



## INSTALLATION, SERVICE AND MAINTENANCE INSTRUCTIONS

# JET-MIX



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# DECLARATION FROM THE MANUFACTURER

In accordance with EC directive regarding machines  
89/392/EC, Annex II B

We, the manufacturer:

**INOXPA, S. A.**

c/ Telers, 54

17820 Banyoles (Girona) - Spain

Hereby declare that the pumps

**JET-MIX**

Name

**T**

Type

**2006**

Year of  
Manufacture

Comply with the corresponding provisions, in the execution supplied by **INOXPA, S.A.**  
**L.** for the inclusion in a machine or installation, or for assembly with other machines  
as a subassembly of another machine with a higher range.

Particularly complying with the following standards:

EN 292 Part 1

EN 292 Part 2

prEN 809: 1998

Its commissioning is prohibited before the machine in which it will be incorporated has  
been declared in accordance with the provisions of EC directive regarding machines.

It should particularly conform to standards EN 294, EN 563, EN 809 and EN 953 in the  
corresponding present editions.

Year of EC registration: EC 95

Banyoles, January 1995



Josep Maria Benet  
Technical Manager

# EC DECLARATION OF CONFORMITY

We, the manufacturer:

**INOXPA, S. A.**

c/ Telers, 54

17820 Banyoles (Girona) - Spain

Hereby declare that the pumps

**JET-MIX**

Name

**T**

Type

**2006**

Year of  
Manufacture

Comply with the essential requirements of the Machine Directive 89/392/EEC and its  
amendments and additions according to the Directives of the Council: 91/368/EEC,  
93/44/EEC, 93/68/EEC and 73/23/EEC, and conform to the following harmonised  
standards:

EN 292 Part 1

EN 292 Part 2

prEN 809: 1998



Josep Maria Benet  
Responsable Técnico

Year of EC registration: EC 95

# 1. Safety

## 1.1. INSTRUCTIONS MANUAL

This manual contains information on the reception, installation, operation, assembly, dismantling and maintenance of the BCL pump.

The information published in the instruction manual is based on updated information.

INOXPA reserves the right to modify this instruction manual without prior notice.

## 1.2. START-UP INSTRUCTIONS

This instruction manual contains vital and useful information to appropriately handle and maintain your valve.

Read these instructions carefully before starting up the pump; become familiar with the operation and use of your pump and follow the instructions closely. These instructions should be kept in a safe location near the installation.

## 1.3. SAFETY

Warning symbols



Danger for persons in general



Danger of injury caused by rotating equipment parts.



Electrical danger



Danger! Caustic or corrosive agents.



Danger! Suspended loads



Danger to the correct operation of the equipment.



Commitment to safety at the workplace.



Protective goggles requirement.

## 1.4. GENERAL SAFETY INSTRUCTIONS



Read thoroughly this instruction manual before installing and starting the Jet-Mix. Contact INOXPA in case of doubt.

### 1.4.1. During installation



The *Technical Specifications* of Chapter 8 should always be observed.

Read carefully this instruction manual before installing and starting the Jet-Mix. If in doubt, contact INOXPA.

The installation and operation of the Jet-Mix must always conform to the applicable health and safety regulations.

Before starting up the Jet-Mix, check that it is properly anchored and perfectly aligned. Wrong alignment and/or excessive stress during coupling can cause serious mechanical problems to the Jet-Mix.

Never start up the equipment when it is outside the tank.



During the installation, all the electric work should be carried out by the authorised personnel.

#### 1.4.2. During operation



The *Technical Specifications* of Chapter 8 should always be observed. Under no circumstances can the limit values specified be exceeded.



Keep the engine and the switchboard under control, particularly in areas where there is a risk of fire or explosion. The appropriate person from the operating company must define the areas of risk (areas 1-2-3)

When cleaning up, do not spray directly on the engine.

Do not disassembly the Jet-Mix until the switchboard has been disconnected. Remove the fuses and disconnect the power cable that feeds the engine.



The Jet-Mix contains moving parts. Never introduce your fingers/ parts of the body into the Jet-Mix while it is in operation.

Do not operate the Jet-Mix when the rotating parts are not equipped with their guards or are not properly assembled.

Do not touch the parts of the Jet-Mix that are in contact with the fluid when in operation. When the Jet-Mix operates with hot fluids (temperatures above 50 °C), there is a risk of skin burning. In such cases, collective-protection means (in this order of priority: separation, protective screen, heat-insulating material) or, in default of this, individual-protection means (gloves) must be used.

In the event of leaking (e.g. mechanical seal) of dangerous fluids (eg. explosives, toxic substances, hot fluids), appropriate measures should be taken to prevent any potential risks to people or the environment.



Take all possible precautions when lifting the Jet-Mix. Use always properly attached slings when moving the Jet-Mix with a crane or other lifting device.



Before starting up the Jet-Mix, remove all the tools used during the assembly.

The Jet-Mix cannot operate without fluid. The standard Jet-Mix devices are not designed to operate during the filling-up or emptying of tanks.



Do not exceed the operation limits of the Jet-Mix. Do not change the original operation parameters of the Jet-Mix without prior written authorisation from INOXPA.

The Jet-Mix and its installation can generate sound levels above 85 dB(A) under unfavourable operating conditions. In such cases, the operators must use devices for protection against noise.

#### 1.4.3. During maintenance



The *Technical Specifications* of Chapter 8 should always be observed.

NEVER disassembly the Jet-Mix until it is completely at rest. Bear in mind that the rests of the fluid remaining inside the Jet-Mix can be hazardous or be extremely hot. Consult the regulations in effect in each country for these cases.

Do not leave parts loose on the floor.



ALWAYS disconnect the pump from the power supply before starting maintenance work. Remove the fuses and disconnect the cables from the motor terminals.

All electrical work should be carried out by authorised personnel.

#### 1.4.4. Compliance with the instructions

Any non-fulfilment of the instructions may result in a risk for the operators, the environment and the machine, and may result in the loss of your right to claim damages.

This non-fulfilment may result in the following risks:

- Failure of important functions of the machines/plant.
- Failure of specific maintenance and repair procedures.
- Possibility of electric, mechanical and chemical risks.
- Will place the environment in danger due to the release of substances.

#### 1.4.5. Guarantee

Any warranty provided shall immediately be cancelled and void *ipso jure*, and INOXPA shall be compensated for any product liability claim from third parties, if:

- the service and maintenance work was not carried out in accordance with the service instructions, or the repair work has not been carried out by our personnel or it has been conducted without our written authorization;
- our equipment has been changed without prior written authorization;
- the parts or lubricants used are not original INOXPA parts and products;
- the materials were used incorrectly or negligently, or not in accordance with these instructions and their intended use;
- Jet-Mix parts were damaged by excessive pressure owing to the lack of a safety valve.

