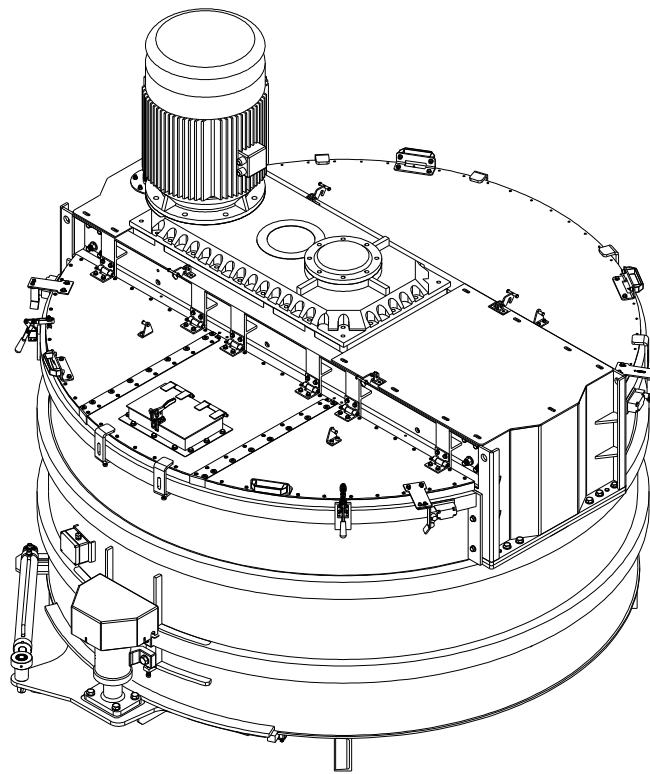




SICOMA



Instruction Manual for Planetary Mixer



MPC1500/1000



SICOMA ZHUHAI CO., LTD.

ATTENTION:

THE NON-APPLICATION OF THE USE AND MAINTENANCE RULES MENTIONED WITH THE PRESENT MANUAL WILL ENTAIL THE AUTOMATIC LOSS OF ALL WARRANTY INSURANCE COVERINGS.

PROGRESSIVE INDEX	3
INTRODUCTION	6
CONDITIONS OF GUARANTEE	6
DIMENSIONS SCHEME	7
TECHNICAL FEATURES	8

INSTRUCTIONS FOR USE AND MAINTENANCE

1) MANUFACTURER INFORMATION	9
2) HOW TO USE AND PRESERVE THE INSTRUCTION MANUAL	10
2.1) PURPOSE OF THE INFORMATION IN THE INSTRUCTION MANUAL	
2.2) INTENDED USER OF THE INSTRUCTION MANUAL	
2.3) INSTRUCTION MANUAL APPLICATION	
2.4) INSTRUCTION MANUAL LIMITATIONS	
2.5) HOW TO RRESERVE THE INSTRUCTION MANUAL	
2.6) WARNINGS	
3) MOVING AND INSTALLING THE MACHINE	11
3.1) ON RECEIVING THE MACHINE	
3.2) PERSONNEL REQUIREMENTS	
3.3) INSTRUCTIONS FOR LIFTING AND MOVING THE MACHINE	
3.4) DIAGRAM FOR LIFTING THE MACHINE	
3.5) INSTRUCTIONS FOR MACHINE INSTALLATION	
3.6) CHECKING OIL LEVEL FOR GEARBOX AND HYDRAULIC POWER PACK	
4) ELECTRICAL CONNECTIONS	13
4.1) ELECTRICAL CONNECTIONS	
4.2) JUNCTION BOX	
4.3) ELECTRICAL SUPPLY CONNECTIONS AND EARTHING	
4.4) MIXING ARM LAYOUT	
4.5) MOTOR ROTATION DIRECTION CHECK	
5) USE OF THE MACHINE	16
5.1) WHAT IS THE MACHINE FOR	
5.2) APPLICATION OF THE MACHINE	
5.3) OPERATOR	
5.4) MATERIALS THAT MAY BE HANDLED BY THE MACHINE	
5.5) USE LIMITATIONS	
5.6) WORK ENVIRONMENT	
6) TECHNICAL DESCRIPTION	17
6.1) DESCRIPTION OF THE MACHINE	
6.1.1) MIXING TANK	
6.1.2) MIXING SYSTEM	

- 6.1.3) TRANSMISSION SYSTEM
- 6.1.4) UNLOADING SYSTEM
- 6.1.5) ELECTRIC CONTROL SYSTEM
- 6.2) MIXING PROCEDURE
- 6.3) TECHNICAL DIAGRAMS AND TABLES
 - 6.3.1) JUNCTION BOX DIAGRAM
 - 6.3.2) HYDRAULIC SCHEMATIC DIAGRAM
- 6.4) SOUND TESTS
 - 6.4.1) TEST CONDITIONS
 - 6.4.2) MEASURING CONDITIONS
 - 6.4.3) AVERAGE L_{eq} (A)
- 6.5) AGGREGATE INLET INSTRUCTIONS

7) INSTRUCTIONS FOR USE

23

- 7.1) OPERATION PROCEDURE
- 7.2) LOADING PHASE
- 7.3) MIXING PHASE
- 7.4) CONVEYOR LOADING PHASE
- 7.5) UNLOADING PHASE
- 7.6) CLEANING

8) SAFETY DEVICES: CHECKING AND ADJUSTMENT

27

- 8.1) SAFETY DEVICE
 - 8.1.1) MAXIMUM-PRESSURE SAFETY VALVE
 - 8.1.2) CHECKING COVER SAFETY SWITCH

9) MAINTENANCE INSTRUCTION

28

- 9.1) CHANGING THE LUBRICATING OIL
- 9.2) GREASING
- 9.3) LUBRICATING MIXER PARTS
- 9.4) CHANGING THE HYDRAULIC OIL
- 9.5) CHECKING BOLT TIGHTNESS
- 9.6) CHECKING PARTS SUBJECT TO WEAR
- 9.7) ADJUSTING THE MIXING AND SCRAPER ARMS
 - 9.7.1) ADJUSTING MIXING SHOVEL
 - 9.7.2) ADJUSTING OUTER SHOVELS
 - 9.7.3) INSTALLING LOCKING WASHER
- 9.8) ADJUSTING AND RESETTING THE SEAL ON THE DISCHARGE OPENING
- 9.9) FIXING OIL LEAKS BETWEEN THE FIXED REDUCTION GEARBOX AND THE COVER OF THE ROTATING PLANETARY GEARBOX
- 9.10) TROUBLE SHOOTING GUIDE
- 9.11) MOTOR REPAIR AND MAINTENANCE

10) SPARE PARTS MANUAL

36

- 10.1) GENERAL INFORMATION
- 10.2) HOW TO ORDER SPARE PARTS

DIAGRAM LIST

MIXER ASSEMBLE SCHEME	37
LINERS LAYOUT	39
ARM AND SHOVEL	41
DISCHARGE DOOR DEVICE	43
GEARBOX LUBRICATION INSTRUCTIONS	45
REDUCTION UNIT HOUSING	46
REDUCTION UNIT GEARS	48
PLANETARY GEARBOX	50
PLANETARY GEARING ELEMENTS	52
HYDRAULIC POWER PACK VALVES GROUP	54
HYDRAULIC POWER PACK	56
DISCHARGE DOOR LIMIT SWITCH DIAGRAM	58
DISCHARGE DOOR CONTROL SYSTEM DIAGRAM	59

INTRODUCTION

Dear Customer, SICOMA ZHUHAI CO., LTD would like to thank you for purchasing this product and invite you to:

- Read the instructions in this manual: they give the sequence of checks and preliminary work required for transport, installation, use and maintenance of the machine and a series of tables complete with lists for easy identification and ordering of spare parts.
- If there are any problems, contact the manufacturer or area representative.
- In order not to damage the machine or impair its correct operation, we recommend using ORIGINAL spare parts.

CONDITIONS OF GUARANTEE

The guarantee period of 36 months applies to a single shift (8 hours) per working day. The machine is guaranteed for a period of 36 (thirty-six) months, for the mixing group gear reducer

As regards all the other mechanical parts, the guarantee is of 12 (twelve) months starting from the beginning of production.

However this starting date begin after a maximum of 6 (six) months from the date of delivery to the user.

For electrical parts see separate manufacturer's guarantee.

The guarantee includes:

- a) Free replacement or repair of parts found to be faulty due to manufacturing defects (except the wear parts).
- b) The guarantee ceases immediately if the machine, or one of its components, is damaged by:
 1. Improper operation.
 2. Dismantling, repair, or modification by unauthorised persons.
 3. Using non-original spare parts.
 4. Transporting without due care.
 5. Causes not attributable to manufacturing defects.
 6. Troubles caused by earthquake, flood or other irresistible accidents.
- c) Extension of the guarantee after an intervening fault is excluded, transport and travel expenses are paid by the customer, while on-site working hours are included in the guarantee.
- d) Also excluded are cancellation of contract, compensation for working hours lost, non production, and direct or indirect human injury or property loss caused by the improper use of the machine.
- e) Whenever and wherever you use our products, you will enjoy a lifetime paid service.

DIMENSIONS SCHEME

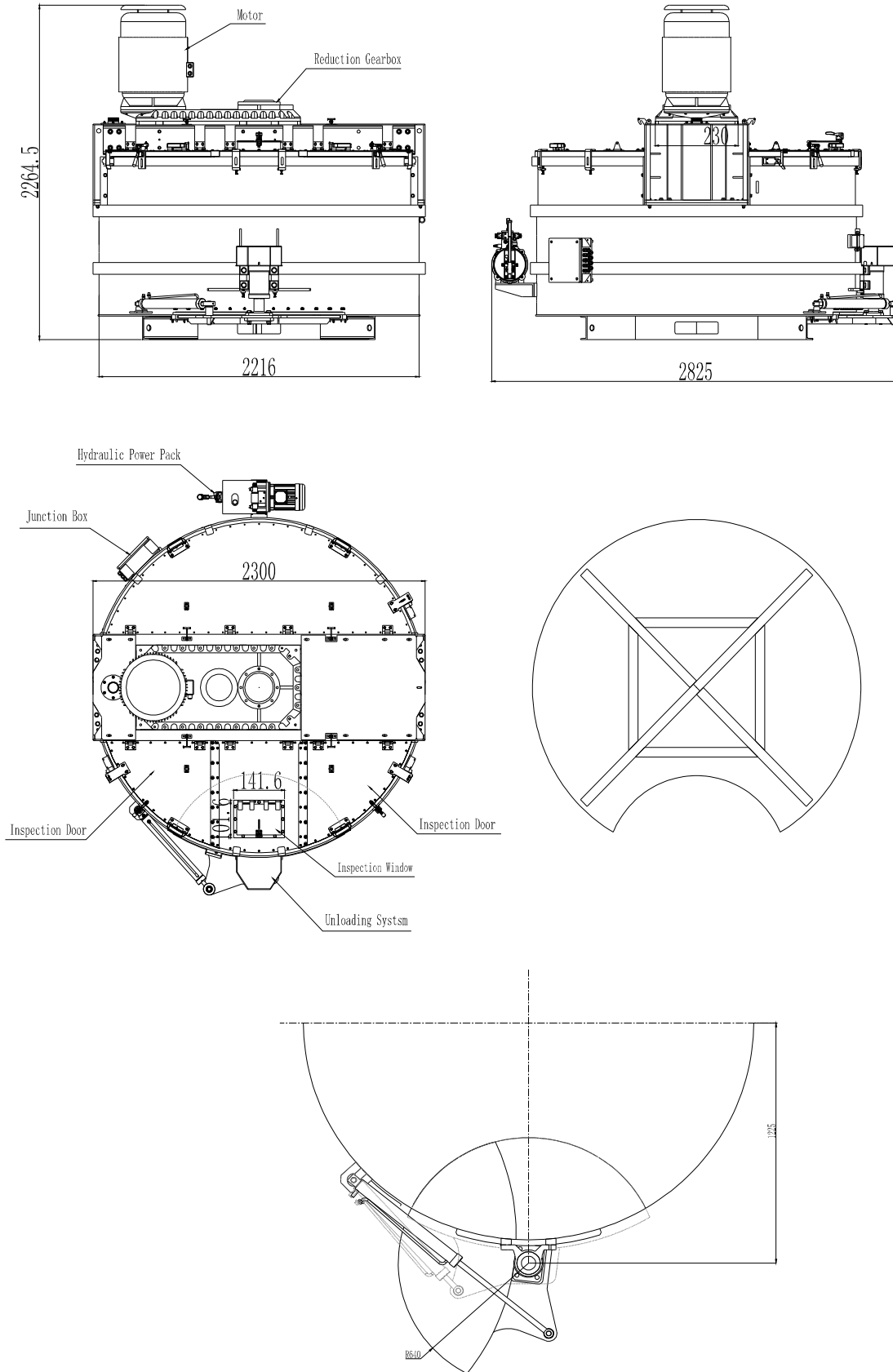


Fig 1

Dimensions in mm. They can be changed for technical reasons

TECHNICAL FEATURES

DISCREPTION	TECH PARAMETER	UNIT
TANK CAPACITY	1500	Lt
MAXIMUM LOADING CAPACITY	2400	Kg
TANK DIAMETER	2200	MM
TANK HEIGHT	752	MM
SPIDER SPEED	44	Rev/min (RPM)
PLANETARY SPEED	21	Rev/min (RPM)
MOTOR POWER	60/45	HP/KW
WEIGHT	3700	Kg

- The time for a cycle and the hourly output can vary depending on the type of concrete being produced and the characteristics of the plant where the machine is installed.
- The mixer is only for commercial concrete mixing. For other mixture, please consult manufacture.
- The manufacture reserves the right to update the instruction manual, we may not be able to inform you in advance.
- Mixer motor: power, voltage and frequency value are to be adjustable. Motor is B grade, made of F class or H class insulated material. The mixer is fit for tropic environment with IP55 protection.

1) MANUFACTURER INFORMATION

SICOMA ZHUHAI CO., LTD

ADDRESS: NO. 7 PINGGONG ROAD (WEST), NANPING
SCIENCE & TECHNOLOGY INDUSTRIAL PARK, ZHUHAI,
CHINA

POSTAL CODE: 519060

TEL: 86-756-8682100
86-4008870883

FAX: 86-756-8682101
86-756-8682748

TYPE : _____

SERIAL NO : _____

MANUFACTURED ON : _____

2) HOW TO USE AND PRESERVE THE INSTRUCTION MANUAL

This section gives information on how to use the manual and the limitations of the manual.

2.1 – PURPOSE OF THE INSTRUCTION IN THE INSTRUCTION MANUAL

The purpose of this manual is to indicate the use for which the machine was designed and its technical features, listing instructions on how to use the machine. It also gives instructions on moving, installing, and adjusting it, as well as on carrying out maintenance work and ordering spare parts.

2.2 – INTENDED USER OF THE INSTRUCTION MANUAL

This instruction manual is intended for:

- Transport, loading and unloading personnel, Operators, Installers, Maintenance personnel

2.3 – INSTRUCTION MANUAL APPLICATION

This instruction manual works as a guide on the mixer moving, assembly, adjusting, maintenance and repairing.

2.4 – INSTRUCTION MANUAL LIMITATIONS

Bear in mind that the manual is only a summary of the main procedures to follow and can never be a substitute for an experienced operator.

The instruction manual refers to the current technology at the time of purchase and the manufacturer reserves the right to update the instruction manual and equipment without reference to any previous instruction manuals and products, except in exceptional cases.

2.5 – HOW TO PRESERVE THE INSTRUCTION MANUAL

Remember that the manual should be kept for the life of the machine.

The manual has a suitable cover designed to protect it from wear.

In addition, two copies of the section on “moving the machine” are supplied (this allows both transport and unloading personnel to refer to this section without having to consult the main text).

If the manual should be mislaid or destroyed, you can request another copy either from the area representative or directly from the manufacturer. You should give the machine type, serial number and year of manufacturer.

2.6 – WARNINGS

IMPORTANT:

Never carry out any operations or manoeuvres if you are unsure of what you are doing. Contact the manufacturer or area representative.

The manufacturer takes no responsibility for human injury, property loss or equipment damage caused by the following situation :

- Improper use of the machine or use by unauthorized personnel
- Improper installation
- Wrong or insufficient power supply
- Improper maintenance
- Unauthorised work or maintenance
- Use of non-original spare parts or parts not applied to the model
- Total or partial non-compliance with the instructions
- Exceptional circumstances

Special Warning:

The manufacturer takes no responsibility for property loss, human injury or equipment damage caused by the machine maintenance without power off or improper use of the machine.

3) MOVING AND INSTALLING THE MACHINE

This section gives information on how to load and unload, move and install the machine.

3.1 – ON RECEIVING THE MACHINE

The machine is supplied without any packing and is pre-assembled (except for models MPC1875/1250, MPC2250/1500, MPC3000/2000 and MPC4500/3000 which are supplied in two or more sections to facilitate container transport). It is ready for connection to the power supply.

IMPORTANT:

On receiving the machine, inspect it to be sure it has not been damaged during transport.

If it has:

A) Contact the area representative

B) Make a written report

C) Send copies of the report to:

-The transporter's insurance company

-The transport company

-The manufacturer or area representative

3.2 – PERSONNEL REQUIREMENTS

Personnel moving the machine require to special training.

Nevertheless, we recommend that this operation be handled by someone who regularly uses lifting equipment in full respect of the safety standards currently in force. If this requirement cannot be implemented, contact Sicoma Service Centre.

3.3 – INSTRUCTIONS FOR LIFTING AND MOVING THE MACHINE

a) The machine can be hoisted using a bridge crane, a mobile crane, a fork lift or any other suitable means with a capacity of at least twice the weight of the machine.

b) There are four lifting eyes distributed on both sides of the reducer beam, which are identified by a sign; please refer to fig. 2 at point 3.4.

c) For overall dimensions see Fig1 at page 7.

d) There are some fixing points on the underframe (see Fig 3 at page 12).

The static and dynamic loads that the machine exerts on the installation site are given in the following table.

Model	Empty Weight (Kg)	Static Weight (Kg)	Dynamic Weight (Kg)
MPC750/500	2000	3520	5280
MPC1125/750	2700	4950	7450
MPC1500/1000	3700	6750	10150
MPC1875/1250	4700	7850	11800
MPC2250/1500	6300	10900	16350
MPC3000/2000	8500	14650	22000

IMPORTANT:

Ensure that the load is correctly balanced.

In case of accidental collision, immediately verify the extent of any damage and contact the manufacturer if necessary.

3.4 – DIAGRAM FOR LIFTING THE MACHINE

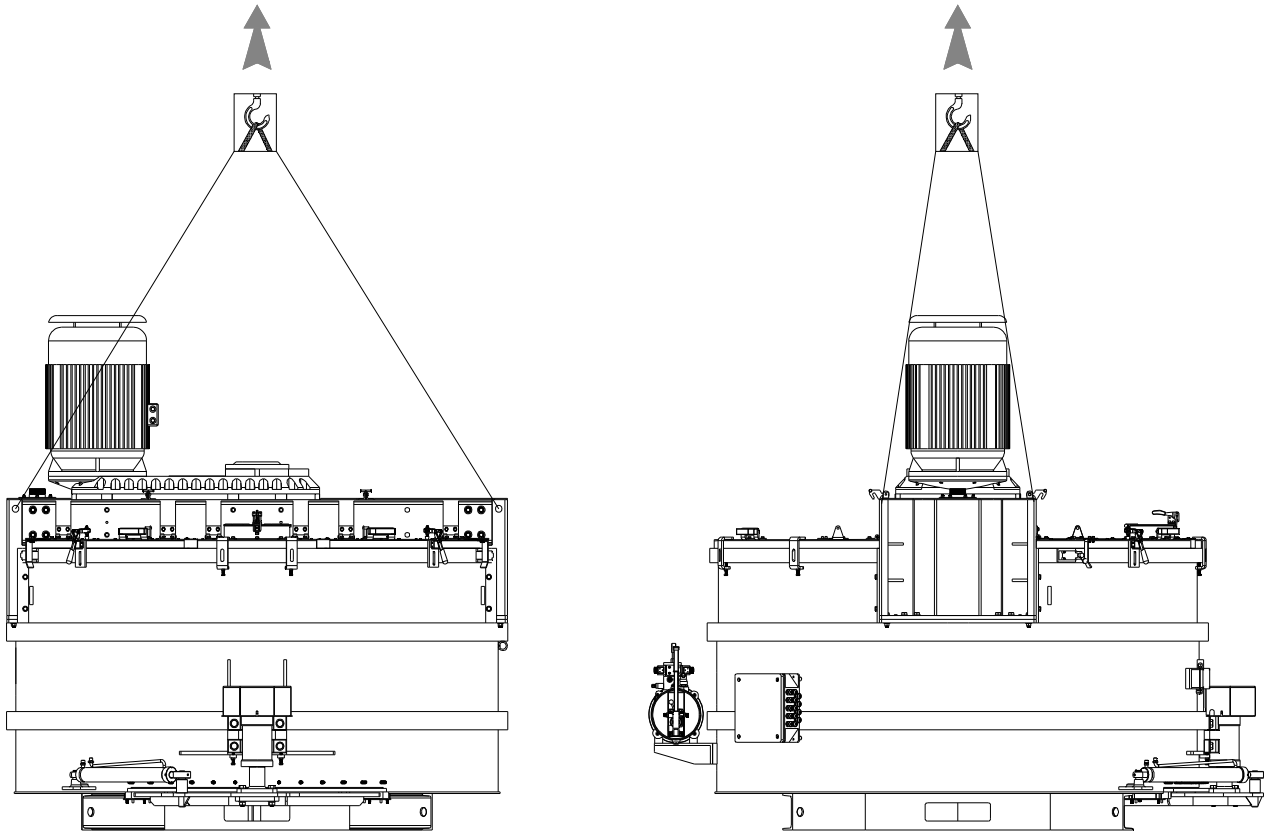
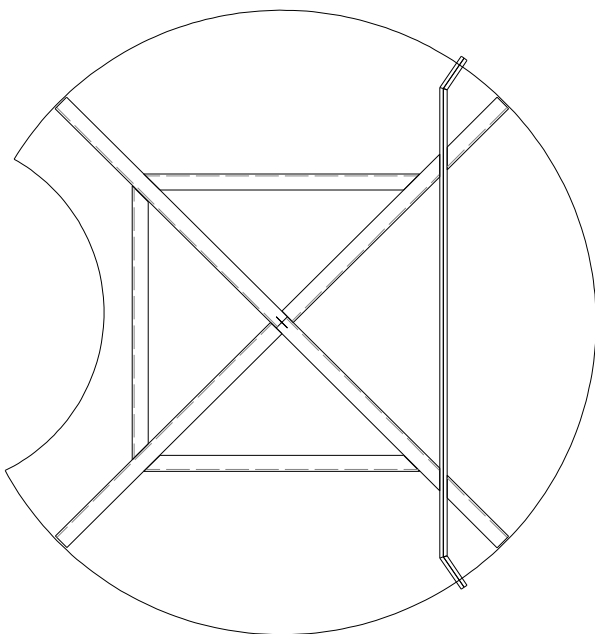


Fig 2

3.5 – INSTRUCTIONS FOR MACHINE INSTALLATION



Attention:

The structure of underframe efficiently makes sure the rigidity of the mixer, so it should be ensured to fix the machine on the underframe, the cross frame must be welded avoiding the screw hole of liners in order to easily replace the bottom liners.

