Attention ：

1. Before using the pump, read carefully this installation manual and other manuals of  
relating equipment to this pump. We are responsible for our products only when you  
follow the operating rules to install、 use and maintain.

2. The pump is operating anti-clockwise viewed from the motor end; the wrong rotating direction will cause the equipment damage and injure your body.

3. Fill packing and lubricating-oil、 let cooling-water in and check the concentric degree  
before operating the pump.

4. The lubricating cool-water must be filled in the guide bearing for delivering  
waste-water, if the capacity and pressure is not enough it will influence the pump  
using life. Before operating the pump, the water should be poured for three minutes  
and you can not close the cooling-water until the pump stop running completely.

5. It need not fill lubricating cool-water in the guide bearing for delivering clean water,but you must take the protecting pipe off.

6. Operating without any liquid and increasing the pump speed are not allowed.

7. The continuous running is not allowed with the discharge gate valve shut off,

otherwise it will make the pump vibration 、 the delivering liquid boil-off 、 the  
equipment damage and injure your body.

8.  The continuous running is not allowed when the capacity is 30% less than that of design capacity, unless add bypass pipe.

9.The continuous running is not allowed when the capacity is 120% more than that of  
design capacity otherwise it will bring NPSH and excessive power to motor.

10. Cut off the electricity before installing and repairing the pump, otherwise it will injury

your body.

11. Don't touch the rotating parts outside or take the protecting cover off while the pump  
is running, otherwise it will injury your body.

12. During pump running, if there is abnormal noise and other troubles, stop it and check  
at once.

13. Our company follows the principle for making the product better and perfect and also  
has the right for technology change, we will not make further notice about it

14.  If you have any doubts please call 86-731-85475588-8115.

General

The vertical long-shaft pump is a new product produced according to requirement of  
market, it adopts the best and advanced technology in its design and manufacture, the pumps  
are not only reliable、 high-efficiency, but also easy for installation and maintenance.

The vertical pump of these series are according with corporation standard Q/ACXR001  
《Vertical long-shaft pump》

The manual is written according to GB9969.1《General rules for industrial product usage  
manual》 .

Usage

LC vertical long-shaft pump are widely used to feed and drain water in clean-water  
factory、 waste-water work、 mineral、 Power station、 steel and metallurgical industry、 irrigation in countryside and hydraulic project.

Working condition

Speed： 590、740、980、1480和2980r/min   
Voltage： 380V、6000V、10000V   
Outlet Diameter： 100～1000mm   
Capacity： 60～8400m3/h（Design Point）   
Head： 12.5～94.5m（Design Point）   
Temperature： ≤80℃

Permitted delivering medium: Clear water、 Waste-water with little grain (such as iron filings  
sand and coal powder etc.)、 Industrial waste-water with corrosion and Sea water.

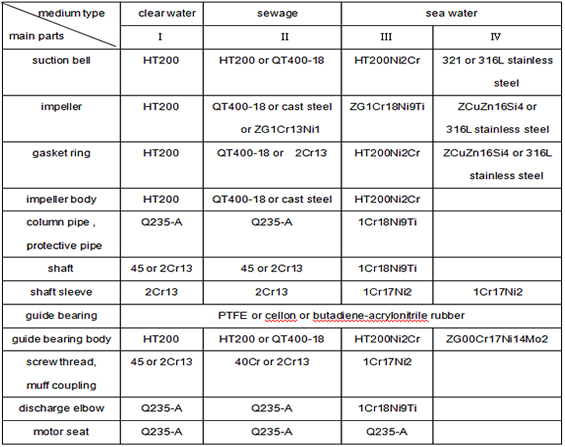
Nomenclature

150LC3-90A-L

150—Outlet diameter of pump is 150mm   
LC—Vertical long-shaftpump   
3—Impeller stage number is 3 (omit when the stage number is 1)

90—The design head without cutting is 90m   
A—The cut code of impeller outer diameter   
L—Submerged depth（L≤18m）

Materialofmainparts



 Remark: Other materials can be used according to user’ s requirement.

The inlet of long-shaft pump is upright down、outlet is level,the pump and the motor is connected directly and installed in the same foundation,the rotating is anti-clockwise viewed from the motorend.

