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Thank you for selecting Eurocrete
ERG130/20 Piston Grouting Pump

Please read the User's Manual before
operating this pump

Notices:

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Product name:ERG-130/20 Piston Grouting Pump

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Summary

ERG130/20, a grouting pump, is a kind of single cylinder piston pump with double-acting, which has the several advantages: simple structures, working reliability, light weight, compact volume and high working pressure. This pump has been using for sealing strengthening and stabilizing of rock and soil in tunneling, mining building, Hydro-power projects, bridges building and nail-wall projects, etc.

Specifications

Working Pressure:	2 MPa
Rated output:	130 L/min
Cycles:	180/min
Cylinder Dia. X Stroke:	ID75X85mm
Inlet hose:	ID51mm
Outlet hose:	ID42mm
Power Motor:	Diesel SQD192 10hp (Electric motor is optional)
Overall Dimension (LxWxH)	1450x500x900mm
Weight:	260KGs

Structure and Working principle

The structure of ERG130/20 pump is shown in the Fig.1, the working principle is: The power motor (Diesel or electric motor) drive the reducer with crank by three piece V belts. In this case, the connecting-rod, together installed into the said crank, reciprocates, and then the piston mounted in the end of the connecting-rod also reciprocates. The minus and plus pressure will appear alternately in the left and right chambers of the cylinder, so the inlet or outlet, respectively connected into the said chambers, will suck or discharge the pumping material. The four ball valves with their house are the check-valve, during sucking, the valve connected with inlet is opened, at the same time, the valve connected with outlet is closed, in this case, the pumping material is sucked into the hose under the atmospheric pressure. During discharging, the valves reverse to work, and the piston push out the pumping material, and into the outlet and conveying line. The pressure gauge indicates the pumping pressure, and the buffer is used for reduce the impulse of the flow in the conveying line. When the pumping pressure exceeds the rated pressure, the safe valve will be automatically opened and release this exceeding pressure, thus the pump and conveying line are protected.

