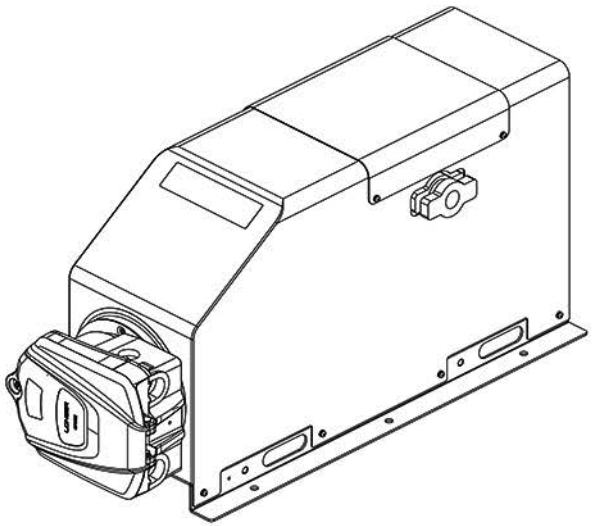
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Explosion-proof motor type peristaltic pump

2024.7

Guidelines for Installation and Usage of dPOFLEX EP01 Explosion-proof Motor Peristaltic Pump



Baoding Longer Precision Pump Co.,Ltd.

A **Halma** company

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LONGER Instructions for use of peristaltic pump

1. General Description

1.1 Notes

	**DANGER** stands for danger. When it is inevitable, it may lead to death or serious injury.
	WARNING stands for potential danger.When it is inevitable, it may lead to death or serious physical injury.
	CAUTION stands for potential danger.When it is inevitable, it may lead to moderate or minor injury.

1.2 Usage and Safety

Please read this guideline carefully before using the system. It's required to strictly observe all safety precautions when using this system.

1.3 Operation Warning

	**WARNING** Do not operate this system without following the safety precautions in this guideline and system document.
	**WARNING** Take care of your hands. When system runs, please take your hand off the pump roller. Please read the safety precautions and instructions carefully before operation.
	**WARNING** Be careful with hot surface. When system runs, don't touch reduction gearbox in case of scald.

- It's necessary to cut off power and strictly connect wire in accordance with line sequence.
- Having completed wiring, the motor cover shall be installed well to ensure the explosion-proof performance of the motor.
- Tubing rupture may lead to fluid ejection, please timely change or properly protect so as to ensure the safety of operator.
- When disassembling the tubing, cut off power first and drain the medium in the tubing to ensure that there is no pressure in the pipeline system.
- It's forbidden to touch roller when the pump operate.
- As the pump is out of service for a long time, it's required to remove the pressing bock from the tubing in case of deformation.

- Pump roller shall be kept in cleanness and dryness, otherwise it will accelerate the wear of tubing and shorten the service life of pump head and peristaltic pump.
- Never lubricate the roller of the pump head by yourself, for improper operation will cause the tubing deviate or corrode the pump head casing.
- Connect the power line and external control communication cable of explosion-proof motor's variable frequency driver in correct way, and never damage the plug.
- Pump head is unable to tolerate organic solvent and strongly corrosive fluid, so timely clean fluid left on pump surface.
- The appearance or software will be upgraded, changed or discontinued without prior notice.

1.4 Quality Assurance and After-sales Service

1.4.1 Warranty Commitment

1) The warranty period of complete machine is one year. If the product fails during the warranty period, it will be repaired and replaced free of charge. Consumables are not covered by warranty.

2) The following failures or damages are not covered by free warranty whether in warranty period or not.

- Complete machine is out of warranty period.
- Failure or damage caused by improper installation, storage, maintenance or usage when users didn't following instructions.
- Exceeding conditions of usage which are previously agreed in the contract or technical agreement.
- Failure or damage caused by installation, repair, modification or disassembly which are not implemented by Longer service organizations and personnel.
- Failure or damage caused by the usage of non-original parts or the replacement of spare parts by users, and the spare parts are not purchased from Longer or its designated dealers.
- Failure or damage caused by unexpected or human factors (including improper voltage input, corrosion, fall, etc.)
- Failure or damage caused by force majeure like natural disasters (such as earthquake, fire, etc.)
- Failure or damage caused by non-design,non-manufacturing and non-quality problems.

1.4.2 Maintenance Commitment

- When warranty expired, maintenance and spare parts replacement will be charged by cost.
- Spare parts replacement will be completed within 3 working days, users will informed of estimated completion date if maintenance may be delayed.

1.4.3 Dispute Solution

Any dispute arising from product quality and service shall be settled according to the contract or agreement. If there is neither contract nor agreement, both parties may settle it through negotiation, otherwise it shall be handled in accordance with relevant national laws and regulations.

1.4.4 Notice of Product Return

If you need to return the product for repair, please contact our company or authorized dealers in advance, provide the serial number of the product, and leave contact information and failure description. If the product has once been exposed to toxic chemicals or other substances harmful to human health, please clean the product before returning it. Products should be properly packed with original packaging or packaging with the same standard, so as to prevent pump from damage during transportation.

