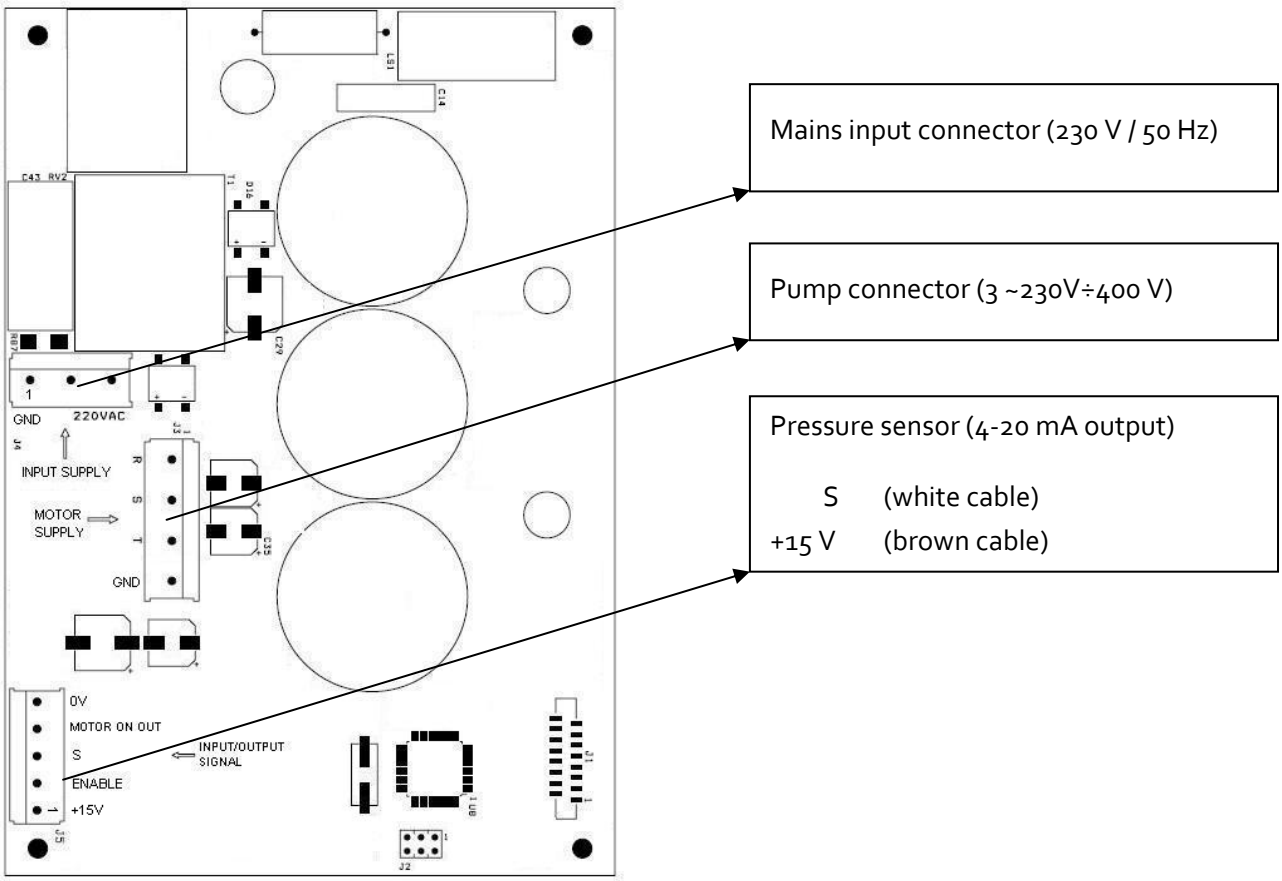
1. Motor pump (OUT), 3-phase
2. Pressure sensor (4-20 mA output), ¼" male
3. Power supply 230 V AC/50Hz

5.1.1 Description of display and buttons

Button	Description
	- increases the discharge pressure by 0.5 bar per keystroke (possible at any time during operation) - raises the setting in the setting mode in one step
	- reduces the discharge pressure by 0.5 bar per keystroke (possible at any time during operation) - lowers the setting in the setting mode in one step
	**START** - starts the pump with the first self-initialization or after a RESET
	**STOP** - instantaneous stop of the pump

LED-Indicator	Description
	**POWER** Green, steady: Inverter voltage supply is ON
	**PUMP ON** Green, steady: Pump ON Green, flashing: Enable OFF condition
	**ALARM** Red, steady: Pump stopped due to a malfunction Restart necessary (STOP then START) Red, flashing: Pump stopped due to a malfunction (auto restart)
	**Minimum Flow** Yellow, steady: Pump stopped due to flow rate below defined minimum (see setting F1) Yellow, flashing: Minimum flow rate reached, defined time-delay is active (see setting F14)
	**Dry Working** Red, flashing: Pump stopped due to dry running, currently in one of four automatic 15 min restart periods Red, steady: Final stop after 5th automatic restart malfunction
	**Segmented LED indicator** - indicator of discharge pressure in 0.5 bar steps - indicates the adjustment of pressure for 3 seconds after pressing  or  - settings indicator in setting mode - indicator of alarms based on malfunction code

5.1.2 Cable connection plan



In the event of a damaged cable or faulty pressure sensor, it is necessary to open the housing of the pump control. To do this, the mains plug must be disconnected and you have to wait for at least 2 minutes until all LEDs turn off (internal capacitors are discharged). You may open the case only after this. To do this, you have to demount the complete pump control from the angle holders. Then the rear screws of the heatsink can be opened.