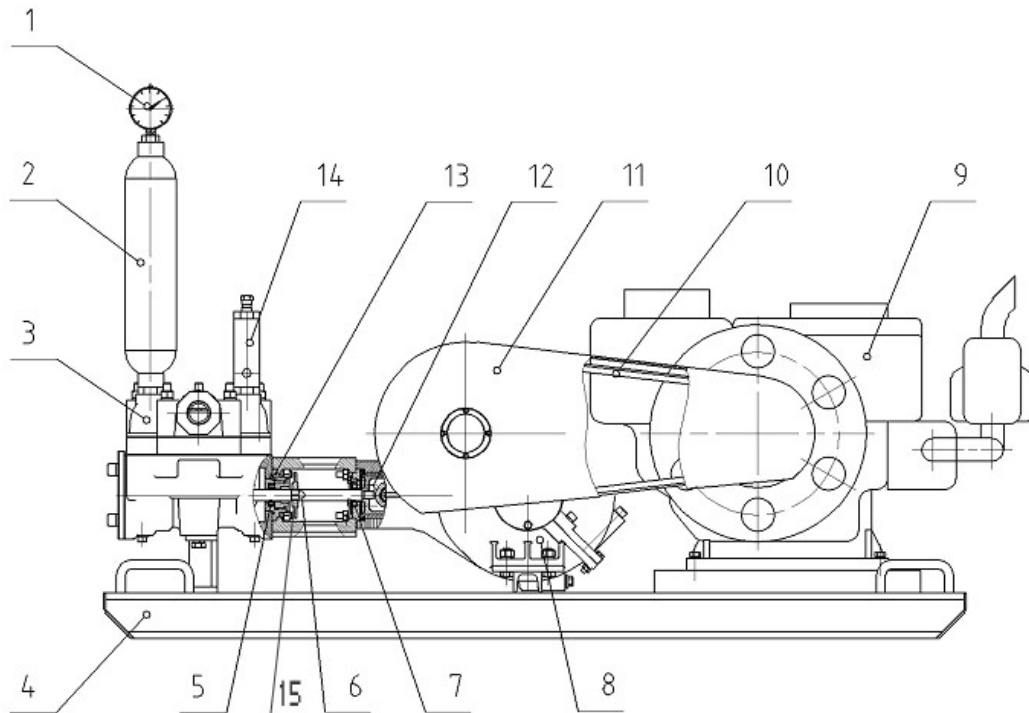


FIG.1

- 1.压力表 (Pressure Gauge) 2.缓冲器 (Buffer) 3.泵头 (Pump Head)
- 4.机架 (Frame) 5.“V”型密封圈 20X35X8 (V Seal 20×35×8)
- 6.活塞杆(Piston Rod)
- 7.骨架油封 B 20X40X10 (Packaged Type Reinforced Seal B 20X40X10)
- 8.减速器 (Reducer) 9.柴油机 (Diesel) 10.V带 (V Belts)
- 11.皮带罩 (Belt Cover) 12.十字头活塞(Crosshead Piston)
- 13.“O”型密封圈 60×3.55 (O Ring 60×3.55)
- 14.安全阀 (Safety Valve) 15.挡浆板 (Bafflement)

3.1 The structure of pump head

This pump consists of pump head, piston, reducer, power motor and base

frame, etc.

The structure of pump head is showed in the Fig.2. The upper cover, valve house body and cylinder body are made of high strength aluminium-alloy with light weight, compact volume. The cylinder is made of alloy with hard chrome inside liner. Two labiate sealing for piston are mounted symmetrically, thus this sealing is much reliable. ERG130/20 is a kind of ball check pump, so this pump has the sealing reliable, easily open and cleaning.

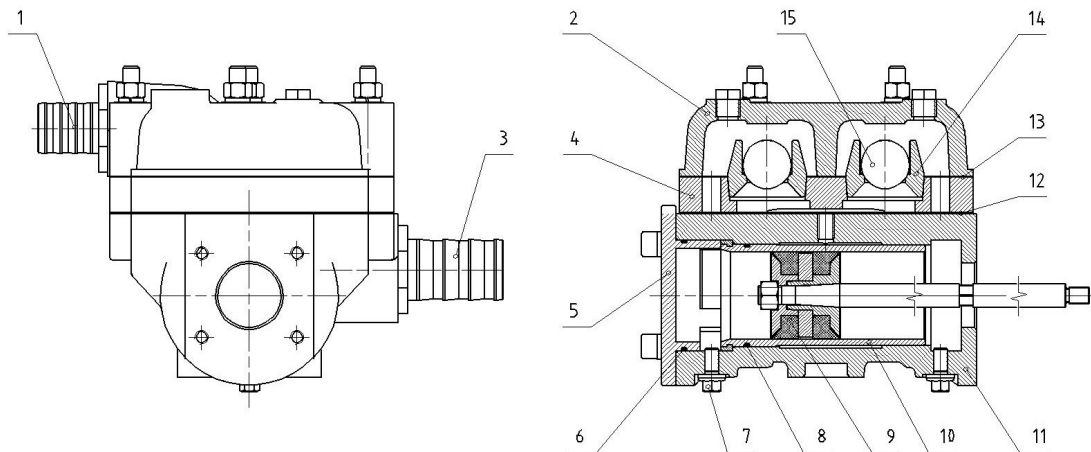


FIG.2

- 1.排浆管接头 (Discharge hose joint) 2.上盖 (Upper Cover)
 3.吸浆管接头 (Sucking Hose joint) 4.阀座体 (Valve House Body)
 5.缸盖 (Cylinder Cover) 6.“O”型密封圈 87.5X3.55 (O Ring 87.5X3.55)
 7.螺塞 (Screw Plug) 8.“O”型密封圈 80X3.55 (O Ring 80X3.55)
 9.橡胶活塞 (Piston Rubber) 10.缸筒 (Cylinder)
 11.缸体 (Cylinder Body) 12.下胶垫 (Lower Seal Gasket)
 13.上胶垫 (Upper Seal Gasket) 14.阀座 (Valve House)
 15.钢球 (Steel Ball)

3.2 The structure of reducer

The structure of the reducer is showed in Fig.3.

