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IOM manual

IBC Mixers

Series – LBC, HBC

Edit. 2022



Read this instruction manual carefully, before you install and operate the pump CE



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EU DECLARATION OF CONFORMITY

Series: IBC Mixers - LBC/HBC

Model:

LBC037, LBC075, LBC150, LBC220 HBC037, HBC075

Serial number: **22. (from 001-...)** Manufactured by Tapflo Sp. z o.o. Poland for.:

Tapflo AB Filaregatan 4 S-442 34 Kungälv, Sweden

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

Object of declaration: **IBC mixers - High and Low Speed With Electric and Pneumatic Drives.**

The object of the declaration described above is in conformity with the relevant Union harmonisation 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, 21.11.2022

Per Antonsson Chief Executive Officer

1.2. Codification

LBC	-	075	E	-	4F
1		2	3		4

1. Product signature:

HBC – High-speed IBC Mixer (direct drive) – 1450rpm **LBC** – Low-speed IBC Mixer – 236rpm

2. Nominal power

Signature	Nominal Power			
037	0,37kW			
075	0,75kW			
150*	1,5kW			
220*	2,2kW			

*available only for LBC Mixers

3. Drive Type

A – Air motor with control valve for manual speed regulation

E – Electrical motor (1450rpm) for HBC, Gearmotor (~236rpm) for LBC

4. Special executions

1 – Type of impeller

Blank - Std. Impeller (Fixed impeller for HBC, folding impeller for LBC)

E – Std. Impeller + F-280 fixed impeller (280mm diameter)

F – Std. Impeller + F-300 fixed impeller (300mm diameter)

G - Std. Impeller + F-320 fixed impeller (320mm diameter)

H – Std. Impeller + F-360 fixed impeller (360mm diameter)

J – Std. Impeller + Low-level kicker with a longer shaft

2 – Material of wetted parts (impeller and shaft)

Blank – AISI316 stainless steel

- P Polypropylene
- **Y** AISI 316 stainless steel, PFA coated
- Z AISI 316 stainless steel, ECTFE coated

3 – Shaft Length Blank – standard length S – off-standard shaft length

4 – Electrical motor supply
Blank – 3-phase supply (400V at 50 Hz)
P – 1-phase supply (230V at 50 Hz)
Mixers - LBC/HBC

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5 – Frequency Inverter
Blank – none
D – Build on frequency inverter
E – External frequency inverter

6 – Optional frame connection
Blank – none
H – Hopper for powders
L – Liquid inlet

7 – Lifting arrangement **Blank** – Standard lifting frame with eye bolt **F** – Forklift module

8 – IBC tank dimensions **Blank** – standard 1000 lt. IBC **S** – off-standard execution of the IBC

1.3. Inspection

On receiving delivery of your IBC Mixer please inspect carefully to confirm that your mixer has been received un-damaged and to the correct specification. Report any shortages or damage immediately in writing to the carrier or supplier. Contact details can be found at the back of this manual.

1.4. Storage

IBC Mixers series LBC, HBC should be stored in an indoor, clean, dry location with a controlled temperature of 15°C to 40°C until the mixer is ready to be used.

1.5. Description

Tapflo IBC Mixers series LBC, HBC are designed for use on Industry standard Intermediate Bulk Containers (IBC) with a 150mm screw cap and are suitable for most container types.

The IBC mixers are for use indoors in a safe area only and is fitted with a DOL starter with overload protection and a safety switch to prevent the mixer operating if the mixer is not securely mounted on an IBC and a 16 AMP appliance Inlet plug protection IP44 - splash proof.

The mixer drive is supported on a lightweight stainless steel bridge which mounts directly onto the IBC and is held in place with quick action toggle clamps, standard lifting is an eye bolt for lifting with a hoist or optional fork lift module.

1.6. Safety

The following instructions are important.

• Observe all site safety procedures installing and operating your IBC mixer

• Familiarize yourself with the material being mixed in the IBC and obtain product safety data sheets, protective clothing and appropriate eye protection before proceeding.

• Use lifting equipment i.e. fork lift or hoist to install the mixer onto an IBC mixer. Mass in Kg is indicated on the mixer nameplate.

• Mount the mixer securely onto the IBC complete with shaft and impeller before connecting to the power supply.

• Disconnect from the power supply before moving the mixer or carrying out maintenance.

- Do not touch any moving / rotating parts.
- Do not touch the motor after use Hot Surface



WARNING – failure to observe safety instructions could cause severe personal injury.