The General Delivery Terms already provided also apply.



No change can be made to the equipment without prior discussion with the manufacturer. For your safety, please use original spare parts and accessories.

The use of other parts will exempt the manufacturer from any liability.

The service terms can only be changed with prior written authorisation from INOXPA.

Please do not hesitate to contact us in case of doubts or more complete explanations are required on specific data (adjustments, assembly, disassembly, etc.).

## 2. Contents

<b>1. Safety</b>	
1.1. Instructions manual .....	3
1.2. Start-up instructions .....	3
1.3. Safety .....	3
1.4. General safety instructions .....	3
<b>2. Contents</b>	
<b>3. Información General</b>	
3.1. Description .....	7
3.2. Operating principle .....	7
3.3. Application .....	7
3.4. Hygiene .....	7
3.5. Construction materials .....	7
<b>4. Installation</b>	
4.1. Receiving the jet-mix .....	8
4.2. Transport and storage .....	8
4.3. Location .....	9
4.4. Assembly. ....	9
4.5. Electrical installation .....	9
<b>5. Start-up</b>	
5.1. Start-up .....	11
<b>6. Operating problems</b>	
<b>7. Maintenance</b>	
7.1. General information .....	13
7.2. Cleaning.....	13
7.3. Disassembly / reassembly of the jet-mix .....	14
<b>8. Technical Specifications</b>	
8.1. Technical Specifications .....	17
8.2. Weights .....	17
8.3. Jet-mix dimensions .....	18
8.4. Jet-mix (t-10 type) – cross section.....	19
8.5. Jet-mix (t-20 type) – cross section.....	20
8.6. Jet-mix (t-30 and t-40 type) – cross section .....	21
8.7. Jet-mix parts list .....	22

## 3. General information

### 3.1. DESCRIPTION

The Jet-Mix mixers are of vertical construction and all mixer parts in contact with the processed product are manufactured in AISI-316 stainless steel.

The Jet-Mix range is designed for continuous operation. The most significant constructional features of the range are:

- Vertical equipment.
- Jet-type design of the propeller/head.
- Shaft guided in its lower section by two ball bearings.
- Engine conforms to IEC B5 standard.
- Sealing system with sanitary mechanical seal.

### 3.2. OPERATING PRINCIPLE

The principle of operation of the Jet-Mix is characterised by the vertical currents which it generates and directs to the bottom of the tank, thereby creating a flow which is conducted vertically through the head by the propeller. The flow thus created is distributed across the bottom of the tank radially towards all the walls whence it comes up to the surface, where it is suctioned again by the head, thereby creating a mixing cycle.

The advantage of the Jet-Mix system when compared to most stirring propellers is that it does not generate centrifugal forces. Also, the Jet-Mix is provided with several static parts that prevent the formation of vortex, thereby creating a strong flow of fluid and preventing the incorporation of air.

### 3.3. APPLICATION

The Jet-Mix mixers are suitable for processes of dissolution, dispersion and mixture of viscous products.

### 3.4. HYGIENE

In the construction of the Jet-Mix, special attention has been given to hygiene and to facilitate cleaning. The number of slots and unreachable spaces has been reduced to minimum.

The mixer can be cleaned easily and thoroughly by either of the two following methods:

- Without disassembly, e.g. with steam or water, i.e. the so-called CIP (Cleaning In Place).
- After disassembling the mixer.

See Section 7.2 "[Cleaning](#)" for information on how to properly clean the Jet-Mix and what cleaning methods and products should be used.

### 3.5. CONSTRUCTION MATERIALS

All the parts of the Jet-Mix in contact with the product are manufactured in stainless steel or tasteless and odourless materials. This makes the Jet-Mix resistant to corrosion, thereby preventing the contamination of the mixed fluid.



During manufacture, the materials (i.e. the parts in contact with the product) must be checked and verified in order to ensure that they are suitable for pumping food products specifically.

**Table 3.1:** Parts in contact with the fluid

Part	Material
Housing	AISI -316 (1.4401)
Propeller	AISI -316 (1.4401)
Head	AISI -316 (1.4401)
Propeller nut	AISI -316 (1.4401)

# 4. Installation

## 4.1. RECEIVING THE JET-MIX

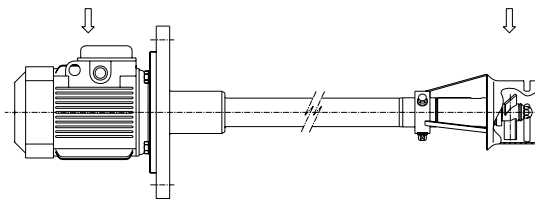


INOXPA cannot be held responsible for the damage sustained by the equipment during transport or unpacking. Visually check that the packaging is not damaged.

The Jet-Mix will be accompanied by the following documents:

- Dispatch notes.
- Jet-Mix Instructions and Service Manual.
- Motor Instructions and Service Manual.

Unpack the Jet-Mix and check it:



- The head, which is the most sensitive part, removing any remains of the packaging materials.
- Check that the Jet-Mix and the engine are not damaged.
- If the equipment is not in good condition and/or any part is missing, the carrier should draw up a report accordingly as soon as possible.

### 4.1.1. IDENTIFYING THE JET-MIX



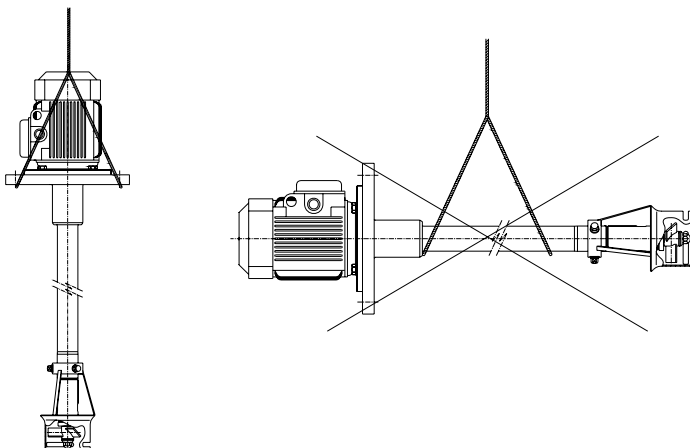
Jet-Mix Plate

## 4.2. TRANSPORT AND STORAGE



Jet-Mixes are often too heavy to be handled and stored manually.