5.1.3 Self-initialization

Each *SMT-F-SC* pump is factory set for the initial pump control!

The below described self-initialization must be performed **only** when a program RESET was conducted or if a new pump or a new pump control was installed.

In this automatic initialization, the characteristic current values are analysed at different operating parameters, which form the basis of the speed controller.

1.) Make sure the pump is automatically primed with water (see section 7.1) when it first begins operation.

2.) Open the air vent and let water flow out until there is no more air in the system. Then close the pressure shutoff valve (pressure increases).

3.) In case the pressure of the system is > 3 bar, the stopcock must be opened again to reduce the pressure to < 3 bar.

4.) Press 

to start the self-initialization. After about two minutes (total pressure range of the pump is analysed) the initialization is finished. The segmented LED indicator lights up one time, from 0 all the way to 10 bar and the pump stops (LED Minimum Flow lights up).

5.) The self-initialization is now finished and the start-up procedure can follow (see section 7.2). Changing the predefined discharge pressure of 3 bar is possible, if necessary, in 0.5 bar steps by pressing the 

or 

button (the pressure setting has been saved once the segmented LED no longer blinks).

Command	Button combination
RESET (to restore factory settings)	 &  press simultaneously for 5 seconds (total segmented LED indicator blinks once). Pull the mains plug and wait until all the LEDs are off.
SELF-INITIALIZATION	Plugin the mains plug. Press  to start the self-initialization.

Checking the pump start and stop

At the end of the self-initialization, test the start and stop of the pump system by turning on one or more fixtures. When the pump stops, the yellow LED Minimum Flow will flash. When the fixtures are opened, the pump must independently start again.

Checking the dry-running protection

In cases of water shortage, the pump must stop after 40 secs and the red LED Dry Working turn on. This check is best performed by shutting the mains water supply valve and opening a fixture.

5.1.4 Preferences / Settings / Parameters

In the default setting, the parameters are predefined for the *SMT-F-SC* pump. However, the option exists to define precise parameters in the setting mode.

5.1.4.1 Parametereinstellung

Attention!
This should only be performed by an experienced technician.

Command	Button combination
Activation of setting mode	 &  press simultaneously for about 3 seconds until the total segmented LED indicator blinks once and the setting F1 is displayed.
Display next setting value	Keep the  button pressed. By pressing  , the next setting value is selected. By releasing the buttons, the current setting value is shown.
Adjust setting value	By pressing  or  the value is increased or decreased (the segmented LED indicator displays up to 20 Steps).
Confirm the setting value	By pressing  you confirm the settings and exit the setting mode.

Code	LED-Display	Function	Description	Range	Default setting
F1		Minimum flow rate stop	Setting of the minimum flow rate level	10…+10 Each step: 1	0
F2		Maximum motor current	Setting of the maximum motor current SMT-F-SC20: 3.0 A SMT-F-SC40: 3.5 A	1…7 A Each step: 0.5 A	7 A
F3		Minimum motor speed	Setting of the minimum motor speed (Reference of the nominal speed is 2850 min^{-1})	30..70% Each step: 2%	50%
F4		Maximum motor speed	Setting of the maximum motor speed (Reference of the nominal velocity is 2850 min^{-1})	90..110% Each step: 1%	105%
F5		Rotation direction	0/1	0/1	0
F6		Starting RPM ramp-up	RPM during acceleration	1000-10000 RPM/s Each step: 500	3000 RPM/s
F7		Maximum operating pressure	Maximum system pressure that should not be exceeded	2 …10 bar Each step: 0.5 bar	10 bar
F8		Pressure hysteresis	Setting of the maximum pressure hysteresis (difference between switch point and reset point)	0.15 ..1 bar Each step: 0.05 bar	0.3 bar
F9		Pressure ramp-up	Setting for the rate of pressure increase or decrease	0.1 … 2 bar/s Each step: 0.1 bar/s	1 bar/s
F10		Pressure sensor minimum output signal	Setting for the minimum output signal from the pressure sensor	1..5 mA Each step: 0.2 mA	4 mA
F11		Pressure sensor maximum output signal	Setting for the maximum output signal from the pressure sensor	10.. 20 mA Each step: 0.5 mA	20 mA