1.5 Contact Information

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2 . Product Description

2.1 Main Features

dPOFLEX EP01 is Longer's latest explosion-proof motor peristaltic pump.

- Motor with the explosion-proof of Ex d IIB T4 Gb can be applied in explosive gas atmosphere except coal mine.
- Provide single-phase inverter and three-phase inverter to satisfy customers' demands.
- High-level protection can adapt to complex and severe environment.

2.2 Unpack Check

1) Take out equipment and accessories from packing box.
2) Check packing list and confirm that accessories are complete.
3) If you have any questions, please contact Longer company or local dealers.

2.3 Adaptable Pump Head and Tubing

Adaptable pump head	Adaptable tubing /Silicone tube	Maximum reference flow rate (zero suction lift, clean water)
GPH01-1	26#、73#、82#、184#	0-15.0L/min
GPH02-2	186#、188#	0-17.0L/min
GPH03-3	186#、188#	0-14.0L/min

2.4 Technical Specification

Performance	Type	dPOFLEX EP01
	Supportable pump head	GPH01-1, GPH02-1, GPH03-1
	Scope of speed	23rpm-265rpm
	Casing material	Cast iron (304 stainless-steel protective cover is optional)
	Control mode	External frequency converter (optional or self-purchasing)
	Explosion-proof rate	Ex d IIB T4 Gb

Physical parameter	Overall dimension	765*300*400mm	
	Explosion-proof motor power supply	Apply to three-phase 380V input,adaptable frequency scope (5Hz~60Hz)	
	Rated power	0.75KW	
	Adaptable frequency scope	5Hz~50Hz	
	Working environment temperature	5 - 40°C	
	Working environment relative humidity	Maximum 90% RH	
	Protection level	IP55	
	Weight(without pump head and protective cover)	Around 60kg	
Frequency converter (optional)	Single-phase frequency converter	VFD4A8MS21ANSAA	Input: single-phase AC220V
	Three-phase frequency converter	VFD2A7MS43ANSAA	Input: three-phase AC380V
	Diversion setting	Reversible	
	Speed adjustment resolution	0.05rpm/adjust resolution according to frequency converter	
	Control mode	LED display +key control	
	Analogue input function	Frequency output control source, which can be controlled by analogue input and is available in following configurations:0~10V,0~20mA,4~20mA	
	Analogue output function	Available configurations:0~20mA,4~20mA	
	Digital input function	Manual/automatic trigger, diversion trigger,start and stop trigger	
	Digital output function	Internal working state can be mapped on relay output interface,output content can be set through frequency converter interface	
	Communication interface	RS485	
	Communication protocol	Modbus RTU	

	Peristalitic pump type (Type No.)	Applicable pump head type	Pump roller number	Applicable tubing specification	Maximum reference flow rate(L/min) **Silicone tubing
Pump head and tubing	EP01	GPH01-1	2	26#、73#、82#、184#	15
		GPH02-1	2	186#、188#	17
		GPH03-1	4	186#、188#	14

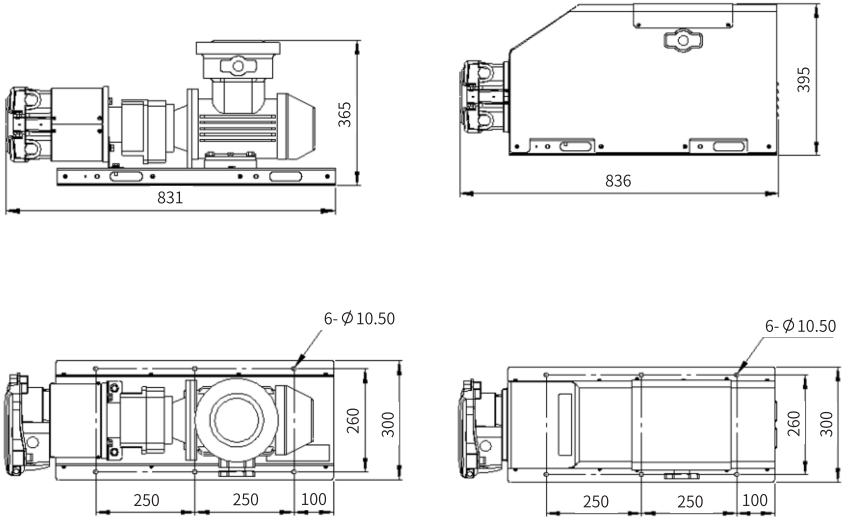
3 . System installation

Install correctly before using.

