

GREC

Agitatori Miscelatori Dispensori



MIXERS USE AND MAINTENANCE MANUAL



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Cap.Soc.: Euro 90.000,00 i.v.

INSTRUCTION MANUAL

STATIC MIXER

Customer: TECNinox Srl

Order: 4500020100

Job order: 14-0538

Mixer/s:

Model	HY6-DN40-TRI-CLAMP		
Q.ty	3		
Serial number	14-0538-01/02/03		
Connection	1½" TRI-CLAMP		

Operating & Maintenance manual

These operating instructions may not be reproduced in whole or in part in any material form or with any method, electronic or mechanical, including photocopies, recordings or any other method, without written permission of the copyright owner.

Some characteristics reported in this manual may change without notice, thanks to the constant efforts towards technological innovation and quality.

This equipment is not dangerous for any authorised operator if it is used following the instructions contained in this manual, and if all the provided safety devices are kept in order.



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INSTALLATION INSTRUCTIONS

Equipment description

The **Static Mixers** can be considered like parts of piping, with various kinds of connections, among all flanges. Inside are placed the mixing elements and on the housing' s wall one or more additive injector ports may be installed.

Whenever a **Static Mixer** (herebelow named as MIXER) is going to be placed in a potentially explosive environment, it is going to be designed and produced in accordance with the 94/9/CE ATEX directive. In such a case, a conformity declaration is delivered.

The equipment may be identified by three name plates:

- Manufacturer
- PED
- ATEX

as indicated in the project drawings.

The employed materials may be carbon steel, stainless steel, nickel, titanium, exotic alloys or various types of plastic materials.

Item Identification

The equipment is completely identified by its Serial Number. For any information or communication you have always to report this number.

Mixer receipt

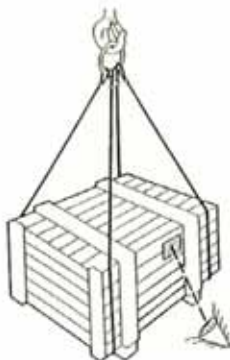
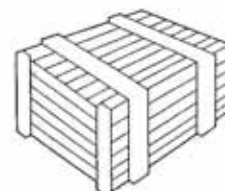
Upon receipt of the equipment make sure that:

- Supply corresponds to the purchase order, verifying delivery document and documentation enclosed;
- Conditions of package(s) are good, and in case of damage or missing parts (even of the documentation) immediately inform us.

Packaging

The equipment is delivered, according to destination,

- Without any case
- On a pallet
- In a case or a cage, or in a tube
- In a container



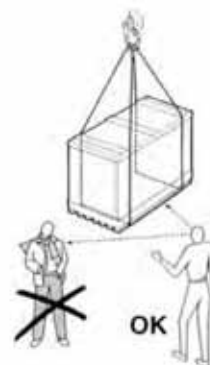
In case of a special equipment either "FRAGILE" or an "UP/DOWN" (resting direction) indication is shown. Lift the case with appropriate ropes, belts or chains.

It is necessary to use ropes, belts and chains whose carrying capacity is the same or (better) higher than the weight shown on the case.
Do not dispose the package in the environment.

Lifting

Before lifting the equipment make sure that:

- people are not exposed during unit removal
- check that ropes are positioned safely and correctly
- check that rope position doesn't damage equipment and auxiliaries
- do not stand behind or beside the equipment during lifting
- do not lift the equipment more than necessary



Removal

can be carried out, depending on the circumstances, in two different ways:

CASE A: Lifting in air is possible

- sling the apparel with ropes of suitable dimensions in the appropriate lifting points (eyebolt or lifting lugs) and be careful during rope passage. it must not spoil the auxiliaries. (e.g inlet/outlet fluid nozzle);
- while moving and positioning near the installation area take, care not to damage the equipment plants or the nearby units;
- make sure that nobody is near the equipment while it is moving.

WARNING

Always put equipment gently on the floor using two pieces of wood or soft rests: equipment or plants may get damaged.

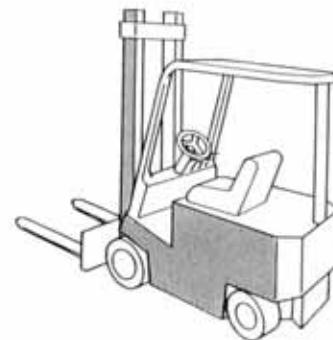


CASE B: Lifting in air is impossible

- In case lifting in air is impossible use an adjustable pitch fork lift truck
- Carry the equipment to the installation area.

WARNING

During lifting do not collide forks with fluid inlet/outlet nozzles.



Positioning

Positioning of the MIXER should be carried out by qualified technicians. The unit must first be installed perfectly levelled both in the transversal and in the longitudinal directions. We also recommend to respect a correct distance from other unit or obstacles for the equipment efficient working – in particular if there are fans near the MIXER.

Connecting

The connection of the MIXER should be carried out by qualified technicians or pipe fitters only. Before connecting the pipe-lines check the correct fluid flow shown on the nameplate.