Lift the Jet-Mix as shown below:



**Never lift the entire assembly by the shaft.**

### 4.3. LOCATION

Locate the Jet-Mix so that it can be easily inspected and serviced. Leave room enough around the Jet-Mix for service, disassembly and maintenance operations. It is very important that the Jet-Mix electrical connection device can be accessed even when the equipment is in operation.

When the Jet-Mix is installed in the middle of the tank, a deflector must be provided.

Ask our Technical Dep. for information on any particular application. If required, the approximate dimensions of the deflector for different tank diameters are shown in figure 4.1. and table 4.1.

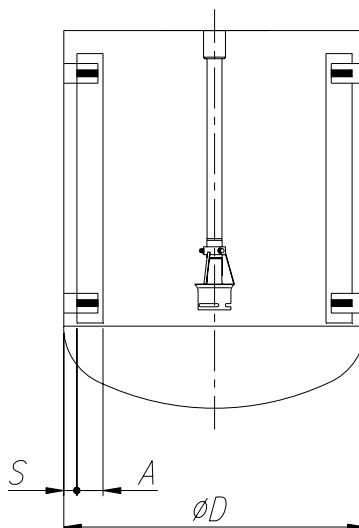


Figure 4.1

Ø D	300	400	500	600	800	1000	1200	1600	2000	2500	3000	3500	4000
A	20	30	35	40	50	70	80	115	130	180	200	240	280
S	5	5	10	10	10	15	20	20	30	30	50	50	50

Table 4.1:

### 4.4. ASSEMBLY.

To achieve a good mixing process, the Jet-Mix should be placed on the end of first third of the diameter of the tank. Also, the distance from the head of the Jet-Mix to the bottom of the tank should be 2 to 3 times the diameter of the head. After the base of the Jet-Mix has been placed on the supporting flange, fit the screws and nuts in the appropriate bores, without tightening. After this, the Jet-Mix should be levelled by doing the following:

- Place a spirit level on the casing of the Jet-Mix.
- Check 4 points at 90° from each other and at the same height.

Once the mixer has been levelled, tighten the screws and nuts.

The specifications of the mechanical seal should be checked before proceeding to install the Jet-Mix.



**Force must never be applied on the end of the Jet-Mix shaft, since it can easily acquire a permanent deformation.**

### 4.5. ELECTRICAL INSTALLATION



Before connecting the electrical engine to the mains, check local regulations on electrical safety as well as the applicable standards. Special attention should be given to the control and command section of the Jet-Mix. Check the instructions manual of the manufacturer of the engine for information on how to connect it to the mains.

The connection of the electrical motors must be performed by qualified personnel. Take the appropriate measures to prevent any fault.

The engine must be provided with devices for protection against power overload and short-circuits.



The Jet-Mix cannot be used in areas where there is a risk of fire or explosion when this has not been specified in the order. Risk area (area 1-2-3).

ALWAYS check the direction of rotation of engine with fluid inside the tank.



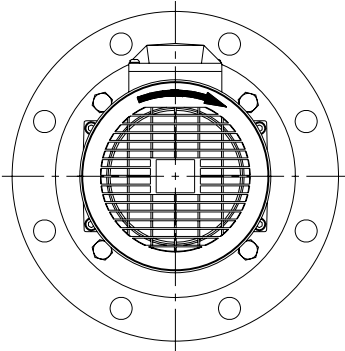
The electrical equipment, terminals and components of the control systems may still contain electric current when switched off. Contact with them may be dangerous for operators or cause irreversible damage to the equipment.

Before handling the Jet-Mix, make sure that the switchboard is not powered on.



Never start up the Jet-Mix when the head is assembled and the impeller is not attached.

- Connect up the motor following the manufacturer's instructions.
- Check the direction of rotation (see the label on the Jet-Mix).



Start the Jet-Mix engine briefly. Looking at Jet-Mix from the back side, check that the engine fan rotates clockwise.

Fig. 4.2

## 5. Start-up



Before starting up the Jet-Mix, carefully read the instructions in Chapter 4. Installation.

### 5.1. START-UP



Read Chapter 8 *Technical Specification* thoroughly. INOXPA cannot be held responsible for the incorrect use of the equipment.



NEVER touch the Jet-Mix while high-temperature fluids are being mixed.

#### 5.1.1. Checks before starting up the Jet-Mix

- Check that the power supply matches the rating indicated on the engine plate.
- Check the level of fluid in the tank. When not specified in the order, the Jet-Mix cannot be operated during the filling or emptying of the tank.
- Check that the mechanical seal is in the condition required to operate properly. For this purpose, the fitting instructions of the seal manual must be followed.
- All the guards must be in place.



**The Jet-Mix can NEVER operate without fluid. The mixing component must be immersed at least a distance equal to 2 times its diameter, and it must keep a distance of 2 to 3 times the diameter of the head from the bottom of the tank.**

#### 5.1.2. Checks when starting up the Jet-Mix

- The performance of the mixer-emulsifier depends on the viscosity of the fluid being mixed. To properly operate the equipment, follow this charging procedure:
  1. Pour all the low-viscosity components inside the vase.
  2. Start up the mixer.
  3. Check that the direction of rotation of the propeller is the right one (it must rotate clockwise when seen from the drive side) See Figure 4.2.
  4. Add the remaining fluids or soluble components.
  5. Add any solids that require to be cut or a predetermined time for reaction.
  6. Add the remaining components, including solids to stabilise the preparation or to increase viscosity.



**Follow the direction of rotation of the mixing component as indicated by the arrow attached to the engine. A wrong direction of rotation results in a loss of mixing performance.**

Check the motor's power consumption to avoid electric overload.

- Check whether the Jet-Mix makes strange sounds.
- Do not cover the vents of the engine.
- Check that there are no leaks through the sealed areas.
- Make sure the head is fully immersed.

## 6. Operating problems

The following table provides solutions to problems that might arise during the operation of the Jet-Mix. The Jet-Mix is assumed to have been properly installed and be suitable for the relevant application. Please contact INOXPA if technical assistance is required.

Operating problems	Probable causes
Motor overload	1, 2.
Not enough stirring.	1, 3, 4, 5.
Vibration and noise.	6, 7, 10.
The mechanical seal is leaking.	8, 9.
The Jet-Mix gets stuck.	1, 11, 12.
The Jet-Mix gets overheated	1, 11, 12.