Fig 3

3.6 – CHECKING OIL LEVEL FOR GEARBOX AND HYDRAULIC POWER PACK

IMPORTANT:

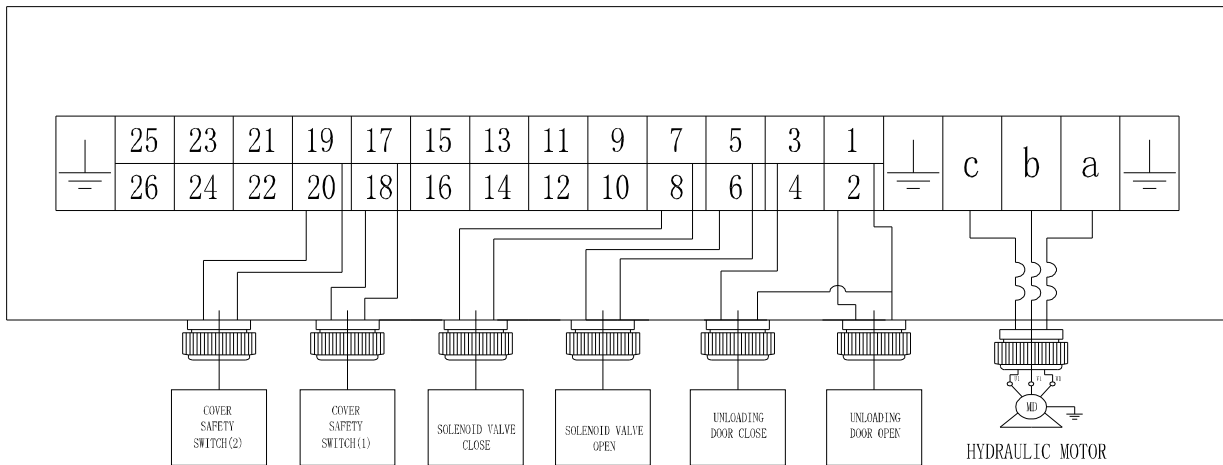
On receiving the machine and thus before starting it up, check the oil level in the gearbox and hydraulic power pack. If, for transport purposes, the machine is dispatched lying on the side, neither the gearbox nor the hydraulic power pack will contain oil. Please fill oil before installation.

4) ELECTRICAL CONNECTIONS

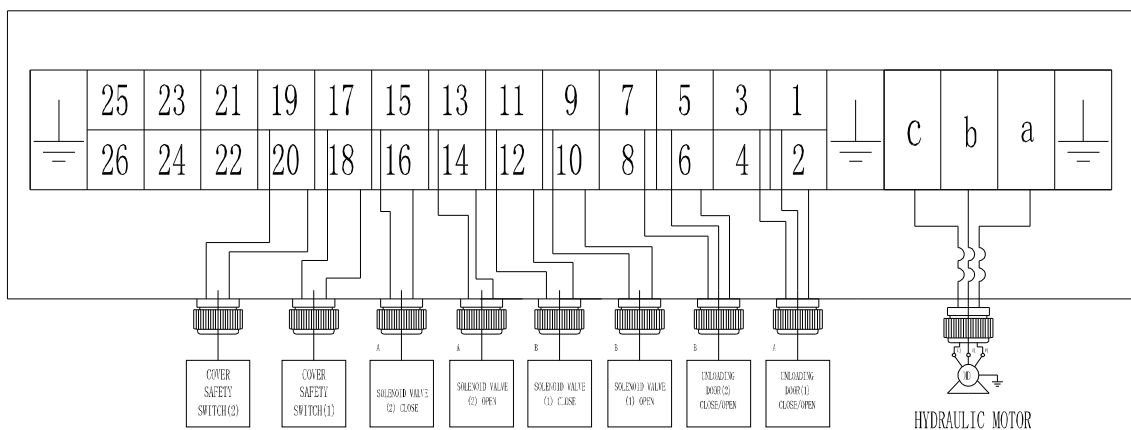
This section gives all the information necessary for making electrical connections during installation.

4.1– ELECTRICAL CONNECTIONS

Connecting the control panel (when finished) to the power supply is all that is required. A cable supplied by the customer must be used to make this connection.



Wiring Diagram of Junction Box for Single Discharge Door



Wiring Diagram of Junction Box for Double Discharge Doors

4.2– JUNCTION BOX

It is low-voltage junction box. The junction box (when furnished) contains a terminal block for connecting power and other auxiliaries.

The limit switches are connected to 2 wires with a normally-open contact, whereas the contact is normally closed in emergency situations.

4.3 – ELECTRICAL SUPPLY CONNECTIONS AND EARTHING

Electrical supply connections must be implemented by a qualified electrician.

IMPORTANT:

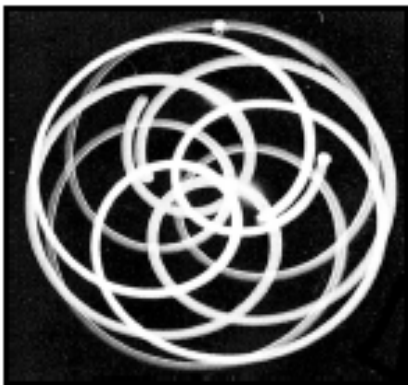
The machine does not require any additional earthing.

The system earthing is sufficient.

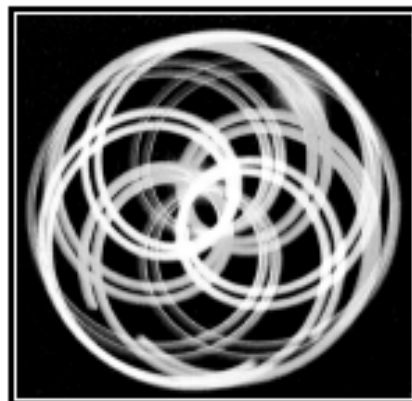
4.4 – MIXING ARMS LAYOUT

The machine is designed to mix solid and liquid products in order to obtain a homogeneous mixture. This is made possible by the forced mixing planetary system: the arm-bearing mixing spider rotates on its own axis and, at the same time, it rotates around the axis of the mixing tank, in a clockwise direction, as illustrated in the photographs below (Fig 6).

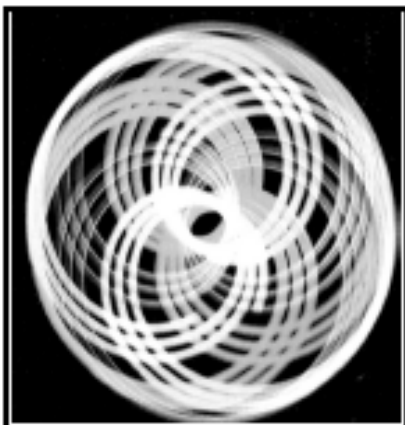
The motion pattern of arms covers completely the area of the mixing tank within 10 sec from start. No matter how the quantity of materials varies, all the materials are mixed constantly without separation and layering to ensure completely homogeneous mixture.



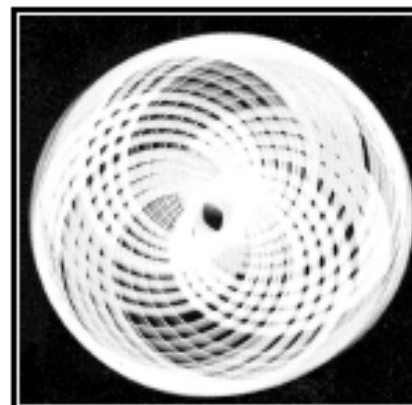
3"



5"



7.5"



10"

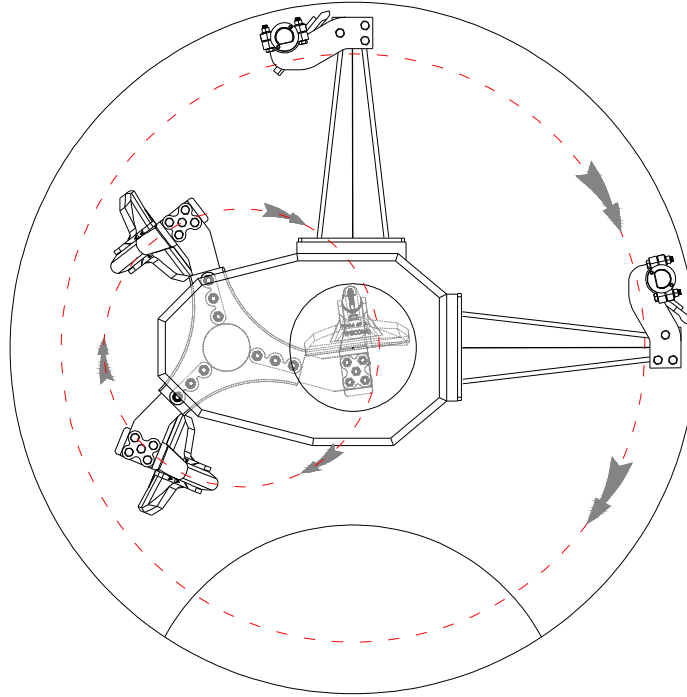


Fig 6

4.5 CHECK THE ROTATION DIRECTION OF MIXING MOTORS

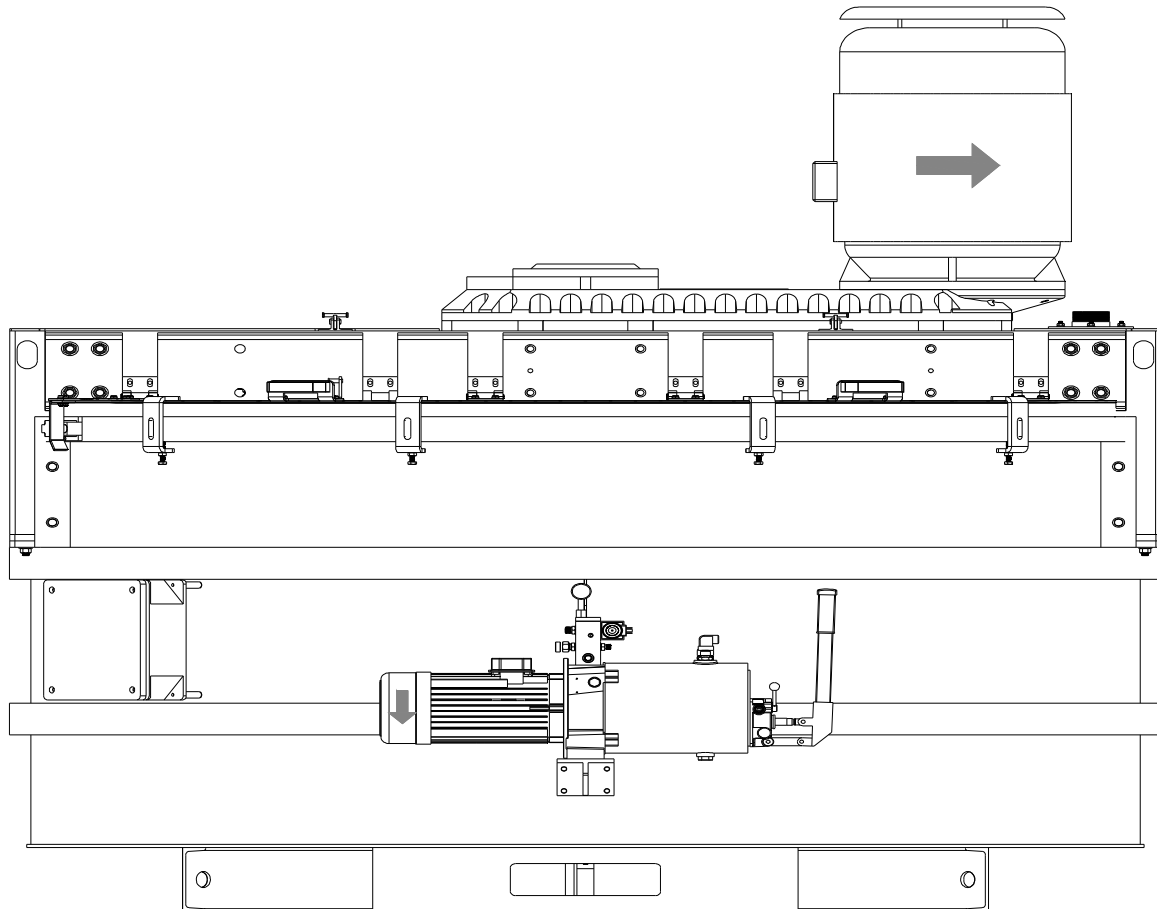


Fig 7

Direction of rotation of the motor is same as the direction indicated by the arrows in the picture.

IMPORTANT:

Check the direction of rotation of the motors (Fig 7).

The correct direction of rotation is indicated by the arrows on the rear part of the motors.

In any event, verify that the mixing arms rotate in clockwise direction (see Fig 6), if this is the case, then all the mixer motors are synchronized.

5) USE OF THE MACHINE

This section gives general information on the uses for the machine and describes its main functions and restrictions as to its use.

5.1 – WHAT IS THE MACHINE DESIGNED FOR

The machine is specially designed for mixing materials of various types, both in terms of their physical and chemical properties (substances which may be used are detailed below).

This machine is manufactured for a certain field, so it cannot be used for other purposes.

5.2 – INTENDED USE OF THE MACHINE

The machine is designed for industrial and small-business use.

5.3 – OPERATOR

No special technical knowledge is required to use the machine.

A careful examination of this manual is sufficient. It should be borne in mind, however, that it is very important to have both experience and a knowledge of the type of product being handled.

5.4 – MATERIALS THAT MAY BE HANDLED BY THE MACHINE

This machine is suitable for mixing:

Materials: Powdered or granular aggregates

Partical size: Maximum partical size can range to **60mm** for mixers with normal blade and to **70mm** for mixers with shovel-shaped blades, with a maximum quantity of 10% of the total.

Special

applications: to handle oxides, a version with a stainless-steel lining must be used. The Polygirs-lined version must be used for particularly sticky aggregates.

Notice: If liquids(water, additives and etc.) must be added, a titling-type loading skip is used.

The design of the mixer is in accordance with the PRC standard (GB/T9142-200) which provides that the load capacity is decided by the concrete of C20 strength. Due to the vigorous development of concrete industry, various new material are emerging which makes a big difference on the mixing capacity when mixing different kinds of materials..The following factors should be taken into account in the selection of mixer capacity:

a) Slump of concrete

Mixing capacity will be affected when the mixer is used to mix different concrete in different slump. The following coefficients are recommended:

Number	Slump (mm)	Stir ability coefficient	Example: Type 3.0m ³
1	0--50	0.75	2.25m ³
2	60--120	0.85	2.55m ³
3	>120	1	3.0m ³

b) Strength of concrete

The strength of concrete can also make a difference in the mixing ability. The following coefficients are recommended:

Number	Strength	Stir ability coefficient	Example: Type 3.0m ³
1	C80<	0.70	2.1m ³
2	C60~C80`	0.75	2.25m ³
3	C40 /C50	0.85	2.55m ³
4	<C40	1	3.0m ³

5.5 – USE LIMITATIONS

The machine is not suitable for mixing

Aggregates with particle size over 60mm (70mm for mixers with shovel-shaped blades) amounting to more than 10% of all aggregates.

Clay with a humidity level of 15% can only be mixed by a specific crusher with blades for clay.

5.6 – WORK ENVIRONMENT

The machine can operate in any normal or standard work environment since it is not affected by normal humidity, dust or variations in temperature.

On request, it can be supplied with systems which enable it to be used in environments where there are explosives or highly aggressive materials such as salt, acid and alkali.

6) TECHNICAL DESCRIPTION

This section provides a technical description of the machine and how it works. It details everything the operator and maintenance personnel need to know in order to understand the proper working of the machine and to quickly identify possible faults and malfunctions.

6.1 – DESCRIPTION OF THE MACHINE

6.1.1) MIXING TANK SYSTEM:

a) MIXING TANK: made of very thick steel sheets on a frame of U-type sections allowing several discharges. The tank is protected by a metal sheet preventing powders from spilling while a microswitch blocks the mixer should be front door open.

b) TANK BOTTOM AND WALLS: made of very thick sheets of Fe 52 with 120 HB resistance, with interchangeable and bolted sectors. On request a special anti-wear lining of CR 321 with 300HB resistance or, only for the bottom, of CR 6000 with 460 HB resistance.

c) COVER: made of cover, inspection door, inspection window, safety switch etc. The main function is for sealing, material feeding and inspection.

6.1.2) MIXING SYSTEM

It is composed of spider, mixing arms, scraper arms, mixing blades and wear linings (anti-wear linings). The machine is designed to mix solid and liquid products in order to obtain a homogeneous mixture. This is made possible by the forced mixing planetary system: the arm-bearing mixing spider rotates on its own axis and, at the same time, it rotates around the axis of the mixing tank, in a clockwise direction.

1. SPIDER: made of anti-wear ductile cast iron.
2. SUPPORT OF OUTER ARMS: Mixing Arm: made of super quality steel plate and welded.
3. SCRAPER ARMS: made of super quality steel plate and welded.
4. MIXING BLADES: composed of outer shovels and blades
5. SIDE LININGS: made of middle-chrome alloy cast iron
6. BOTTOM LININGS: made of anti-wear high-chrome cast iron
7. DISCHARGE GATE: it is a sector at the bottom of the tank (three more optional discharge outlets can be provided on request). It can be opened by means of a handle with an endless screw for easy manual operation, or can be by hydraulic cylinder whose position is controlled by a limit switch (two positions: open and closed).

6.1.3) TRANSMISSION SYSTEM

It is composed by electric motors, gearbox and reducer beam.

1. ELECTRIC MOTORS: 4-Pole motor. 4-pole 1470R/Min. The power, voltage and frequency are variable. It is in F class insulators, tropicalized and with an IP55 protection. **It is recommended not to start the motors if there are some materials in the mixing tank.** Open the discharge door by electric or manual emergency pump to discharge the materials first before starting motor.
2. MIXING REDUCTION UNIT: has incorporated planetary gearing and is the heart of the machine. It has been specially developed over the years to stand up to severe stress and tough working conditions as well as for use during non-stop work shifts. The bolted-on reduction-gear housing is supported by a frame, is easy to dismantle and is bridge-mounted on the mixing tank. The helical gears, which are more resistant, are very quiet even at high rotation speeds and are of 18NCD5 case-hardened steel. With thermal treatment, the resistance on the surface of the teeth has a hardness of 58-60 Rc. The torsion shafts are made from 39NCD3 tempered steel with an average resistance of 90 Kg/mm². The bearings all have tapered rollers to ensure greater static and dynamic loading and are adjustable. The reduction gears operate in an oil bath (Engler EP150) ensuring maximum lubrication in conditions of extreme pressure on the teeth. The reduction unit may be connected to the motor via a hydraulic coupling. This facilitates starting the machine even with a full load.
3. REDUCER BEAM: With C-shaped steel frame structure, it is bridged on the mixer tank by the connection of bolt to the gearbox outer case supported by frame. It is designed to give maximum stability and protection for the gearbox.