3.1 Overall dimension and installation dimension

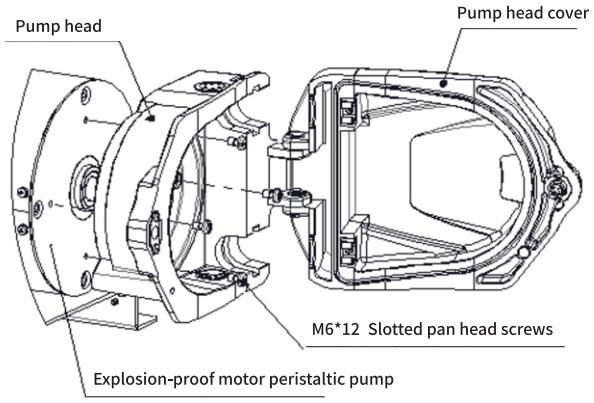
EP01 Standard configuration

EP01 +accessory: stainless protective cover

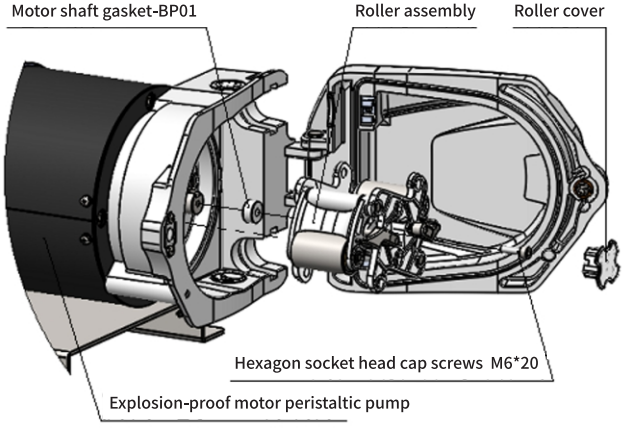


3.2 Pump head installation

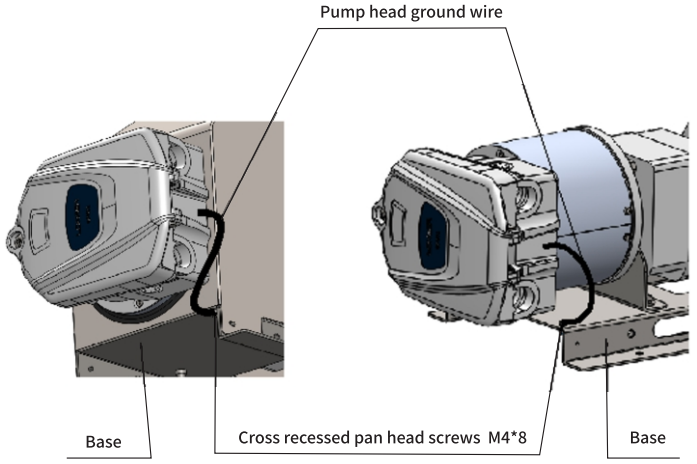
GPH01-1,GPH02-1 and GPH03-1 are installed in the same way.



1) Open the pump cover, align the large hole at the bottom of the pump head with the allocating convex of peristaltic pump, attach the pump head to the front face of peristaltic pump, and the fasten the pump head to peristaltic pump with four M6x12 slotted pan head screws.



2) Put the motor shaft gasket-BP01 into the shaft hole of roller assembly, insert the roller assembly into the output shaft of peristaltic pump, align the key slot with flat key, fasten the roller assembly on the output shaft of peristaltic pump with M6x20 hexagon socket head cap screws , and then cover the roller assembly.

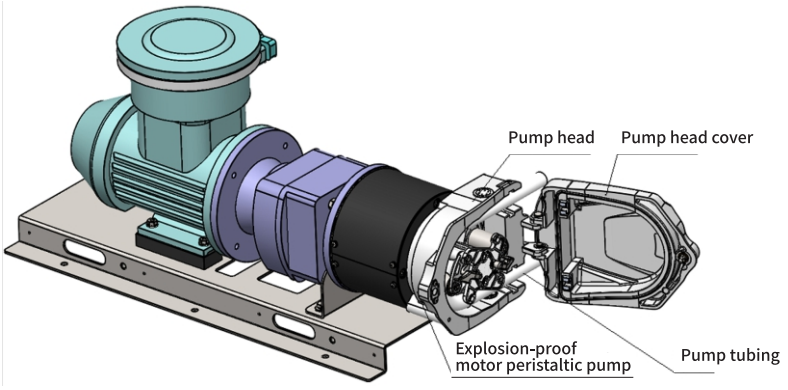


3) Fasten the ground wire of pump head on the base. Note: as it is equipped with optional stainless-steel protective cover, the ground wire will be fastened from bottom.

- The installation of pump head and roller assembly shall ensure that the screws are fastened and the roller cover is pressed in place.

3.3 Tubing Installation

GPH01-1,GPH02-1 and GPH03-1 are installed in the same way



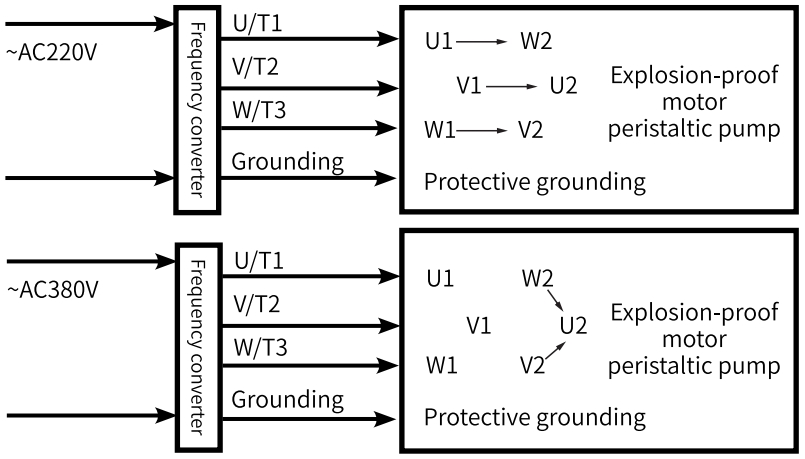
1) Insert an Allen key into the knob hole of the pump cover, rotate it to the right to open the locking screw of the pump head, open the pump head cover, pull the handle of the roller assembly, and put the roller away to facilitate the installation of the hose.