The mainfeatures

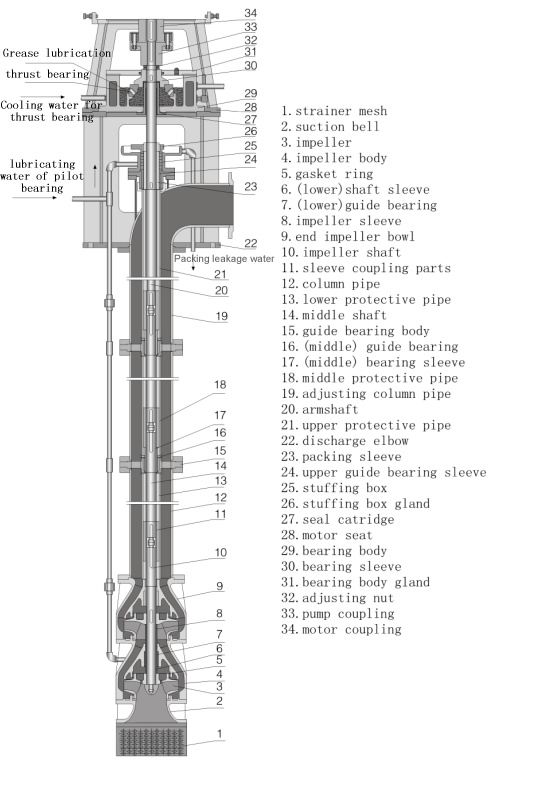
The pump are made under the design with good hydraulic model,it has a superior performance,the impeller and the guide blade areanti-corrosion and this make the impeller and other easy-worn parts has a long-life；the pump is stable、running safety and has a high save-energy.The filter is installed in pump outlet with proper opening holes,this not only  prevent the pump from damage because of the impurity entering the pump but also reduce the inletloss and increase the pump efficiency.

Impeller adopts balance holes for balancing its axial force and there is replaceable seal  ring in its front and back cover board for protecting impeller and pump casing.Middle shaft、column pipe and protective pipe are multilevel burl,the connection of middle shaft  adopts adapter coupling technology,the column pipe may be less or more according to user’s  requirement to fit the different depth.Impeller and diffuser casing are multi-stage  to fit the different Head.The column pipe is connected by flange with guide bearing in the  middle,the guide bearing adopts PTFE、Jinlong bearing or thordon bearing and the shaft has  a protective pipe,when the pump deliver sewage,the guide bearing should have external cool lubricatin gwater.

The remaining axial force of pump and the weight of rotor parts is borne by thrust bearing in  
motor seat or motor with thrust bearing. The thrust bearing is lubricated by dilute oil and  
cooled with external water . The thrust bearing can have element for monitoring temperature.  
Pump shaft seal adopts packing seal, there is replaceable shaft sleeve in shaft seal and guide  
bearing to protect shaft, it is convenient to adjust axial location of impeller by nut in bearing  
parts upper end or pump coupling.

Pump can be quipped with controller which can automatically start and stop pump according  
to liquid level, give an alarm for over loading and control many pumps in long-distance.  
There is automatic exhaust system for pump with diameter over 500mm.

Configuration Figure ：



Assembly and disassembly

1. Preparation before assembly

1.1 Check every part before assembly, ensure there is no defect, and clean all the parts.

1.2   Check the cooperating parts： include key and shaft、 key and impeller； key、 clasp、

adapter coupling and shaft； impeller、 shaft sleeve、 adapter coupling and shaft、 the radial  
clearance between the shaft sleeve and guide bearing is 0.15～0.25mm.

2. Part sassembly   
2.1 Fix the seal ring on suction bell and diffuser separately with screws.

2.2 Fix guide bearing on both guide bearing support and diffuser, fix packing lining on  
stuffing box, don’t forget to fix key and space ring.

2.3 Small installing for thrust bearing parts： Fix oil-pail in the bearing body, fix outer ring of

thrust bearing in bearing body and inner ring in rotating sleeve, then fix rotating sleeve in  
bearing body and finally fasten the bearing cover in the bearing body.

2.4  Middle shaft assembly: Knot shaft sleeve in the middle shaft, fix space ring and fasten  
with screw

2.5 Middle shaft assembly: Knot shaft sleeve in the middle shaft, fix space ring and fasten

with screw.