Probable causes	Solutions
1 Fluid viscosity too high	Reduce the viscosity, e.g. by heating the fluid.
2 Fluid density too high.	Increase engine power.
3 Tank oversized for the stirrer selected.	Check with the Technical Dep.
4 Wrong direction of rotation	Reverse the direction of rotation.
5 Jet-Mix speed too low.	Increase speed.
6 Liquid level too low or no liquid.	Check the level of fluid in the tank.
7 Bearings are worn.	Replace bearings; review the Jet-Mix.
8 Mechanical seal damaged or worn.	Replace seal and review the condition of the lip seals that prevent the product from reaching the bearings.
9 O-rings unsuitable for the fluid.	Fit suitable O-rings after checking with the supplier.
10 Critical speed.	Check with the Technical Dep.
11 Fluid temperature too high.	Reduce the temperature by cooling the fluid.
12 The propeller scrapes.	Check that the head does not touch the propeller and tighten the setbolts. Check that the head has not been hit.



If the problem persists, use of the Jet-Mix must cease immediately. Contact the Jet-Mix manufacturer or their representative.

# 7. Maintenance

## 7.1. GENERAL INFORMATION

Like any other machine, the Jet-Mix requires maintenance. The instructions contained in this manual cover the identification and replacement of spare parts. The instructions have been prepared for maintenance personnel and for those responsible for the supply of spare parts.



Please carefully read Chapter 8 *Technical Specification*.



All replaced material should be duly eliminated/recycled according to the directives in effect in the area.

ALWAYS disconnect the Jet-Mix from the power before performing the maintenance.

### 7.1.1. Checking the mechanical seal

Regularly check that there are no leaks in the shaft area. If there are leaks through the mechanical seal or the retainer, replace it following the instructions given under the Disassembly and Reassembly section.



Verifying the tightness of the seal and the retainer is of the utmost importance. Since this would be an internal leak, it is difficult to detect.

### 7.1.2. Check the bearings

Regularly check the condition of the bearings. If they are damaged, replace them following the instructions given under the Disassembly and Reassembly section.

## 7.2. CLEANING



The use of aggressive cleaning products such as caustic soda and nitric acid may cause burns to the skin.

Use rubber gloves during the cleaning process.



Always use protective goggles.

If the Jet-Mix is installed in a system with a CIP process, it is not necessary to disassemble the Jet-Mix.

If an automatic cleaning process is not provided, proceed to disassemble the Jet-Mix as indicated in the Disassembly and Reassembly section.

### Cleaning solutions for CIP processes.

Only use clear water (chlorine-free) to mix with the cleaning agents:

**a) Alkaline solution:** 1% by weight of caustic soda (NaOH) at 70°C (150°F)

1 Kg NaOH + 100 l. of water = cleaning solution

or

2.2 l. NaOH at 33% + 100 l. of water = cleaning solution

**b) Acid solution:** 0.5% by weight of nitric acid (HNO<sub>3</sub>) at 70°C (150°F)

0.7 litres HNO<sub>3</sub> at 53% + 100 l. of water = cleaning



Control the concentration of the cleaning solutions to avoid damaging the Jet-Mix seals.

To remove any remains of cleaning products, ALWAYS perform a final rinse with clean water on completion of the cleaning process.

### 7.3. DISASSEMBLY / REASSEMBLY OF THE JET-MIX

#### 7.3.1. Type T-10

##### ⇒ Disassembly

- Remove the mixer from the place of installation.
- Clean and dry de Jet-Mix.
- Remove the nuts (45A) and loosen the setbolts (55).
- Lift the head (06) in order to have easy access to the impeller (02) to loosen it.
- Remove the impeller and then the sleeve (13) , in which the rotary part of the mechanical seal will be fixed (08), this can be separated from the sleeve by loosening the Allen setbolt that is fixing it on. Also remove the stationary part of the box's (09) seal and remove the gasket (80C).
- Remove the head (06).
- Unscrew by rotating clockwise and remove the box (09). Caution! This is an anti-clockwise thread. Inside is housed the spacer (17) and the retainer (88). To extract the retainer, first remove the elastic ring (66) attaching it. Remove the seal (80).
- Loosen the screws (52) and remove the engine.
- Gently knock the lower section of the shaft (05) and tighten it upwards. Once the bearings have been removed (70) it is possible to extract the upper part of the housing (01).
- Finally, remove the bearings (70) that remained loose at the bottom of the housing.

##### ⇐ Assembly

- Insert the shaft (05) through the upper side of the housing (01).
- Move the shaft (05) until it protrudes from the bottom to place the bearings (70).
- Insert the bearings until they touch on the shaft after having heated the components by means of the induction device specific for this purpose. A temperature of 100 °C is enough, and in no event a temperature 120 °C should be reached. Alternatively, a press may be used for this purpose.
- Place the retainer (88) into the box (09). Take care to place the lip in the right position (see detailed cross section in fig. 8.4).
- Attach the retainer (88) with the elastic ring (66) and then place the spacer (17).
- Insert the fixed part of the seal (08) onto the box (08). Press the fixed part of the seal by hand using a flat plastic buffer, PVC, PTFE, etc. on the part in contact with the polished surface. See illustration. 7.1.

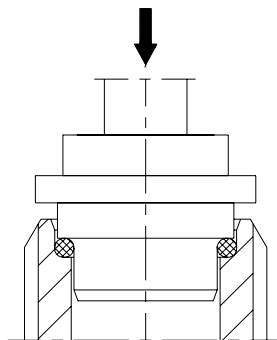


Fig. 7.1

**CAUTION!** When fitting the new seal, take care to first dip the parts and seals into soapy water in order to facilitate the sliding of both the fixed part and the rotating part on the shaft.

- Place the O-ring (80) on the housing (01) and screw (clockwise) the box (09) until stopped by the housing (01).

**NOTE:** In order to avoid damage to the thread, apply WEICON ASW 450-type anti-size lubricant paste both during disassembly and reassembly.

- Place the drive (93) until stopped by the housing (01), facing the motor shaft and the shaft (05) and attach it with screws and washers (52-53A). Check by hand that the shaft (05) freely rotates.
- Place the fixed part of the seal (08) on the sleeve (13) and attach it using its setbolts.
- Insert the front assembly onto the shaft (05) until the sleeve is stopped by the bearings (70).
- Place the O-rings (80B) in the head (06) and insert this into the housing (01).
- Attach the propeller (02) until stopped by the sleeve.
- Slide and place the head (06) above the propeller (02).
- Place the bronze washers (53) and Allen setbolts (55) and then tighten the Allen setbolts (55).
- Place the nuts (45A) with the O-rings (80A) and tighten.