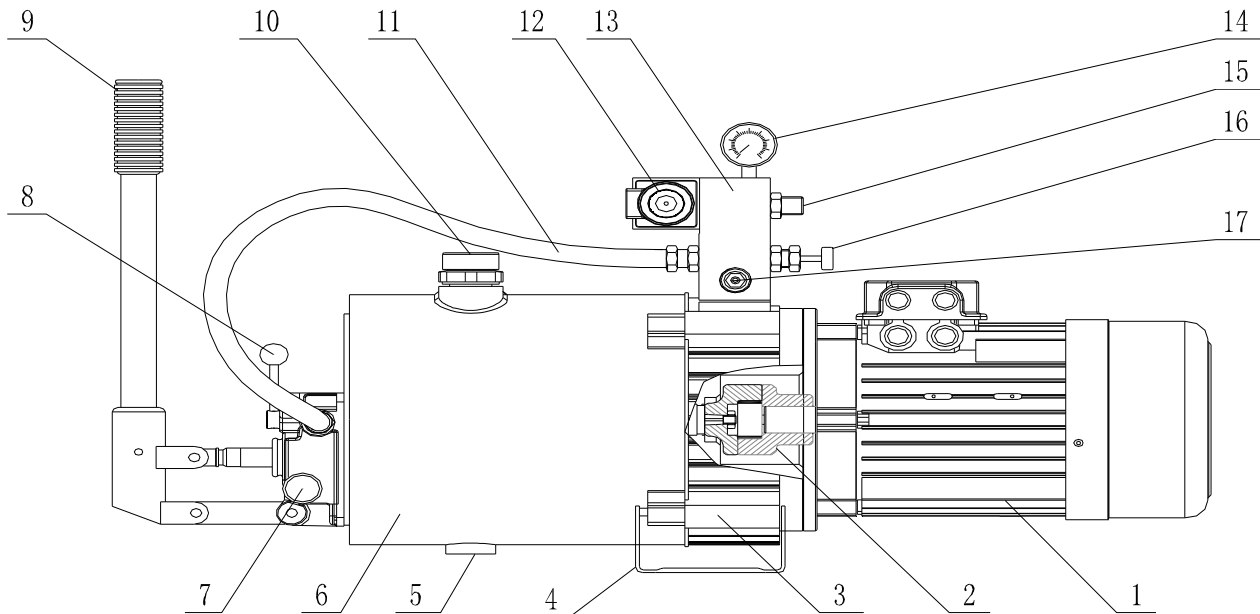
6.1.4) UNLOADING SYSTEM

Composed by discharge door, hydraulic cylinder, hydraulic power pack and limit switch. At automatic mode, there are two-position settings: open and closed.

1. DISCHARGE DOOR:

It is composed by discharge door, liners and bearings. The clearance between the mixing tank and the discharge door should be within 1-3mm. The discharge door should be cleaned periodically to prevent concrete accumulation and ensure a smooth door operation.

2. HYDRAULIC POWER PACK



- | | | | |
|--------------------------------|--------------------|-----------------------|-------------------------------------|
| 1. Motor | 2. Universal Joint | 3. Pump Body | 4. Support for Hydraulic Power Pack |
| 1. Oil Outlet | 6. Oil Tank | 7. Manual Pump | 8. Reversing Valve Handle |
| 9. Manual Pump Handle | | 10. Vent Cap | 11. High Pressure Hose |
| 12. Solenoid Valve | | 13. Manifolds | 14. Pressure Gauge |
| 15. 3/8 Screw Thread Output | | 16. Manual Stop Valve | |
| 17. Max. Pressure Safety Valve | | | |

Hydraulic power pack is composed of motor, pump, cylinder, manual pump and valves group, etc. The hydraulic system shall work only at unloading phase. It shall not continuously work for a long time; otherwise the rubber seal will be worn rapidly. On power cut or emergency, it can be operated manually for urgent unloading.

3. MANUAL PUMP

The hydraulic control gear is equipped with a manual pump for emergency discharge. Loose the one-way valve knob and set the reversing valve to the right position. Shake the manual handle back and forth and the discharge gate will gradually open. Regulate the gate at the right position for emergency unloading.

4. HYDRAULIC CYLINDER

Controlled by hydraulic power pack or manual lever (manual pump), the oil flow into a double-acting cylinder through a one-way valve, then the oil cannot flow back and the cylinder piston rod stretches, conversely the cylinder piston rod retracts.

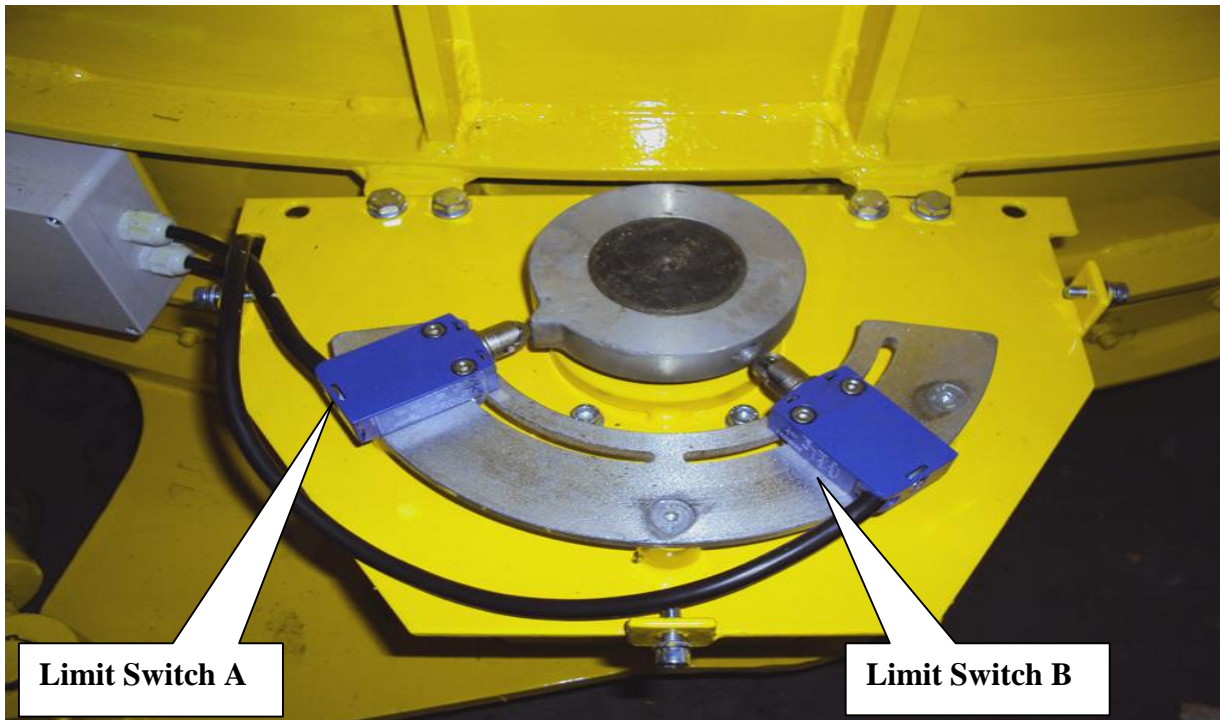
Pressing the opening pushbutton, the correspondent solenoid in the solenoid valve is excited and the pump stop is operated by the opening micro-switch placed on the discharge door rotation axis. Pressing the closing pushbutton, the correspondent solenoid in the solenoid valve is excited and the pump stop

is operated by a pressure switch placed on the circuit. The closing micro-switch has to be used only to indicate the position of the door and activate any automatic devices required. The motor of the pump stops at each cycle end.

- Hydraulic Motor: 3 Phase AC 380V, 50HZ/2.2KW.
- Solenoid Valve: 50Hz/DC24V
- SHELL VG46 anti-wearing hydraulic oil is recommended to be used in the cylinder.

5. DISCHARGE DOOR POSITIONING SWITCH

The discharge door positioning switch is a contact type switch, which is stable and durable.



Remarks:

1. Limit switch A for complete open
2. Limit switch B for complete close

6.1.5) ELECTRIC CONTROL SYSTEM

It is composed by motor control, discharge door control, cover safety device control, junction box, etc..

- a) Mixing motor control circuit is supplied by the customer.
- b) Discharge door control circuit is supplied by the customer. The manufacturer gives a reference as attached. The wire connection terminals are ready for connection.
- c) Cover Safety Control: With the cover safety device, when the inspection window of the cover is opened, the main motor cannot operate. It ensures the operator safety in case of maintenance and repair.
- d) Junction Box: it has terminals to connect the discharge door, cover safety device and discharge door limit switch. The diagrams are attached for reference.

6.2— SEQUENCE OF OPERATIONS DURING THE MIXING CYCLE:

- .Start up of mixing motor.
- .Closure of unloading door.

- .Introduction of granular and/or powder material.
- .Dry mixing.
- .Introduction of water, chemical additives and colorants (if required).
- .Final mixing.
- .Unloading of mixture.
- .Cleaning of tank and mixer parts with manual or automatic cleaning system (if fitted).

6.3 – TECHNICAL DIAGRAMS AND TABLES

6.3.1) JUNCTION BOX DIAGRAM

Circuit diagram as attached.

6.3.2) HYDRAULIC DIAGRAM

Hydraulic diagram as attached.

6.4—SOUND TESTS

6.4.1) TEST CONDITIONS

The mixer is in working condition.

Test site should be meet the regulations GB/T 9142-2000.

Weather: no rain, wind force less than 3.

Besides of the inspector, the other people should be not nearby the measuring apparatus, otherwise the people must stay behind of the inspector to prevent sound source interference.

6.4.2) TEST REQUIREMENT

Because each work site is different, noise-level measurements is taken 1 meter from the vertical surface of the machine, 1.60 meters above ground level and on the four median axes of the support base, in accordance with the Machinery Directive 89/392/EEC.

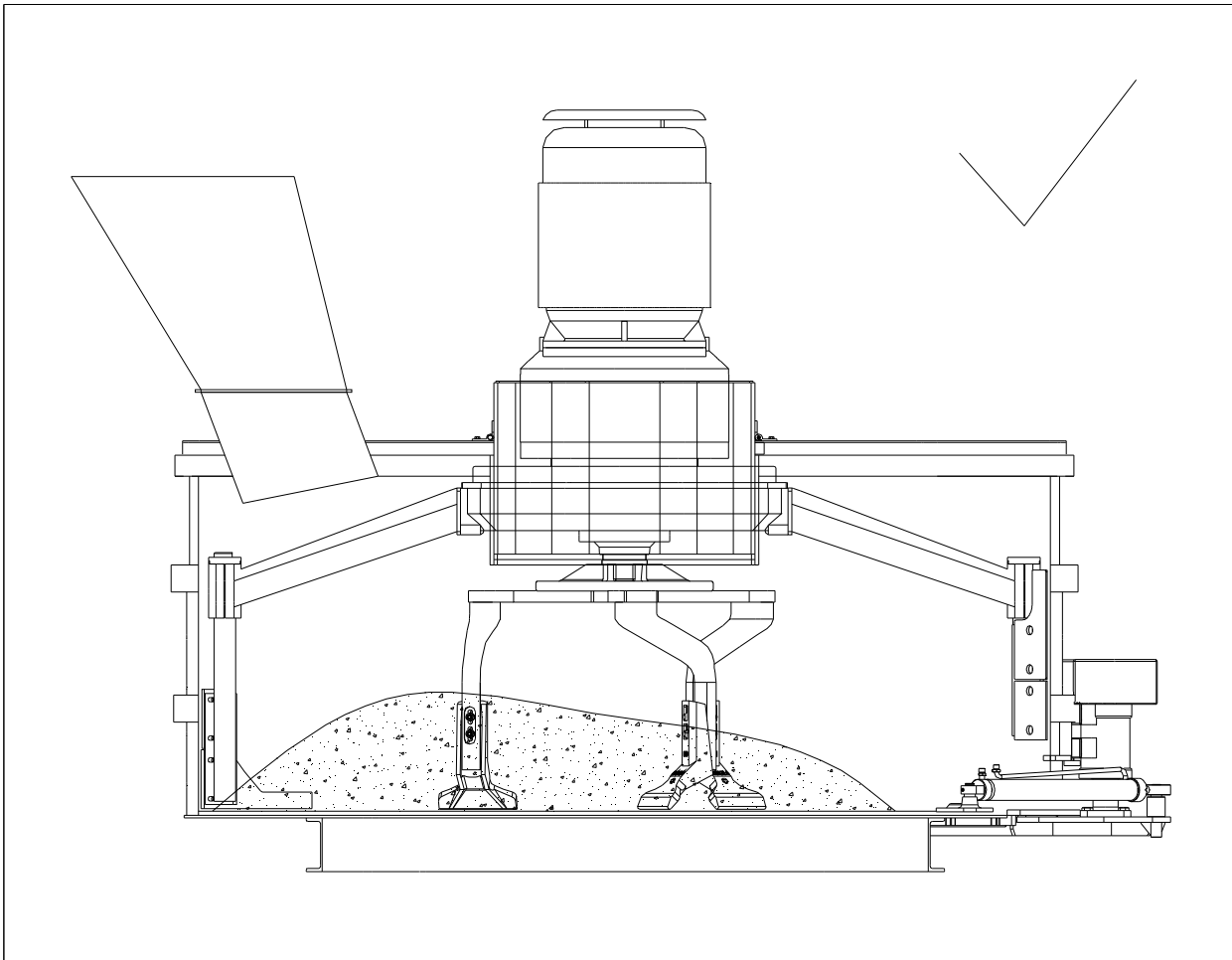
6.4.3) AVERAGE Leq (A)

Leq = 70 dB (A)

6.5—AGGREGATE INLET INSTRUCTIONS

There are many advantages and characteristics for planetary mixer, which makes its structure and mixing way different from twin shaft mixer. Thus some speical requirements are required for aggregate inlet position, filling sequence and mixing time. The position and cutting way for aggregate inlet will not only affect the mixing time, mixing efficiency and mixing quality, but also the service life of the mixer. And it's very important to consider about the proper position and cutting way before designing the batching plant, therefore, we recommend to take the following way:

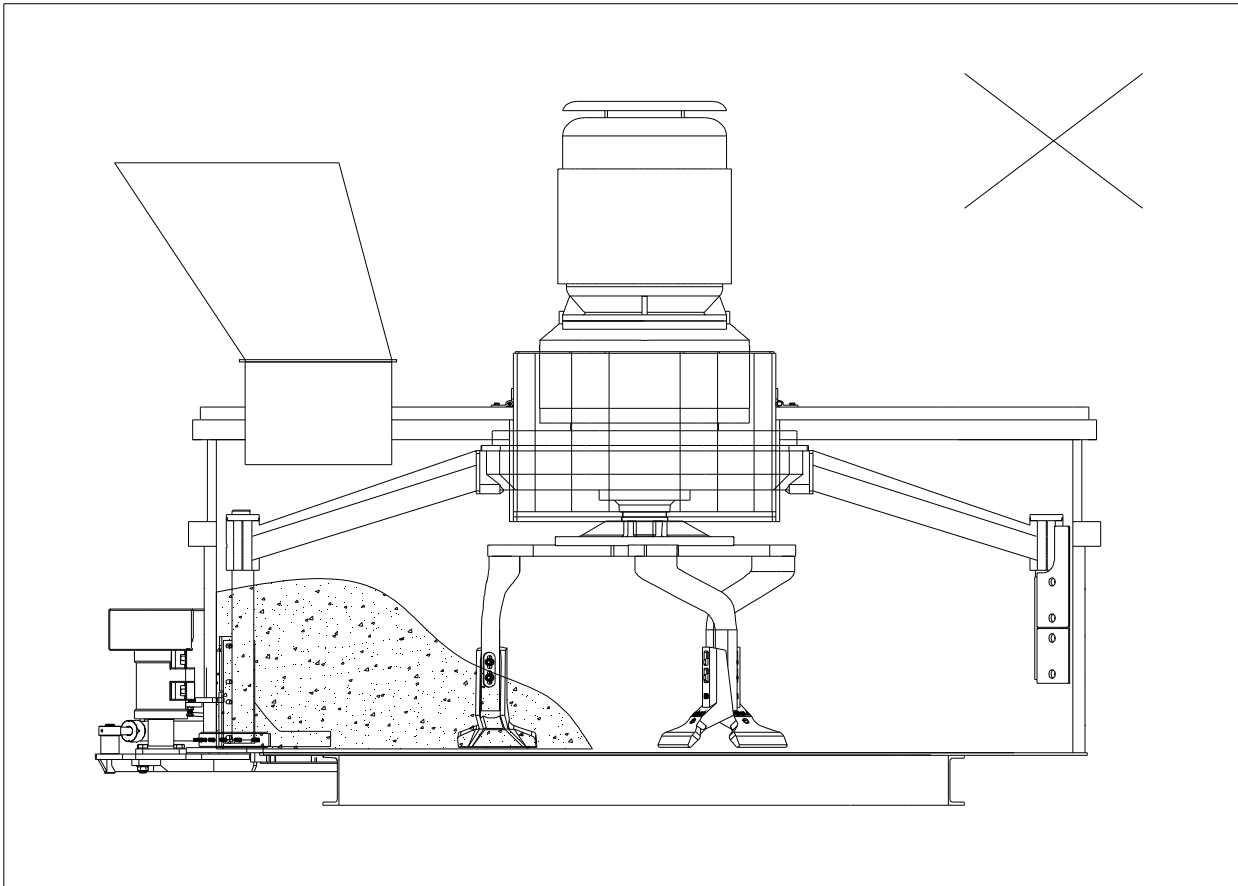
6.5.1) INSTRUCTIONS FOR CUTTING AGGREGATE INLET



Correct Way (Fig 1)

The correct way can improve mixing efficiency and mixing quality, shorten the mixing time and extend the service life of the mixer. Kindly find the following principles for cutting the aggregate inlet:

1. Moderate aggregate discharging height and speed could reduce the impact to the mixer.
2. The aggregate effectively disperse in the mixing tank after discharging.
3. The aggregate inlet should be as far as possible to keep away from the right above of the discharge door.

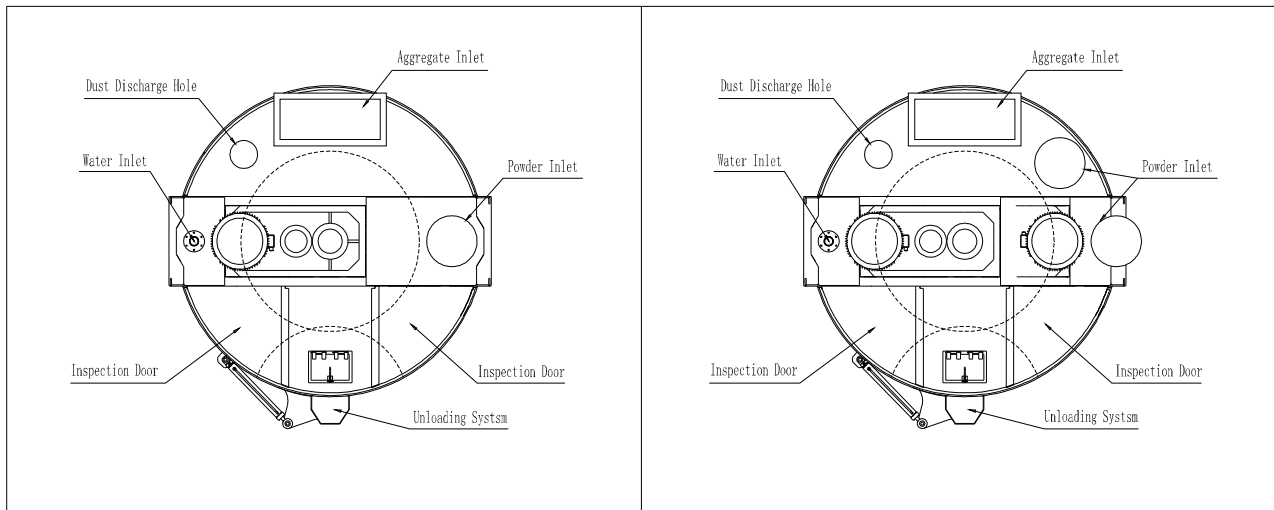


Incorrect Way (Fig 2)

Kindly find the problems for Fig 2 as follows:

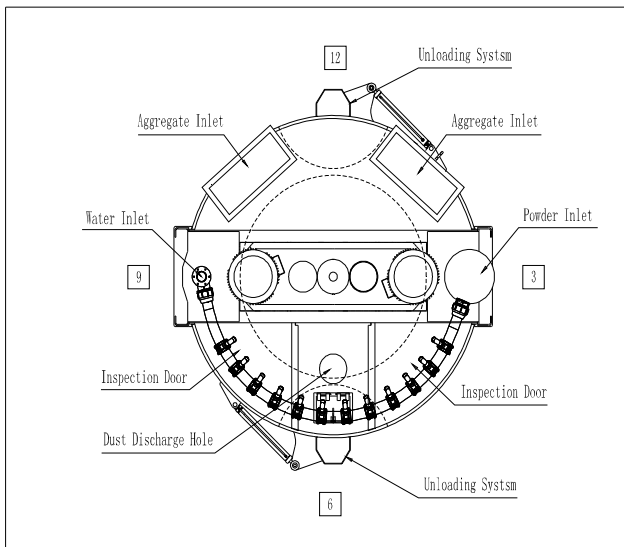
1. Aggregate inlet is at the right above of the discharge door.
2. The aggregate accumulate because of vertical inlet.