3．General assembly

Pump can adopt vertical and horizontal assembly

3.1 Fix shaft sleeve、 key and last stage impeller in impeller shaft, then fix it in the last stage

diffuser.

3.2  Fix space ring、 next stage shaft sleeve、 diffuser、 key and impeller . repeat the above

process until the second impeller are completely installed.

3.3  Fix space ring、 shaft sleeve 、 first stage diffuser、 first stage key、 impeller， stop  
washer 、 locking impeller nut、 elbow and filter.

3.4  Fix key and adapter coupling in middle shaft orderly, connect impeller shaft with middle

shaft by half snap ring, fix space ring in slot. Fix seal o-ring in last stage diffuser, fix  
guard column and water pipe, fix guide bearing bracket with screw (with seal o-ring in  
bracket). When vertical assembly, lift pump in pit and support it on baseboard of water  
pipe with channel steel. fix each stage middle shaft、 guard column 、 water pipe、  
guide bearing bracket、 driven shaft、 adjusting guard column and adjusting water pipe.

3.5 Connect discharge elbow and adjusting water pipe; fix seal o-ring in stuffing box, aim  
adjusting guard column to fix stuffing box in discharge elbow, then fix stuffing cover.

3.6 Fix key in driven shaft , fix thrust bearing parts on discharge elbow, then fix ball nut.

3.7 Fix pump coupling key and pump coupling.

3.8 Fasten motor seat on discharge elbow.   
3.9 Lift the rotor by adjusting the two ball nut of thrust bearing, the lift level is 1/2 total  
beating level of the rotor, the blocking is not allowed.

3.10 Lift the rotor by adjusting the two ball nut of thrust bearing, the lift level is 1/2 total

beating level of the rotor, the blocking is not allowed.

If pump's thrust force is borne by motor, there will no installation of thrust bearing  
parts (in the 3.6 item), lift the rotor through the adjusting disk of pump coupling, the lift level  
is 1/2 total beating level of the rotor.  
  
Attention：   
1.  In the above assembly process, some small parts such as key、 block

water ring and seal o-ring in the shaft sleeve can be easily lost or  
assembled disorderly, this should be take great attention.

2.  When deliver clean water, if where is no cool lubricating water for  
guide bearing, then guard column can't be installed.

3. If the lift height is not enough, hang the installed parts in the pump  
pit to install and before putting them in the pump pit, fix filter and  
also fix lubricating water pipe of guide bearing.

4．Disassembly

The order of disassembly is on the opposite side of the assembly, pay attention to the  
following while disassembly.

4.1   
Mark the relevant cooperating surface that will be convenient for next assembly.   
4.2

Prepare some cases to put the disassembled parts to prevent them from losing and colliding.  
Don't put the fasten parts together， because their material is different according to different  
using condition.

4.3   
Prepare thin anti-rust oil to coast the manufacturing surfaces.   
4.4

Re-use of seal-ring、 paper washer、 rust-locking parts、 spring washer and packing are not  
allowed.

**Installing**

Pump installing quality is affected directly on pump running and life, so installing and  
adjusting must be strict.

1．Foundation 、 Pipeline and Pump house

We suggest that user should invite the special designing people and unit to design foundation、  
pipeline and install pump.

1.1   The foundation must be firm and it can bear the vibration of pump and support pump set

forever, the foundation must have the ability to bear the weight that is 1.5 times of the pump  
set (include motor)． Usually the pump foundation is concrete foundation with bolts hole in the  
foundation, while install the pump, first fix foundation bolts, then make the second pour.

1.2 Don’ s use pump as pipe bracket, all pipes should be supported separately; the pipe should be  
short as possible as it can, and also reduce elbow in the pipe to avoid more loss; usually the  
discharge pipe is one standard larger than the outlet, among pump and pipe it should install  
gate valve and check valve (when head is less 20m, the valve can omit), the diameter of gate  
valve should be not less than the diameter of pipe, the check valve is installed between gate  
valve and pump .

1.3 The pump should be installed properly to have proper space for operating、 disassembling and

inspection ， also the pump house should have enough device and space for lifting; when  
pump is driven by motor， it will be influenced by outside environment， so the house should be  
ventilated， It can't be too hot or too wet. When pump is used outside， adopt outside motor.

Attention:The pump pipeline system and foundation etc. are not  
designed by our company， so we are not responsible for it， but we may  
offer some suggestion about the design and operating.