### 7.3.2. Type T-20

#### ⇒ Disassembly

- Remove the mixer from the place of installation.
- Clean and dry the Jet-Mix.
- Remove the nuts (45A) and loosen the setbolts (55).
- Lift the head (06) in order to have easy access to the impeller (02) to loosen it.
- Remove the blind nut (45) and the seal (80C).
- Remove the impeller and then the mechanical seal (08).
- Remove the head (06).
- Unscrew by rotating clockwise and remove the box (09). Caution! This is an anti-clockwise thread.
- Remove the sleeve (17) and the seal (80D).
- Inside the box, the retainer (88) is housed. It can be removed after removing the elastic ring (66) to which it is attached. Remove the seal (80).
- Loosen the screws (52) and remove the engine.
- Gently knock the lower section of the shaft (05) and tighten it upwards. Once the bearings have been removed (70) it is possible to extract the upper part of the housing (01).
- Finally, remove the bearings (70) that remained loose at the bottom of the housing.

#### ⇐ Assembly

- Insert the shaft (05) through the upper side of the housing (01).
- Move the shaft (05) until it protrudes from the bottom to place the bearings (70).
- Insert the bearings until they touch on the shaft after having heated the components by means of the induction device specific for this purpose. A temperature of 100 °C is enough, and in no event a temperature 120 °C should be reached. Alternatively, a press may be used for this purpose.
- Place the retainer (88) into the box (09). Take care to place the lip in the right position (see detailed cross section in fig. 8.5).
- Attach the retainer (88) using the elastic ring (66) and then place the O-ring (80D) on the shaft (05).
- Place the O-ring and the seal O-ring (08) onto the box (09).
- Screw (anti-clockwise) the box (09) until stopped by the housing (01).

**NOTE:** In order to avoid damage to the thread, apply WEICON ASW 450-type anti-size lubricant paste both during disassembly and reassembly.

- Place the drive (93) until stopped by the housing (01), facing the motor shaft and the shaft (05) and attach it with screws and washers (52-53A). Check by hand that the shaft (05) freely rotates.
- Place the O-rings (80B) in the head (06) and insert this into the housing (01) on the shaft.
- Insert the sleeve (17) until it is stopped by the bearings (70).
- Place the fixed seat of the seal (08) into the box (09) and then the rotating seat of the seal (08) so that the groove cut on it faces the pin on the shaft (05).

**CAUTION!** When fitting the new seal, take care to first dip the parts and seals into soapy water in order to facilitate the sliding of both the fixed part and the rotating part on the shaft.

- Insert the key (61) and the propeller (02) into the shaft (05).
- Place the O-ring (80C) on the nut (45) and fasten this to the shaft (05) until touching on the propeller.
- Slide and place the head (06) above the propeller (02).
- Place the brass washers (53) and the Allen setbolts (55). Then, fasten the setbolts tightly.
- Place the nuts (45A) with the O-rings (80A) and tighten.

### 7.3.3. Type T-30 and T-40

#### ⇒ Disassembly

- Remove the mixer from the place of installation.
- Clean and dry the Jet-Mix.
- Remove the nuts (45A) and loosen the setbolts (55).
- Lift the head (06) in order to have easy access to the impeller (02) to loosen it.
- Remove the blind nut (45) and the seal (80C).
- Remove the impeller and then the mechanical seal (08).
- Remove the head (06).
- Unscrew by rotating clockwise and remove the box (09). Caution! This is an anti-clockwise thread. Inside, the retainer (88) is housed. It can be removed after removing the elastic ring (66) to which it is attached. Remove the seal (80).
- Loosen the screws (52) and remove the engine.
- Gently knock the upper section of the shaft (05) to remove, through the bottom side of the casing (01), the half-shaft (26), to which the bearings (70) and the spacer (17) are bolted.
- Remove the bearings (70) from the lower half-shaft (26) using a press and holding the spacer (17).
- Remove the upper half-shaft (05) through the upper side of the casing (01).

#### ⇐ Assembly

- Insert the upper bearing (70) until it touches on the half-shaft (26); then place the spacer (17) and the lower bearing (70). Insert the bearings until they touch on the shaft after having heated the components by means of the induction device specific for this purpose. A temperature of 100 °C is enough, and in no event a temperature 120 °C should be reached. Alternatively, a press may be used for this purpose.
- Place the shaft (05) on the drive (93).
- Attach the casing (01) to the drive (93) with the screws and washers (52-53A).
- Insert the assembly formed by the bearing (70) and the half-shaft (26) into the casing, with the key of the shaft (05) facing the key-hole on the half-shaft (26), and knock with a plastic hammer until it touches on the casing (01).
- Place the retainer (88) into the box (09). Take care to place the lip in the right position (see detailed cross section in fig. 8.6).
- Attach the retainer (88) using the elastic ring (66) and finally place the O-ring (80) into the box (09).
- Rotate the box (09) (counter-clockwise) until it touches on the bearing (70). Manually check that the half-shaft rotates freely.

**NOTE:** In order to avoid damage to the thread, apply WEICON ASW 450-type anti-size lubricant paste both during disassembly and reassembly.

- Place the O-rings (80B) in the head (06) and insert this into the housing (01).
- Place the fixed seat of the seal (08) into the box (09) and then the rotating seat of the seal (08) so that the groove cut on it faces the pin on the half-shaft (26).

**CAUTION!** When fitting the new seal, take care to first dip the parts and seals into soapy water in order to facilitate the sliding of both the fixed part and the rotating part on the shaft.

- Insert the key (61) and the propeller (02) into the half-shaft (26).
- Place the O-ring (80C) on the nut (45) and fasten this to the shaft (05) until touching on the propeller (02).
- Slide and place the head (06) above the propeller (02).
- Place the brass washers (53) and the Allen setbolts (55). Then, fasten the setbolts tightly.
- Place the nuts (45A) with the O-rings (80A) and tighten.

# 8. Technical Specifications

## 8.1. TECHNICAL SPECIFICATIONS

Maximum working pressure .....	0 to 10 bar (0 to 147 PSI)
Vacuum .....	Check
Maximum temperature .....	-10°C to +140°C (EPDM) 14°F to 284°F (EPDM)
Maximum viscosity (recommended) .....	1000 m Pa.s.
Maximum speed .....	2950 rmp (depending on the model)
Connection to tank .....	DIN 2632 PN10 (standard)
Noise level .....	60-80 dB(A)



Use special protection when the noise level in the operation area exceeds 85 dB(A).