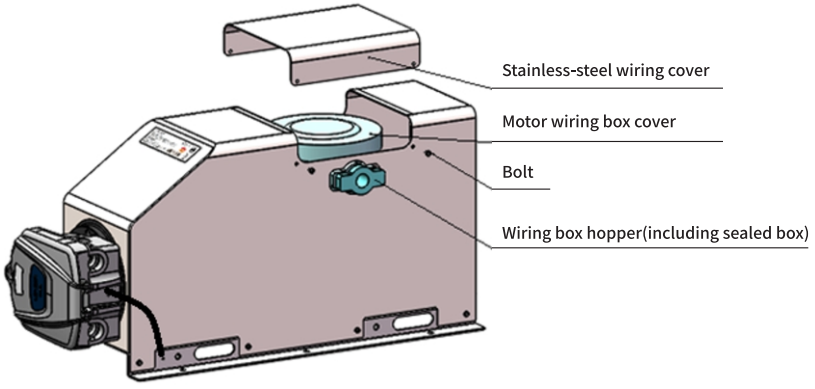
2) Tubing strapping: install the tubing into the pump head along with its bending direction , as shown in the figure, tighten the tubing to make its length inside the pump head reaches 420mm (to the outermost of the tubing strap). Be careful not to twist the tubing during installation, so as to prevent the service life from being reduced during operation.

3) Tubing assembly:insert two joints of tubing assembly into pump head groove, and don't twist the tubing.

4) Pull the handle of the roller assembly to open the roller and the complete the tubing installation. Press the pump head cover directly to the bottom, and the locking nail will automatically lock.

3.4 Wiring Instruction





1) For standard product, directly open up motor wiring box cover, and then wire the cable into chamber through box hopper.

2) By referring to appendix 7.3, it's required to adjust the bore diameter of wiring box hopper's sealing ring, seal both sides of sealing ring with metal gaskets not less than 2mm thick, and then press it on the sealing ring with the wiring box hopper to ensure the explosion-proof performance of the box.

3) The product is not equipped with household plug, it can be connected to plug or directly to service cable when in need.

4) If a stainless steel protective cover is selected, it is necessary to open the wiring cover of the stainless steel cover first.

4. Usage and Operation

The product is controlled by a variable frequency driver. Please refer to the operating manual of the variable frequency driver for specific manipulation.

5. Interface Specification

The product is controlled by a variable frequency driver, please refer to the operating manual for specific interfaces.

6. Notes of Explosion-proof Motor

6.1 Application Scenario

Exd II B T4 stands for：The type of explosion-proof electrical products is flameproof, which belongs to class IIB (class) used in class II places. The ignition temperature of explosive gas is T4(135°C<t ⩽200°C), common combustible gases, vapors and temperature levels are shown in table 1.

Table 1

Class	Group			
	T1	T2	T3	T4
IIA	Methane, ethane acetate, propane, styrene, benzene, xylene, toluene, carbon monoxide	Butanol, butane, ethanol, propylene, ethylbenzene, methanol, propanol	Cyclohexane, pentane, hexane, heptane, octane, kerosene, diesel, motor gasoline, decane	
IIB	Propyne, cyclopropane, coke oven coal gas	Ethylene oxide, ethylene, 1.3 monobutadiene, 1.2 propylene oxide	Dimethyl ether, tetrahydrofurfuryl ether, crotonaldehyde, acrolein, hydrogen sulfide	Ethyl methyl ether, diethyl ether, tetrafluoroethylene

6.2 Key Points of Explosion-proof Motor

6.2.1 When designing motor structure, the following principle has been fully considered: explosive mixture intrudes into the motor and explodes for some reason without causing the explosion of the explosive mixture outside the motor. Flameproof performance of the motor is determined from the below conditions: reach the required strength of the motor shell, the gap or diameter difference, or length between the flameproof joints of all shell components, and restrain shell surface from reaching dangerous temperature.

Clearance: See Appendix7.2 for clearance and creepage distance between each component flameproof joint and the exposed conductor inside the junction box, and between the exposed conductor and the metal casing.

Surface temperature: the allowable surface temperature of the motor when it is rated under the specified working conditions meets the requirements in Table 2 , and the temperature of the cable entry is not higher than the allowable temperature of the cable, so as to ensure the cable reliably operate.