6.5.2) CORRECT AGGREGATE INLET LAYOUT

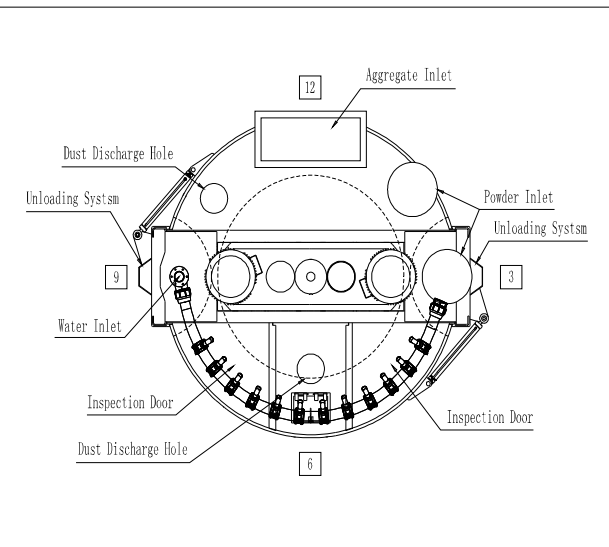


One Spider and One Discharge Door

Two Spiders and One Discharge Door

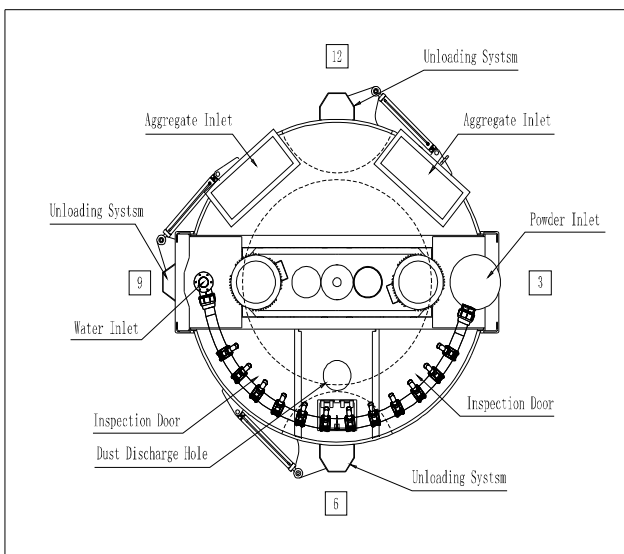


Two Spiders and Two Discharge Doors

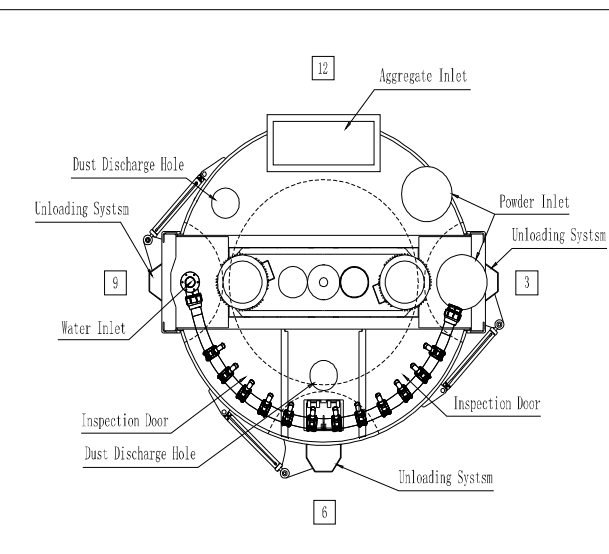


Two Spiders and Two Discharge Doors

Advice: When the two discharge doors are required to be 180 degree, it's better to open at 3 O'clock and 9 O'clock positions (ref. to the right picture).



Two Spiders and Three Discharge Doors



Two Spiders and Three Discharge Doors

Advice: When three discharge doors are required, it's better to open at 3 O'clock, 6 O'clock and 9 O'clock positions (ref. to the right picture).

7) INSTRUCTION FOR USE

This section details the correct use of the machine.

7.1 OPERATION PROCEDURE

The main mixing phases (described in brief in the preceding section) are:

- Loading phase.
- Mixing phase.
- Unloading phase.
- Cleaning.

7.2 LOADING PHASE

- a) Check to be sure that the mixing tank is empty.
- b) Close the protective guarding by activating the appropriate limit switches.
- c) Close the mixer unloading door by pressing the appropriate push button.
- d) Start the mixing motor by pressing the appropriate push button.
- e) Start to load the machine. If it is equipped with a skip (fixed or mobile type) press the appropriate push button.

7.3 MIXING PHASE

PREMIXED MIXTURE FOR TRUCK MIXER'S LOADING

- a) Dry mixing for per 15".
- b) Inlet water (it can be input both at network supply standard or high pressure piping); average water inlet duration 10".
- c) Mixing: 40" if the concrete is destined to transportation with mixing truck, 60" if destined to direct use for casting or prefab, mixing time increases in case of humidity detection by means of a probe.
- d) Unloading: 10".
- e) Closing unloading door: 3".

7.4 CONVEYOR LOADING PHASE

Conveyor loading time counts as dry premix phase and cement can be introduced simultaneously with the aggregates. As soon as the cement scale display marks 0 (zero) water can be introduced. Loading and pre-mixing time varies according to the capacity of the conveyor belt, therefore only 15" of final pre-mixing is sufficient to obtain perfect homogeneousness of mixture. Discharge and outlet opening times are not changed.

7.5 UNLOADING PHASE

Discharge takes place through the outlet situated on the bottom of the tank, it is necessary to press the related button.

IMPORTANT NOTICE:

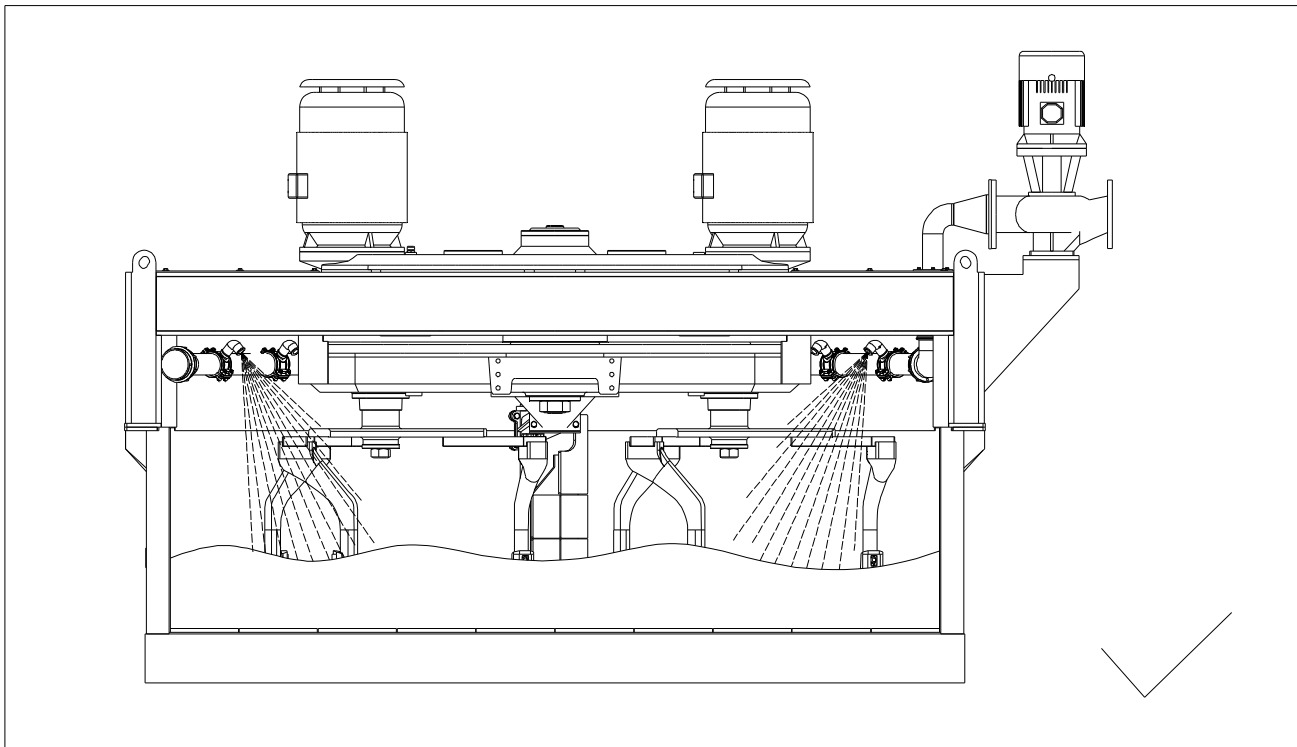
in case the mixer is equipped with more than one outlet and if only one of them is currently used, it is possible that the others tend to rotate towards the opening position under the pressure exerted by the mixing and side arms at every turn over such outlet doors it is wise to carry out a complete opening and closing for every hour of operation in order to restore correct sealing of the rubber gaskets, or to perform correct repositioning of the end-switch for the outlets not provided with gaskets.

- a) The discharge time is 20" for repeated cycles, or of 40" to obtain full discharge of the tank.
- b) Outlet closing requires goes from 2" for the pneumatic-operated model to an average of 4" for the hydraulic-operated model.
- c) Every cycle lasts as a whole from 90" to 120".

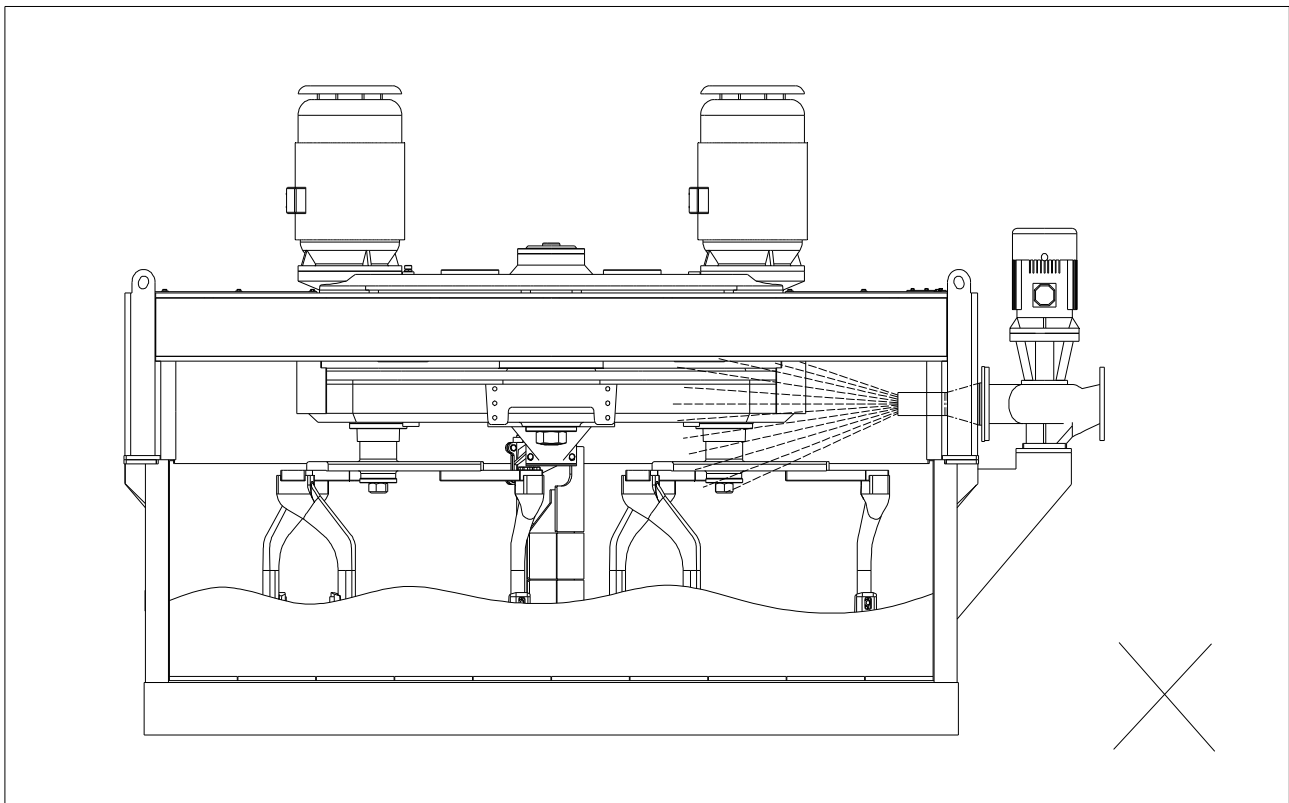
7.6) CLEANING

To remove traces of mixture, clean the machine at the end of the work cycle either by using the automatic system provided or else manually.

A. INSTALLATION FOR WATER INLET PIPE



Correct way: spray water to the bottom center of the mixing tank at the angle of 45 degree.

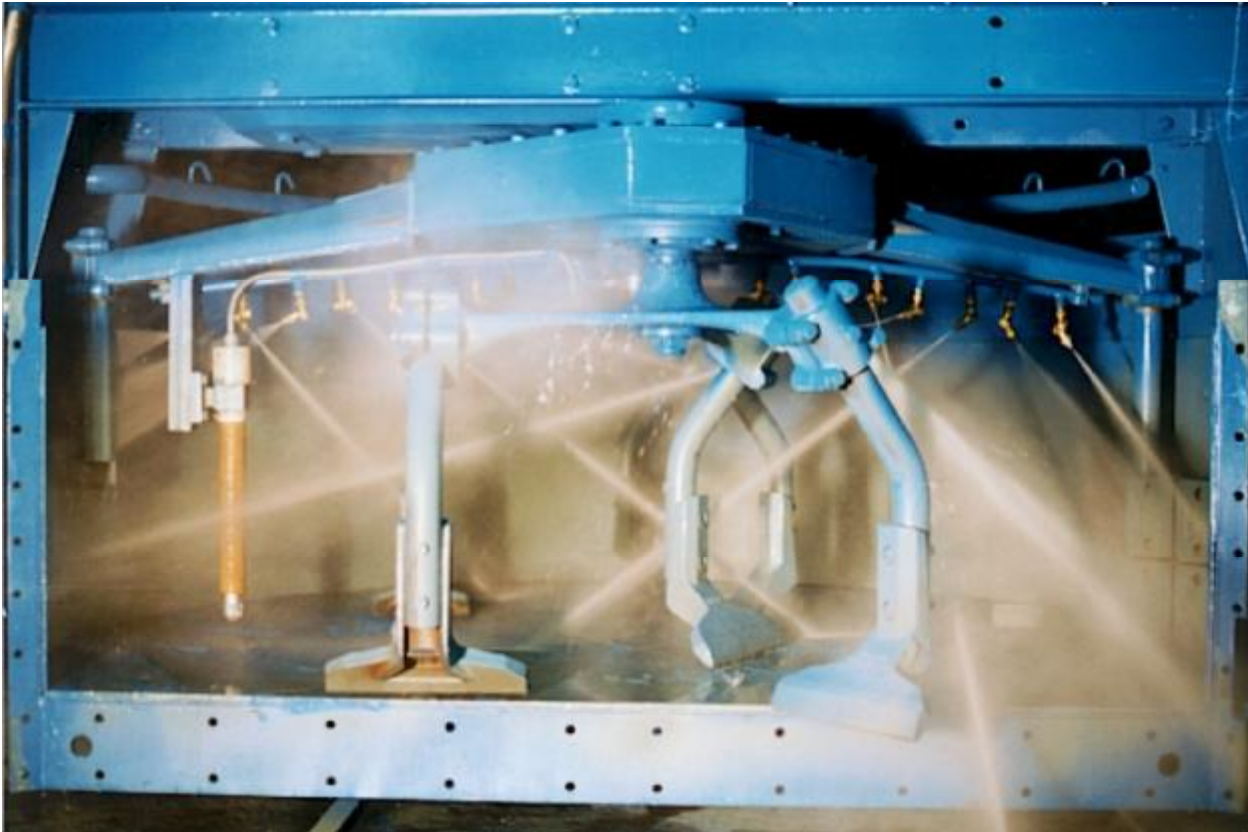


Incorrect way: Spray water to the gearbox and spider.

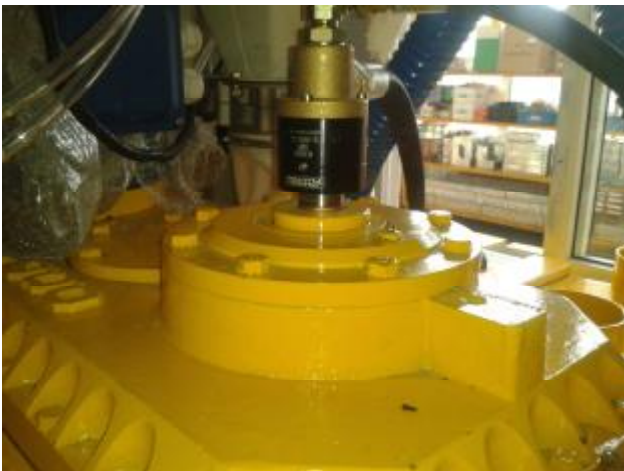
IMPORTANT:

We recommend the use of an automatic cleaning system (supplied on request) which cleans the mixing components at the end of the unloading phase before a new mixing cycle begins. Where manual cleaning takes place, **DO NOT USE A HAMMER** to remove traces of mixture. Striking the blades violently can break them.

B. HIGH PRESSURE WASHING SYSTEM



Picture (1)



Picture (2)



Picture (3)

When traces of concrete needs to be cleaned automatically, an optional high pressure washing system is need, water can be introduced into the mixing tank through the high pressure water piping (see picture 2). Spraying nozzle follows the gearbox motion pattern (see picture 3), which cleans mixing components thoroughly (see picture 1).

IMPORTANT:

Where semi-dry or liquid concrete or resins are being mixed, we recommend cleaning the machine at the end of each work shift, or before any break in production lasting longer than the setting time of the mixture.

IMPORTANT:

Where a black-out should occur, before re-starting mixing motors, it is important to empty the mixing tank by opening the discharge door with the emergency manual pump situated on the hydraulic.

IMPORTANT:

Make sure the power is cut before entering the mixer for cleaning.

8) SAFETY DEVICES: CHECKING AND ADJUSTMENT

8.1 – SAFETY DEVICES

8.1.1) MAXIMUM-PRESSURE SAFETY VALVE

- a) The hydraulic circuit is equipped with a valve to protect against any pressure increases which could damage system components.
- b) At least once a year, check that the maximum-pressure safety valve is functioning correctly. This valve is situated on the main hydraulic unit. The valve is set for 100 bar and has been tested prior to being fitted to the machine.

Check as follows:

- a) Loosen the lock-nut on the control screw (with hexagonal recess) situated on the electric valve unit.
- b) Turn the screw clockwise one revolution.
- c) Check to be sure that the pressure gauge shows a rise in pressure.
- d) Turn the screw back to the original position and tighten the nut.

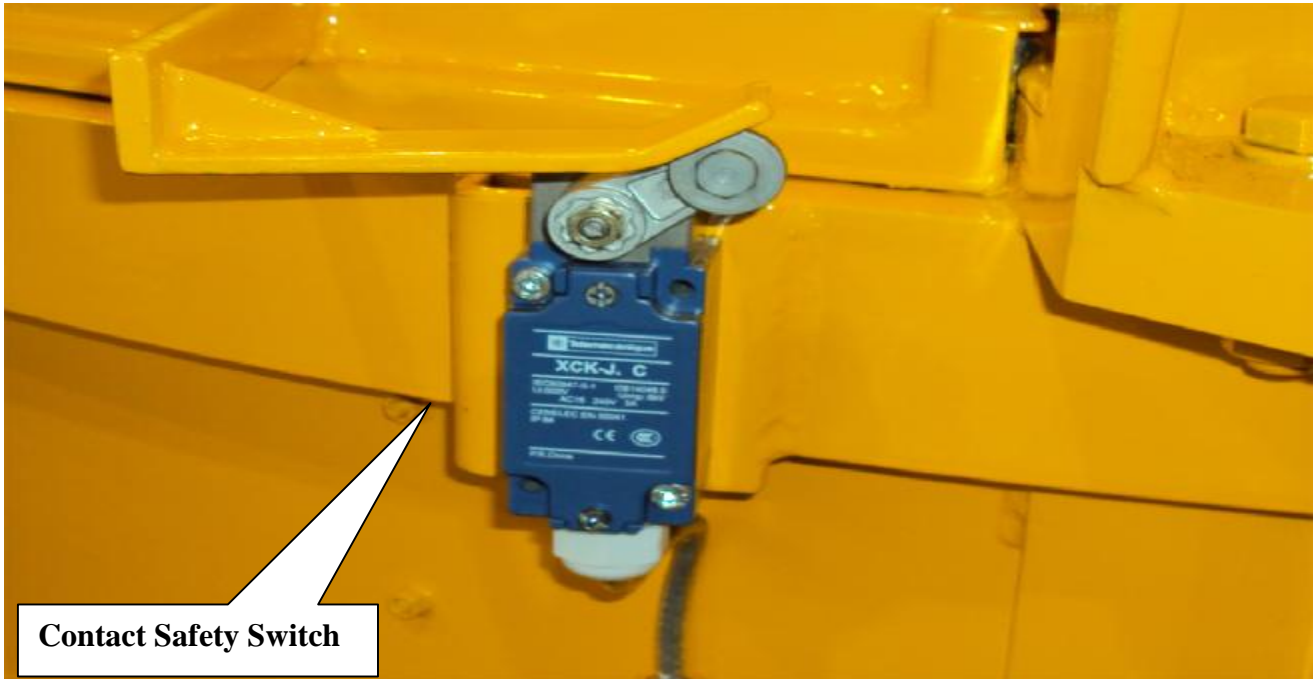
IMPORTANT:

If the pressure shown on the pressure gauge does not vary, change the valve.

8.1.2) CHECKING COVER SAFETY SWITCH

IMPORTANT:

Check the validity of the cover safety device before entering the mixer every time.



It is emphasized by SICOMA that the below procedure must be strictly followed before the operator enters the mixer.

1. Cut the motor power of the controlling cabinet first. Give the key to the operator who is to enter the mixer.
2. Open the inspection door and keep the contacting switch in break mode.
3. Double check if the motor cannot be activated and then enter the mixer.
4. After maintenance, make sure there are no people or other things (tools or accessories) left before connecting the motor power.

9) MAINTENANCE INSTRUCTIONS

The machine has been designed and built to reduce maintenance work to a minimum.

This section gives information on ordinary maintenance work to be carried out at set intervals.

Point 9.10 at page 37 gives information on fault-finding and repair of malfunctions that are not a direct result of a lack of maintenance and which require immediate attention. Bear in mind that planned and/or extraordinary maintenance and repair work must be done by qualified professionals with specific training in these fields. To be more expedient, just contact Sicoma service centre.