### Materials

Parts in contact with media.....	AISI 316
Other parts in stainless steel.....	AISI 304
Gaskets in contact with media .....	EPDM (standard)
Other materials for optional gaskets .....	Check with the supplier
Surface finish.....	Mirror polish

### Mechanical seal

Type of seal .....	Single sanitary seal
Stationary parts material .....	Silicon carbide (standard)
Rotary parts material .....	Silicon carbide (standard)
Sealing material .....	EPDM (standard)
Other materials for optional gaskets .....	Check with the supplier

### Engine

Engine according to IEC B5 standard; B5 (flange) construction  
 2 poles = 2900/3500 min<sup>-1</sup> at 50/60 Hz or  
 4 poles = 1450/1750 min<sup>-1</sup> at 50/60 Hz or  
 Two-speed, flameproof engines (depending on the application)

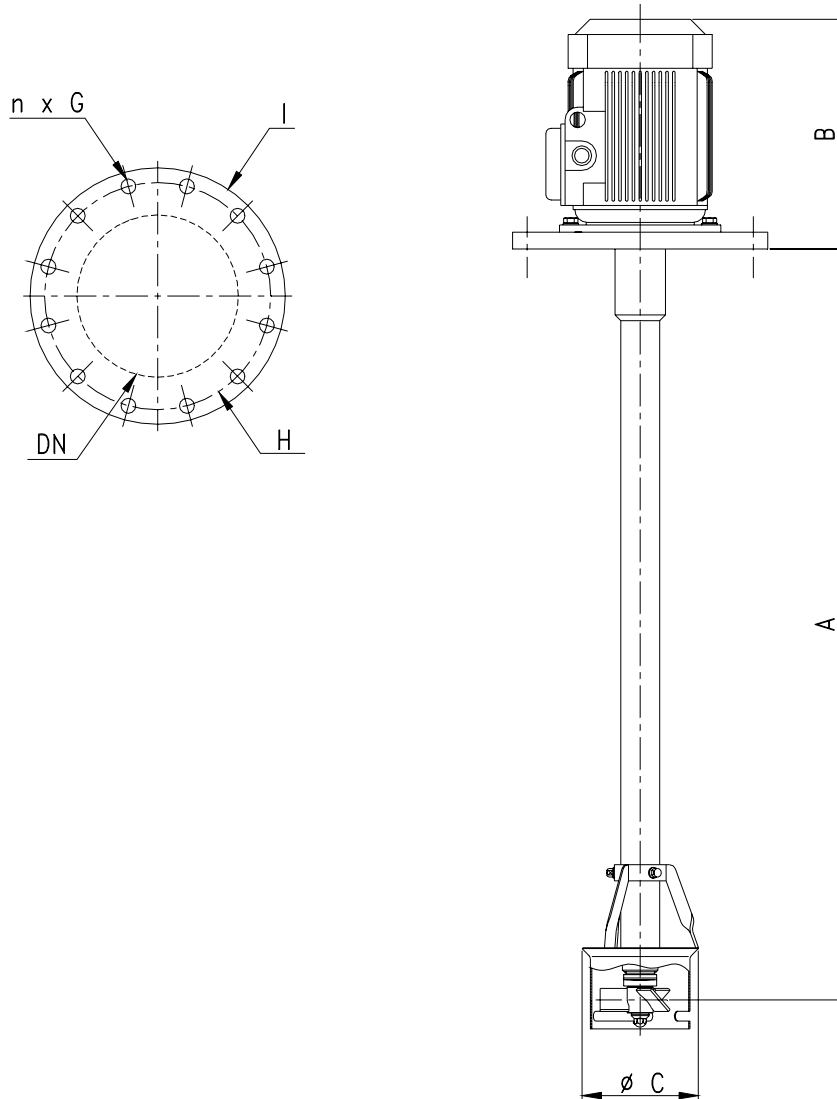
Shield .....	IP55 (optional protection against fire or explosion)
Connection .....	3~, 50Hz, 220-240VÄ / 380-420VY o 380-420VÄ / 660-690VY depending on power

## 8.2. WEIGHTS

Jet-Mix Type	Engine Size	Length	Weight [Kg]	Weight [lbs]
T-10	71	750	23.5	52
T-20	80	900	31	68
	90L		38	84
T-30	100L	1100	62	136.5
	112M		65	143
T-40	132S	1300	97	213.5
	132M		105	231

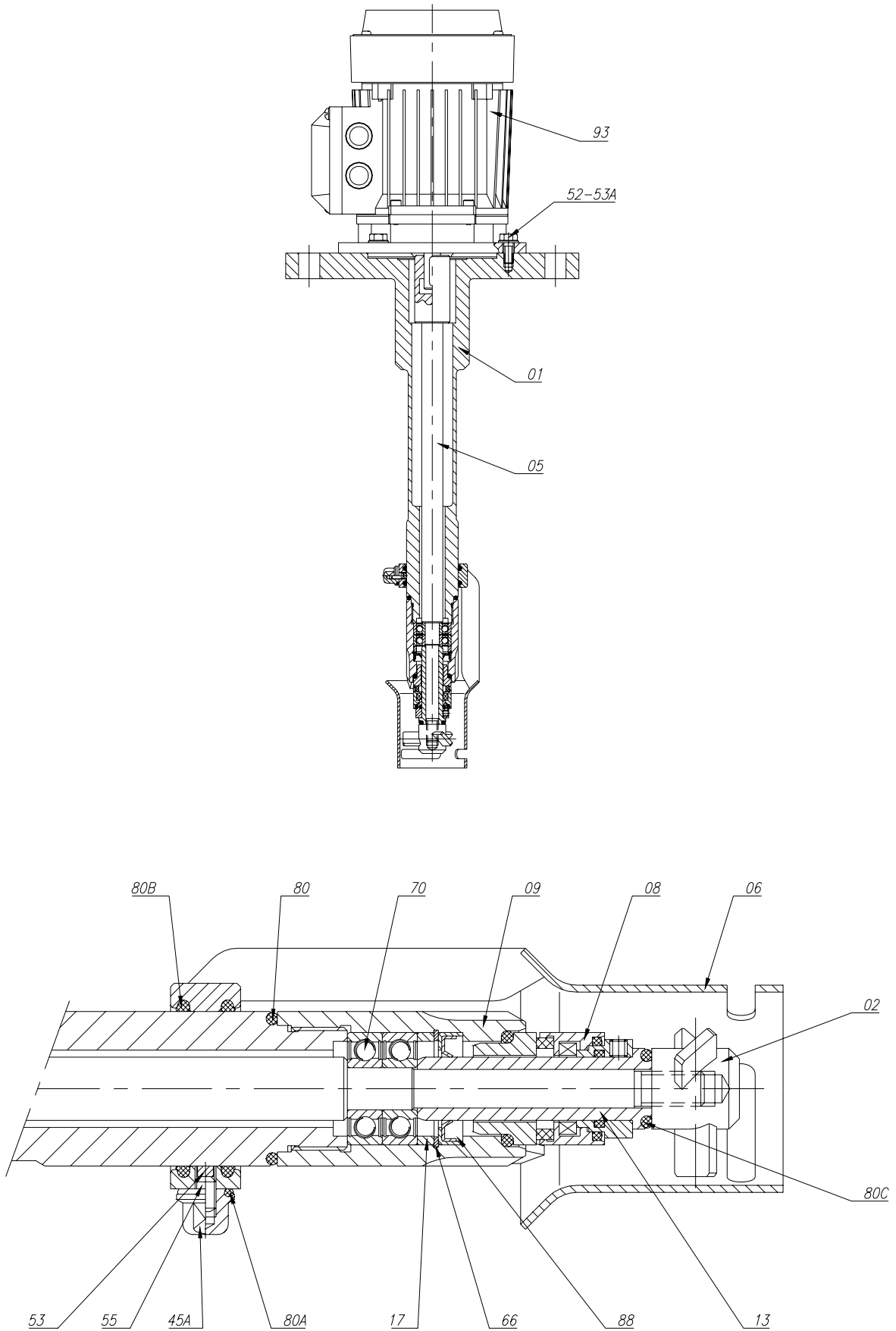
NOTE: The weight of the Jet-Mix will vary depending on its length.