Table 2

Explosive mixture group		T1	T2	T3	T4
Maximum allowable temperature of motor surface	W、TAW、THW、WF1、TA、H	440	290	190	125
	Indoors, TH(indoors wet topical zone)	450	300	200	135

6.2.2 In order to guarantee the flameproof performance of the casing, the fastening bolts for connection are equipped with lock washer to prevent the bolts from loosening. After the bolts and the impenetrable screw holes are fastened, there is a thread margin between the screw or the boil tail and the bottom of the screw hole, and the thickness of the metal around the impenetrable screw holes on the casing is not less than 1/3 (at least 3mm) of the thread bore diameter.

6.2.3 The cable introduced into the motor junction box shall be sealed with elastic sealing ring at the entry. The sealing ring's Shore hardness ranges between 45 to 55°, and the size of the sealing ring is shown in Appendix 7.3, its materials meet the requirements of heat and cold resistance test specified in Articles 26.8 and 26.9 of GB3836.1. The diameter of the cable entering the junction box should be consistent with the bore diameter of the sealing ring. The sealing ring is cut with multiple concentric grooves, and

the sealing ring bore diameter can be adjusted according to the cable diameter. As the junction box hopper is pressed tightly, there should be no gaps between the sealing ring and the cable, and between the sealing ring and the junction box base, otherwise the flameproof performance will be lost.

6.2.4 The insulation part of the terminal sheath or terminal board in the junction box is made of insulation material with Grade II leakage resistance.

6.2.5 Grounding: motor grounding is a vital measure to prevent leakage sparks and ensure safety. The grounding terminal on the casing is a galvanized bolt made of steel or copper, which is set conspicuously on the motor casing and labeled with ⏚ a grounding sign

6.3 Key Points of Explosion-proof Motor

6.3.1 Preparation before installation

The following items must be checked be installation, if relevant requirements, they are not allowed to be put into use.

a) Explosion-proof label, explosion-proof certificate number and safety mark certificate number are all necessary, besides, the motor explosion-proof label shall be checked whether it can conform to environmental demands of explosive gas or not.

b) All fastening bolts should be tightened, the lock washer is compete, and all parts of the explosion-proof shell are properly connected.

c) All flameproof parts should be free from cracks and defects that affect flameproof performance (unused new motors can not be disassembled for inspection).

d) Keep the grease oil filling tubing of motor with oiling and discharging unblocked.

e) Set up the motor bearing monitoring device with bearing temperature measurement, and focus on preventing the collision between the lead wire of the temperature measurement device and the fan.

6.3.2 If the motor has been transported for a long distance or hasn't been used for a long term,the insulation resistance between the stator winding and the casing must be checked before use, otherwise the motor shall be dried until the insulation resistance reaches the specified value.

6.3.3 While installing the motor, the center lines of both the motor and the driven machine should be consistent, otherwise the bearing and the shaft

will be broken. Then, check and ensure the screws and bolts of the coupling or spur gear are fastened, the unit rotates flexibly, and neither jam and displacement nor abnormal sound exist.

6.3.4 Check and ensure the fastening bolt of the motor is firmly fastened, the bearing is greased, and the casing is reliably grounded or connected to neutral.

6.3.5 Check and ensure the motor protective device qualified and installation reliable.

6.3.6 Check and ensure the wiring of starting equipment accurate, starting device flexible, contact terminal well and the metal casing of starting device reliably grounded or connected to neutral.

6.3.7 Check and ensure the three-phase power supply voltage is normal, the voltage is neither too high nor too low, and three-phase voltage is symmetrical.

6.3.8 Check the motor bearing and its lubrication system, ensure bearing grease is adequate, and replenish it or clean and replace the grease if necessary.

6.3.9 Notes of starting

a) After switching off, if the motor is unable to rotate, switch out quickly and decisively to avoid burning the motor, and then start the motor again after finding out the reason.

b) While multiple motors are powered by the same frequency converter, as they are unable to start at the same time, they should be started one by one from large to small.

c) When the motor is started by reducing the voltage, it must be no-load or light-load, and the motor is only allowed to start twice in cold state and once in hot state each hour.

6.4 Maintenance and Repair

6.4.1 The motor should be maintained and repaired periodically on monthly or annual basis, commonly known as minor repair and overhaul.

6.4.1.1 Content of monthly or minor repair:

(1) Clean the motor, remove and wipe off the dust on the casing, and measure the insulation resistance.

(2) Check the motor terminal: check and ensure the terminal bolt (nut) of the junction box is fastened, and then tighten the nut and replace it if necessary.

(3) Check the bolt (nut) and grounding wire of all fixed part: check the grounding bolt (nut), check the fastening bolts of end cover and bearing inner and outer cover, and then check the connection and installation of grounding wire.

(4) Check the motor bearing and lubrication system, ensure bearing grease is adequate, and replenish, clean and replace the grease if necessary.

(5) Check and ensure the motor fan is complete, the installation is firm, and the fastening bolt (nut) is firm,complete,wear-free and undeformed, replace it if necessary.

6.4.1.2 Content of annual repair or overhaul:

(1) Content of monthly or minor repair is included.