When performing any type of intervention, the following safety standards must be followed:

- **Machine cleaning and maintenance (mixer and skip) must be done while the electrical power is off (using the isolator switch on the control panel), as well as the pneumatic and hydraulic supplies.**
- **Before starting any type of maintenance, set out placards indicating MACHINE MAINTENANCE. Place the signs in clearly visible areas.**
- **Keep unauthorized personnel away from the work area.**
- **Wear suitable work garments (overalls, gloves, boots) without any loose ends.**
- **The electrical control panel must be opened only after the machine is off and once a sufficient amount of time has elapsed for the electrical equipment to cool.**
- **Do not use solvents, inflammable materials or water to clean and maintain the electrical panel.**
- **Do not smoke or use open flames around inflammable materials such as rubber, oil, plastic, etc.**



Do not modify, alter or tamper with the hydraulic circuit in any way, nor with the electrical parts, moving parts, cables, safety devices or electrical wiring.

- Avoid coming into contact with hydraulic fluids and dispose of them properly, especially during filling, recuperation and repair operations. In case any leaks should occur, be sure to wear rubber gloves when changing the oil.
- At the end of maintenance, repair or cleaning operations, restore the refasten all the guarding and protective casings that may have been opened or removed.
- Used oil must be disposed of in closed containers and redelivered to your usual supplier or to competent public agencies so that can be disposed of as provided for by law.

IMPORTANT:
Before undertaking any work, turn off the power using the isolating switch on the control panel.

9.1— CHANGING THE LUBRICATING OIL

Authorized personnel: Operator

Change the oil in the reduction gearboxes **EVERY 4000 HOURS** or at least **EVERY 2 YEARS**.

IMPORTANT:
Use plastic funnel to add clean and right amount SICOMA special gear oil ,fasten air vent

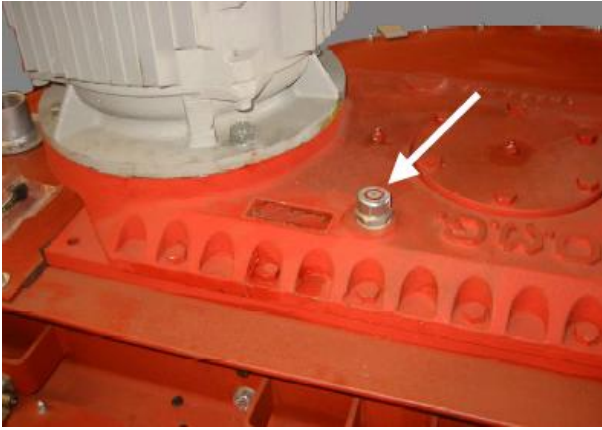
Oil Qty (Lit)	MPC565/375	MPC750/500	MPC1125/750	MPC1500/1000	MPC1875/1250	MPC2000/1350	MPC2250/1500	MPC3000/2000	MPC4000/3000
Reduction Gearbox	22	34	55	82	82	87	135	157	208
Planetary Gearbox	8	12	12	21	33	22	47	80	160

Table (1)

Operator must periodically check (each 100 hours) the oil level, if oil level is lower than the minimum quantity, the oil should be refilled.

Before checking the oil level, please take out the plug (see picture 1) of the reduction gearbox, and then check if the oil is between the maximum and minimum levels (see picture 2).

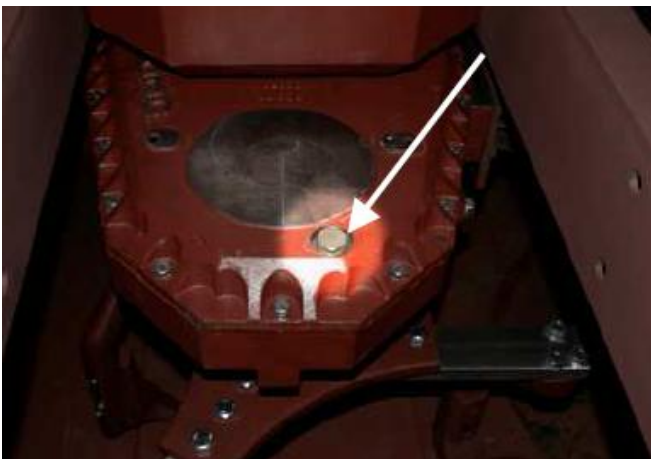
Please fill the oil from the oilhole under the plug in picture 1 and refer to the quantity in table (1), after filling the oil, please recheck the oil level.



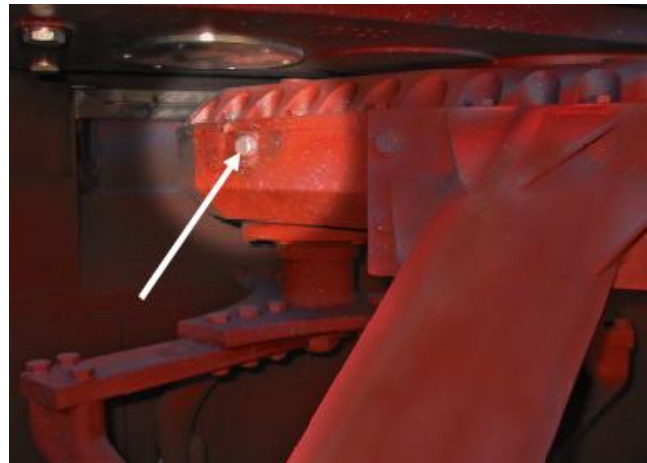
Plug for Reduction Gear (picture 1)



Oi Level Indicator (picture 2)



Plug of Oil Filling Hole for Planetary Gearbox (picture 3)



Oil Level Plug for Planetary Gearbox (picture 4)

Before filling the oil, please take out the plugs in picture 3 and picture 4, and then fill the oil until the oil flows out from the oilhole in picture 4, after filling the oil, please put back the plugs.

9.2— GREASING

Regularly grease parts fitted with greasing nipples. **Change grease for gearbox EVERY 2000 HOURS or at least EVERY 2 YEARS**

IMPORTANT:

Use **TEXACO MULTIFAK MP2** grease or equivalent, **UNIXM** grade.

▲IMPORTANT:

1. **It is suggested to use original grease from producer.** SICOMA shall not compensate or replace parts for damage caused by using dirty grease.
2. **Grease Grade:**
 - 1) Working Temperature above 5°C — NLGI 2#
 - 2) Working Temperature -10°C~5°C — NLGI 0#
 - 3) Working Temperature below-10°C — NLGI 000#

9.3—LUBRICATING MIXER PARTS

Authorized personnel: Operator

Periodically fill the grease to the parts fitted with greasing nipples (refer to page 41, lubrication instructions for gearbox).

9.4—CHANGING THE HYDRAULIC OIL

Authorized personnel: Operator

Change the hydraulic oil in the main hydraulic cylinder **EVERY 2000 HOURS** or at least **EVERY 2 YEARS**. When changing the hydraulic oil, completely drain the system, including pipes and cylinder (or cylinders, depending on equipment).

Oil Qty (Lit)	MPC150/100	MPC375/250	MPC750/500	MPC1125/750	MPC1500/1000	MPC1875/1250	MPC2000/1350	MPC2250/1500	MPC3000/2000
Hydraulic System	3	10	10	10	10	10	10	10	10

ATTENTION:

Please take care of disposing the grease and hydraulic oil, it is recommended to be disposed by specialized company.

9.5 – CHECKING BOLT TIGHTNESS

1. Check the tightness of the bolts securing the arms and blades of both the mixing and the scraper arms once a week.
2. Check the tightness of the joint bolts of the mixing arms and blades for every 500 hours of use and after replacement or adjustment.
3. A torque wrench is recommended for this work to ensure that bolts are tightened to the correct torques, as listed in the table below.

TORQUE (Nm)	Mixing Arm	Scraper Arm	Side Scraper	Bottom Scraper
MPC 150/100	21.5	42
MPC 375/250-MPC565/375	125	125	74	74
MPC 625/420	125	180	42	74
MPC 750/500	180	180	42	74
MPC 1125/750- MPC 3750/2500	180	180	74	74

9.6 – CHECKING PARTS SUBJECT TO WEAR

The internal walls, arms and blades are liable to wear. They must therefore be checked periodically and changed when:

- The thickness of the walls is 2-3mm.
- The arms and blades have worn more than 50%.

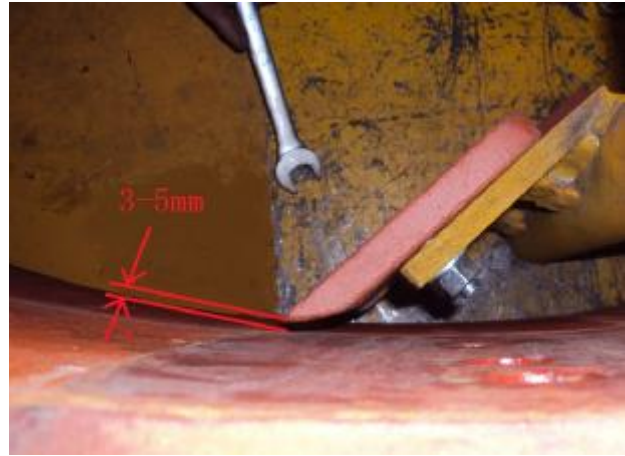
When changing, please set to the torques given in the table at point 9.5.

9.7 – ADJUSTING THE MIXING AND SCRAPER ARMS

The mixing and scraper arms need periodical adjustment to ensure that the machine is operating at full efficiency. If such adjustment is not carried out, problems may arise. Lack of adjustment causes rapid wear to the bottom of the tank and to the blades; grit caught between the blades and the bottom gets crushed and causes abrasions. If there is too much space between the iron blades and the bottom, larger and harder stones can get caught, bending the arms and probably breaking the cast-iron blades.



Adjustment Clearance for Mixing Shovel (picture 1)



Adjustment Clearance for Outer Shovels (picture 2)

Larger size of aggregate can get caught easily if there is bigger clearance between mixing shovels and bottom liners or between outer shovels and wall liners, which will cause great impact to arms and gearbox, and also speed up the abrasion of the shovels. The clearance and aggregate size are more, the pressure and abrasion will become more serious, moreover, it will cause incompletely and long-time discharging. According to picture 1 and picture 2, the better clearance is 3~5mm.

9.7.1) ADJUSTING MIXING SHOVEL

To perform this operation, proceed as follows:

- a) Loosen the fastening screws (part 1 in Fig 9).
- b) Support the mixing shovel at the average height about 3~5mm from bottom tank.
- c) Tighten the screws with a torque wrench set to the correct torque as given at point 9.5.

9.7.2) ADJUSTING OUTER SHOVELS

When adjusting the clearance between long outer arm and bottom tank, please loosen the upper cover for outer arm and then adjust the long outer arm to the requested position, the maximum average clearance is about 3~5mm. At the same time, long outer arm, short outer arm and outer shovel could be adjusted left or right, the maximum average clearance between outer shovel and wall liner is about 3~5mm.

To perform this operation, proceed as follows:

- a) Loosen the fastening screws (Fig 9.2).
- b) Support the outer shovel at the average distance about 3~5mm from the wall liner.
- c) Tighten the screws with a torque wrench set to the correct torque as given at point 9.5.

Suggestions:

1. Replace the wear parts or adjust the clearance as requested in time;
2. Check the fastening screws periodically, if it's loosened, please tighten well ;
3. Clean the mixing tank after every work shift in order to avoid any collision for the arms and shovels because of residual concrete lump.

9.7.3) INSTALLING LOCKING WASHER

After the bolts in the picture are tightened, please pry up the edge of locking washer by clinging to the side of bolt and nut to avoid any loosening of the bolts.

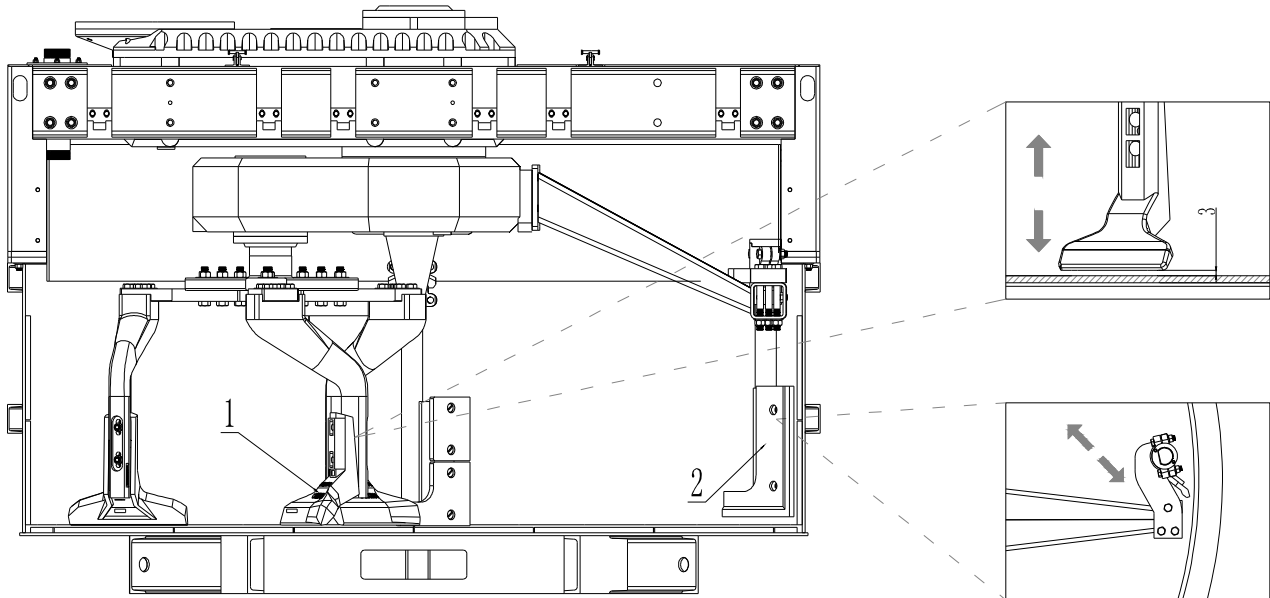


Fig 9

9.8–ADJUSTING AND RESETTING THE SEAL ON THE DISCHARGE OPENING

There are upper/lower rubber seals and left/right rubber blocks to prevent leakage during mixing. The rubber seals are located on the upper and lower edges of the discharge gate. The rubber blocks are fixed on the tank edge by clinging to the discharge gate.

1. if the upper rubber seal is worn and has sealing problem, replace as follows:
 - a) Loosen the seal fixing screws
 - b) Replace the rubber seal
 - c) Refit the screws but do not tighten them
 - d) Check if the seal clings to the discharge gate.
 - e) Adjust downward the seal gradually from the middle to the two sides.
 - f) Tighten the screws.

2. If lower arc rubber seal is worn and has sealing problem, replace as follows:
 - a) Loosen the seal fixing screws
 - b) Replace the rubber seal
 - c) Refit the screws but do not tighten them
 - d) Check if the seal clings to the arc edge of the bottom of discharge gate
 - e) Adjust the bearing support by moving up and down vertically.
 - f) Tighten the screws.

3. If the side rubber blocks are worn and have sealing problem, replace as follows:
 - a) Loosen the block fixing screws

- b) Replace the rubber block.
- c) Apply some sealant to corners.
- d) Assemble the block and adjust.
- e) Check if the block clings to the arc contact surface of discharge gate and surface of mixing tank.
- f) Tighten the screws.

9.9) FIXING OIL LEAKS BETWEEN THE FIXED REDUCTION GEARBOX AND THE COVER OF THE ROTATING PLANETARY GEARBOX

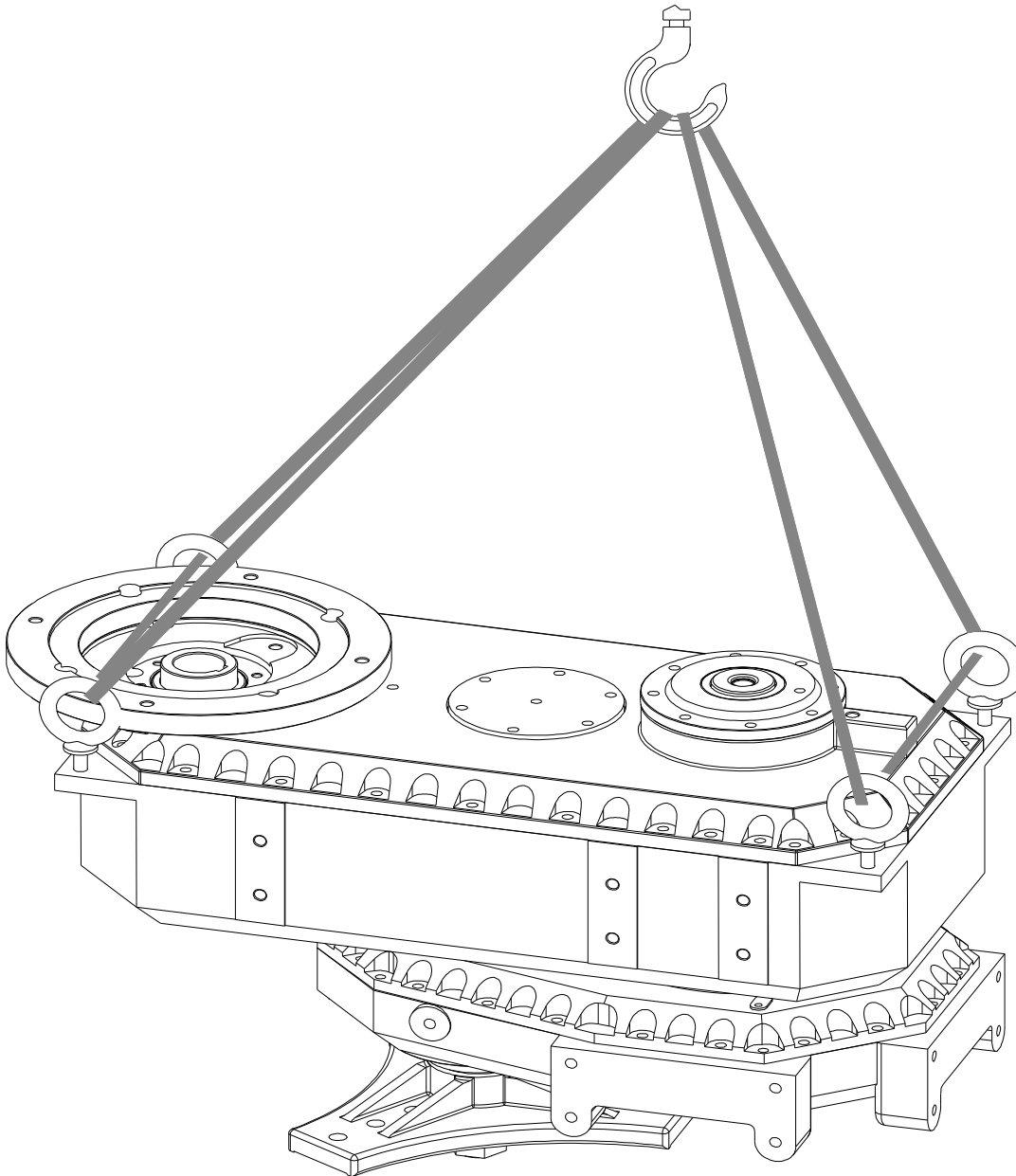
The presence of oil on the planetary box cover can be due to water which has entered the planetary box through the shaft dust seal fitted to this cover and is not due to leaking seals on the fixed reduction-gear box. Water has a higher specific weight than oil and when water enters the planetary box, it raises the level to a point where a leakage occurs.

To prevent this problem, proceed as follows:

- a) Check the seal of gearbox main shaft water outlet connector and replace or add seal rings.
- b) Drain the planetary box by removing the oil drain plugs.
- c) Replace the oil drain plugs.
- d) Fill the planetary box with diesel or detergent oil several times and activate the planetary box so as to flush the internal parts.
- e) Refill with oil - the type and quantity are given in 9.1.

ATTENTION:

When disassemble the gearbox, hang up the gearbox by crane or other equipments before loosening the reducer beam, in case the gearbox fall down, hurt the operator and damage the equipment (to ensure the safety of the operator and the equipment).



ATTENTION:

In order to make the gearbox cover airproof, please apply 1kg of grease to the bearing, kindly find the grease grade from item 9.3.

9.10– TROUBLE SHOOTING TABLE FOR PLANETARY MIXER

TROUBLE SHOOTING TABLE FOR MIXER

PROBLEM	REASON	SOLUTION
POWER PACK Oil pressure shown in the gauge is	1. Valve unit is blocked or damaged.	1. Clean or replace the valve unit

low (smaller than 10bar)	2. Oil pressure gauge is broken.	2. Replace oil pressure gauge
	3. Oil leakage	3. Check shaft end supplying pipe
POWER PACK Oil pressure shown in the gauge is too high (bigger than 60bar)	1. Distribution vale is blocked.	1. Clean the distribution valve.
	2. Oil is non-standard	2. Change to standard oil.
No pressure for manual pump	1. Seal parts are damaged	1. Replace the seal parts
Discharge door doesn't run smoothly	1. Hydraulic motor doesn't work.	1. Check if the motor is broken and/or the power is connected
	2. Pressure is too low	2. There is no enough oil in hydraulic cylinder. Fill the oil and regulate the pressure.
	3. Solenoid valve doesn't work	3. Check if the solenoid valve is broken and/or the power has some problems.
	4. Limit switch is broken	4. Replace the limit switch with the same model.
	5. Hydraulic cylinder is broken.	5. Replace the cylinder.
	6. Hydraulic oil-way is blocked.	6. Check and clean the oil pipe.
	7. Solenoid coil is broken	7. Replace the solenoid coil with same model.
	8. Mechanical connection is fracture	8. Replace or repair by welding.
	9. Bearing is damaged	9. Replace the bearing.
	10. The discharge door is blocked.	10. Clean the accumulated materials around the discharge door and adjust the clearance.
Mixer jamming or tripping	1. Main motor doesn't work.	1. If the motor has no problem, check the contactor.
	2. Safety switch fault	2. Check if the safety switch is normal (should be in "close" position).
	3. Overload	3. Check complete weighing system.
	4. Incorrect operation	4. Personal operation problem
Abnormal Noise	1. Collision between blades and linings.	1. Adjust the blades.
	2. Mixture is non-standard	2. Use the standard mixture
	3. Abnormal noise from gearbox	3. Check if the oil is enough; Check the clearance between the input shaft of gearbox and output shaft of the motor; Check if there is any oil leakage from output shaft of gearbox and the shaft is swaying or not.
	4. Blades are deformed or damaged.	4. Get rid of broken blade and replace.
	5. Abnormal noise from electric motor	5. Check if the motor protection cover is loose or if there is any problem for bearing.
Water or dust leakage from cover	1. Cover is deformed	1. Repair the cover and add sealing strip.
	2. Inspection door is not tightly closed.	2. Replace the sealing strip and press it flat.
	3. Inspection window cannot be closed.	3. Replace the sealing strip and lock catch.

