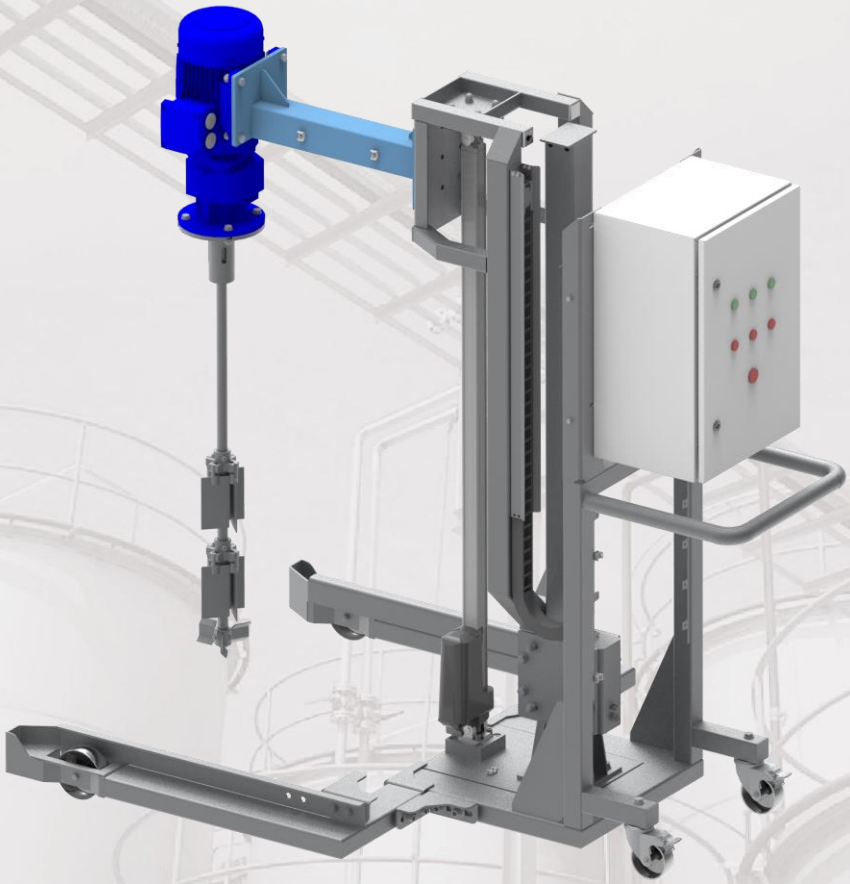
IOM manual

MIXING STATION

Original Instruction
2024

Read the instructions carefully before installing and commissioning the system



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EU DECLARATION OF CONFORMITY

Series: **IBC MIXING STATION**

Model: **MIXING STATION 23.S5249_1**

Serial number: **24.320**

Manufactured by Tapflo Sp. z o.o., Poland for:

Tapflo Group AB
Filaregatan 4
S-442 34 Kungälv, Sweden

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Object of declaration: **MIXING STATION 23.S5249_1**

The object of the declaration described above is in conformity with the relevant Union harmonization legislation:

- Directive 2006/42/EC of European Parliament and of the Council of 17 May 2006 on machinery;

Signed for and on behalf of
Tapflo Group AB, 16.09.2024

Per Antonsson
Chief Executive Officer

0. GENERAL

0.1. Introduction

This IOM manual have been developed for the IBC mixing station. This system is designed to mix liquids inside the IBC tanks.

This documentation contains information on the application, construction, operation and use of the unit. It is intended for the operating personnel and technical services of the user. The user should be aware of the need to thoroughly read this manual and follow the regulations and recommendations contained therein. The information included in this manual is subject to change without notice and does not constitute a commitment on the part of Tapflo.

With proper attention to maintenance, Tapflo Products will give efficient and trouble-free operation. This instruction manual will familiarize operators with detailed information about installing, operating and maintaining of the unit.

0.2. Warning symbols

The following warning symbols are present in this manual:

	Risk of danger to life or health.
	General sign of mandatory activity.
	Read the instruction manual.
	Use hearing protection.
	Use face protection.
	Use head protection.
	Wear protective gloves.
	Wear protective footwear.
	Connect the grounding.
	Danger caused by the presence of an electric field or live wires.

0. GENERAL

	Risk of hand injury.
	Danger caused by the presence of a corrosive substance.
	Risk of head injury.
	Explosion hazard area (ATEX) warning.
	Climbing onto the unit is prohibited.

0.3. Qualification and training of personnel

The personnel in charge of installation, operation and maintenance of the IBC mixing stations must be qualified to carry out the operations described in this manual. Tapflo shall not be held responsible for the training level of personnel and for the fact that they are not fully aware of the contents of this manual. In case any instructions in this manual are unclear or any information is lacking, please contact Tapflo before handling the unit.