The power motor (Diesel or electric motor) drive the reducer with crank by three piece V belts. In this case, the connecting-rod, together installed into the said crank, reciprocates, and then the piston mounted in the end of the connecting-rod also reciprocates.

The oil spoon mounted in the end of the connecting rod automatically lubricates the slide bearings of the rod while the crank running. The clutch of this pump belongs to ball-clutch. The spring presses the clutch slide cover mounted in the high speed gear, this cover, through six balls, connects the flange of clutch in pulley together. The operating-handle and push rod together let the clutch release.



The rotation direction of belt pulley must be kept in accordance with the factory setting, otherwise, the clutch doesn't normally work and the connecting rod bearing doesn't work as well.

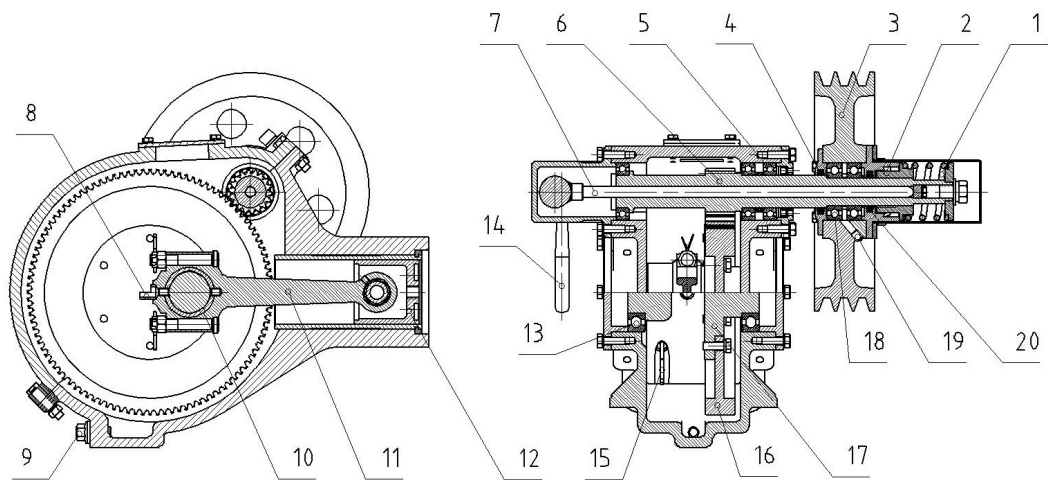


FIG.3

- 1.弹簧 (Spring) 2.离合器 (Clutch) 3.带轮 (Belt Wheel)
 4.毛毡 35 (woolfelt 35) 5.轴承 6007 (Bearing 6007)
 6.高速轴齿轮 (High Speed Gear shaft) 7.顶杆 (Push Rod)
 8.油勺 (Oil Scoop) 9.放油螺塞 (Discharge Oil Screw Plug)
 10.连杆轴瓦 (Connecting Rod Bushing) 11.连杆 (Connecting Rod)
 12.十字头活塞 (Crosshead Piston) 13.轴承 6209 (Bearing 6209)
 14.操作手柄 (Manual Control Lever) 15.油尺 (Oil Dipstick)
 16.低速齿轮 (Low Speed Gear) 17.曲轴 (Crank Shaft)
 18.轴承 6206 (Bearing 6206) 19.油杯 (Grease Fitting)
 20.毛毡 30 (woolfelt 30)

Operating

4.1 Preparation before starting

- a, After this pump is delivery in the worksite, the pump must be fixed. And keep the conveying line smooth, the joint of the conveying lines should not leak air. If need the conveying line laid vertically, please fix it.
- b, Check the fastening between the parts, Pay more attentions to the connect between the piston rod and piston, and keep this connect fastening.
- c, The recommending lubrication for the reducer is #30 or #50 mechanical oil, and check if the lubrication enough, or not by oil lever.
- d, keep to check the safe valve, and ensure it work reliable.



The factory setting pressure of this valve is 2 MPa, don't adjust it optionally.