9.11 – MOTOR REPAIR AND MAINTENANCE

- a. Keep the working environment dry and keep the motor surface clean. Protect its air inlet from dust or fiber.
- b. When the thermal protector and short-circuit protection device act continuously, check if there is something wrong with the motor or it is overload or the protection setting is too low. Clear the problem before start the motor again.



- c. Keep a good lubrication of the motor. Normally, fill or replace the lubricant every 5000 working hours (sealed bearing doesn't need to replace the lubricant during the whole service life). Replace the lubricant in time when the parts get hot or the grease deteriorates.
- d. When the bearing reaches its terminal use time, the motor vibration would be greater and the noise would be louder. Replace the bearing if the radial internal clearance reaches the below data:

Bearing Inner Dia (mm)	10-30	35-50	55-80	85-120
Maximum wear radial internal clearance (mm)	0.1	0.15	0.2	0.3

10) SPARE PARTS MANUAL

10.1 – GENERAL INFORMATION

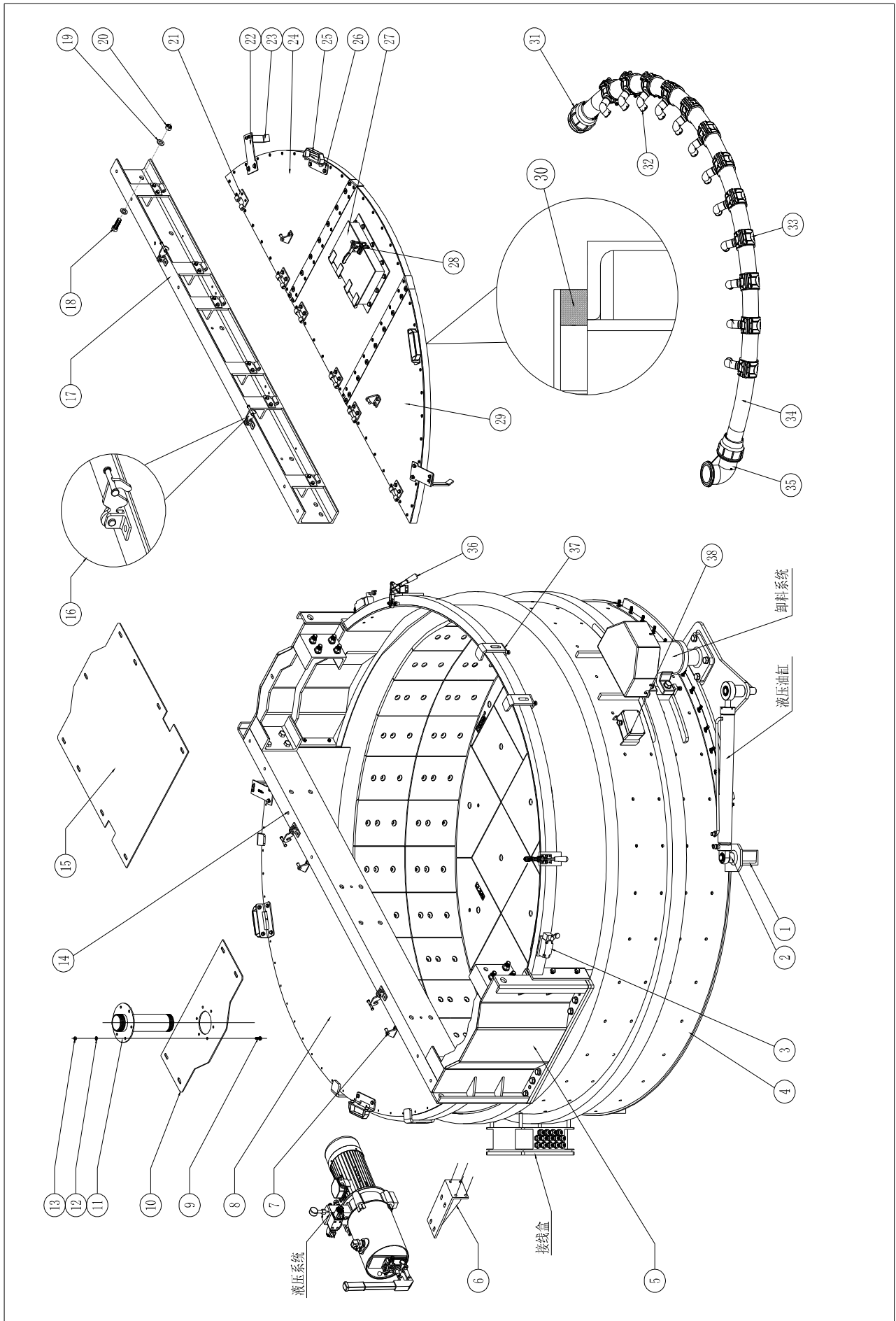
The spare parts manual consists of a series of exploded diagrams that enable rapid identification of parts.

10.2 – HOW TO ORDER SPARE PARTS

To order spare parts, fill in the the form attached to this section, follow the instructions listed on the sheet.

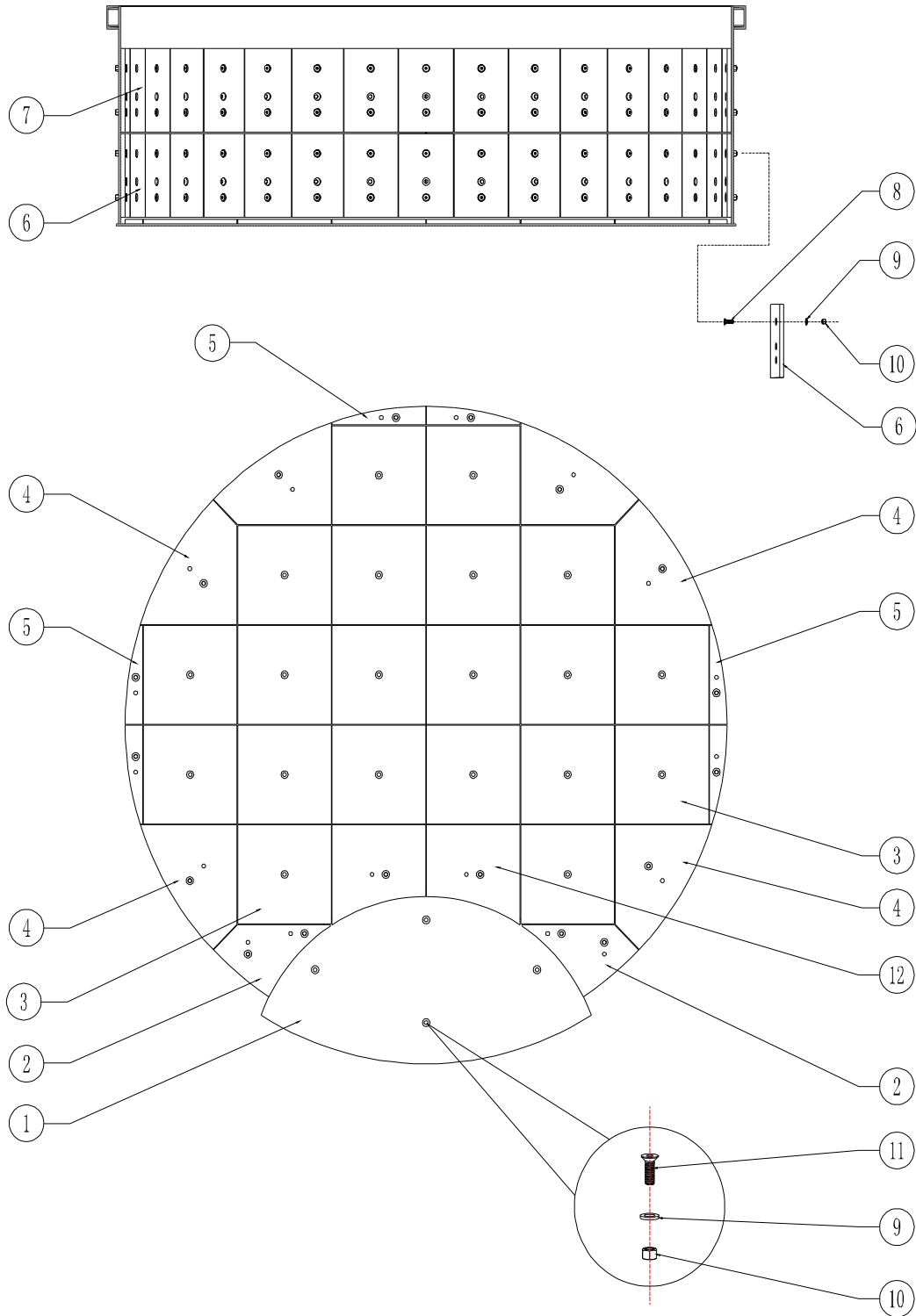
IMPORTANT:

To avoid any mistakes, we recommend photocopying the form and sending it to the manufacturer and area representative after filling in all details.



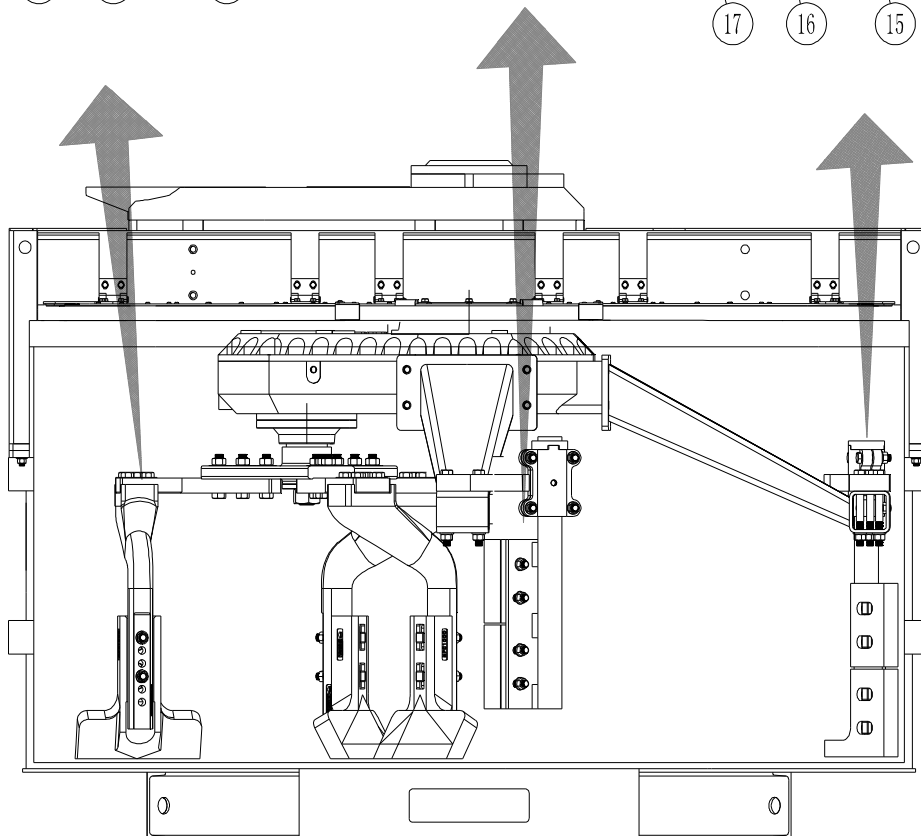
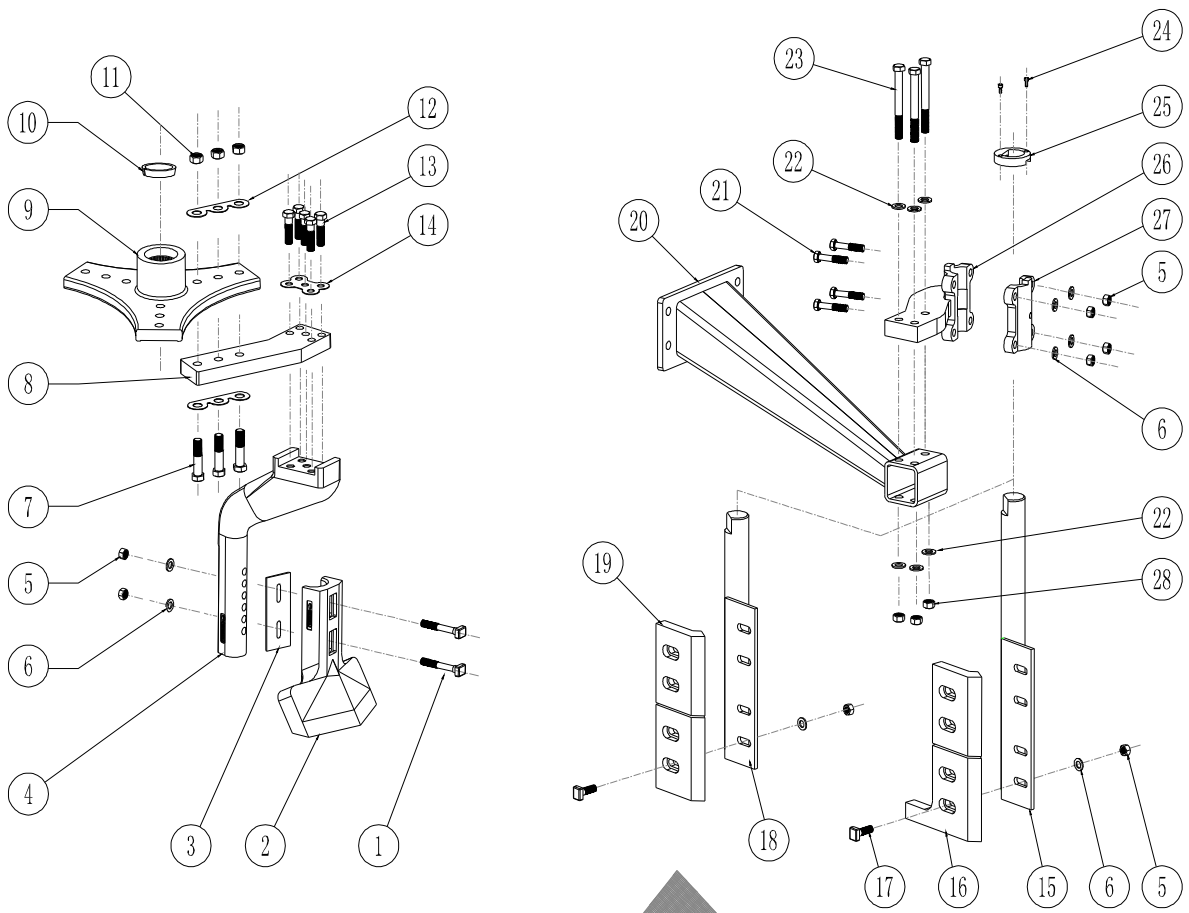
MIXER UNIT

Position No.	Description	Part No.	Q'ty
1	Underframe	GY-P1000-03-01	1
2	Fixed Support for Hydraulic Cylinder	SC-P500-A510	1
3	Safety Switch	634006003	3
4	Tank	GY-P1000-01-01	1
5	Reducer Beam	GY-P1000-02-02	1
6	Hydraulic Motor Support	SCAJ-020-090	1
7	Buckle Bracket	SC-P500-A452-3	3
8	Fixed Cover	GY-P1000-04-01	1
9	Bolt M8*25	110101006402	6
10	Short Top Plate	SC-P1000-A204-2	1
11	Water Inlet Straight Pipe	SC-P1000-A740	1
12	Flat Washer Φ 8	110104003502	12
13	Nut M8	110103001002	6
14	Reducer Beam (1)	SC-P1000-A202-5	1
15	Long Top Plate	SC-P1000-A203-2	1
16	Cover Buckle	SC-P500-A415	4
17	Reducer Beam (2)	SC-P1000-A202-6	1
18	Bolt M18*50	110101011302	16
19	Flat Washer Φ 18	110104003102	16
20	Nut M18	110103001102	32
21	Hinge	SC-P500-A412-3	10
22	Switch Bracket (1)	SC-P500-A496	3
23	Switch Bracket (2)	SC-P500-A497	3
24	Left Inspection Door	GY-P1000-04-03	1
25	Handle	634018002	4
26	Handle Fixed Bracket	SC-P500-A465	4
27	Inspection Window Cover	SC-P1000-A411	1
28	Lock Catch	111401006300	1
29	Right Inspection Door	GY-P1000-04-04	1
30	Sealing Strip	110703009401	12Mt.
31	Plug	110805010300	1
32	Male-Female Threaded Elbow	110805009500	12
33	Clamp Saddle Reinforcing	110805009900	12
34	Spraying Water Pipe (plastic)	SC-P1000-A747	1
35	Female Elbow	110805010700	1
36	Lock Catch	111401009300	2
37	Cover Clamp	SC-P1000-A494	6
38	Junction Box	SCAB-040-343	1



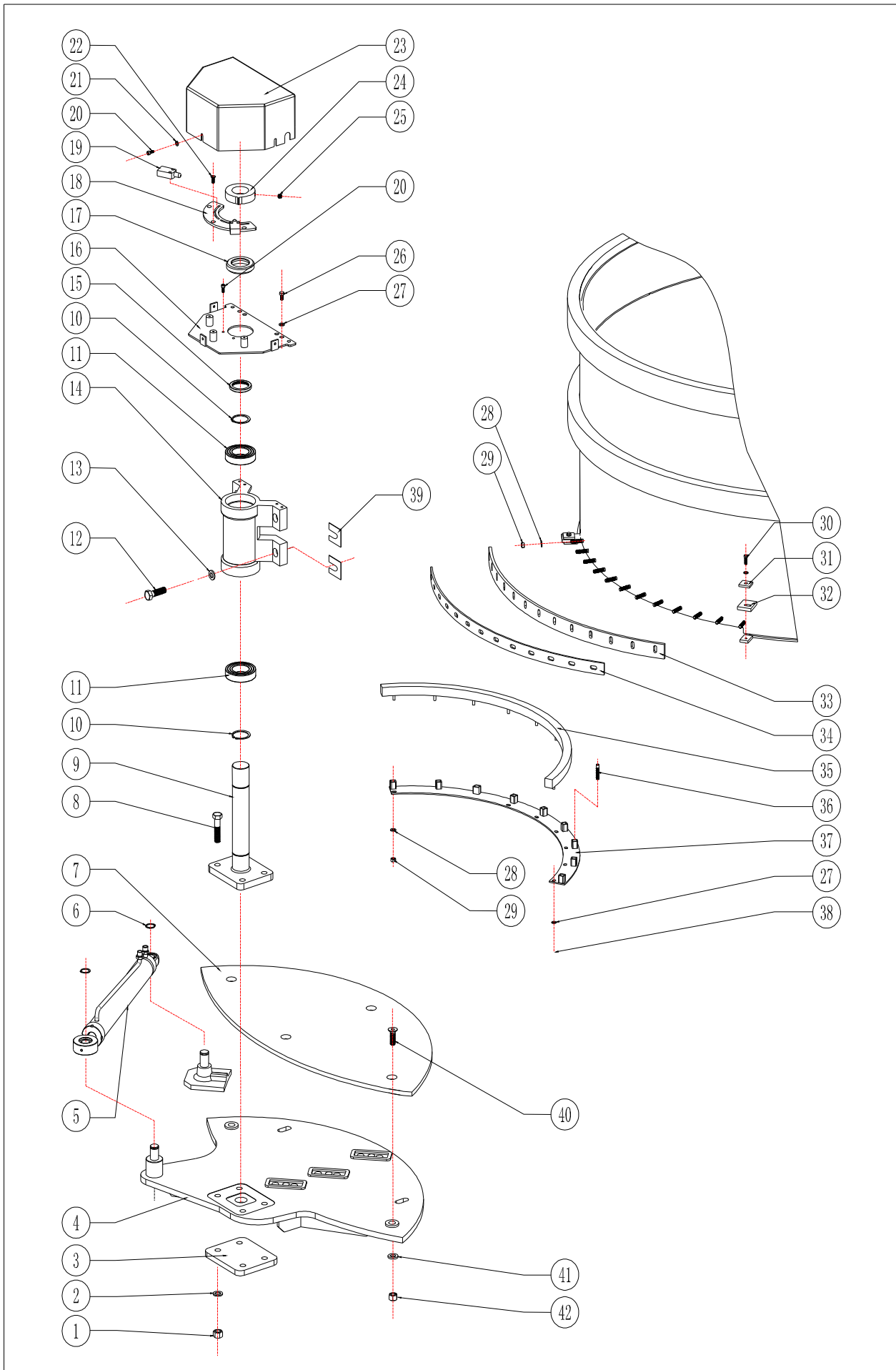
TANK INNER COVERING

Position No.	Description	Part No.	Q'ty
1	Wear Sector for Discharge Door	SC-P1000-A109-1	1
2	Lateral Bottom Liner	SC-P1000-A116-1	2
3	Square Bottom Liner	SC-P500-A114-2	20
4	Big Sector Bottom Liner	SC-P1000-A117-1	6
5	Small Sector Bottom Liner	SC-P1000-A118-1	6
6	Wall Liner (HCr)	SC-P500-A119-4	34
7	Wall Liner (LCr)	SC-P500-A119-3	34
8	Bolt M12*42.5	110102014802	164
9	Flat Washer Φ 12	110104002702	168
10	Nut M12	110103000501	168
11	Bolt M12*47.5	110102014902	4
12	Square Bottom Liner at Discharge Door	SC-P1000-A115-1	2