(2) Motor external check: check whether there is any external damage and whether the parts are complete, after thoroughly cleaning, dusting and repairing, fix deformation if exists.

(3) Winding check:

(a) Check whether the stator winding and rotor winding have phase-to-phase short circuit, turn-to-turn short circuit, open circuit, desoldering, burning, and repair all these problems;

(b) Measure the insulation resistance of all charge parts with a megger, and the resistance must be greater than 5MΩ.

(4) Clean the bearing and check the bearing wear:

(a) Stir the bearing back and forth for many times with a container filled with gasoline, then hold the inner circle of the bearing by hand and rotate the outer circle. During the rotation, put it in another container filled with gasoline for cleaning.While installing the bearing, the shrinkage fitting is applied. When heating, the temperature of engine oil shall not exceed 100°C and the bearing shall be evenly heated;

(b) Check the properties of the bearing surface, ball and shaft washer, if it is blue-purple, it means that the bearing has been annealed by heat. In severe cases, the bearing needs to be replaced.

(c) Measure the inner diameter, outer diameter and width of the bearing if possible.

(5) Motor internal cleaning and check:

(a) Check the pollution and damage of the stator winding, remove the dust and dirt from the stator first. If the stator winding accumulates oil dirt, wipe it off with a dry cloth, and then take a small amount of gasoline to

clean. Meanwhile, carefully check whether the winding insulation is aged or exfoliated. If so, it must be repaired and painted;

(b) Check the pollution and damage of the rotor winding, and check whether the rotor is broken, stained or desoldered by visual or colorimetric inspection;

(c) Check the stator and rotor cores for wear and deformation.

(6) Trial operation after repair: If the motor winding is in good condition, a general trial operation will be carried out after overhaul, insulation resistance shall be measured, and the flexibility of all parts shall be checked. The motor shall run with no load for half an hour, and then run with load.

6.4.2 While the motor is running, the bearing temperature must be lower than 95°C (thermometer method), and the bearing should be checked at least once after running for 2500h. In case of grease deterioration, it must be replaced in time. Clean up the waste oil in the oiling and discharging devices of the bearing inner and outer covers, so as to achieve cleanliness and smoothness, and the bearing needs to be cleaned completely with gasoline. When assembling the bearing, directly add grease: the fuel charge of 2P motor is 1/2 of the net volume of the bearing housing, the counterpart of 4P and above motors is 2/3 of the net volume of the bearing housing. When the motor is running, it is refueled through the oil filling cup. As 2P motor runs for 2000h and 4P and above motors runs for 3000h , it needs to be refueled by 25 to 45g, and the amount of fuel filling will increase as random seat number adds. Bearing grease generally adopts lithium-based grease: L-XBCHA3, and special grease is indicated with a labeled.

6.4.3 Seal ring of motor junction box shall be timely changed as it aged

6.5 Common Failures and Corresponding Solutions

Common Mechanical Failures and Corresponding Solutions		
Faults	Reasons	Solutions
1. Motor vibration	1) Bearing wear, gap failure	1) Check bearing clearance
	2) Uneven air gap	2) Adjust air gap to be qualified
	3) Rotor imbalance	3) Check and clean, and then calibrate balance after fastening all bolts.
	4) Insufficient rigidity of casing	4) Solidify weakness to increase casing rigidity.
	5) Insufficient foundation intensity and uneven installation	5) Solidify foundation, level motor anchor and then fasten.

1. Motor vibration	6) Fan imbalance	6) Inspect fan, correct geometrical shape or balance.
	7) Shaft bending	7) Calibrate shaft
	8) Deformation or looseness of rotor core	8) Correct rotor core, and then reassemble it.
2. Bearing heating exceeds the specified value.	1) Excess or scarce lubricating grease	1) Fill the grease accurately according to the instruction.
	2) Impure and poor grease	2) Check for impurities, and change clean grease.
	3) Overly tight grease seal	3) Change or repair grease seal
	4) The inner cover is eccentric and rubs against the shaft.	4) Fix the inner cover of bearing and keep it a proper gap between with bearing.
	5) End caps or bearing caps on both sides of the motor are not installed evenly.	5) Correctly install the end cover or bearing cover into the rabbet, and then uniformly tighten the screws
	6) Bearing broke down, worn out and contained impurities	6) Replace the damaged bearing; Bearings with impurities should be thoroughly cleaned and the grease must be totally changed.
	7) The connection between the motor and the transmission mechanism is eccentric or the transmission belt is too tight.	7) Calibrate the center line of the connection between the motor and the transmission mechanism, and then adjust the tension of the transmission belt.
	8) Improper bearing type will overload the rolling elements.	8) Select proper type
	9) Bearing clearance is excessively large or small.	9) Exchange bearing
3. Reduction gearbox leakage	Ventilation cap blocked	Open up the rubber band

Common Electrical Failures and Corresponding Solutions		
Faults	Reasons	Solutions
1. The motor is unable to start	1) Unconnected to power supply	1) Check the switch, melt, all contact points and motor lead connector.
	2) Winding disconnection	2) Heat the disconnected part to the temperature allowed by the insulation level so as to soften the paint, pick up the disconnection, repair the broken part with the same specification wire, wrap the insulation, and then paint and dry it.
	3) Winding grounding or phase-to-phase short circuit, turn-to-turn short circuit	3) Refer to the above solution. Besides, it needs to insulate the grounding or short-circuit part before painting and drying.