2．Preparation before installing

2.1   
Check the equipment to ensure it well and comp

2.2

Clean the foundation， check the hole dimension of foundation bolts， check the pump set level.

2.3 Prepare installation tool and lift equipment.

3．Installing technical requirement

3.1   
Check and adjust center degree of motor shaft and the pump to ensure two shaft in a direct  
line.

3.2  
Ensure the pump coupling and motor coupling with clearance stipulated in assembly drawing.

3.3  
The pipeline should have its own bracket to avoid all weight on pump.   
3.4  
After installing pipe， adjust them again according to state process.   
3.5 Between flange and pipe, it can't leakage gas.

4．Installation and Calibration

4.1

The pump suspends on foundation bolts, then use nuts and gasket to fix, ensure the foundation  
bolts suspend in obligated hole in pedestal freely. Between pump pedestal and foundation, use  
couple wedge to adjust. Put gradienter on pedestal ， adjust level with wedges ， (less than  
0.05mm/m ), tighten the nuts on foundation bolts suitably to prevent the pump moving .   
4.2   
Use cement to pour the pedestal and the hole of the foundation bolt.   
4.3  
After the cement dry， examine whether the basement and the eye of the foundation bolt are  
loose.

4.4  
Place the pump set in the common base， prepare cooling water pipe.   
4.5

Lift the rotor by adjusting the top of thrust bearing or adjusting nut in pump coupling， the lift  
level is 1/2 total level of the rotor , the blocking is not allowed.

4.6

Fix motor with coupling on the motor pedestal， adjust the coaxial degree of the motor and the  
pump by adjusting bolts.

4.7

Check the pulse of coupling, the radial pulse and end pulse of coupling of pump and motor  
should be less than 0.1mm. For flexible coupling, the radial deviation of pump and motor  
should be less than 0.1mm, the end surface clearance meets the requirement in the table and  
the irregularity degree along circumference should be less than 0.1mm.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| The outer diameter of coupling(mm) | 170 | 190 | 220 | 260 | 330 | 410 | 640 |
| The end clearance of two coupling(mm) | 4 | 4 | 4 | 5 | 6 | 7 | 8 |

4.8

After installing pipeline and the pump is running, check and adjust the pump concentricity  
again.

4.9   
After the pump test-running for 2-3 hours， make the final check， if there is no abnormal  
trouble, then the installation is right.

Attention：   
1.

During installing， all eyes of the hole should be covered to  
prevent dirty things entering the pump.

2．

Ensure the rotating direction of the pump: the pump is  
anti-clockwise viewed from the motor end ， the incorrect  
rotating direction will cause the pump damaged and the  
body injure.

**Starting、RunningandStopping**   
1．Inspection and preparation before starting   
1.1   
Take the dirt things on the pump away and make the site clean, check to see if the foundation  
bolt is loose.

1.2

Check to see if the submerged depth is expected.

1.3

Check to see if there is packing in the pump.   
1.4

Check the supply of cooling water , the cooling-water should be clean soft water, the  
cooling water capacity for thrust bearing is 0.3～ 0.5m3/h, the pressure is 0.1～0.2MPa,  
the capacity and the pressure of the guide bearing refer to the appendix table.

1.5  
Ensure the pump and motor to be lubricated, the lubricating-oil type is L-AN32 mechanical  
oil, the oil level is up or down 2mm of the centerline of the oil-meter, the lubricating for the  
motor follow the installation manual of the motor.   
1.6  
Before starting, turning the rotor, it should be flexible.   
1.7  
Check if the rotating direction of the motor is right: the pump is anti-clockwise viewed from  
the motor end.   
1.8 Check if the motor、 other electric equipment and instruments are normal.

2．Starting

2.1   
Shut off the outlet gate valve and the pressure meter plug, open valve in cooling water pipe.   
2.2  
Check the capacity and pressure of cooling water, only when it meets the requirement, pump  
can be started.

2.3

When the capacity and pressure meet the requirement and more than 3 minutes, then start  
motor, when the pump rotates in normal speed, open the pressure meter plug and open the  
gate valve in the discharge pipeline gradually and adjust to needed working condition. when  
the gate valve on the discharge pipeline is in close, the continuous working time of the pump  
should not be more than 2 minutes.   
2.4

Tighten the nut on the packing cover appropriately to let liquid flow as drops, pay attention to  
temperature of packing box.