### 8.3. JET-MIX DIMENSIONS



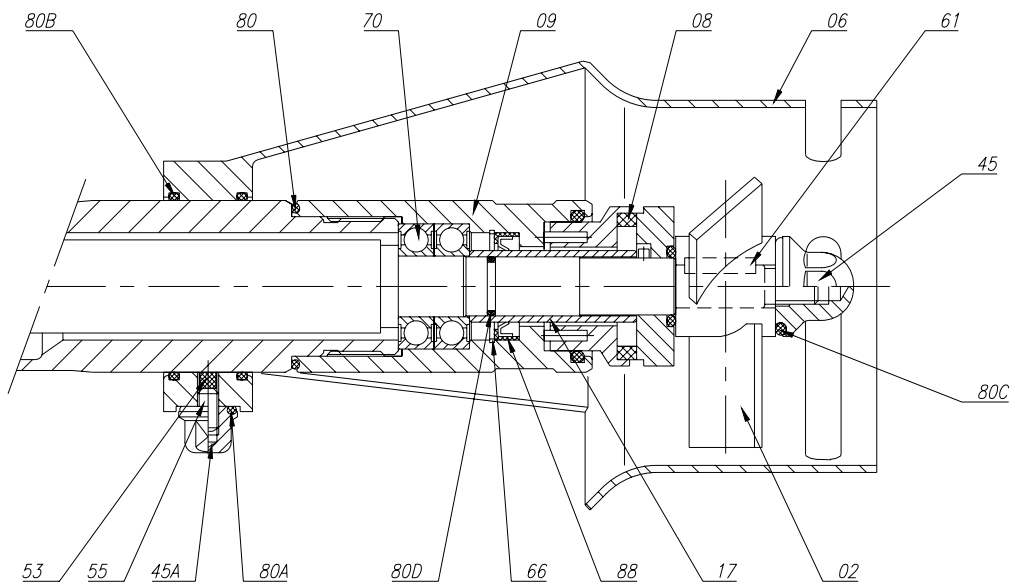
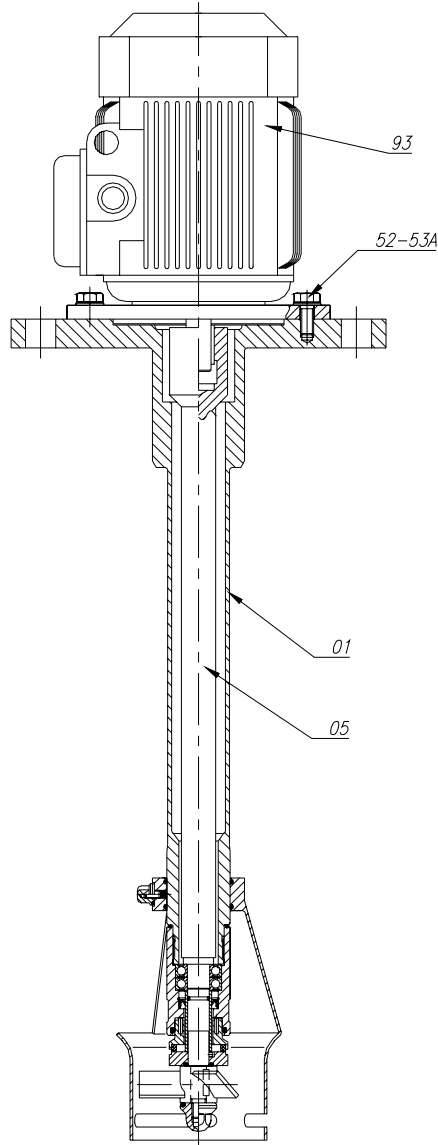
TYPE	T10		T20				T30			T40		
	[kW]	0.55	0.37	1.1	2.2	0.75	1.5	4	3	4	7.5	5.5
RPM	3000	1500	3000		1500		3000	1500		3000	1500	
Size	71		80	90L	80	90L	112M	100L	112M	132S		132M
A	750		900				1100			1300		
B	230		295				370			428		
C	80	105	105	125	125	137	150	180	200	180	200	238
DIN 2632 PNB 10 flange												
DN	125		150				200			250		
I	250		285				340			395		
H	210		240				295			350		
n x G	8 x Ø23		8 x Ø23				8 x Ø23			12 x Ø23		