2. Installation and Operation

2.1. Installation

The mixers with electric drive are supplied pre-wired and fitted with a DOL starter, overload protection, safety interlock and appliance Inlet Plug.

The plug colour indicates the power supply required.

- Red indicates a 400v 3ph 50 Hz supply
- Blue indicates a 220-240v 1ph 50 Hz supply
- Yellow indicates a 110v 1ph 50 Hz supply

The mixers with pneumatic drives are supplied with a flow control valve to regulate the motor speed and an exhaust muffler.

- 1. Check that the motor / starter voltage requirements correspond with the supply or verify if compressed air supply system is suitable in case of mixer with air motor.
- 2. Check that the mixer shaft direction of rotation corresponds to the rotation arrow placed on the mixer nameplate rotation is clockwise when viewed from above.
- 3. Changes to reverse the direction of rotation must be done by qualified personnel only.
- 4. Fit the impeller on to the mixer shaft, dimple the shaft on assembly for the set screws and tighten securely.



- 5. Fit the mixer shaft into the drive head coupling and tighten the 2 set screws (Item 5) through the slot provided in the coupling guard.
- 6. Lower the mixer on to the IBC frame with a forklift truck or hoist using the eye bolt provided on the mixer.

7. Securely fasten the mixer onto the IBC frame with the 2 quick action clamps provided - adjust the clamps if necessary.



- 8. When the mixer is securely mounted on the IBC frame the power supply or compressed air supply can be connected if safe to do so.
- 9. After use before moving the mixer isolate from the power supply and disconnect the lead to the appliance plug. In case of an air motor, it should be disconnected from the compressed air supply.



10. Check that the securing clamps have been released before lifting / removing the mixer from the IBC. The clamps are fitted with a locking plunger - pull the button to release as illustrated.



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2.2. Operation

Tapflo Mixers series LBC, HBC can be driven by an electric motor with a DOL starter or gearmotor with a frequency inverter. Mixer shaft speed can be change by turning the potentiometer on the inverter - for more detailed instruction please refer to the Leroy Somer instruction manual supplied with this mixer. Mixers can be also driven by an air motor equipped with exhaust muffler and a flow control valve to regulate the motor speed.

Always ensure access to the power supply or compressed air supply is kept clear.



Before operation visually check that all components are in a serviceable condition and not damaged.

The mixer can be operated at any liquid level.

2.3. Fault Diagnosis

Fault	Possible cause	Action	Drive	
Mixer motor runs but Impeller rotating in the wrong		Check that the direction of rotation corresponds with the	All drives	
not mixing the IBC direction a		arrow on the mixer nameplate.		
contents very well		Rotation is clockwise when viewed from above.		
	Impeller rotating in the wrong direction	Check that the direction of rotation corresponds with the arrow on the mixer nameplate & that the flow control and muffler are on the correct ports. Rotation is clockwise when viewed from above.	Air drives	
	Shaft loose in the drive coupling	Check shaft retaining grub screw are tight.	All drives	
	Folding impeller not opening	Check that the impeller is installed so the blades hang downwards when not operating.	All drives	
	Product different - higher SG or viscous product being mixed.	Contact Tapflo or your local distributor for advice.	All drives	
	Speed set is too low	Increase speed at VFD panel.	VFD drive	
Motor does not run	Fault with mains supply	Check voltage at contactor input terminals	Electric and VFD drive	
	Motor locked rotor	Check motor is free to turn	Electric and VFD drive	
	Faulty contactor coil	Check if the contactor operates	Electric drive	



	Loose connections	Check the wiring and connections	Electric and VFD drive	
	Safety switch position	Re-position the safety switch	All drives	
	Air motor seized	Flush the air motor.	Air drive	
		Check that the air motor has a clean lubricated air		
		supply. Check and top up the air line lubricator & adjust		
		if required.		
Overload relay trips at start	Wrong overload relay fitted	Check overload relay rating	Electric drive	
	Wrong wiring connections	Check wiring against the diagram	Electric and VFD drive	
Overload relay trips after several minutes	Wrong overload relay fitted	Check overload relay rating	Electric drive	
	Overload relay set to the wrong value	Check setting on overload relay	Electric drive	
	Product different - higher SG or viscosity product being mixed	Contact Tapflo or your local distributor for advice	Electric drive	
Motor starts but has low	3-phase motor is single phasing	Check that motor connections are correct. Check for	Electric and	
torque or does not reach		loose connections in wiring and at motor terminals.		
full speed		Check that the voltage on each motor winding the		
		correct value.		
	Motor intended for Delta is	Check motor connections.	Electric and	
	connected in Star	$\begin{array}{c c} Y & \bigtriangleup \\ \hline \\$	VFD drive	
Air motor runs slowly	Poor air line lubrication	Check the air line lubricator top up and adjust if required.	Air drive	
	Excessive dirt / wearparticles	Flush the air motor.		
	inside the air motor	Check the air motor has a clean lubricated air supply. Check and top up the air line lubricator & adjust if	Air drive	
	Flow control valve or fittings damaged	required. Check and replace	Air drive	
	Exhaust muffler blocked	Clean muffler and replace the felt element	Air drive	