Attention：   
1．When the capacity and pressure meet the requirement and more than 3 minutes, then start  
motor, when the pump rotates in normal speed, open the pressure meter plug and open the  
gate valve in the discharge pipeline gradually and adjust to needed working condition. when  
the gate valve on the discharge pipeline is in close, the continuous working time of the pump  
should not be more than 2 minutes.

2．

Don’t make too tight to packing cover, little leakage can lubricate packing but no  
leakage will burn packing and scratch shaft sleeve.

3．

When pump deliver sewage, the guide bearing should have cooling lubricating  
water. If the capacity and pressure of cooling lubricating water is not enough, it  
will affect the pump’ s life severely. The water passing through the guide bearing  
should be kept more than 3 minutes, don’t close the cooling water until pump  
stops running completely.

4．   
When deliver clean water, the guide bearing may have no cooling lubricating  
water, but the guard column should cancel.

3．Running

3.1   
The temperature of bearing should be 35℃ less than outer temperature, the Max  
temperature should below 75℃.   
3.2

During the running must watch the date of instrument、 the temperature of bearing、 the  
leakage of the packing 、 the vibration and noise of the pump, if the condition is not  
normal ,treat it in time.   
3.3

Make a regular check of capacity and pressure of lubricating water, the water must be  
kept always while pump running, also make a regular clean to the filter.   
3.4  
The normal leakage in packing box is 20～30 drops per minutes.

3.5 Pay attention to bearing temperature of the motor.   
3.6

The lubricating oil level should heap in normal level that it can't be too high or too low, when  
the level is too low, add the grease time, usually for first time oil should be replaced  
completely for running 300 hours, next time replace oil for very 3000 hours running, users  
can also decide it according to actual condition and past experience.

Attention：   
1．

The pump is not allowed to run when the submerged depth is not  
enough to prevent NPSH from damaging pump.   
2．The continuous running is not allowed when the capacity is less  
30% than that of design capacity, unless add bypass pipe.

3．

The continuous running is not allowed when the capacity is more  
120% than that of design capacity otherwise it will bring NPSH and  
excessive power to motor.   
4．Forbid to increase the pump speed.   
5．  
During pump running, if there is abnormal noise or other troubles it  
should be stopped to check at once.

4．Stopping

4.1 Close plug of pressure meter.   
4.2 Shut off the outlet pipeline valve gradually.   
4.3 Cut off electricity   
4.4 Close the cooling water after pump stops running  
completely.

If the pump will be stopped for a long time, it is necessary to disassemble and clean pump and  
then greasing and packing.

The capacity and pressure for guide bearing

|  |  |  |
| --- | --- | --- |
| Pumptype | Pressure  （MPa） | Capacity(m3/h) |
| 150LC-23、23A | 0.3～0.4 | 0.8～1.0 |
| 150LC-30、30A | 0.4～0.5 |
| 150LC2-46、46A | 0.6～0.7 |
| 150LC2-60、60A | 0.7～0.8 |
| 150LC3-90、90A | 1.0～1.1 |
| 200LC-19、19A、23 | 0.2～0.3 |
| 200LC2-38、38A、46 | 0.3～0.4 |
| 200LC3-57 | 0.5～0.6 |
| 200LC3-69 | 0.6～0.7 |
| 200LC4-92 | 0.8～0.9 |
| 250LC-20、20A，250LC-32、32A | 0.2～0.3 | 1.2～1.4 |
| 250LC2-40 | 0.3～0.4 |
| 250LC2-63、63A | 0.4～0.5 |
| 250LC3-95、95A | 0.7～0.8 |
| 300LC-25、25A，300LC-39、39A | 0.2～0.3 |
| 300LC2-50 | 0.4～0.5 |
| 300LC2-78、78A | 0.5～0.6 |
| 350LC-19、19A，350LC-30、30A、30B | 0.2～0.3 | 1.4～1.6 |
| 350LC-48、48A、48B | 0.3～0.4 |
| 350LC2-60、60A、60B | 0.4～0.5 |
| 400LC-25、25A，400LC-39、39A | 0.2～0.3 |
| 400LC2-50、50A | 0.4～0.5 |
| 400LC-62、62A、62B | 0.3～0.4 |
| 450LC-17、17A，450LC-27、27A、27B | 0.2～0.3 | 1.6～1.8 |
| 450LC-43、43A、43B， | 0.3～0.4 |