Code	LED-Display	Function	Description	Range	Default setting
F12		Pressure sensor operating range	Setting for the operating range of the pressure sensor	10..20 bar Each step: 0.5 bar	16 bar
F13		Proportional P.I.D. Factor	Setting for proportional factor in P.I.D. (Proportional-Integral-Derivative) for pressure control	0..6000 Each step: 300	3000
F14		Integral P.I.D. Factor	Setting for integral factor in P.I.D. (Proportional-Integral-Derivative) for pressure control	0..4000 Each step: 200	1000
F15		Minimum flow time delay	Setting for time delay on the minimum flow condition before stopping pump.	2..20 sec Each step: 1 sec	12 sec
F16		Dry running time delay	Setting for time delay on the dry running condition before stopping pump.	10..100 sec Each step: 5 sec	40 sec
F17		Master-Slave group communication	Operating mode with 1, 2 or 3 pumps with Bluetooth connection, factory setting for 2 pump system that also functions for single pump mode	1: one pump 2: two pumps MASTER/SLAVE 3: three pumps MASTER/SLAVE	2
F18		Setting check	Refers to the graph of the power consumption	0: theoretical curve 1: self-initialization 2: tested curve	1
F19		Measurements	Measures of different parameters	0: Pressure (0..10) 1: Frequency (15..55) 2: Current (0..10) 3: Voltage (200-.240) 4: T [°C] (70..90) 5: Last alarm 6: Motor ΔT[°C](0..100)	0
F20		Frequency transmission	Frequency of transmission/ reception of the radio communication between 2 or 3 controllers	780 .. 820 MHz Each step: 1 MHz	800 MHz

5.1.4.2 Special settings

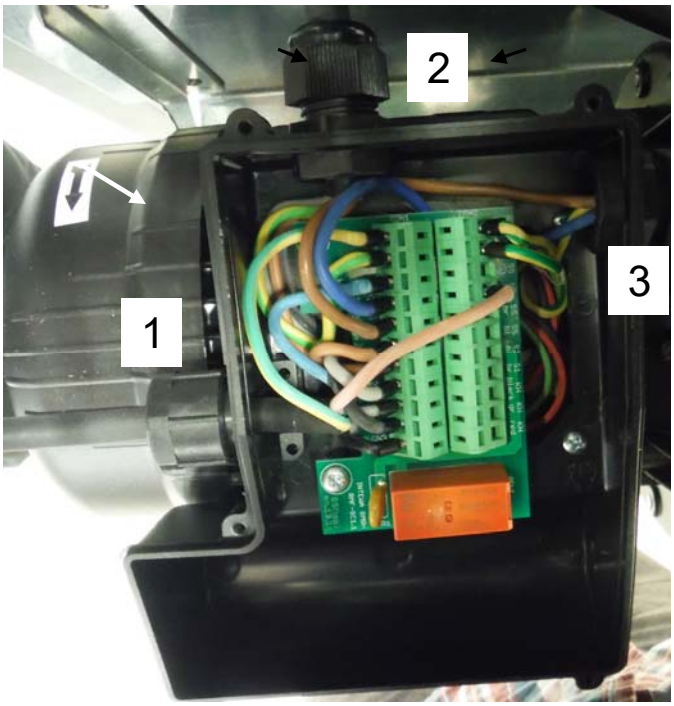
On delivery, parameters **F1** and **F8** are already configured with special settings in deviation from the basic setting. Parameter **F17** is also set to single pump. For applications with 2 or 3 pumps in Bluetooth mode, parameter **F17** must be adjusted accordingly.

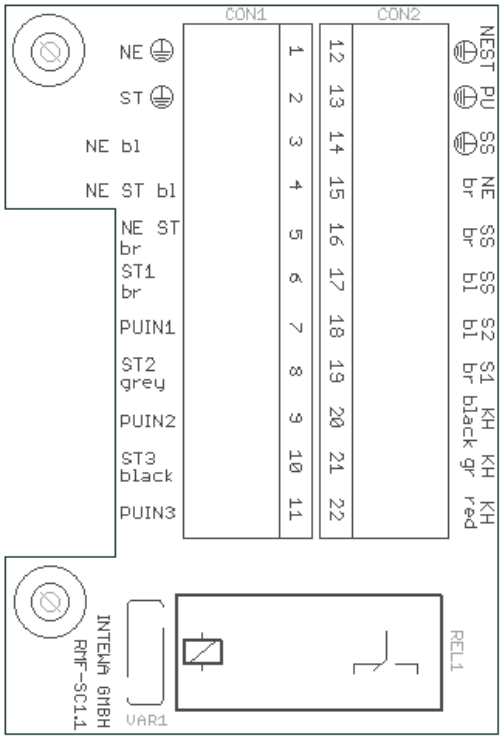
During self-initialization, the parameters are automatically reset to default factory settings. The special settings must then be entered again!

Nr.	LED-Display	Function	Description	Special settings
F1		Minimum flow rate stop	 Step 10 (Display = 5,0)	 Increase: + 7 Steps (Display = 8,5)
F8		Druckhysterese	 Step: 6 (Display = 3,0)	 Increase: + 10 Steps (Display = 8,0)
F17		Master-Slave Bluetooth	 (double pump) Step: 2 (Display = 1,0)	 Singel pump Decrease: -1 Step (Display = 0,5) oder  Triplex-pump Increase: + 1Step (Display = 1,5)

5.2 Components of basic controller

The unit's basic controller is located in the terminal box of the pump. Here are all the electronic components of the *SMT-F-SC* are connected. On the side of the terminal box is the mode selections switch I / II for Automatic and Maintenance mode (see section 7.3 for functional description).