ARM AND SHOVEL

Position No.	Description	Part No.	Q'ty
1	Bolt for shovel	120201165901	6
2	Mixing Shovel	SC-P1000-A631-1	3
3	Aluminium Plate	SC-P500-A655	3
4	Mixing Arm	SC-P750-A636-2	3
5	Self- locking Nut M16	110103003401	22
6	Nut Φ 16	110104002902	22
7	Bolt M20*95	110101008101	9
8	Spider's Arm	SC-P750-A637-1	3
9	Spider	2034204999	1
10	Tapered Bush	2034202299	1
11	Self-locking Nut M20	110103002302	9
12	Washer for Spider	SC-P500-A653	6
13	Bolt M18*70	110101004002	15
14	Washer for Mixing Arm	SC-P750-A654-1	3
15	Long Outer Arm	GY-P1000-06-03	1
16	Outer Bottom Shovel	SC-APM1500-A634-1	1
17	Bolt M16*50	120201145301	8
18	Short Outer Arm	GY-P1000-06-04	1
19	Mid Outer Shovel	SC-APM1500-A632-1	3
20	Support of Outer Arm	GY-P1000-06-05	2
21	Bolt M16*75	110101003401	8
22	Flat Washer Φ 18	110104003102	12
23	Bolt M18*170	110101015902	6
24	Bolt M6*25	110102007101	4
25	Mixing Arm Cup	SC-P500-A629	2
26	Lower Cover for Outer Arm	GY-P1250-06-08	2
27	Upper Cover for Outer Arm	SC-P1500-A626	2
28	Nut M18	110103001102	6

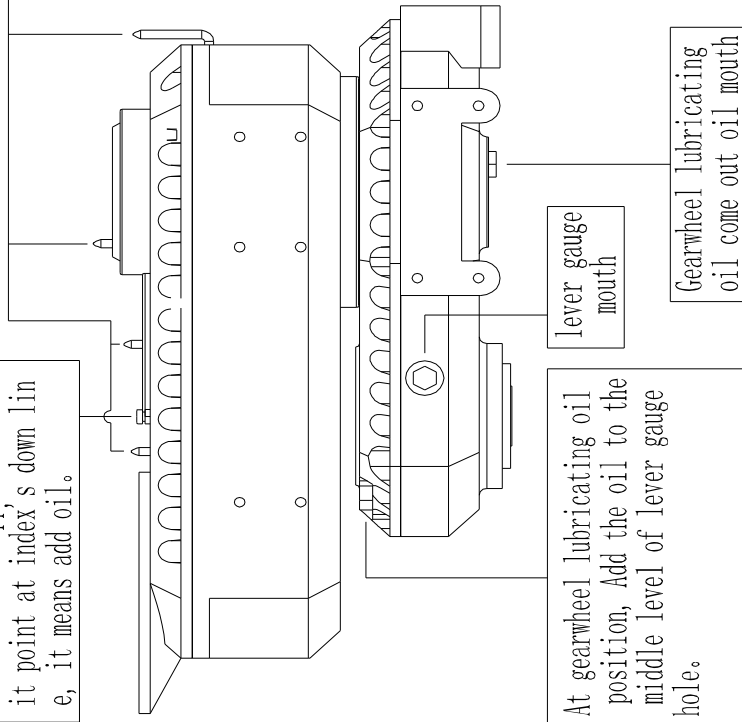


DISCHARGE DOOR DEVICE

Position No.	Description	Part No.	Q'ty
1	Nut M18	110103001102	4
2	Flat Washer Φ 18	110104003102	4
3	Clamping Plate for Door Shaft	SC-P750-A512	1
4	Discharge Door	SC-P1000-A501	1
5	Hydraulic Cylinder	634007003	1
6	Retaining Ring	633010002	2
7	Wear Sector for Discharge Door	SC-P1000-A109-1	1
8	Bolt M18*80	110101003801	4
9	Discharge Door Shaft	SC-P750-A511	1
10	Retaining Ring	633010004	2
11	Deep Groove Ball Bearing	634004002	2
12	Bolt M20*50	110101005201	4
13	Flat Washer Φ 20	110104003202	4
14	Bearing Support	SC-P750-A502	1
15	Oil Seal	634011001	1
16	Base Plate for Protection Box	SC-P750-A509	1
17	Seal Ring for Bearing Support	SC-P500-A514	1
18	Semi-circle Plate	SC-P500-A521	1
19	Limit Switch	634006004	2
20	Bolt M6*15	110102007002	5
21	Flat Washer Φ 6	110104001802	5
22	Bolt M6*15	110102002601	3
23	Protection Cover	SC-P500-A507	1
24	Cam	SC-P500-A518	1
25	Bolt M10*10	110102000601	2
26	Bolt M8*15	110102007202	4
27	Flat Washer Φ 8	110104003502	17
28	Flat Washer Φ 10	110104002402	25
29	Nut M10	110103000402	21
30	Bolt M10*30	110101000302	4
31	Square Washer	SC-P500-A607	2
32	Red Rubber Block	SC-P500-A614-1	2
33	Red Rubber Seal	SC-P1000-A505-1	1
34	Rubber Clamping Plate	SC-P1000-A508	1
35	Black Rubber Seal	SC-P1000-A504-1	1
36	Welding screw rod MD10*50	633001004	11
37	Washer Plate	SC-P1000-A503	1
38	Nut M8	110103001002	11
39	U-shape Groove Washer 58*44*1	SC-P500-A610	...
40	Bolt M12*50	110102002201	4
41	Flat Washer Φ 12	110104002702	4
42	Nut M12	110103000501	4

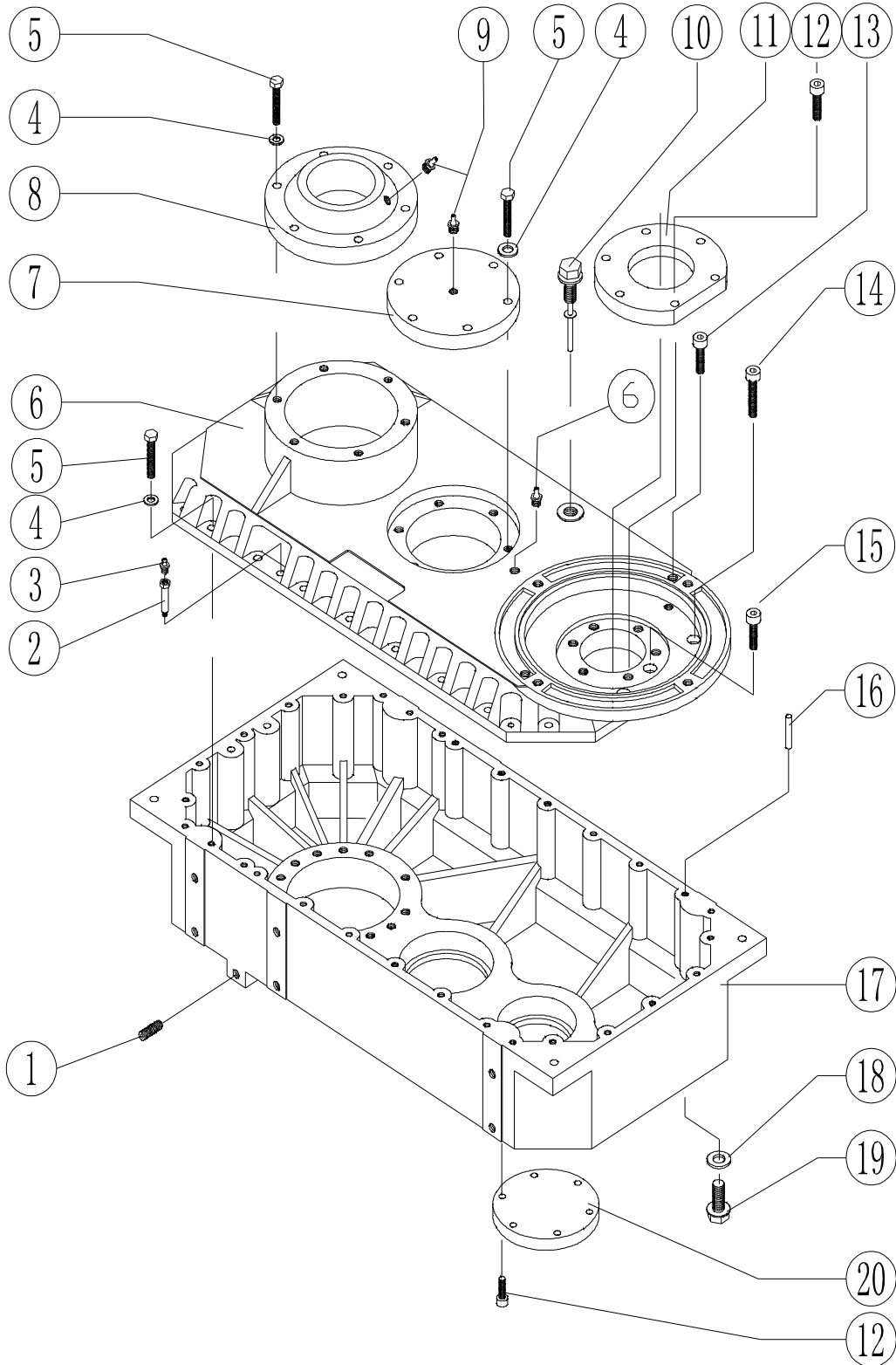
GEARBOX LUBRICATE PROJECT

At gearwheel lubricating oil position, oil's position point at index's upper line. if it point at index's down line, it means add oil.



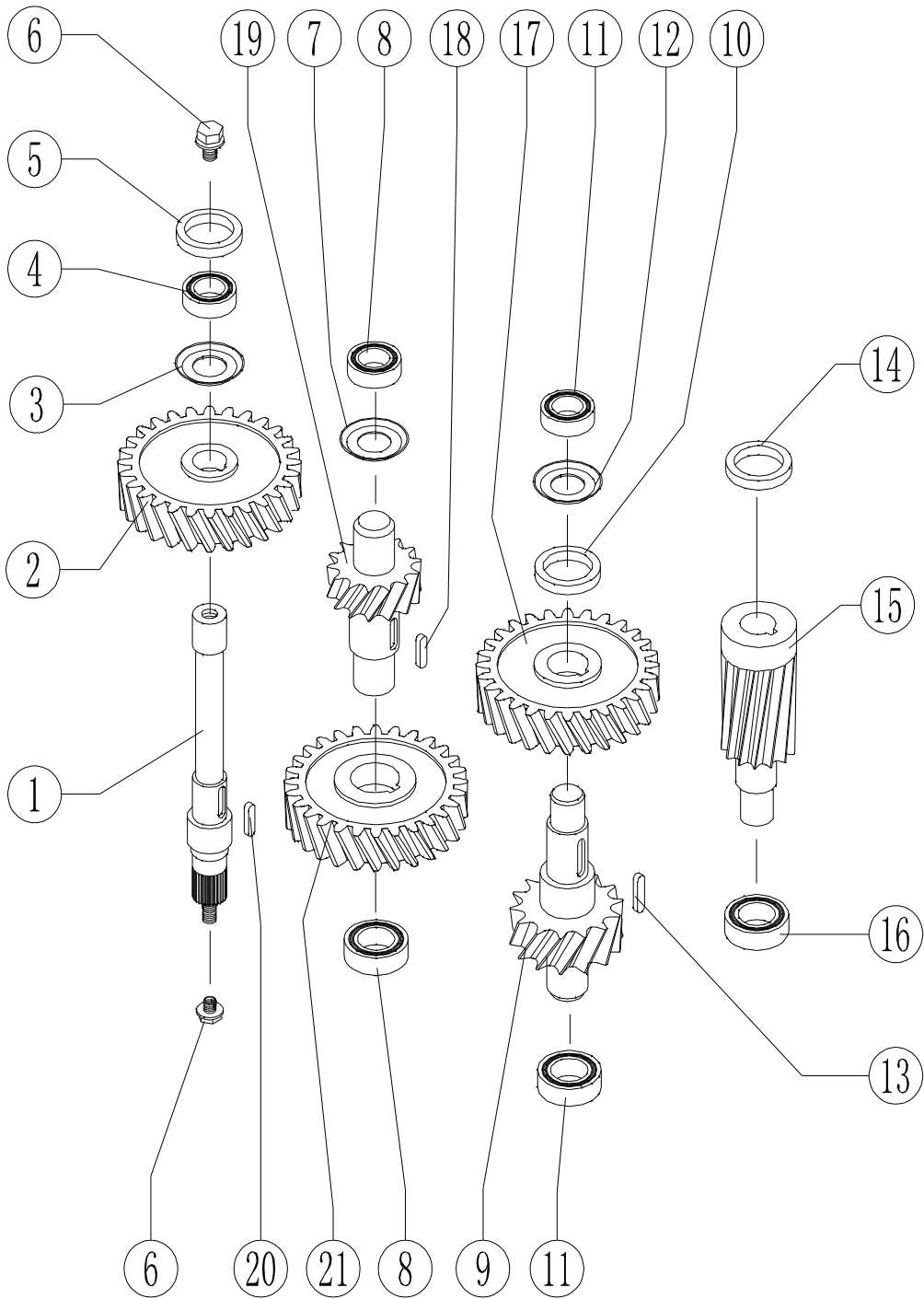
Remark:
 Every other 4000 hours or at least every other two years, it will need to replacing gearbox's lubricating oil.

NO. POSITION	SUGGESTION OIL CAPACITY	OIL CAPACITY(L)											
		MP75/50	MP150/100	MP375/250	MP665/375	MP750/500	MP1125/750	MP1500/1000	MP1875/1250	MP2250/1500	MP3000/2000	MP3750/2500	MP4500/3000
1	main gearbox TEXACOMULTIFAK MP2 lubricating grease or equivalent	0.5	0.5	0.5	0.7	1	1	1.1	1.1	1.2	2.4	2.4	5.0
2	main gearbox ROLEP150 lubricating oil or equivalent	1.5	2.2	12.5	22	34	55	82	82	135	157	157	208
3	planetary gearbox ROLEP150 lubricating oil or equivalent	1.5	2.5	3.0	8	12	12	21	33	47	80	80	160



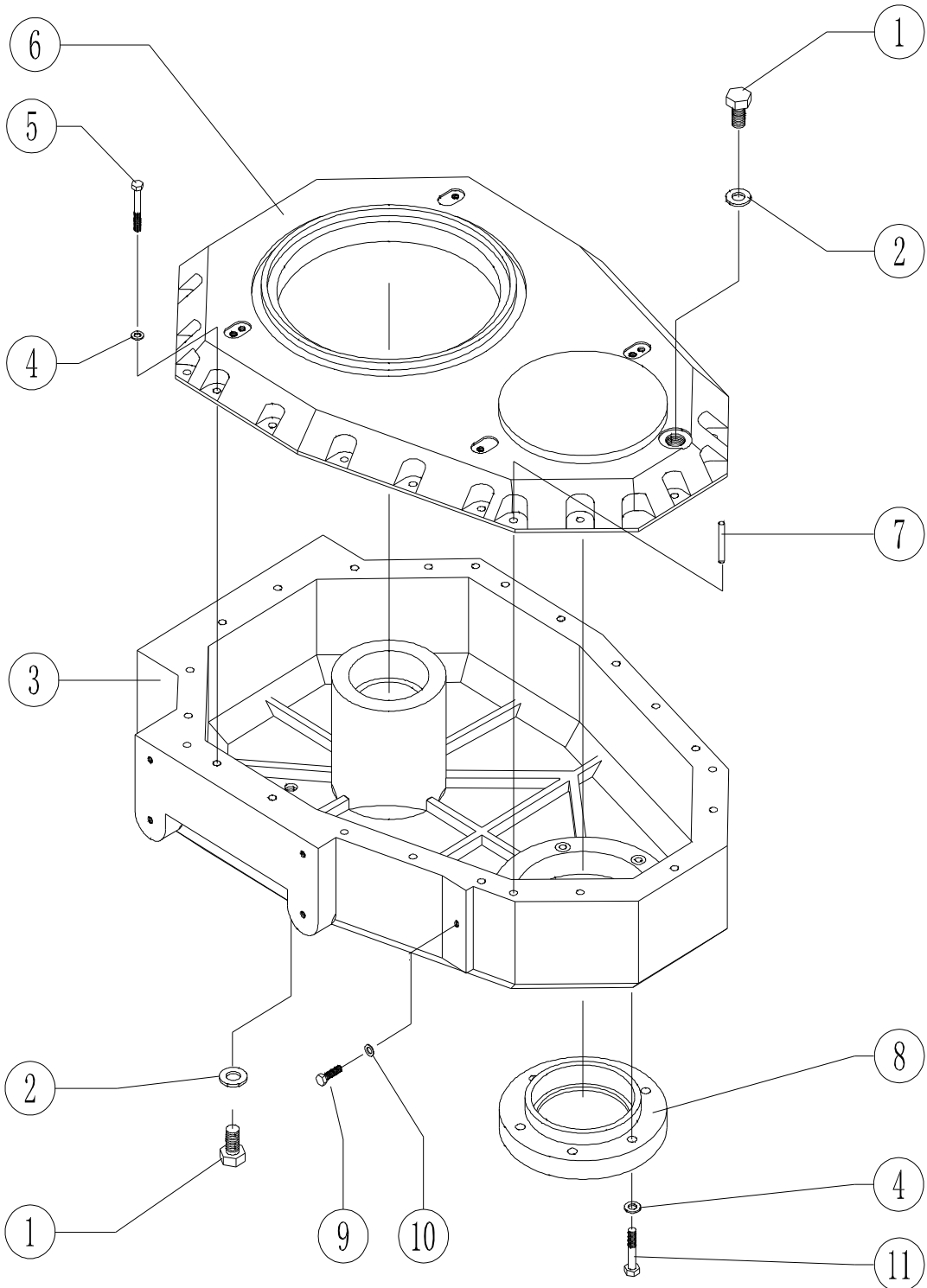
REDUCTION UNIT HOUSING

Position No.	Description	Part No.	Q'ty
1	Bolt M10*12	30607026	1
2	Female Junction	30703037	1
3	Grease Nipple	30702002	1
4	Teeth Washer M14	30617004	33
5	Bolt M14*45	30605194	33
6	Upper Reduction Housing	2034200499	1
7	Second Reduction Cover	2034202699	1
8	Reducer Shaft Cover	2034202399	1
9	Grease Nipple	30702001	3
10	Oil Level Cap	2034202999	1
11	Input Shaft Cover	2034202899	1
12	Bolt M14*30	30606117	6
13	Bolt M14*80	30606080	4
14	Bolt M16*110	30606097	2
15	Bolt M14*60	30606115	1
16	Cylindrical Pin	30603026	2
17	Lower Reduction Housing	2034200599	1
18	Copper Washer 3/4	2033910299	4
19	Oil Plug 3/4 (steel)	2033910099	2
20	First Reduction Cover	2034202799	1



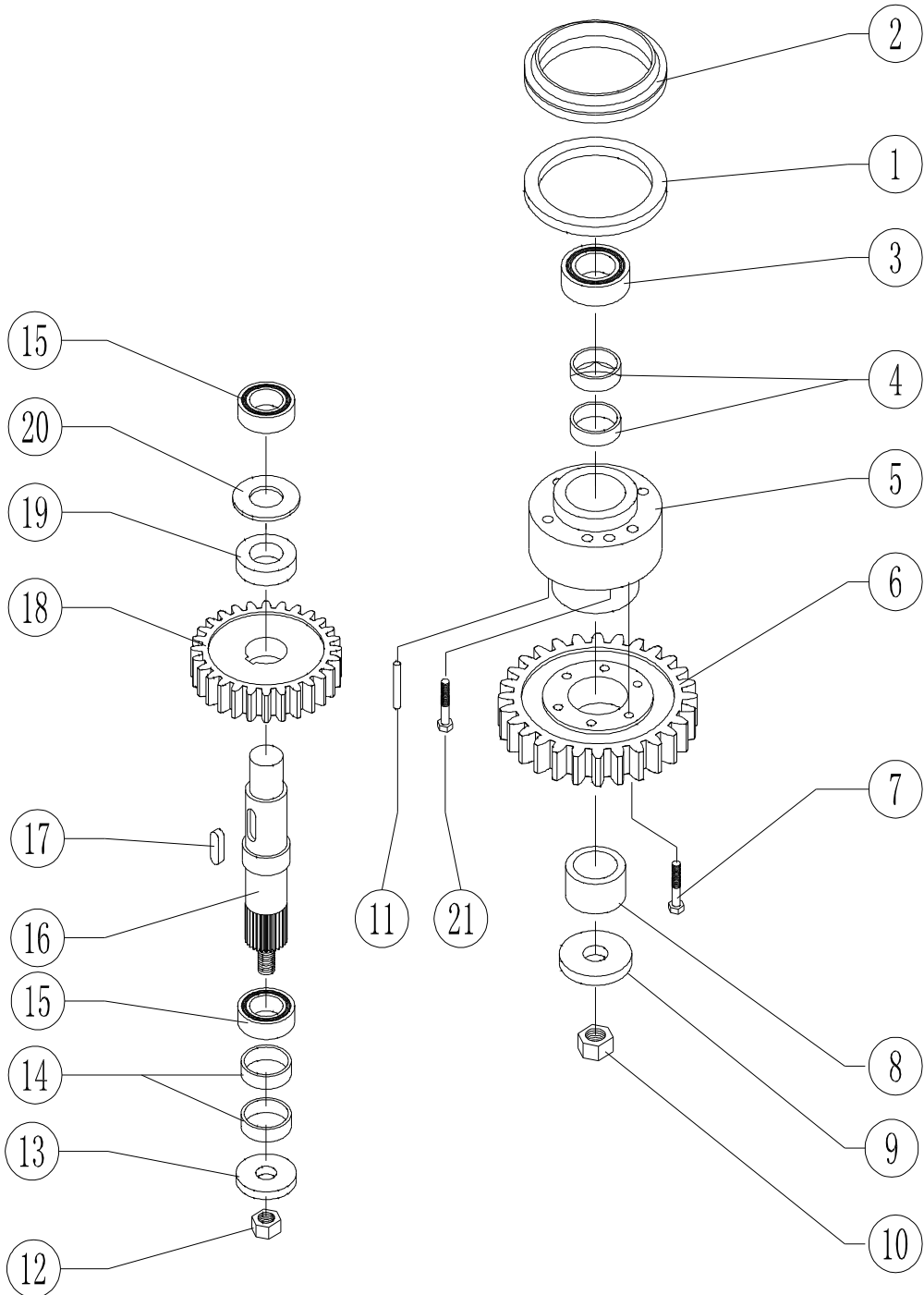
REDUCTION UNIT GEARS

Position No.	Description	Part No.	Q'ty
1	Reducer Shaft B	2034201699	1
2	Reduction Gear	2034200699	1
3	Grease Guard	2034203699	1
4	Tapered Roller Bearing	30203005	1
5	Oil Seal	30301010	1
6	Plug 3/4	2033906099	1
7	Grease Guard	2033905699	1
8	Single-row Tapered Roller Bearing	30202016	2
9	First Reduction Pinion	2034201199	1
10	First Reduction Pinion Sleeve	2034202499	1
11	Single-row Tapered Roller Bearing	30202015	2
12	Grease Guard	2033905599	1
13	Key 20*40	2034102899	1
14	Oil Seal	30301026	1
15	Input Shaft	2034201299	1
16	Deep Groove Ball Bearing	30201018	1
17	First Reduction Gear	2034200899	1
18	Key 22*65	2034203999	1
19	Second Reduction Pinion	2034201099	1
20	Key 32*100	2034204099	1
21	Second Reduction Gear	2034200799	1