1. The motor is unable to start	4) Winding wiring error	4) Check the wiring map, heat the ends and reconnect them correctly(including binding, insulation treatment and painting).
	5) Melt burnout	5) Look for the reason and faults, and prepare new melt according to the motor specification.
	6) Control device wiring error	6) Correct wiring
2. Melt burnout as the motor is powered	1) Single-phase starting	1) Check power cord, motor lead fuse and switch contact points, and find out the disconnection or false connection fault and repair it.
	2) The motor is overloaded or stuck.	2) Adjust the load to the rated value, and eliminate the towed mechanical failure.
	3) The melt cross-sectional area is overly small.	3) As melt is unable to protect motor overload. Generally, melt should be selected according to the following formula: rated current of melt = starting current/(2 ~ 3).
	4) The connecting wire from the power supply to the motor is short-circuited.	4) Check the short circuit place and repair it.
3. The energized motor only hums without starting	1) The motor is overloaded or stuck.	1) Check and eliminate faults
	2) The power supply is not fully connected.	2) Replace the fuse melt; fasten screws with loose terminals; check the disconnection or false connection fault of power cord with multimeter; and then repair it
	3) Low voltage	3) If the △ connection motor is mistakenly connected into Y connection, it should be revised to △ connection. When the power supply voltage is too low, the users should contact the power supply department to solve it. When the voltage drop of the power supply line is too large, a thick cable is to be used.
	4) Hard grease or tight assembly for small-type motors	4) Select proper grease and improve motor assembly
4. Energized motor casing	1) The power cord is confused with the ground cord.	1) Correct
	2) Motor winding is affected with damp, and insulation is seriously aged.	2) Dry motor and update aged insulation.
	3) The lead is grounded with the junction box.	3) Wrap or update the insulation of lead and then repair the junction box.
5. It is difficult to start the motor. The motor speed is lower than the rated speed after adding the rated load.	1) Low power supply voltage	1) Use a voltmeter or multimeter to check the power supply voltage at the input end, and then handle it.
	2) △ Connection winding is mistakenly connected into Y connection.	2) Change the Y connection back to the△ connection.
	3) Cage-typed rotor unwelds or breaks	3) Check and repair unwelding or breakage.

	4) Excessive turns after rewinding.	4) Rewind according to correct winding turns.
6. Low insulation resistance	1) Winding is affected with damp or gets wet	1) Drying treatment
	2) Winding insulation aging	2) As it is identified to be used, it can be cleaned, dried and repainted. If the insulation is aging and cannot run safely, it needs to be replaced.
7. Abnormal and noisy motor running.	1) Worn-out and faulty bearing	1) Overhaul or replace new bearing.
	2) Stator and rotor core is loose.	2) Check vibration cause, and re-press the core for treatment.
	3) High or imbalanced voltage	3) Measure the power supply voltage, find out the causes of excessive and unbalanced voltage, and handle it.
	4) Scarcely greased bearing	4) Clean the bearing and fill it with grease to make it fill up to 1/2 ~ 1/3 of the volume of the bearing chamber.
	5) Fan collides the cover or the air duct is blocked	5) Fix fan and fan cover to make it correctly sized, and then clean up the air duct.
	6) Uneven air drop, collision between stator and rotor	6) Adjust air drop and improve assembly quality.
8. Motor overheating or smoke.	1) Overly high power voltage makes the flux density of the iron core supersaturated, resulting in excessively high temperature rise of the motor.	1) If the power supply voltage exceeds the standard by a lot, the users need to contact the power supply department.
	2) The power supply voltage is too low, and the motor temperature climbs greatly under rated load.	2) If the voltage drop of the power cord is overly great, the thicker power cord can be applied. If the power supply voltage is too low, you can contact the power supply department to increase the power supply voltage.
	3) Collision between cores of stator and rotor	3) Look out for causes of the failure, and replace the bearing if its clearance exceeds the limit; If the rotating shaft is bent, it needs to be straightened. If the iron core is loose or deformed, the iron core needed to be repaired.
	4) Overloaded motor or overly great drag mechanical resistance can heat up the motor.	4) Eliminate drag mechanical faults and reduce the resistance. According to the current indication, if it exceeds rated current, there is a necessity to reduce the load, replace the motor with a larger capacity or take capacity limiting measures.
	5) The motor starts frequently or rotates forward and backward for too many times.	5) Reduce the number of motor starting, forward and reverse rotation, or replace the appropriate motor.
	6) Fan failure, poor ventilation	6) Check whether the motor fan is damaged, whether the fan blades are deformed or not fixed properly, and replace the fan if necessary.