0.4. List of standards and referenced documents

- Directive 2006/42/EC (Machinery Directive) of the European Parliament and of the Council dated May 17, 2006,
- EN ISO 12100 Safety of machinery - General principles for design - Risk assessment and risk reduction,
- Regulation of the Minister of Economy dated October 21, 2008, on essential requirements for machines (Journal of Laws No. 199 item 1228),
- Act of August 30, 2002, on the conformity assessment system (Official Journal of Laws of October 7, 2002, No. 166, item 1360, in force together with subsequent amendments from January 1, 2003; Journal of Laws No. 80, item 718, No. 130, item 1188 and No. 170, item 1652 of 2003),

1. DEVICE DESCRIPTION

1. DEVICE DESCRIPTION

1.1. General description of the device

The IBC Mixing Stations is for use with industry standard 1000 liter IBCs and incorporates an electric actuator to raise and lower the mixer into and out of the IBC.

A positioning guide rail is provided to position the IBC correctly.

On the left side of actuator is mounted a sensor that prevents the mixer from operating if there is no IBC container at correct position. The mixer will only operate with the mixer in the in the lowered position with an IBC in place.

The IBC mixer drive is mounted on a carriage supported and guided by a stainless steel column attached to the trolley frame. The mixer is raised and lowered into the IBC container with the electric actuator which movement is operated from the control cabinet.

The whole unit is built as a trolley with 4 wheels, allowing the operator to move the mixing station.

The IBC mixing station **must not be used** in explosive environments (ATEX).

1.2. Technical characteristics and operating parameters of the unit

Series:	IBC mixing station
Serial no.:	24.320

1.3. Unit drawing

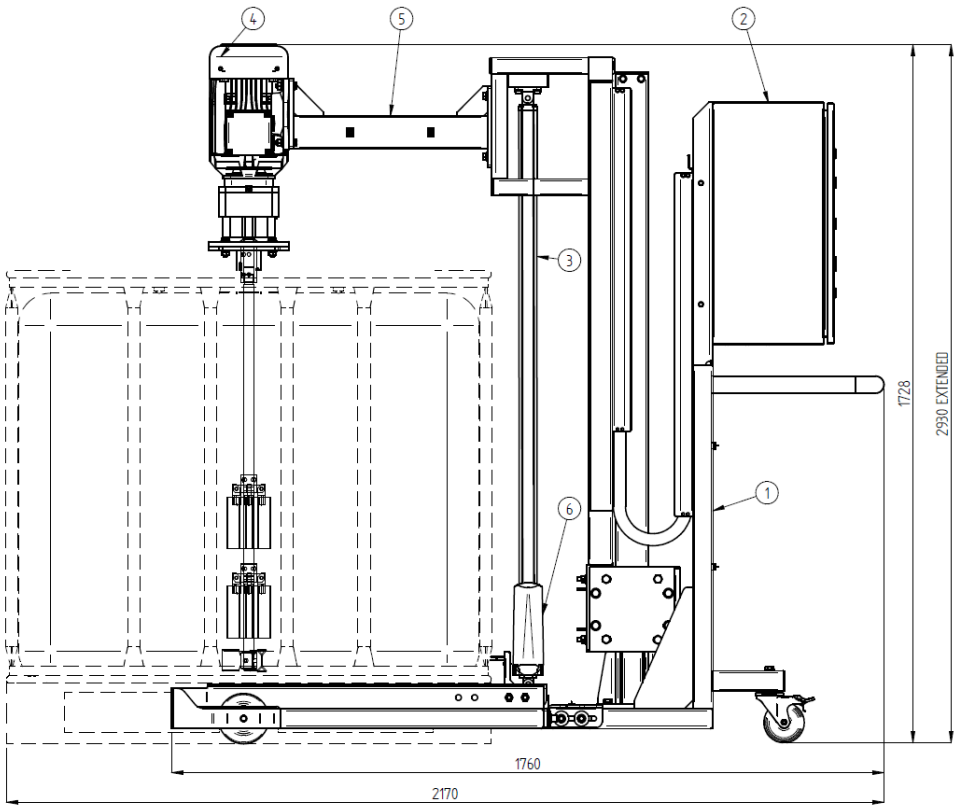


Fig. 1: Drawing and marking of unit elements.