PLANETARY GEARBOX

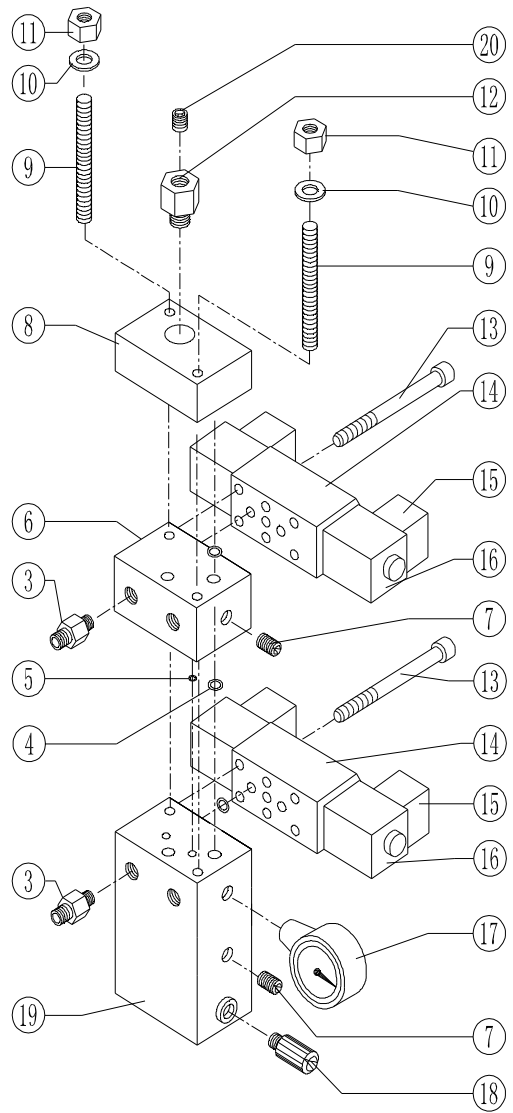
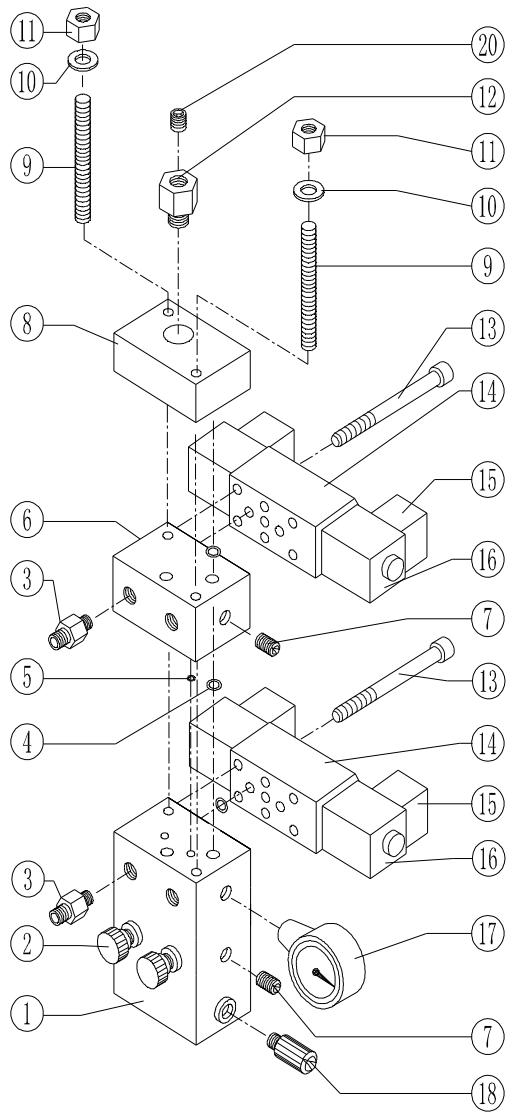
Position No.	Description	Part No.	Q'ty
1	Steel Plug 3/4	2033910099	2
2	Copper Washer 3/4	2033910299	2
3	Lower Planetary Case	2034201999	1
4	Teeth Washer M14	30617004	25
5	Bolt M14*40	30605092	19
6	Upper Planetary Case	2034201899	1
7	Cylindrical Pin	30603026	2
8	Output Shaft Cover	2034202599	1
9	Copper Washer 1/2	2033910399	1
10	Steel Plug 1/2	2033910199	1
11	Bolt M14*45	30605194	1



PLANETARY GEARING ELEMENTS

Position No.	Description	Part No.	Q'ty
1	Oil Seal	30301025	1
2	Rotary Shaft Seal (unit)	2034204899	1
3	Tapered Roller Bearing	30203005	1
4	Oil Seal	30301013	2
5	Inferior Housing	2034200299	1
6	Gear Z79	2034201399	1
7	Bolt M6*150	30606119	8
8	Sleeve	2034202099	1
9	Splined Shaft Washer	2034203399	1
10	Self- locking Nut M48*3	30608034	1
11	Cylindrical Pin	30603029	2
12	Self- locking Nut M39*3	30608033	1
13	Output Shaft Washer	2034203299	1
14	Oil Seal	30301027	2
15	Tapered Roller Bearing	30203004	2
16	Output Shaft B	2034201799	1
17	Key 25*60	2034204199	1
18	Gear Z38	2034201599	1
19	Output Shaft Sleeve	2034202199	1
20	Grease Guard	2034203599	1
21	Bolt M6*110	30606097	2

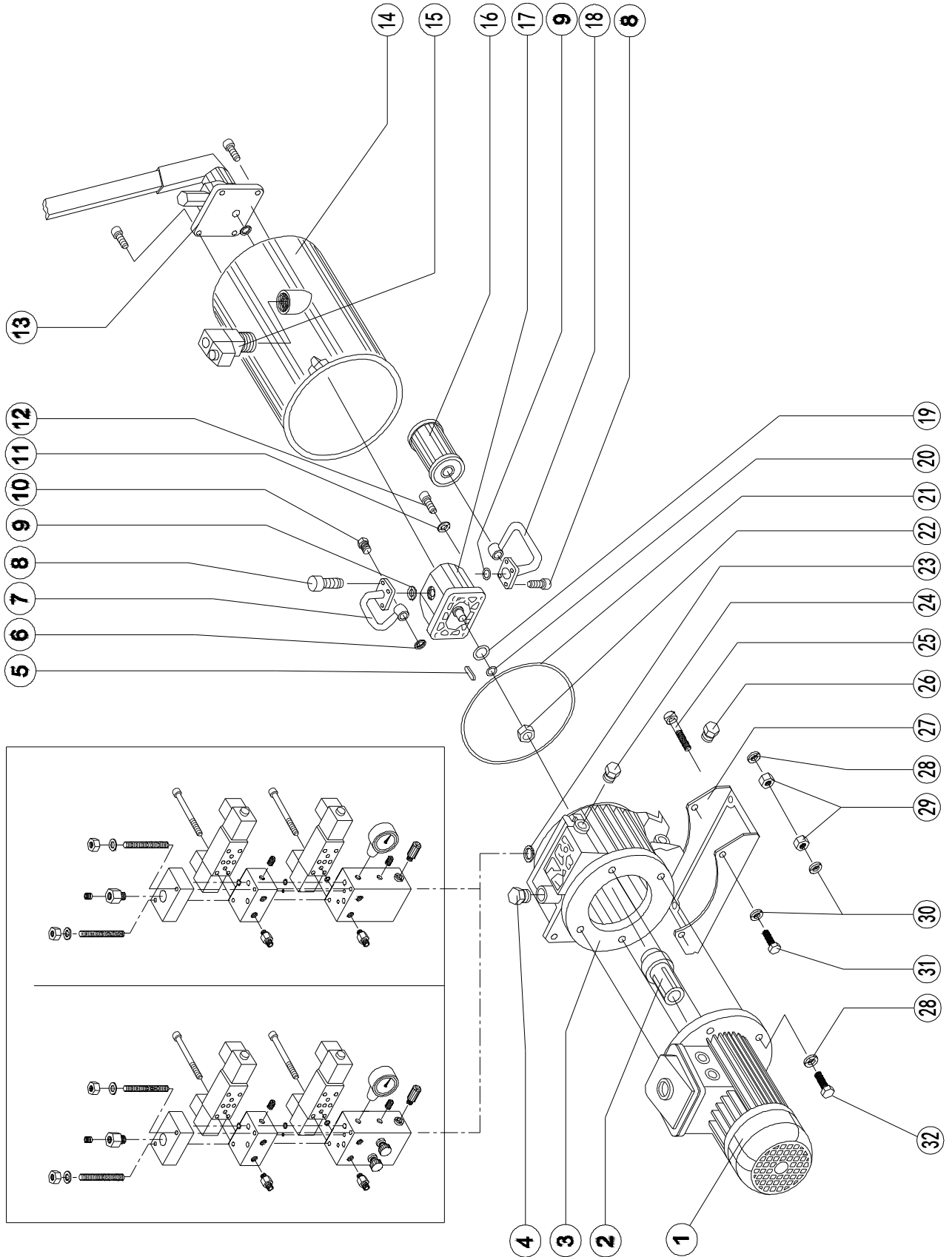
Hydraulic Powerpack Valves Group



HYDRAULIC POWER PACK VALVES GROUP

Position No.	Description	Part No.	Q'ty
1	Base Manifold	2020008199	1
2	Manual Stop Valve (assy)	2020007399	2
3	Nipples	2020205799	1
4	O Ring	30302005	2
5	O Ring	30302004	2
6	Middle Manifold	2020205199	1
7	Bolt M10*6	30607034	1
8	Modular Plate	2020006699	1
9	Screw rod M8*225	30613001	2
10	Flat Washer M8	30621003	2
11	Nut M8	30608007	2
12	Straight Joint	2020206099	2
13	Bolt M5*30	30606011	4
14	Solenoid Valve	111001000900	1
15	Solenoid Valve	111001000800	1
16	One-way Valve	30402013	1
17	Oil Gauge	30403001	1
18	Maximum Pressure Safety Valve	2020007699	1
19	Upper Manifold	2020205299	1
20	Bolt M8*25	30607012	1

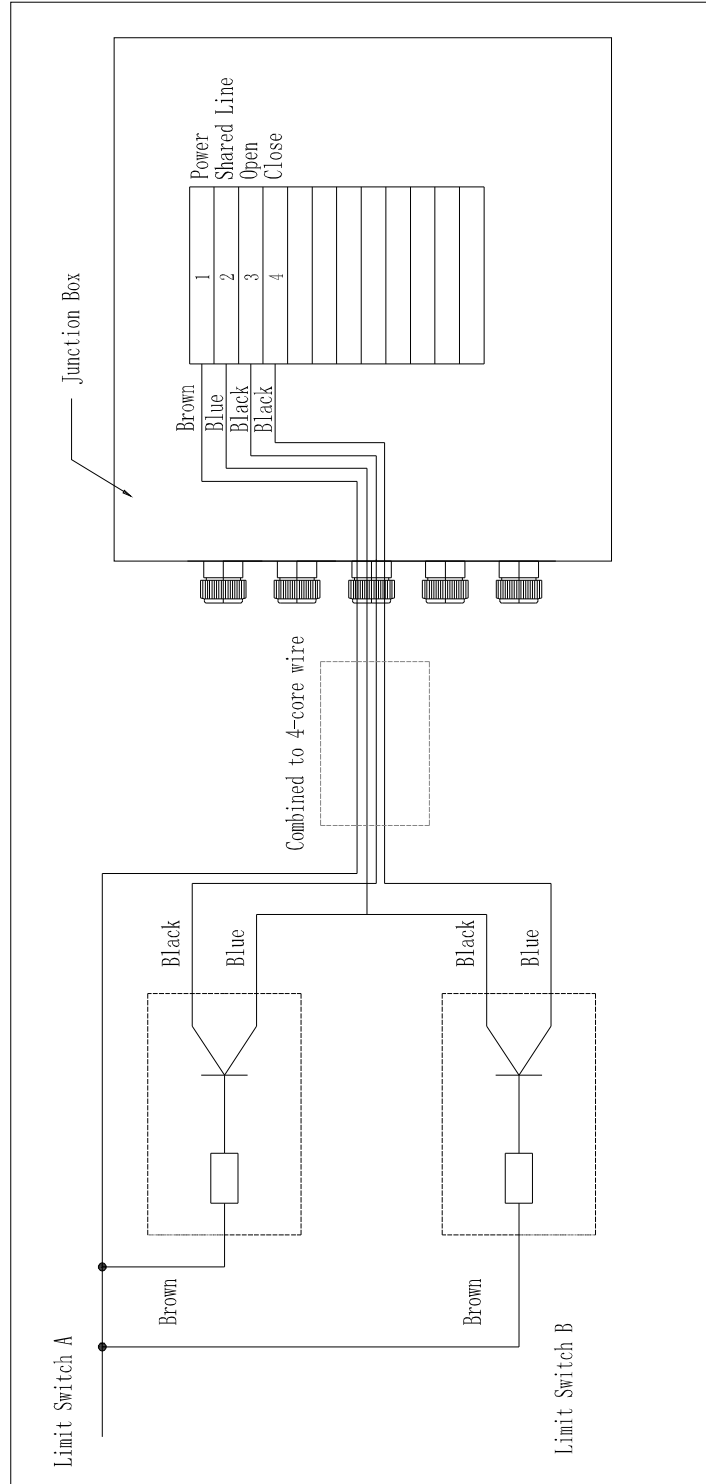
液压油泵组件

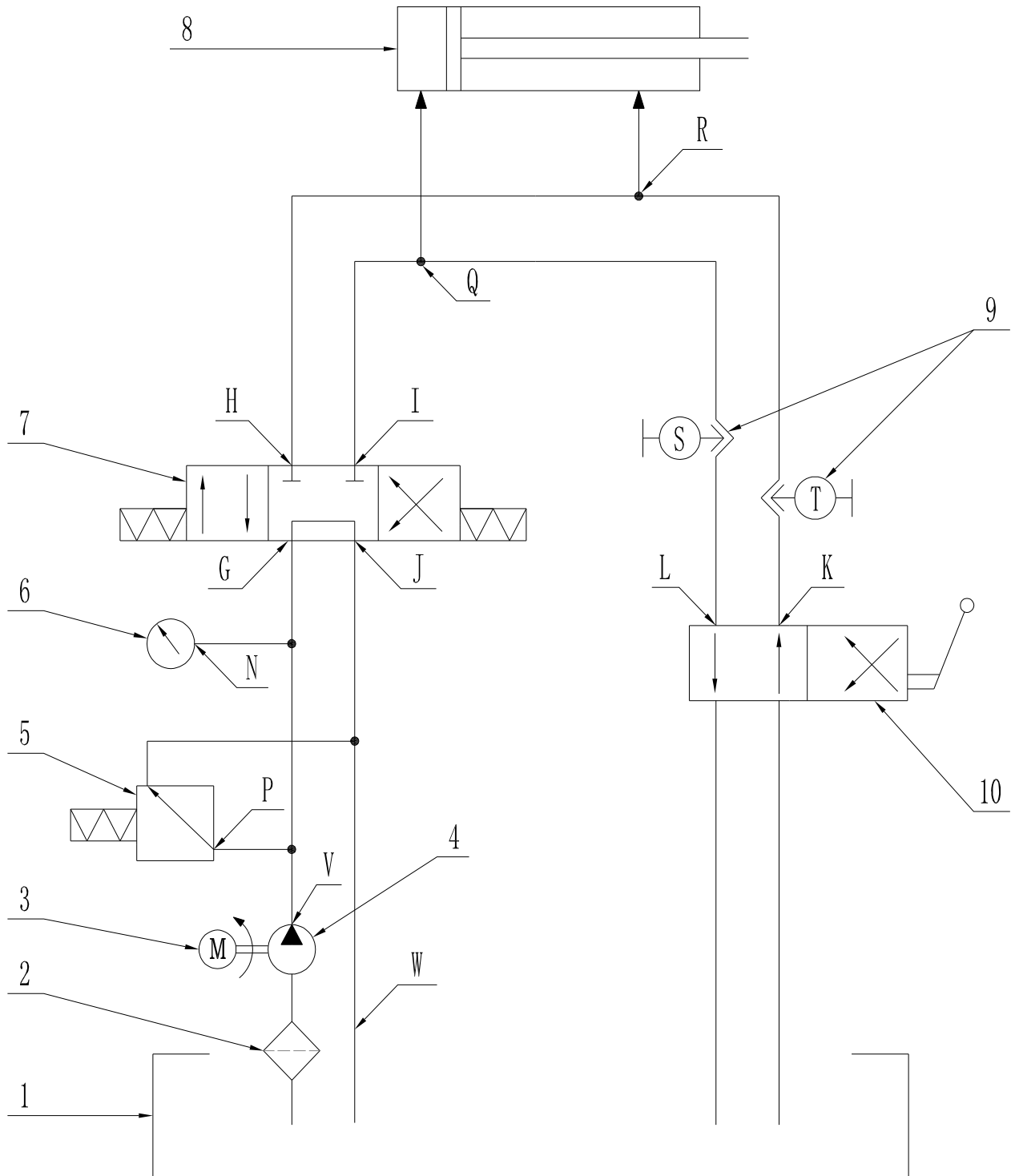


HYDRAULIC POWER PACK


Position No.	Description	Part No.	Q'ty
1	Electric Motor 2.2Kw	30101046	1
2	Coupling Joint	2020016599	1
3	Motor Block	2020017399	1
4	Vent Cap 1/2	2020014499	1
5	Key 8*22	2020016799	1
6	O Ring	30302015	1
7	Connection Pipe	2020006399	1
8	Bolt M6*25	30606023	2
9	Flat Washer M8	30614015	2
10	Plug 1/4	30624001	1
11	Flat Washer M10	30614008	4
12	Bolt M10*25	30606044	4
13	Manual Pump (assy)	2020022199	1
14	Oil Tank	2020005199	1
15	Sensor for Oil Temperature and Level	30499003	1
16	Oil Filter	30403007	1
17	Gear Pump	30401012	1
18	Oil Tube	2020005799	2
19	O Ring	30302009	2
20	Flat Washer M10	30614008	1
21	O Ring	30302056	1
22	Nut M8	30608007	1
23	Spring Washer M10	30616006	1
24	Oil Level Cap G3/8	30701002	1
25	Bolt M8*55	30606038	2
26	Oil Discharge Cap 1/8	2020206199	1
27	Support for Hydraulic Power Pack		
28	Flat Washer M8	30614007	4
29	Nut M8	30608007	4
30	Bolt M8*30	30606034	2
31	Flat Washer M8	30614015	4
32	Bolt M8*25	30606031	4

Discharge Door Limit Switch Diagram





Pos. No.	Description	Q'ty	Pos. No.	Description	Q'ty
1	Oil Tank	1	6	Pressure Gauge	1
2	Oil Filter	1	7	Solenoid Valve	1
3	Electric Motor	1	8	Hydraulic Cylinder	1
4	Gear Pump	1	9	Manual Stop Valve	1
5	Max. Pressure Safety Valve	1	10	Manual Pump	1

	<h1 style="margin: 0;">SPARE PARTS ORDER FORM</h1>
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PURCHASER'S ADDRESS: _____

TYPE OF MACHINE: _____

SERIAL NUMBER: _____

YEAR OF MANUFACTURED: _____

LIST OF PARTS TO BE SENT TO THE ABOVE ADDRESS

TABLE No	POSIT. No	DRAWING No	DESCRIPTION	QUANTITY REQUESTED

Means of delivery: _____

_____ Date

_____ Stamp and signature of purchaser