|  |  |  |
| --- | --- | --- |
| 450LC2-54、54A | 0.4～0.5 |  |
| 500LC-20、20A，500LC-31、31A、31B | 0.2～0.3 | 1.8～2.0 |
| 500LC-50、50A、50B | 0.3～0.4 |
| 500LC2-63、63A | 0.4～0.5 |
| 600LC-25、25A | 0.2～0.3 |
| 600LC-39、39A、39B，600LC-62、62A、62B | 0.3～0.4 |
| 700LC-20、20A | 0.2～0.3 | 2.2～2.4 |
| 700LC-32、32A、32B，700LC-50、50A、50B | 0.3～0.4 |
| 800LC-24、24A | 0.2～0.3 |
| 800LC-38、38A、38B，800LC-60、60A、60B | 0.3～0.4 |
| 900LC-21、21A | 0.2～0.3 | 2.6～2.8 |
| 900LC-33、33A、33B，900LC-52、52A、52B | 0.3～0.4 |
| 1000LC-25、25A | 0.2～0.3 |
| 1000LC-39、39A、39B，1000LC-63、63A、  63B |  |

Maintenance and Repairing   
1．Running diary and Supervise files   
1.1Running diary

Write down the pumprunning information truly and let it as a base to make running plan.

The running diary must include the followings：testtime、operating and stopping time、the  reading of the pressure gauge、current、voltage、frequency、rotating speed、vibration、noise、 environment temperature、bearing temperature、the leakage of the packing box and suction height etc.

    1.2 Supervise files

Write down the leave factory time、manufacture、main performance dates and the main

inspection information of the pump and other driver(as motor) and rotating device in supervise files.

2．Maintenance

Correct maintenance has a large significance to pump it can keep pump running at the best  
state, extend the pump using –life and to avoid accident.   
2.1 Usual inspection items   
2.1.1 Close plug of pressure meter, while pump stopping.   
2.1.2 Check the leakage of supply system of lubricating cool- water、 pipes and pump， if the is  
leakage, repair it.

2.1.3 Check all instruments.

2.1.4 Measure vibration termly and observe the noise is up or down.

2.1.5 Watch and check whether the cooling lubricating pipeline is jammed.

2.1.6 Adjust the leakage of stuffing seal properly.   
2.1.7 Keep pump set clean and take running records.   
2.2 The inspection item once a month.   
2.2.1 Check and adjust the pump and motor to guarantee the coaxial degree.  
2.2.2 Check the lubricating –oil and lubricating water.   
2.2.3 Test vibration and noise.   
2.2.4 Check if there is too large clearance appeared in the rotating fitting part to prevent loosing.   
2.2.5

If the condition is allowed, make a start-run for those pumps that will stop running for a long  
time, the time for start-time should be not less than 5minutes, it the condition is not  
allowed , pump can be turned manually.

2.3 One-year inspection items.

2.3.1 Check the rotating parts to see if there is abrasion.   
2.3.2 Check the clearance of impeller and seal-ring.

2.3.3 Check NPSH 、corrosion and erosion of impeller and flow parts.   
2.3.4 Check abrasion of bearing and packing sleeve.   
3．Repair

The pump should be disassembled and repaired when it necessary (the vibration、 noise  
and the bearing temperature is large than the allowable value； Capacity and head decrease )  
For continuous running pump one-time regular inspection should be made every year.

3.1  
While do repairing, write down the repairing process amply for next reference.   
3.2

First： prepare spare parts ,while buying; indicates the name、 material、 quantity of the spare  
parts, also indicate pump type、 name、 the date and number of pump leave factory etc.