1. DEVICE DESCRIPTION

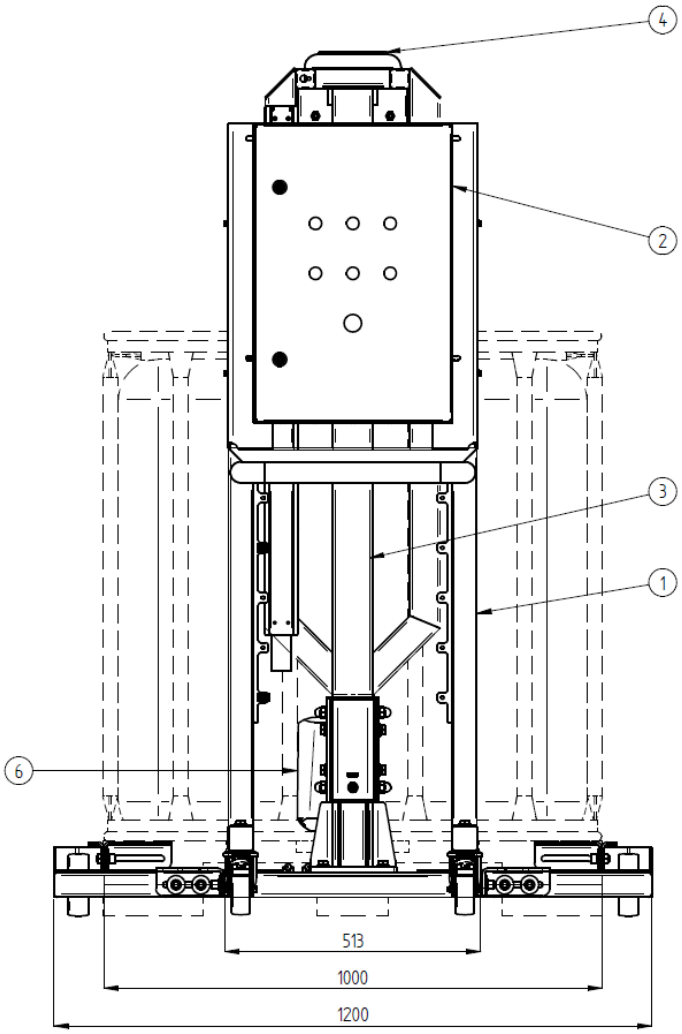


Fig. 2: Drawing and marking of unit elements.

1.4. Unit components

Tab. 1: List of unit components.

MAIN COMPONENTS

No	COMPONENT
1	MAIN FRAME
2	CONTROL CABINET
3	ELECTRIC ACTUATOR
4	MIXER
5	LIFTING ARM
6	IBC SENSOR

1.5. Impellers and gearmotor selection

The impellers and gearmotor selection was made based on the parameters required for a specific technological process, which were provided by the customer. Based on these values, the gearmotor and other system components were selected. The assembly materials of the unit components were selected based on the Design Guidelines and the experience of the system user.

2. INSTALLATION

2.1. General safety rules

Health and safety regulations must be observed when performing repairs and renovations.

If repairs are made to the system, it must be disconnected from electrical power and pneumatic system.

All persons who use the mixing system or carry out maintenance and service work should undergo appropriate training followed by verification of competence.

During repairs, damaged parts should be replaced only with original spare parts.

For failures and damage and legal consequences resulting from failure to comply with the recommendations contained in this manual and related documentation, the manufacturer assumes no responsibility.

Modifications to the design not approved by Tapflo and the use of spare parts that do not meet the manufacturer's specifications may damage the pumping system, void the warranty, the certificate and, above all, compromise the safety of those operating the unit.

The unit **must not be used** in explosive environments (ATEX).

This manual is an integral part of the device. It should be available throughout the life of the system until disposal and scrapping.

When operating the pumping system, strictly follow the recommendations of the regulations applicable to machinery and equipment.

Service of IBC mixing systems is provided by the Manufacturer.

Electrical components may be connected or repaired only by authorized persons.

2. INSTALLATION

In the interest of health and safety, it is essential to wear gloves, face protection and a helmet.

Health and safety markings should be visible on the layout at all times. If they are torn off, the user should glue/install new ones.

2.2. Purpose and scope of application

This system is designed to mix liquids inside the IBC tanks.
This unit should not be used for any other application without written confirmation from Tapflo.
The use of the unit is allowed only within the permissible limits and taking the chemical and corrosive effects into account.
Any use of the unit outside the specified limits and specifications is considered to be not in accordance with the intended use. Any resulting damage is not the responsibility of the manufacturer. The user will bear the entire risk of misuse of the system.

2.3. Receiving inspection

Although precaution is taken by us when packing and shipping, we urge you to carefully check the shipment on receipt. Make sure that all parts and accessories listed on the packing list are accounted for. Any shipment shortages or damage should be reported to Tapflo and the shipping company.

2.4. Lifting and transportation

IBC mixing systems is delivered in parts as shown on fig. 3. After the delivery the parts should be mounted to the main frame with connecting components according to the table 3. and then checked if it works properly. The unit should be moving on the wheels attached to the base frame. During transport, it is required to protect all components from any damage. During transport, the system should be moved parallel to the ground, with special attention to possible damage to system components.
Each time after transportation, the unit and parts must be checked for any damage.
If a damage is detected, it is not permitted to use the unit until the defect is repaired. The unit is not adapted to be lifted by cranes.

When transporting IBC mixing systems, pay special attention to the correct attachment of slings and hooks. Attach the sling and hooks only to solid main frame metal elements.

It is forbidden to be directly under the suspended unit.

2. INSTALLATION

When carrying out transportation work, it is necessary to follow the rules of health and safety.

When transporting the system, it is forbidden to lift it by electric or pneumatic lines.

2.5. Assembly

IBC mixing systems is delivered in parts as shown on fig. 3. After the delivery the parts should be mounted to the main frame with connecting components according to the table 3.