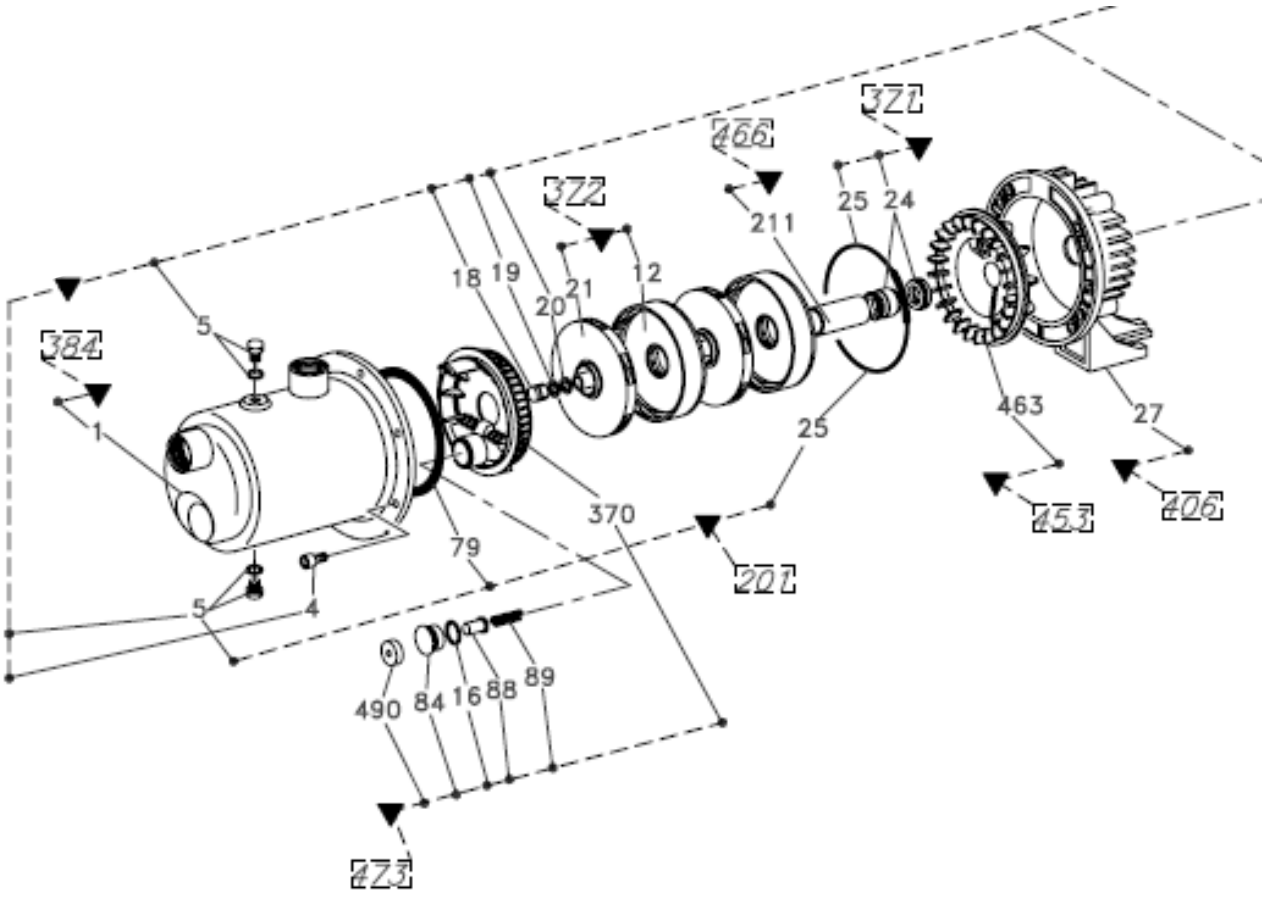
1. Mains connection ~230V AC/50 Hz
2. Mains pump control
3. Pump control OUT, 3-phase

Pos.	Board code	Connection description
1	NE PE	Ground mains connection
2	ST PE	Ground pump control
3	NE bl	Mains connection 230 V, blue
4	NE ST bl	Mains pump control, blue
5	NE ST br	Mains pump control, brown
6	ST1 br	OUT-Pump control, brown
7	PUIN1	IN-Pump, brown
8	ST2 grey	OUT-Pump control, grey
9	PUIN2	IN-Pump, grey
10	ST3 black	OUT-Pump control, black
11	PUIN3	IN-Pump, black

Pos.	Board code	Connection description
12	NE ST PE	Ground pump
13	PU PE	Ground pump control
14	SS PE	free
15	NE br	Mains connection 230 V, brown
16	SS br	free
17	SS bl	free
18	S2 bl	free
19	S1 br	free
20	KH black	free
21	KH gr	free
22	KH red	free