3.3

The order of disassembly is on the opposite side of assembly， after disassembly , get rid of  
rust in parts' surface ,then daub again.   
3.4 Check the clearance between the impeller  
and seal-ring. the following replacing standard is as a reference :

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Nominal diameter  (mm) | ～125 | ～160 | ～200 | ～250 | ～315 | ～400 | ～500 | ～630 |
| The largest allowable diameter clearance(mm) | 1.1～ 1.8 | 1.2～ 2.0 | 1.3～ 2.2 | 1.5～ 2.5 | 1.7～ 2.8 | 1.9～ 3.1 | 2.1～ 3.5 | 2.4～ 4.0 |

3.5  Check the abrasion of guide bearing, the following replacing standard is as a reference：

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Nominal diameter | ～60 | ～80 | ～100 | ～120 | ～140 | ～160 | ～180 |
| The largest allowable diameter clearance(mm) | 0.4～0.8 | 0.5～0.9 | 0.6～1.0 | 0.7～1.2 | 0.8～1.3 | 0.9～1.4 | 1.0～1.5 |

3.6

Check the abrasion of shaft sleeve and packing sleeve, when the diameter abrasion is 1～  
2mm, replace it.   
3.7 Check the abrasion of impeller and guide impeller body etc.

3.8  
Replace the sealing parts (as packing、 seal o-ring、 paper washer).   
3.9  
Assembly should be made according to assembly order, after assembly. move the pump rotor,  
it should be equably.

Attention：

While inspection, you must obey the safe rulers all along. Before do any inspection  
you should do the following first:

1．Cut off electricity of the motor and all instruments.

2．Shut the outlet and inlet valve.   
3．Shut off cooling water.

Ⅷ Troubles Causes and Remedies

|  |  |  |
| --- | --- | --- |
| Troubles | Causes | Remedies |
| The pump doesn’t work | 1. The trouble of motor or electricity-supply system. | 1. Repair the motor or electricity-supply system. |

|  |  |  |
| --- | --- | --- |
| The pump doesn’t work | 2. The rotor part has the eyewinker. 3. Bearing clogged. 4. Have no enough starting condition. | 2. Clean the rotor parts. 3. Clean or change bearing. 4. Find the needing condition. |
| Not enough capacity or no water pour out from the pump | 1. Sundries in suction side、 discharge side and impeller. 2. The sealing-ring is worn or impeller damaged. 3. Incorrect rotating direction. 4. The rotating speed is too low. 5. The submerged depth is not enough and there is air in. | 1. Clean filter 、 impeller 、 guide impeller body、 discharge pipe and valves. 2. Replace the damaged parts. 3. Calibrate the rotating direction. 4. Measure voltage 、 frequency and check motor. 5. Increase the suction height. |
| Over load of the pump power | 1. The bearing is damaged (include guide bearing.) 2. Eyewinker. in the pump. 3. Friction between impeller and seal-ring. 4. Too tighten packing. 5. The rotating speed is too fast. 6. The capacity is too large. 7. Only single-phase electric wire is operating. | 1. Replace the bearing. 2. Get rid of the eyewinker 3. Adjust clearance. 4. Loose the packing. 5. Check and adjust voltage 、 frequency and motor. 6. Reduce the discharge gate valve. 7. Make a check and inspection by professional. |
| Unexpected vibration and noise | 1. The submerged depth is not enough and there is NPSH in pump. 2. The impeller is unbalanced. 3. The shaft is not concentric or bend. 4. The foundation bolts is loosing. 5. The bearing is damaged 6. The abrasion of guide bearing and shaft sleeve, too large clearance. 7. The trouble in discharge pipe. | 1. Increase the suction height or reduce the discharge gate valve. 2. Adjust the impeller balance. 3. Adjust the shaft the concentric degree. 4. Tighten the foundation bolts. 5. Replace guide bearing and shaft sleeve 6. Replace the guide bearing and shaft sleeve. 7. Check and get rid of troubles. |
| The bearing is overheated | 1. The pump shaft and the motor shaft are not in alignment or the pump shaft inclined. 2. The bearing is damaged. 3. There is no oil in bearing. | 1. Check and adjust the radial flop. 2. Replace the bearing. 3. Fill lubricating oil. |

Packing、 Transporting and Storage

9.1 The bare packing is adopted usually.   
9.2 Release the water in pump before packing.   
9.3

According to related packing technical requirement, the pump should be fixed firmly on wood  
in box bottom to prevent it from reverse and damage. The rotor also should be fixed to  
prevent it damaging the bearing on transporting because of its bump.   
9.4   
Add flange cover on inlet and outlet to prevent eyewinker entering the pump.

9.5

The technical data alone seals into in the waterproof moisture-proof plastic bag, and then put  
it into packing case.