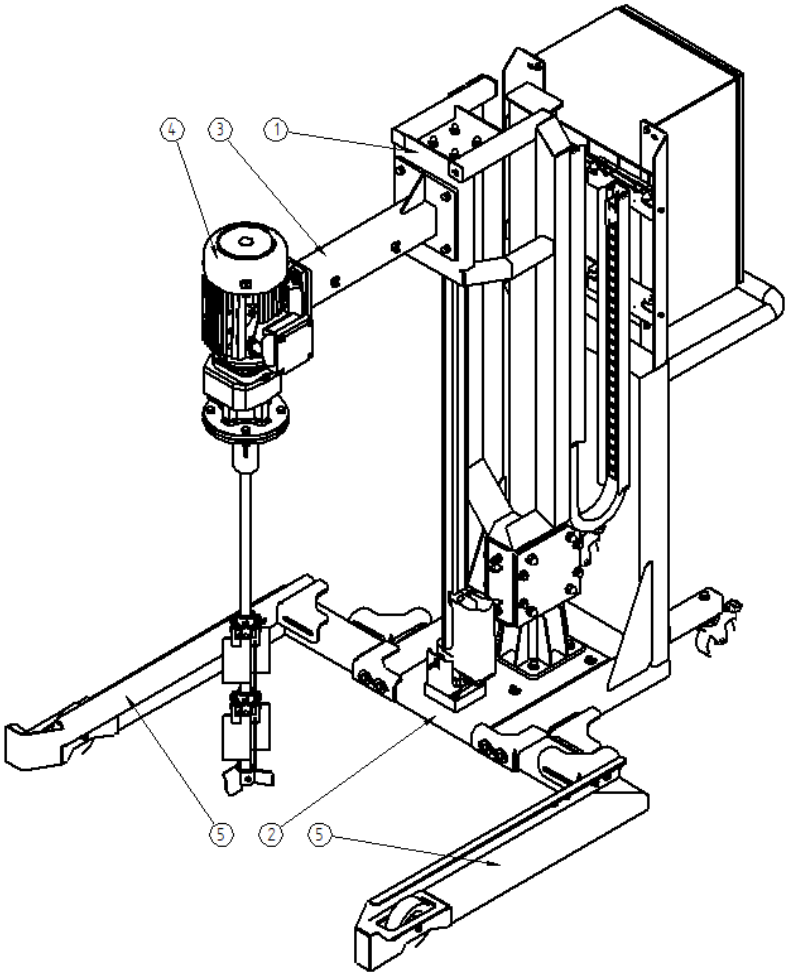


Fig. 3: Drawing and marking of unit parts during the delivery.

Tab. 2: List of unit components.

MAIN COMPONENTS	
No	**COMPONENT**
1	LIFTING ARM
2	BASE FRAME
3	MIXER SUPPORT
4	MIXER
5	FRAME LEG

2. INSTALLATION

Tab. 3: List of connecting components.

COMPONENT	CONNECTING COMPONENTS	AMOUNT
1 & 3	Washer DIN 125 1A 10,5	4
	Washer DIN 127 B 10	4
	Screw DIN 933 M10x30	4
3 & 4	Nut DIN 934 1987 M8	4
	Washer DIN 125 1A 8.4	8
	Washer DIN 127 B8	4
	Screw DIN 933 M8x35	4
2 & 5	Washer DIN 127 B 12	6
	Washer DIN 9021 13	6
	Screw DIN 912 M12x20	6

2.6. Storage

If the device is to be stored before installation, store it in a clean place. Clean the unit before installation.

2.7. Health and safety

The device must be installed in accordance with local and national safety regulations.

Before starting the device, read the instruction manual.

Pay attention to the warning signs - danger of hand injury.

The unit is constructed for particular applications. Do not use it on applications different from that for which it was sold without consulting us to ascertain its suitability.

2.7.1. Protection

In the interest of health and safety, it is essential to wear gloves, face protection, hearing protection and a helmet.

Health and safety markings should be visible on the unit at all times. If they are torn off, the user should glue/install new ones.

2. INSTALLATION

2.7.2. Potentially explosive environment - ATEX

The unit **must not be used** in explosive environments (ATEX).

2.7.3. Electrical safety

Do not carry out any maintenance work on the device while it is in operation and when the electrical power supply has not been disconnected. Prevent electrical hazards (see regulations for the use of electrical equipment). Check that the electrical specifications on the nameplate correspond to the parameters of the mains supply.

Electrical components may be connected or repaired only by authorized persons.

2.7.4. Chemical hazards

Before servicing, make sure that there is no medium in the unit or any of its components.

2.7.5. Washing the unit

Keeping the unit clean plays a special role to keep unit in good condition for elongated period of time. Neglecting to clean the system risks accelerating the process of component wear.

2.7.6. Noise level

Tests of the Tapflo system show that the noise level does not exceed 85 dB(A). In some cases, the noise level can be inconvenient or hazardous to people in the vicinity of the unit. Therefore, it is recommended to use appropriately selected individual noise protection measures.

2.7.7. Temperature

The permissible range of ambient temperature in which the unit operates is +5°C / +40°C.
It is not allowed to operate the device at temperatures exceeding the range of permissible temperatures.