Table: Overview of the cable connections

5.3 Components of the multistage pump



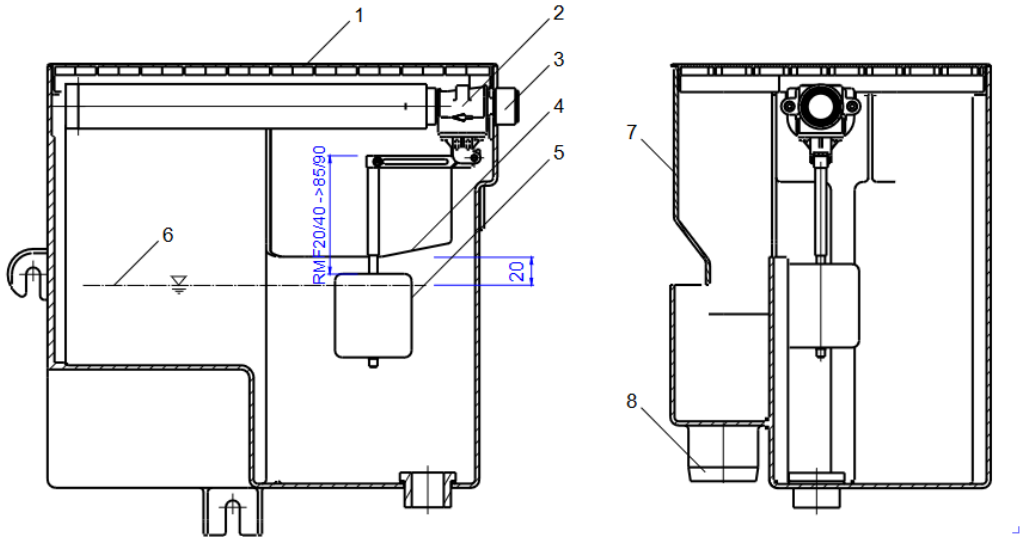
Exploded view of the SMT F-SC 20 / 40 centrifugal pump.

KIT REF.	Nr. KIT DESCRIPTION	REF.Nr.	COMPONENT DESCRIPTION	RM F 20 SMT F 20	RM F-SC 20 SMT F-SC 20	RM F 40 SMT F 40	RM F-SC 40 SMT F-CS 40
371	MECHANICAL SEAL KIT	25	O-RING (PUMP BODY ~)	ZBR25620			1
		24	SEAL (COMPLETE				1
372	HYDRAULIC KIT	21	IMPELLER	ZBR24170	1 pcs.	ZBR24180	1
		12	DIFFUSER (WELDED ~)		1 pcs.		1
380	CAPACITOR	47	CAPACITOR	ZBR 1	--	ZBR 1	--
473	SELF-PRIMING SUCTION FLANGE KIT	16	16 O-RING (NOZZLE ~) 1 pc	ZBR28140			1
		84	84 PLUG (FRONT ~) 1 pc				1
		88	88 SHUTTER 1 pc				1
		490	490 RUBBER SPACER 1 pc				1
		89	89 SPRING (SHUTTER ~) 1 pc				1
		370	370 SELF-PRIMING SUCTION				1

List of spare parts for SMT F-SC 20/40 centrifugal pump

5.4 *Components of separation chamber*

Das Schwimmerventil hält den Wasserstand im Nachspeisebehälter immer konstant. Der maximale Wasserstand muss beim Schließen des Schwimmerventils ca. 2-3 cm unterhalb der Notüberlaufkante (4) (Behälterrückseite) sein. Der korrekte Abstand des Auftriebskörpers (5) zur Hebeloberkante ist ab Werk mit 85 mm beim SMT F-SC 20 Ventil, und mit 90 mm beim SMT F-SC 40 Ventil, eingestellt.
Hinweis: Findet ein Überlauf durch ständiges Nachtropfen des Ventils statt, muss das Ventil entkalkt werden (s. Wartung). Im Anschluss des Schwimmerventils befindet sich ein Schutzsieb (3), dass zur Reinigung herausgezogen werden kann. Ein Sieb befindet sich ebenso im Einlaufrohr.
Der korrekte Abstand des Auftriebskörpers (5) zur Hebeloberkante ist ab Werk mit 85 mm eingestellt.

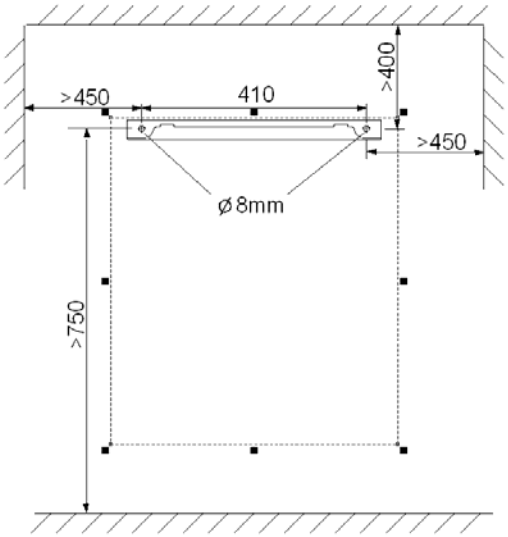


1. Nachspeisebehälter mit Deckel
2. Schwimmerventil mit Einlaufrohr
3. Schutzsieb im Ventilzulauf
4. Notüberlaufkante
5. Auftriebskörper
6. maximaler Wasserstand
7. Spritzschutz
8. Notüberlauf DN50

6. Installation instructions

6.1 Wall mounting

The *SMT-F-SC* is mounted on a wall with the supplied wall bracket. The lid and lateral distances indicated should be adhered to when mounting, to provide clear maintenance access.