9.6  Hit and inversion is not allowed in transporting.

9.7

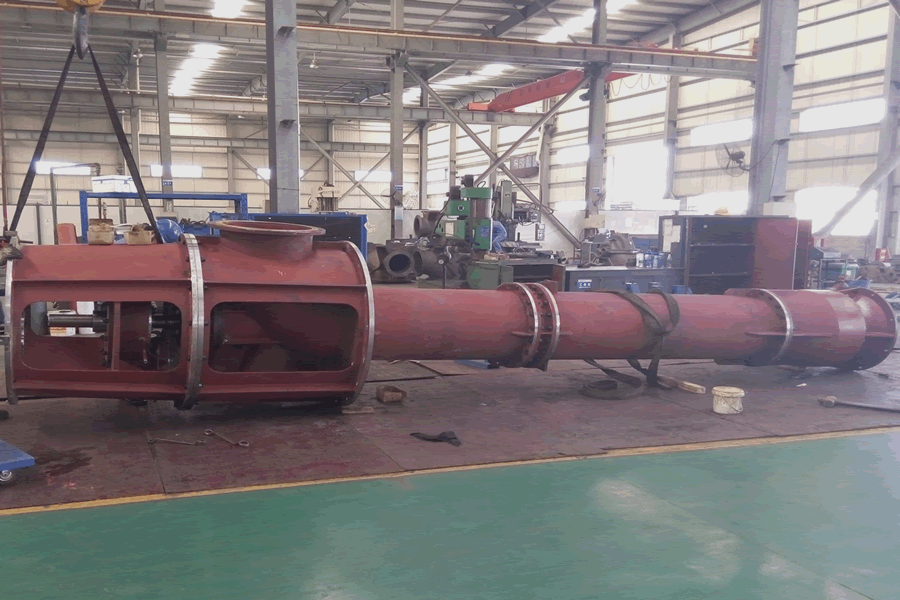
when the pump arrives the site, user should open the packing case to see if they are  
complete、 abrasive and damaged.   
9.8   
When open the packing case, if the pump needn’t to be installed for the moments, get rid of  
dirty oil and rust, and then coast the pump with grease.   
9.9

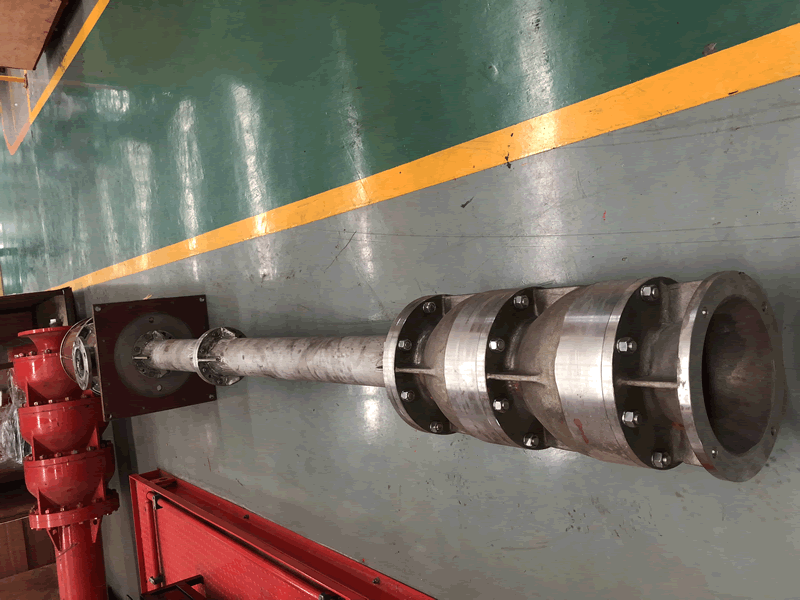
In saving the pump, pay attention to rust and damage, the period of validity of oil-sealing is  
12 months. it should be checked and coasted in 12 months. when use the pump after 6 months  
ex-work, the bearing should be cleaned.

Overall installing drawing

Attention： Please follow the overall installing drawing provided by our  
company technical center to make the foundation.

[](http://www.ljpump.net/album/262.html)

[](http://www.ljpump.net/album/349.html)

[](http://www.ljpump.net/album/341.html)

[](http://www.ljpump.net/album/263.html)