2.7.8. Rotating or moving parts

Do not tamper with the protection of rotating components, do not touch, or come close to rotating or moving components, such as the Impellers or shaft.

3. OPERATION

3.1. Before starting the unit

In the interest of health and safety, it is essential to wear gloves, face protection and a helmet.

When starting service and installation work, make sure that the unit is disconnected from the electrical power.

3.2. First startup

3.2.1. Before commissioning

- Before starting the unit, check the tightness of all connections.
- Make sure that there are no contaminants in the medium other than those agreed at the technical agreement stage (e.g., films, large solids, etc.).
- Make sure that the external parameters are appropriate (e.g., the outside temperature is not too low).

3.2.2. First startup

It is recommended that the first startup of the unit should be made on the cleaning medium to make sure that unit is free from the contamination that might appear during transportation of the unit.

- Connect the 400VAC power supply to the system power plug 16A 5P 400V.
- Check if the cable is plugged in the motor correctly.
- Check the direction of rotation of the mixer.

3. OPERATION

3.2.3. Operating the system

3.2.3.1. Control Panel

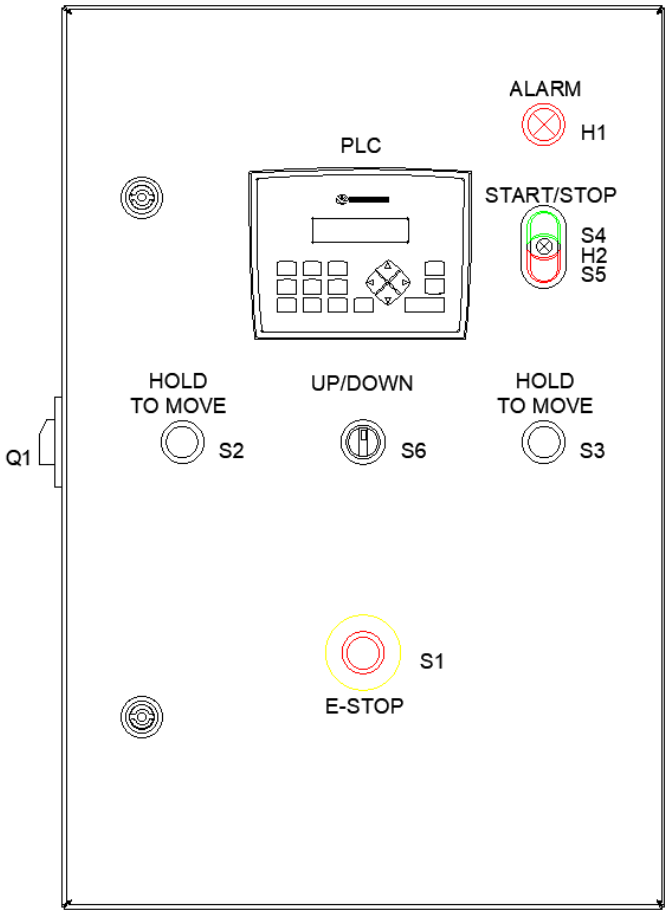


Fig.4. View of the control buttons

SIGNATURE	SYMBOL	DESCRIPTION
ON/OFF	**Q1**	Main switch;
E-STOP	**S1**	Emergency stop button;
HOLD TO MOVE	**S2**	Hold the button to move up or down. Both buttons must be pressed;
HOLD TO MOVE	**S3**	Hold the button to move up or down. Both buttons must be pressed;
START	**S4**	Starts or stops mixers work;
STOP	**S5**	Stops mixer work
UP – DOWN	**S4**	Switch for lifting up / lowering
ALARM	**H1**	Alarm lamp indicator - RED;
MIXER RUN	**H2**	Work lamp indicator - GREEN;
PLC	**PLC**	PLC controller

3.2.3.2. Lifter operation

- **Lifting:** the switch (S6) should be set to the "UP" position, then press the green "HOLD TO MOVE" buttons (S2, S3) in parallel – as long as the buttons are pressed, the mixer will move up (until the upper end position is reached);

- **Lowering:** the switch (S6) should be set to the "DOWN" position, then press the green "HOLD TO MOVE" buttons (S2, S3) in parallel – as long as the buttons are pressed, the mixer will move down (until the lower end position is reached);

NOTE: When ESTOP button (S1) is pressed the actuator will not operate.

3.2.3.3. Mixer operation

- On the PLC controller set mixing time (according to point 3.2.3.3);
- To start the mixer press green START (S4) button. Green lamp will indicate the work of mixer.
- If mixer is running it is possible to change speed of mixer rotation by pressing arrow < (to decrease) or > (to increase) rotation speed;
- Mixer will stop working when the set time ends or the Stop or ESTOP button is pressed.

NOTE: To start mixing process the following conditions must be met:
- IBC Sensor must detect the IBC container;
- Lifter must be in lower end position;
- No alarm states;

3.2.3.4. PLC Control Panel

Main panel

Main panel show basic information like:

- Working time
- Mixer speed
- IBC container detected: 
- lower end position: 
- upper end position: 

Fig.5. Main panel.