The *SMT-F-SC* is wall mounted in such a way, that the groove in the top back panel of the unit hangs off the affixed wall bracket.

The provided rubber clamping device is to be fit on the back side of the unit in the lower corners.
Thanks to the rubber pads, the device can be installed close to the wall. The unevenness of the wall can be balanced by various screwing depths.

6.2 Connection to the mains water line

The connection to the mains water supply is done with the provided flexible hose and stopcock.

Screw the gland screw into the chamber connection and carefully tighten with a fixed wench.

Note:
The flexible hose must not be overtightened as this may interfere with the internal float valve on the opposite side of the connection. All provided flexible hoses have gland screws with flat washers. The rubber washers must be present. Additional sealing material must not be used on gland nuts!

Screw the gland screw on the other end of the flexible pipe into the stopcock mounted on the mains water line.

6.3 *Installation of the pressure line set*

The pressure line set (see section 3) establishes the connection between the pump and pressure line system.

The pressure line set is connected to the pump controller.

The flexible hose and the shut-off valve then connect to the pressure line set and the pressure line.

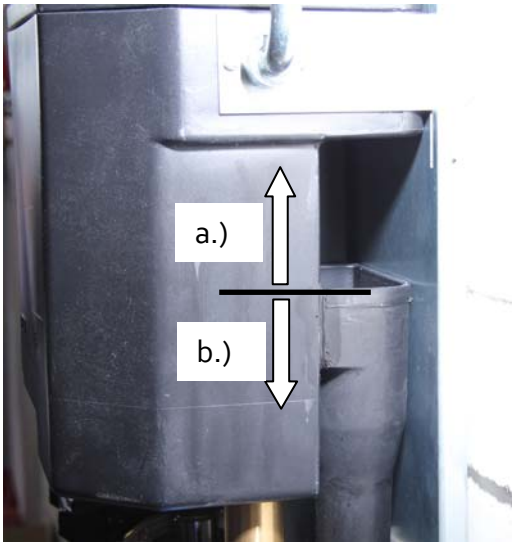
Attention:
For optimal and efficient pressure control, an expansion vessel of 5 L is strongly recommended. The primed air pressure must always be ca. 1 bar under the chosen pump operating pressure. Example: The system works with 3 bar, therefore the primed air pressure should be 2 bar.

6.4 Connecting the emergency overflow

The *SMT-F-SC* has an emergency overflow line (DN 50) which must be connected to the waste drainage system of the building. The drainage line must be of a size to accommodate a maximum volume flow rate of 90 l/min.

Note:

The position of the backwater level must be taken into consideration while connecting to a drainage system, in order to prevent backflow of drainage water from the open sewer line (design according to the DIN EN 1717) entering the *SMT-F-SC*.



The position of the backwater level determines the type of line:

a) Backwater level **above** the emergency overflow drainage height of the separation chamber:

   Connection of the emergency overflow must be done by a lifting system.

b) Backwater level **below** the emergency overflow drainage height of the separation chamber:

   Connection of the emergency overflow to a ventilated channel line (DN 50) is done via a siphon.

7. Start-up and use

1. Open the mains water line stopcock so that the separation chamber is filled with water.

   Note:

   In maintenance mode the pump primed with water automatically over the mains water tank. In this case the pump doesn't need to be filled up with water by hand.

   Attention:

   The pump must not be dry-running!

2. Close the pressure line shut-off valve.

3. Open the air vent (hold a bucket of water under the air vent) and start the pump by plugging in the mains power.

   Let the water run from the air vent into the water bucket until there is no more sign of bubbles (a clear stream) meaning that all air has been removed from the suction line.

4. Close the air vent.

5. Open the pressure line shut-off valve and flush the air from the consumer line (e.g. by flushing the toilet several times or opening the garden tap).

6. Close all the fixtures.

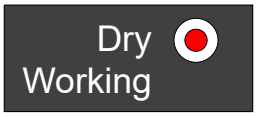
   The pump will now automatically switch off when the maximum system pressure is reached.

The green LED on the pump controller indicates that the pump is ready to use. In case of a problem, the red LED will light up (see section 5.1).

The system pressure can be read on the pressure LED indication of the pump controller.

The Automatic Mode or Maintenance Mode can be set via the mode selecting switch.