3. Maintenance

3.1. Routine Maintenance

Every 6 months

Check the security of all nuts and screws, and ensure all components are in a serviceable condition and not damaged. Check that the mixer gearbox, electric motor or air motor muffler are kept clean.

Visually inspect electrical components, cables, air lines for damage and rectify before use. Electric motors do not require any internal maintenance and should be replaced if a fault occurs.

Every 12 months

In-service inspection and testing of electrical equipment - Formally inspect and test electrical components and cables in accordance with the portable appliance testing (PAT) regulations in the UK, BGV A3 in Germany or local site codes of practice as applicable.

3.2. Lubrication

Electric motor bearings are sealed for life, and do not require any maintenance or re-lubrication.

The gearboxes are factory filled with Shell CASSIDA 220 food grade lubricant and sealed for life.

Air line lubrication - use SAE #10 motor oil or equivalent for the air line lubrication.

3.3. Tightening Torques

Tighten all fasteners to values shown unless specifically instructed to do otherwise. Lubricate all fasteners at assembly with grease, oil or an anti-seize material. Bolt threads and contact surfaces of bolt heads and nuts should be lubricated.

The assembly on un-lubricated stainless steel fasteners cannot be recommended.

(1) If fasteners cannot be lubricated, multiply table values by 1.25.

	STAINLES STEEL (1)			
THREAD SIZE	A2 / A4 – 70			
	Nm			
M6	7.0			
M8	17.0			
M10	33.0			
M12	57.0			
M16	140.0			

3.4. Air Motor – Flushing

Flush the motor if it is operating slowly or inefficiently. Flushing the air motor removes excessive dirt, foreign particles, moisture or oil that occurs in the operating environment and will help to maintain proper vane performance/motor efficiency.

Safety - Flush the air motor in a well ventilated area. Keep face away from exhaust port. Eye protection must be worn.

Use Gast # AH255B Flushing Solvent, or any non-toxic, non-flammable industrial cleaning solvent. **DO NOT** use paraffin or **ANY** other combustible solvents to flush this air motor.

3.5. Material Disposal

Tapflo IBC mixers series LBC, HBC are designed for a long trouble-free life. At the end of the useful service life the lubricants and components can be recycled.

The IBC mixer, frame, shaft and impeller are manufactured from stainless steel and the gearbox and electric motor from aluminium and cast iron.

Properly dispose of all mixer and gearbox parts responsibly, in particular lubricants which must be collected for disposal or recycling in accordance with local authority guidelines.

3.6. Ordering Spare Parts

To maintain your IBC mixer only Tapflo genuine spare parts are recommended. To ensure safe reliable operation of your mixer please contact your local distributor for spare parts.

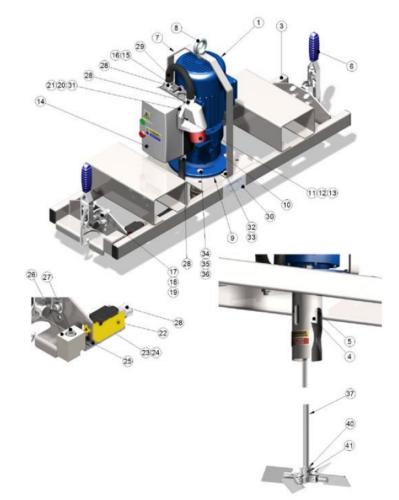
To order please state:

Serial number – indicated on the mixer nameplate.

Item number – description of the part and quantity.