To change mixer speed use buttons:  to decrease or  to increase rotation speed. Note that to change rotation speed mixer must be working (minimum speed is 88 rpm and maximum speed is 220 rpm).

To set time on the panel use numerical keyboard (hh:mm:ss);

3. OPERATION

Mixing Time Set panel

Mixing Time Set panel can be used to set mixer time work.

- To navigate to this panel use button:  from main panel;
- To set time on the panel use numerical keyboard (hh:mm:ss);
- to confirm time selection press button:  ;
- back to Main panel press:  ;

Fig.6. Main panel.

Alarm reset panel

Alarm Reset panel can be used to reset any alarms that are indicated by red H1 lamp.

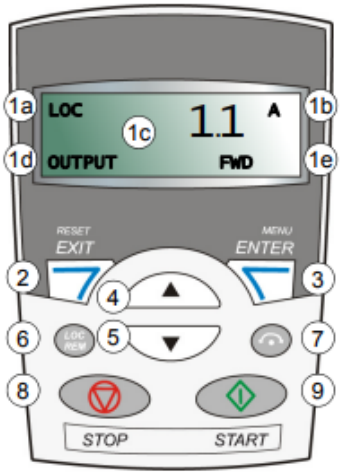
- This panel will be available only when an alarm will appear, to navigate to this panel use button:  .
- To reset alarm state use button:  , if problem was solved then alarm lamp should switch off and main panel should appear, otherwise nothing will happen;
- To back to Main panel press:  button;

Fig.7. Main panel.

3. OPERATION

3.3. VFD Configuration

3.3.1. VFD panel



No.	Use
1	LCD display – Divided into five areas: a. Upper left – Control location: LOC: drive control is local, that is, from the control panel REM: drive control is remote, such as the drive I/O or fieldbus. b. Upper right – Unit of the displayed value. c. Center – Variable; in general, shows parameter and signal values, menus or lists. Shows also fault and alarm codes. d. Lower left and center – Panel operation state: OUTPUT: Output mode PAR: Parameter mode MENU: Main menu. FAULT: Fault mode. e. Lower right – Indicators: FWD (forward) / REV (reverse): direction of the motor rotation Flashing slowly: stopped Flashing rapidly: running, not at setpoint Steady: running, at setpoint SET: Displayed value can be modified (in the Parameter and Reference modes).
2	RESET/EXIT – Exits to the next higher menu level without saving changed values. Resets faults in the Output and Fault modes.
3	MENU/ENTER – Enters deeper into menu level. In the Parameter mode, saves the displayed value as the new setting.
4	Up – • Scrolls up through a menu or list. • Increases a value if a parameter is selected. • Increases the reference value in the Reference mode. • Holding the key down changes the value faster.
5	Down – • Scrolls down through a menu or list. • Decreases a value if a parameter is selected. • Decreases the reference value in the Reference mode. • Holding the key down changes the value faster.
6	LOC/REM – Changes between local and remote control of the drive.
7	DIR – Changes the direction of the motor rotation.
8	STOP – Stops the drive in local control.
9	START – Starts the drive in local control.

3. OPERATION

3.3.2. Factory settings:

CAUTION:

The following VFD parameters have been set at the Tapflo factory. You can find full parameters description in the ACS355 manual.

Before the first start-up, check that the set parameters match the with motor nameplate (especially 9905-9914).

ELECTRICAL MOTOR PARAMETER SETTINGS			
No.	**PARAMETER**	**SETTING**	**DESCRIPTION**
9905	MOTOR NOM VOLT	400V	Motor nominal voltage
9906	MOTOR NOM CURR	1,8 A	Motor nominal current
9907	MOTOR NOM FREQ	50Hz	Motor nominal frequency
9908	MOTOR NOM SPEED	1415 rpm	Motor nominal speed
9909	MOTOR NOM POWER	0,75 kW	Motor nominal power
9914	PHASE INVERSION	NO	Two phase inversion in the motor cable

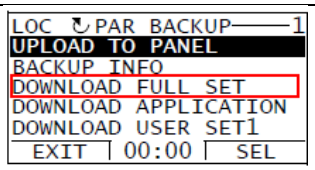
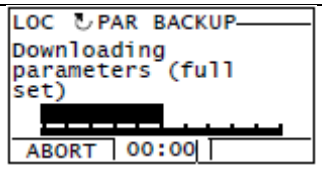
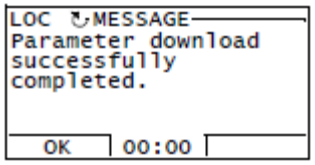
CONTROL PARAMETER SETTINGS			
No.	**PARAMETER**	**SETTING**	**DESCRIPTION**
1001	EXT1 COMMANDS	DI1	Commands for signals START, STOP
1003	DIRECTION	FORWARD	Motor rotation direction
1103	REF1 SELECT	DI3U, 4D	Source of signal for REF1
1104	REF1 MIN	20Hz	Min. setting value for REF1
1105	REF1 MAX	50Hz	Max. setting value for REF1
1201	CONST SPEED SEL	NOT SEL	Constant speed selection
1301	MINIMUM AI1	0%	Minimal input value on AI1
1302	MAXIMUM AI1	100%	Maximal input value on AI1
1401	RELAY OUTPUT1	RUN	Selection of working mode of relay RO1
1501	AO1 CONTENT SEL	OUTPUT FREQ	Selection of signal source of analog output AO1
1502	AO1 CONTENT MIN	0mA	Min. setting value for AO1
1503	AO1 CONTENT MAX	20mA	Max. setting value for AO1
1604	FAULT RESET SEL	DI2	Signal source for resseting alarm.
1804	TO MODE	DIGITAL	Working mode of transistor output DO
1805	DO SIGNAL	FAULT(-1)	State indicated by DO