### 8.4. JET-MIX (T-10 TYPE) – CROSS SECTION



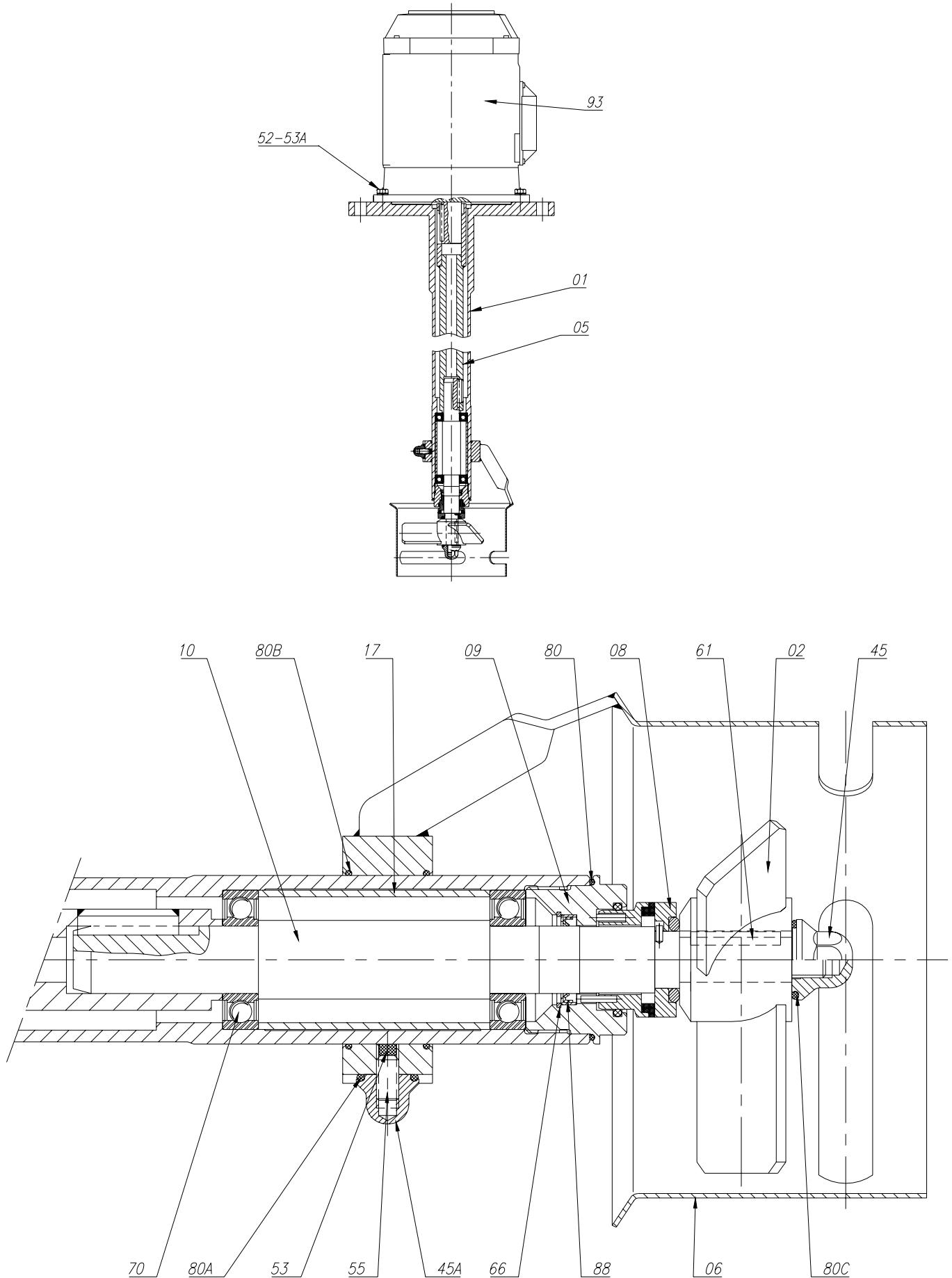
Detail drawing of Jet-Mix  
type T-10

8.5. JET-MIX (T-20 TYPE) – CROSS SECTION



Detail drawing of Jet-Mix  
type T-20

8.6. JET-MIX (T-30 AND T-40 TYPE) – CROSS SECTION



Detail drawing of Jet-Mix T-30 and T-40

## 8.7. JET-MIX PARTS LIST

Position	Quantity	Description	Material
01	1	Housing	AISI -316
02	1	Propeller	AISI-316
05	1	Shaft	AISI -316
06	1	Sanitary Head	AISI -316
08	1	Mechanical seal	Sil./Sil./EPDM
09	1	Box	AISI -316
13 <sup>1</sup>	1	Sleeve	AISI -316
17	1	Spacer	AISI -316
26 <sup>2</sup>	1	Lower half-shaft	AISI -316
45 <sup>3</sup>	1	Cap nut	AISI -316
45A	3	Cap nut	AISI -316
52	4	Hexagonal screw	8.8
53	3	Washer	Bronze
53A	4	Flat washer	Steel
55	3	Allen key	
61 <sup>3</sup>	1	Key	AISI -316
66	1	Elastic ring I	Steel
70	2	Bearing	Steel
80	1	O-ring	70EPDM
80A	3	O-ring	70EPDM
80B	2	O-ring	70EPDM
80C	1	O-ring	70EPDM
80D <sup>4</sup>	1	O-ring	70EPDM
88	1	Retainer	Teflon+ Stainless Steel
93	1	Motor	

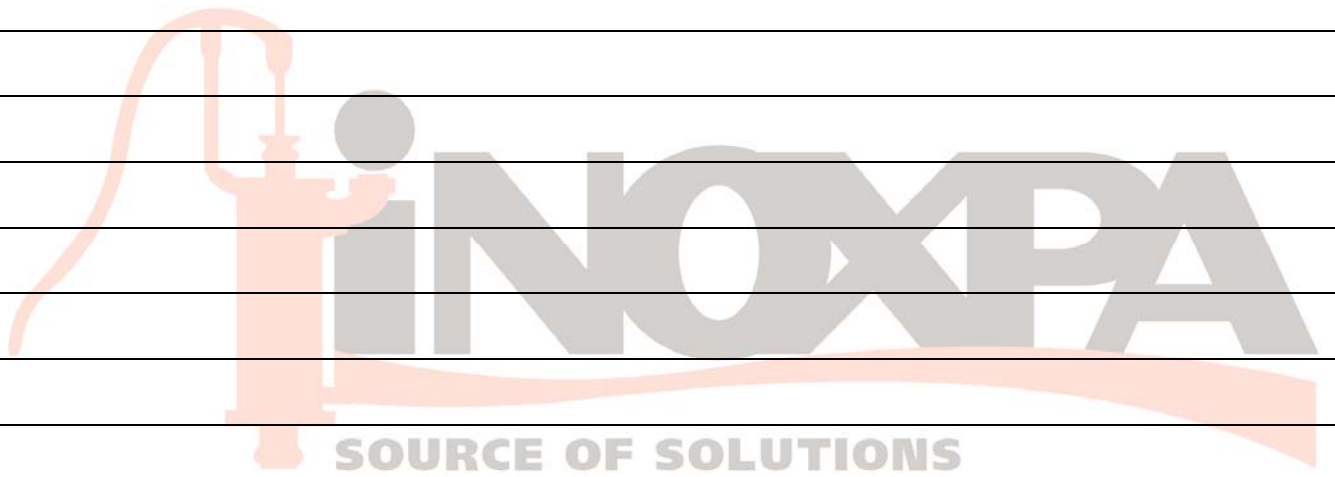
<sup>1</sup> Only in type T-10.

<sup>2</sup> Only in types T-30 and T-40.

<sup>3</sup> Only in type T-10.

<sup>4</sup> Only in type T-20.

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