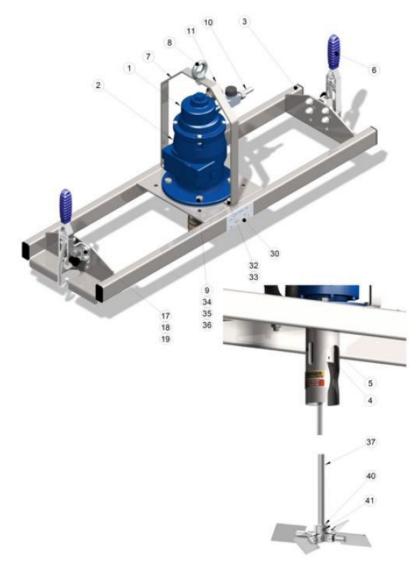
4. Supplementary instructions and drawings

- 4.1. Mixer Assembly Drawing
- 4.1.1. Mixer with Electric Drive



ITEM	Description	QTY	ITEM	DESCRIPTION	QTY
1	Electric motor/Gearmotor	1	21	Hexagon nut	3
3	Mounting frame	1	22	Bernstein safety switch	1
4	Drive coupling	1	23	Hex socket head setscrew	4
5	Hexagon socket setscrew	4	24	Hexagon nut	4
6	Quick action toggle clamps	2	25	Switch plate	1
7	Lifting strap	1	26	Spring operating block	1
8	Lifting eyebolt	1	27	Spring	1
9	Gasket	1	28	Cable gland	6
10	Appliance inlet	1	29	Cable covering	1
11	Hex socket head setscrew	2	30	Nameplate	1
12	Plain washer	2	31	Starter / Frequency inverter support bracket	1
13	Hexagon nut	2	32	Hex head screw	2
14	Start/Stop Unit/Frequency Inverter	1	33	Hexagon nut	2
15	Hex head screw	2	34	Hex head screw	4
16	Hexagon nut	2	35	Hexagon nut	4
17	Button head screw	8	36	Plain washer	4
18	Hexagon domed nut	8	37	Lower shaft	1
19	Plain washer	4	40	Impeller	1
20	Hex head screw	3	41	Hex socket screw	2

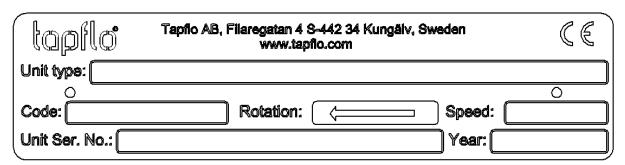
4.1.2. Mixer with Air Drive



ITEM	Description	QTY	ITEM	DESCRIPTION	QTY
1	Air motor	1	18	Hexagon dome nut	8
2	Gearbox	1	19	Plain washer	4
3	Mounting Frame	1	30	Nameplate	1
4	Drive Coupling	1	32	Hex head screw	2
5	Hexagon socket set screw	4	33	Hexagon nut	2
6	Quick action toggle clamps	2	34	Hex head screw	4
7	Lifting strap	1	35	Hexagon nut	4
8	Lifting eye bolt	1	36	Plain washer	4
9	Gasket	1	37	Lower shaft	1
10	Flow control valve and hosetail	1	40	E400 Folding impeller	1
11	Muffler	1	41	Hex socket set screw	2

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4.2. Mixer Shaft – Direction of Rotation



The direction of rotation for the mixer shaft is clockwise when viewed from above, as indicated on the mixer nameplate.

Changes to electrical connections to reverse the direction of rotation must be done by qualified personnel only.

4.3. Air requirements

The air motor requires a clean dry lubricated shop compressed air supply. An Air Line Filter / Regulator & Lubricator is required in the supply line.

Adjust the air line lubricator to 1 drop of oil per minute. Regulate the line pressure to 7bar max.

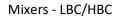
Noise-air motors are supplied with the standard muffler on the exhaust air.

4.4. Impeller Installation

Folding impellers are normally mounted on the end of the shaft as illustrated, and is secured in place by two screws.



Dual Impellers - For viscous materials, Dual Impellers ensure a good top to bottom turnover in the IBC with the second impeller positioned approximately halfway up the shaft. Dual impellers can also be used for wetting powders with the upper impeller positioned approximately 150mm below the liquid surface.





Low-Level Impeller (Kicker) - A low-level radial flow fixed impeller can also be supplied for mixing the IBC contents at very low liquid levels - install below the folding impeller as illustrated. A 1000mm long shaft is available with this option to position the lower impeller close to the bottom of the IBC.



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5. Warranty

5.1. Returning parts

When returning parts to Tapflo please follow this procedure:

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

5.2. 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.;

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 to 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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