8. Safety monitoring and error notifications

Code	LED-Display	Features	Description
A1		Current monitoring	Pump is turned off instantaneously if this value exceeds a peak that can damage the electronic components - high starting current - short-circuit on motor.
A2		Surge protection	Pump is turned off if the voltage exceeds a maximum instantaneous limit (+15%Vn)
A3		Undervoltage	Pump is turned off if the voltage falls under 15%Vn.
A4		Temperature protection	If the temperature of the pump controller exceeds 85°C the integrated temperature protection is activated and power reduced. The motor will run at 90% of the value imposed (F2)
A5		Current overload protection	The current overload is limited over a period of time (defined by I2t algorithm) to protect the motor insulation (for correct functioning, the rated current must be set (F2)).
A6		Pressure switch malfunction	In case of a problem or failure of the pressure switch, the controller turns off the pump. A restart must follow manually (press STOP followed by START).
A7		Flow rate monitoring	This monitoring stops the pump if all the fixtures are closed and the flow rate returns to zero (normal operation).
A8		Dry running	If no water is supplied, the red LED will blink and stop the pump after 40 seconds. After 5 trials of automatic restart without success, the pump will permanently stop and the ALARM LED will light up.

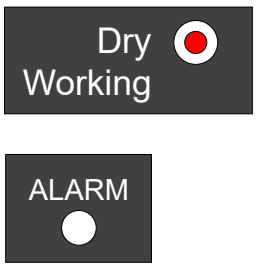
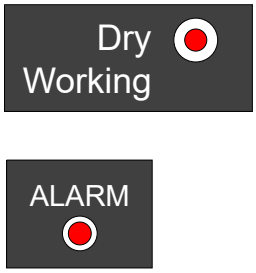
All alarms messages are displayed on the segmented LED indicator. The alarm indicator blinks if the alarm message is accompanied by an automatic restart (i.e. Dry running). The alarm indicator does not blink if, for protection, a manual restart is necessary (press STOP, then START).

Protection and Alarm details:
Current monitoring (A1):
The controller immediately stops the pump in the case the current exceeds the maximum limit defined (F2).

Flow rate monitoring (A7):
To prevent the pump from working when the fixtures are closed, the software compares the function with the pump performance curve. If the actual operating point of the pump is below the pump curve, then Minimum Flow will be displayed (the pump performance curve is created during the self-initialization at start-up).

Dry running protection (A8):
To prevent the pump from continuously running during a water shortage, once the minimum limit is achieved, the pump is turned off with the LED Dry Working indicated. Every 15 min, an automatic restart will follow. After 5 trials, the alarm indicator will become permanent and a manual restart will be necessary (press STOP, then START).

9. Trouble-shooting

Description	Cause	Solution
Pump does not start: Dry Working LED ON, ALARM LED OFF 	Motor stop for dry running condition of the pump, during one of four restarts of this problem, separated by 15 minutes. After the fifth unsuccessful restart, the installation goes into alarm mode.	Wait for automatic restart or Manually begin the restart sequence by pressing STOP. Start the pump by pressing START
Pump does not start: Dry Working LED ON, ALARM LED ON 	a.) Air in the suction line b.) Air in the suction line, unsealed c.) Check valve in the suction line, unsealed	a.) Check mains water pressure, clean mains water valve sieve, then go through start-up and use (see section 7) b.) Seal the connections and suction line, then go through start-up and use (see section 7) c.) Replace the check valve

Description	Cause	Solution
Pump runs continuously with a low flow rate or turns on without use from the consumer	a.) Unsealed, leaking fixture b.) Too little water demand from the fixture (<1 l/min) c.) Selected operating pressure is too high d.) Settings changed or a malfunction	a.) Repair leak b.) Check fixtures c.) Reduce operating pressure (3 bar is optimal) d.) RESET and perform a new self-initialization (STOP, then START)
Flow rate too low or no water is supplied by pump	Too little or no water is in the separation chamber	Check mains water pressure, clean the filter sieve in the mains water valve (see section 5.4)

10. Maintenance

The SMT *F-SC* operates without regular maintenance.
At minimum, check the correct priming pressure in the expansion vessel of 2 bar every year.

11. Spare parts

Description	Figure no. (see section 4.1)	Order code
Multistage centrifugal pump SEPAMAT F-SC 20	[1]	RMF-SC-P20
Multistage centrifugal pump SEPAMAT F-SC 40	[1]	RMF-SC-P40
Basic controller	[2]	RMF-SC-BPL
Pump controller SC incl. pressure switch	[5]	RMF-SC-PST
Pressure switch 4-20 mA	[6]	RMF-SC-DS
Separation chamber	[7]	RMF-B
Floating valve for separation chamber	[9]	RMF-NSP
Spare parts for centrifugal pumps	See section 5.3	See section 5.3

12. Warranty / Guarantee

INTEWA GmbH guarantees this unit for 24 months from the date of purchase. Kindly keep the sales receipt as proof of purchase.

Within the guarantee period, INTEWA GmbH reserves the right to either repair or replace faulty parts at its own discretion.

The warranty does not cover any damage due to improper use, wear and tear, or intervention by third parties. The warranty does not cover any defects which may only minutely affect the value or usability of the device.

13. Contact / Device number

For customers in Germany:
For any queries, ordering of spare parts, as well as in case of service, kindly contact INTEWA GmbH directly, quoting your product's model and identification numbers and the purchase invoice details, at:

INTEWA GmbH
Auf der Hüls 182
52068 Aachen

Tel.: 0049-241-96605-0
Fax: 0049-241-96605-10
Email: info@intewa.de
Internet: www.intewa.de

For customers in other countries:
For any queries, ordering of spare parts, as well as in case of service, kindly contact your installer or the authorised importer, quoting your product's model and identification numbers, and the purchase invoice details.