WARNING

It is recommended (were not clearly compulsory in the final plant) to insulate pipeline exposed areas and the casing of the MIXER as during operation they may reach extremely high temperatures that can result in cold or hot scalds.



Hot Surfaces

WARNING

Check that the operating pressure agrees with the data on the identification name plate (reported also in the drawing).

WARNING

Do not lean over the MIXER or its nozzles.

IN CASE OF MIXERS MADE FROM ANY TIPE OF PLASTICS, INCLUDING GRP, NO LOADS ARE ALLOWED ON ANY NOZZLE.

WARNING

Special tensioning tools are not required for tightening the bolts for this STATIC MIXER. However it's important that all bolted joints to be tightened uniformly and diametrically staggered pattern as shown in the sketch below:



This scheme is for information only and just to illustrate the sequence.



WARNING

Bolts tightening for plastics flanges: use a torque wrench.

Guideline for metric (ISO) plastic flange connections

DN	Pipe D (mm)	Bolt tightening torque (Nm)		
		Flat gasket Max. 10 bar/40°C	Profile gasket Max. 16 bar	O-ring Max. 16 bar
15	20	10	10	10
20	25	10	10	10
25	32	15	10	10
32	40	20	15	15
40	50	25	15	15
50	63	35	20	20
65	75	50	25	25
80	90	30	15	15
100	110	35	20	20
125	125, 140	45	25	25
150	160, 180	60	35	30
200	200, 225	70 (1)	45	35
250	250, 280	65 (1)	35	30
300	315	90 (1)	50	40
350	355	90 (1)	50	-
400	400	100 (1)	60	-
500	450, 500	190 (1)	70	-
600	560, 630	220 (1)	90	-

(1) Attention: up to a maximum working pressure of 6 bar.

Guideline for ANSI plastic flange connections

DN	Nominal Pipe Size (inches)	Bolt tightening torque (Nm)	
		Flat gasket Max. 10 bar/40°C	Profile gasket Max. 16 bar
15	1/2	15	10
20	3/4	15	10
25	1	15	10
32	1 1/4	15	10
40	1 1/2	15	10
50	2	30	20
65	2 1/2	30	20
80	3	40	30
100	4	30	20
150	6	50	33
200	8	50	33
250	10	60 (1)	40
300	12	75 (1)	53

(1) Attention: up to a maximum working pressure of 6 bar.

Setting up

When starting the equipment, make sure that products flow in the MIXER in the correct direction according to drawing and nameplate. If necessary vent all air bubbles present both in the MIXER and in the pipeline.

OPERATING INSTRUCTIONS

Design Conditions

The MIXER Design Conditions and its most important data, according with the legislation in force, are represented in the nameplate put on the MIXER itself. Never go beyond such conditions.

General safety rules

The most common risks that concern strictly the MIXER are



Zone with possible explosive atmosphere



Hot Surfaces

Operator's clothing



The equipment operator should wear safety shoes, gloves, helmet, protective glasses and tight-fitting sleeves overalls. Avoid fluttering clothes, watches, chains, bracelets or any other piece of clothing that may get entangled. Do not wear loose long hair but put it up.

General safety rules



Make sure that all the operations are never in contrast with the whole of the plant and process safety rules and before any intervention on any accessory always read the instructions reported in this manual

Even if no electric parts are present in the MIXER, before any servicing or cleaning make sure that all the equipment is isolated from any energy source (even thermal)

The line supply (if any) and the casing must be grounded according to the legislation in force.



During operation – if it is not necessary – do not touch any equipment part, otherwise check operating parameters before.

Stay away from the equipment during operation, unless necessary and in any case follow the rules specified by the **document preventing explosion risk**, drawn up by your employer. Do not seat or lean on casing or any other part of the MIXER.

Do not leave any object, cloth or key on the casing or above piping. Do not leave or lay containers of liquids of any kind on the equipment.



During service and maintenance place a placard which reads "**Machinery not working for servicing**"

Make sure all protections are correctly reassembled after servicing.

To ensure the unit correct operation, ask for original spare parts only.



The equipment has not been designed to operate under extreme environmental conditions, in corrosive environment (acid or basic) or during earthquakes.



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MAINTENANCE INTRUCTIONS

Storing

The equipment is naturally stable when placed on its bedplates.

Take off plugs from tubes only when connecting them with main manifolds.

Take off finned tubes protections (if any) only before the unit installations.

In case of storage in dusty environment, cover the equipment with a sheet.

WARNING

Never put further load to each single equipment part.

Cleaning

WARNING

During cleaning, servicing and maintenance, always wear safety gloves. Place also a placard which reads "Machinery not working for servicing"

Before any servicing or cleaning operation isolate the equipment from energy sources (even thermal).
If necessary remove periodically dust and dirt with compressed air gun, water flush or brush, wearing a dust protective mask during the operation.

Maintenance

The MIXER requires only a periodical cleaning as shown in the previous paragraph.