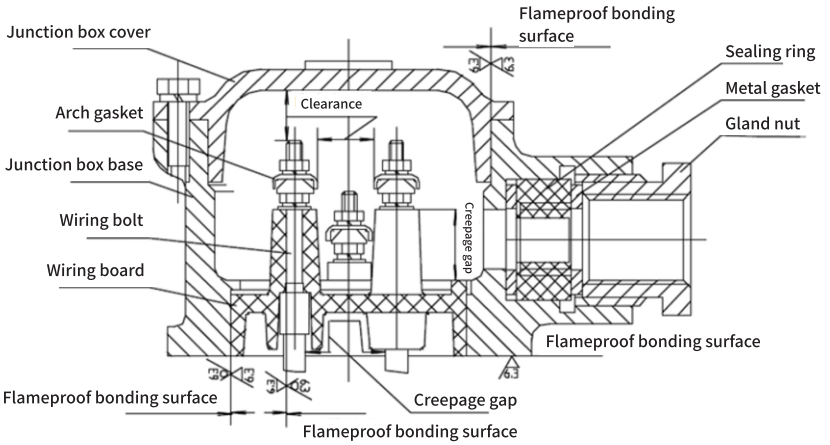
9. As the motor is running at no load, the current is unbalanced and varies greatly.	1) Unbalanced power voltage	1) Measure power voltage and find out reasons
	2) Winding fault,like turn-to-turn short circuit, a group of coils connected reversely	2) Disassemble the motor to check the polarity and fault of the winding, and then correct or eliminate the fault.
	3) The turns of three-phase winding is uneven when rewinding	3) Rewind winding

7 . Appendix

7.1 Table of Correspondence between Input Frequency and Output Speed

Input Frequency（Hz）	No-load output speed（rpm）	Loaded output speed (rpm)
50	293	288
45	264	259
40	234	230
35	204	201
30	175	171
25	145	142
20	115	113
15	86	84
10	56	55
5	27	26

7.2 Electrical Clearance of Explosion-proof Motor



(H63-71, 380V, 60V Suitable for H63-71,380V,660V)

Rated voltage (V)	175 < U < 275	275 < U < 420	420 < U < 550	550 < U < 750
Minimum electrical clearance（mm）	5	6	8	10
Minimum creepage distance（mm）	6.3	10	12.5	16

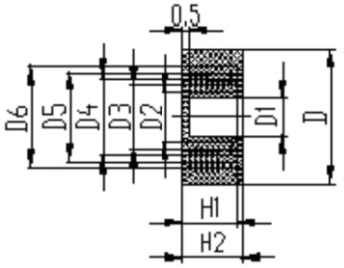
7.3 Technical Requirements of Explosion-proof Motor Sealing Ring

1. The sealing ring is made of rubber XH-21. Its mechanical and physical properties should comply with the provisions of GB/T7594.9.

2. The material of the sealing ring must pass the heat and cold resistance tests specified in Articles 26.8 and 26.9 of GB3836.1-2010.

3. The limit deviation of the undeclared tolerance dimension is GB/T 1804-M.

4. Shore hardness of the sealing ring is 45 to 55 degrees, and the end surface is labeled with the minimum external diameter of the applicable cable through pressure casting process.



Seal Ring Specification		D	D1	D2	D3	D4	D5	D6	H1	H2
16	A	16	2	4		-	-	8	19	20-
	B	-	1	2.5		-	-	6.5	-	-
20	A	20	2	6	9	-	-	12	19	20
	B	-	1	4.5	7.5	-	-	11	-	-
24	A	24	7	11	-	-	-	16	19	20
	B	-	5.5	10	-	-	-	15	-	-
28	A	28	10	14	-	-	-	18	19	20
	B	-	8.5	13	-	-	-	17	-	-
30	A	30	6	12	16	-	-	20	19	20
	B	-	4.5	11	15	-	-	19	-	-
32	A	32	12	16	-	-	-	20	19	20
	B	-	11	15	-	-	-	19	-	-
36	A	36	16	-	-	-	-	21	24	25
	B	-	15	-	-	-	-	20	-	-
42	A	42	14	20	25	-	-	30	24	25
	B	-	13	19	24	-	-	29	-	-
50	A	50	15	20	25	-	-	30	24	25
	B	-	14	19	24	-	-	39	-	-
58	A	58	14	20	26	31	-	35	24	25
	B	-	13	19	25	30	-	34	-	-
68	A	68	20	25	30	37	42	46	28	30
	B	-	19	24	29	36	41	45	-	-
72	A	72	7	20	26	32	37	42	30	32
	B	-	6	19	25	31	36	41	-	-
80	A	80	18	22	28	34	40	50	27	30
	B	-	17	21	27	33	39	49	-	-
90	A	90	25	31	36	45	-	50	36	38
	B	-	24	30	35	44	-	49	-	-
105	A	105	40	46	51	57	-	64	42	45
	B	-	39	45	50	56	-	63	-	-
115	A	115	35	45	50	65	71	86	48	50
	B	-	34	44	49	64	70	85	-	-
135	A	135	35	45	50	65	71	90		
	B	-	34	44	49	64	70	89		

Note A: Manufacturing dimension of seal ring
B: Minimum allowable diameter of cable for concentric circles