Your SMT-F-SC identification number is displayed on the right hand top side of the separation chamber. The unit housing must be removed to see this.

Appendix 1.0 Scope of DUPLEX or TRIPLEX application

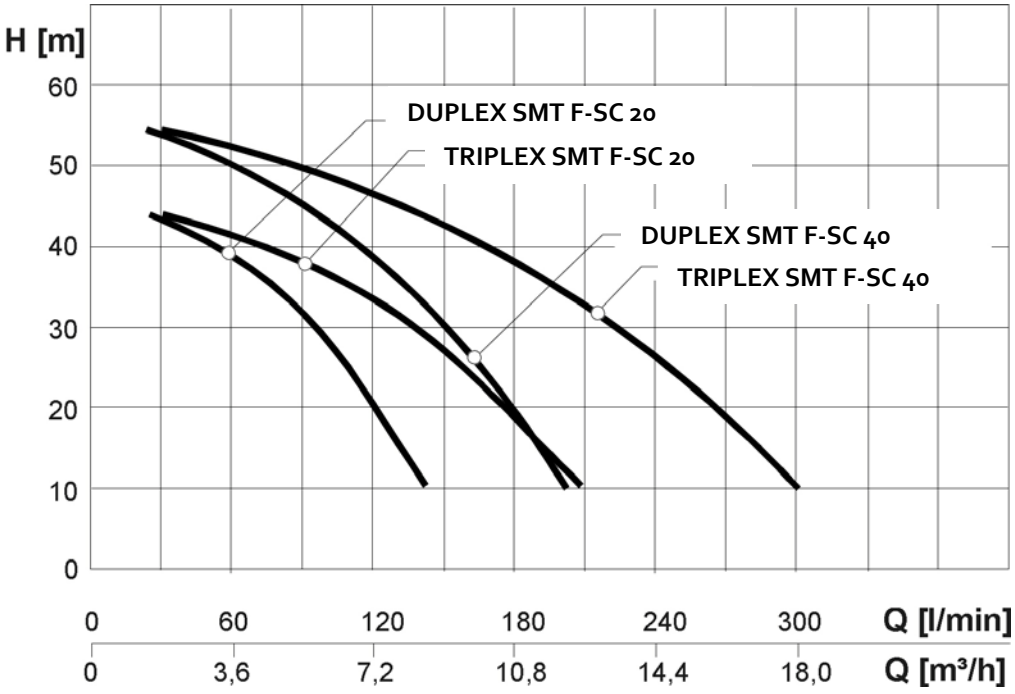
For larger commercial applications, where pumping reliability and consistency is a must, the speed-controlled *SMT-F-SC* models are used to ensure water is always efficiently and reliably delivered to the required application. Up to three *SMT-F-SC* units can be connected in parallel, as a powerful multiple pumping system.

The units communicate together via Bluetooth. In this configuration, should one pump ever fail, the others simply take on the load. Through Bluetooth the automatic, cycling start-up of the pumps, the peak load connection and the operating pressure settings are aligned and transferred wirelessly.
Slave and Master functions are automatically transferred to the operating units in the event of an equipment malfunction.

For Triplex applications, all controllers must be selected as 3 under F17 (see section 5.1.4)

Appendix 1.1 Technical data for DUPLEX and TRIPLEX application

All pipes must be sized according to the maximum flow rate.



Performance curves for SMT F-SC in DUPLEX and TRIPLEX applications

Appendix 1.2 Bluetooth function in Duplex and Triplex applications

1. Each SMT-F-SC unit is factory initialized, allowing pre-set operation procedures to occur. Is it still necessary to perform a self-initialization (i.e. after a RESET), after which every device will be initialized individually (see note below).
2. In order to initiate a Bluetooth connection, the mains plug of all SMT-F-SCs must be inserted within 10 seconds of each other (all LEDs must be extinguished beforehand).
   All Power LEDs flash simultaneously when the connection with the units is obtained. This procedure lasts for approx. 20 seconds.
3. The systems are now ready to use. The pumps will automatically start as soon as a decrease in pressure is detected.
4. The desired operating pressure can be adjusted by pressing 

or 

on any one pump controller. (The Bluetooth connection automatically transfers these settings to the other devices).

Note:

It is necessary for the *SMT-F-SC* to execute a fresh automatic initialization after every RESET (see section 5.1.3). It is important that the other parallel connected *SMT-F-SCs* remain plugged in with Power ON, in order that all units initialize successfully together via Bluetooth.

If there are several devices in the room that operate independent of each other, then the transmission frequency can be modified (see Setting F20, Chapter 5.1.4). If a pump alone runs for 30 seconds, then the pump control is determined to be "single mode" (F17-3). The Group function can then be setup, in which F17 is modified.

Anhang 1.3 Parameteranpassung F17

For applications with 2 or 3 pumps in Bluetooth mode, parameter F17 must be adjusted accordingly (see Chap. 5.1.4).