3. OPERATION

3.3.3. Return to the factory settings (backup):

Every VFD programmed in Tapflo has a parameters backup option saved on the ACS panel (parameters described in 3.3.2.). If any problems with invalid change of parameters occur you can always upload factory settings to VFD.

To return to the factory settings, please do the following steps:

Step:	Action:	Display:
1.	Go to the Main menu by pressing MENU if you are in the Output mode, otherwise by pressing repeatedly EXIT until you get to the Main menu. – If REM is shown on the status line, press first LOC/REM to switch to local control.	
2.	Go to the Par backup mode by selecting PAR BACKUP on the menu with keys ▲ and ▼, and pressing ENTER.	
3.	To perform downloads, select the appropriate operation (here DOWNLOAD FULL SET is used as an example) on the Par backup menu with keys ▲ and ▼, and press SEL. The display shows the transfer status as a percentage of completion. Press ABORT if you want to stop the operation. After the download is completed, the display shows a message about the completion. Press OK to return to the Par backup menu.	 

4. MAINTENANCE

4.1. Operating conditions

To ensure long-term and trouble-free operation of the unit, follow the recommendations of this manual. Pay attention to the correct way of use and appropriate working conditions. Failure to follow these rules may cause damage to the unit.

The system should be kept clean, which will allow you to easily notice even minor damage, which, if unnoticed, can cause later failures and longer downtime, or be a danger to the operator.

To improve safety, Tapflo allows the user to install additional guards. Possible guards should be attached to the unit frame, taking its load bearing capacity into account.

The sound pressure level at the workstation of the system at nominal operation should not exceed 85 dB. Despite this, it is recommended to use appropriately selected individual noise protection measures.

4.2. General guidelines

Operation requires:

- Ad hoc inspection,
- Periodic inspections.

4.3. Inspection and periodical checks

In order to maintain the constant technical efficiency of the system, it is necessary to perform periodic inspections and remove any defects noted. Repairs should be carried out only by authorized and properly trained personnel.

All components should be inspected and maintained at least once a year in accordance with manufacturers' guidelines.

During the inspection, pay particular attention to:

- the gearmotor, checking the condition and level of lubricating oil,
- the actuator and lifting mechanism, checking the lubrication and tightness of the nuts, rolls and sideslips,
- the impeller,
- The casters of the trolley and the locking mechanism.

When performing maintenance work, remember to disconnect power from the unit.

4. MAINTENANCE

4.4. Operation of individual equipment

Strictly follow the instructions in the manuals of the various components of the system. All components should be inspected and maintained at least once a year in accordance with manufacturers' guidelines.

4.5. Shutting down and flushing the unit

Before shutting down the unit for an extended period, flush it with clean water to remove any residual medium.

4.6. Troubleshooting

Fault	Possible cause	Action
Mixer motor runs but not mixing the drum contents very well	Impeller rotating wrong direction	Check direction of rotation
	Shaft loose in the drive coupling	Check shaft retaining grub screws are tight
	Folding impeller not opening	Check mixer shaft direction of rotation corresponds with the mixer nameplate
	Product of different viscosity being mixed	Contact Tapflo or your local distributor for advice
Mixer will not start	Safety switches	Check that the mixer is in the lowered position and that the IBC is in place

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4.7. Identification of hazards arising during use of the unit

Risks associated with the use of systems may occur during the following operating phases:

a) Transport,

b) Installation and disassembly at the workplace,

c) Workplace maintenance,

d) Operation.

Table 3. Identification of hazards during use

Type of threat	Pump system status			
	a)	b)	c)	d)
Leakage of the pumped medium.				
High pressure of the pumped medium.				
Electrical shock, contact with electrically live equipment parts.		x	x	x
Mechanical failures, or malfunction of assemblies.				x
Burn from hot element, hazardous medium.	x	x	x	x
Excessive exposure to noise.				x
Inadequate lighting.	x	x	x	x
Fire.				x

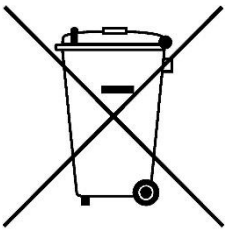
5. DISPOSAL

5. DISPOSAL

5.1. Disposal after expiration of the expected lifetime

The metallic components like aluminum, stainless steel and carbon steel can be recycled. Plastic parts are not recyclable and must be disposed of as residual waste. The pump must be disposed of properly, according to local regulations. It should be noted that potentially dangerous fluid residues may remain in the pump and can create a hazard to the operator or the environment, therefore the pump has to thoroughly cleaned before disposal.

5.2. Waste of electrical and electronic equipment (WEEE) directive



Electrical and electronic equipment (EEE) with the WEEE label listed in Annex IV of the WEEE Directive must not be disposed of at the end of its life cycle as unsorted municipal waste. All waste collection frameworks should be used, including returns, recycling, recovery of WEEE to minimize the potential impact of this equipment on the environment and human health due to the presence of hazardous substances.

The WEEE marking applies only to countries within the European Union (EU) and Norway. Appliances are labelled in accordance with European Directive 2002/96/EC. Contact your local waste recovery agency for a designated collection facility in your area.

6. SPARE PARTS

6.1. Spare parts description

Replacement parts for the unit include:

- Gear oil
- Actuator grease
- Sideslips
- Impellers

Mechanical parts can be replaced preventively at certain intervals or simply wait until they wear out as it is not possible to determine their service life. Keep in mind that any wear and tear may have consequences for the operation of the unit. The decision is up to the user.
For information on the gear oil change interval, please refer to the gearmotor manual - Appendix 1.

6.2. How to order parts

When ordering spare parts for Tapflo units. please let us know what the model number and serial number from the name plate is, then just indicate the part numbers from the spare parts list and quantity of each item.

7. APPENDICES

7. APPENDICES

8. WARRANTY

8. WARRANTY

8.1. Returning parts

When returning parts to Tapflo please follow this procedure:

- Consult Tapflo for shipping instructions.
- Cleanse or neutralize and rinse the part/pump. Make sure the part/pump is completely empty from liquid.
- Pack the return articles carefully to prevent any damage during transportation.

Goods will not be accepted unless the above procedure has been complied with.

8.2. Warranty

Tapflo warrants products under conditions as stated below for a period of not more than 12 months from installation and not more than 18 months from date of manufacturing.

1. The following terms and conditions apply to the sale of machinery, components and related services and products, of Tapflo (hereinafter "the products").

2. Tapflo (the manufacturer) warrants that:
   a. its products are free of defects in material, design and workmanship at the time of original purchase;
   b. its products will function in accordance with Tapflo operative manuals; Tapflo does not guarantee that the product will meet the precise needs of the Customer except for those purposes set out in any invitation to render documents or other documents specifically made available to Tapflo before entering into this agreement;
   c. high-quality materials are used in the construction of the mixers and that machining and assembly are carried out to the highest standards.

   Except as expressly stated above, Tapflo makes no warranties, express or implied, concerning the products, including all warranties of fitness for a particular purpose.

3. This warranty shall not be applicable in circumstances other than defects in material, design and workmanship. In particular warranty shall not cover the following:

   a. Periodic checks, maintenance, repair and replacement of parts due to normal wear and tear;
   b. Damage to the product resulting from:
      b.1. Tampering with, abuse or misuse, including but not limited to failure to use the product for its normal purposes as stated at the time of purchase or in accordance with Tapflo instructions for use and maintenance of the product, or the installation or improper ventilation or use of the product in a manner inconsistent with the technical or safety standard in force;
      b.2. Repairs performed by non-skilled personnel or use of non-original Tapflo parts;
      b.3. Accidents or any cause beyond the control of Tapflo, including but not limited to lightning, water, fire, earthquake and public disturbances etc.;

8. WARRANTY

4. The warranty shall cover the replacement or repairing of any parts, which is documented faulty due to construction or assembling, with new or repaired parts free of charges delivered by Tapflo. Parts subjected to normal tear and wear shall not be covered by the warranty. Tapflo shall decide as to whether the defective or faulty part shall be replaced or repaired.

5. The warranty of the products shall be valid for a period in accordance with the current law from the date of delivery, under the condition that notice of the alleged defect to the products or parts thereof be given to Tapflo in written within the mandatory term of 8 days from the discovery. Repair or replacement under the terms of this warranty shall not give a right to an extension to or a new commencement of the period of warranty.

6. Repair or replacement under the terms of this warranty shall not give a right to an extension to, or a new commencement of, the period of warranty. Repair or replacement under the terms of this warranty may be fulfilled with functionally equivalent reconditioned units. Tapflo qualified personnel shall be solely entitled to carry out repair or replacement of faulty parts after careful examination of the mixer. Replaced faulty parts or components will become the property of Tapflo.

7. Installation, including electric and other connections to utility mains according to Tapflo drawings, is for the cost and responsibility of the customer unless otherwise agreed in writing.

8. Tapflo will not be liable on any claim, whether in contact, tort, or otherwise, for any indirect, special, incidental or consequential damages caused to the customer or to third parties, including loss of profits arising by any possible infringement of par. 3 above or by the customer or third parties being in the impossibility of using the products.

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Tapflo products and services are available worldwide.

Tapflo is represented by own Tapflo Group Companies and carefully selected distributors assuring highest Tapflo service quality for our customers' convenience.

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