- e. Check the clutch to see if the connection and release is smoothly, or not.

Testing

- a, Place the handle of the clutch to releasing position, start the power motor and make the handle in the working position to see if the pump has some wrong, or not?
- b, Firstly pump water for approx. one minute, to see if leaking water or air.
- c, release the clutch, and prepare for grouting pumping material.

Operation

- a, Dump the fully mixed material into the hopper, Connect the sucking hose to the hopper.



During pumping, please keep continuously mixing the material against depositing and educting.

- b, Correctly adjusting the revolution of Diesel, close the clutch, then start to grout material.



If clogged, shut down the machine, then clean or change the pipe. When move the pipe, be sure to make the pressure release completely. Set a shelter between joint and body for fear that body is injured.

c, Clearing

After work been done, add water into the hopper. Until clear water is discharged from pipe outlet, the clearing can be over.



When stop the machine during work, don't make the material stay in pipe for over 20 minutes.

d, Shut down

Troubleshooting

Problem	Cause	Solution	Remarks
Output can not catch to the rated value, or not at all output	<ul style="list-style-type: none"> ✧ Clog in the inlet joint or lines ✧ Ball valve no work ✧ Leak air in the inlet joint or line ✧ V seal in piston rod is worn out ✧ Seal in the piston is worn out ✧ Sucking height too high ✧ V Belts out of work 	<ul style="list-style-type: none"> ✧ Clean them by water ✧ Clean the ball valve, or displace valves ✧ Displace V seal ✧ Adjust the nut in the end of rod, or displace this seal ✧ Decrease the height ✧ Make the belts tight 	
Pump run difficulty	<ul style="list-style-type: none"> ✧ Seal in the piston is too tight ✧ Revolution of pump is too fast 	<ul style="list-style-type: none"> ✧ Loose the nut in the end of rod to make this seal loose ✧ Check the revolution of pump, and adjust it to rated value 	
The sound of pump is not normal when pumping	<ul style="list-style-type: none"> ✧ The connecting rod brush loosed, or gap too large ✧ Leak air in the chamber of valve ✧ Pumping material is too viscous ✧ Diesel has some wrong 	<ul style="list-style-type: none"> ✧ Tight the bush, or reduce the adjusting washer ✧ Check the sealing status of the chamber ✧ Get a standard material viscous ✧ Adjust the diesel in accordant with the diesel manual 	

Maintenance

- Check the lubrication status of every moving part, periodically add or displace lubrication into reducer, keep in mind add clean lubrication.
- The working pressure should not exceed the rated pressure, periodically check the safe work status.
- The piston reciprocates should not exceed 180 cycles per minute for a long time.

- Periodically check the seal status of every seal position, don't leak air or be more friction.
- Avoid sucking air in the sucking line.
- Keep the pump clean
- Before starting pump, check the piston rod to keep the screw of piston and piston rod against loose.
- If stop long time in winter, please drain out water in the pump body and conveying line.

7. Appendixes

1. Bearings specification list

No.	Code	Name	Specifications	Pieces	Remarks
1	6007	Ball Bearing	35×62×14	3	GB/T 276-94
2	60206	Ball Bearing	30×62×16	2	GB/T 276-94
3	60207	Ball Bearing	45×85×19	2	GB/T 276-94

2. Seals specification list

Code	Name	Specifications	Being parts of	Qty.
GB3452.1-88	O ring	1.8×8.75	Reducer	1
GB3452.1-88	O ring	1.8×12.5	Reducer	1
GB3452.1-88	O ring	3.55×60	Pump head	1
GB3452.1-88	O ring	3.55×80	Pump head	1
GB3452.1-88	O ring	3.55×87.5	Pump head	1
HG4-692-67	Packaged Type Reinforced seal	B 20 40 10	Reducer	1
HG4-692-67	Packaged Type Reinforced seal	B 35 55 12	Reducer	1
	V seal	20×35×8	Piston rod	1
JB/ZQ4606-86	Wool-felt	30	Reducer	1
JB/ZQ4606-86	Wool-felt	35	Reducer	1
	Seal of Piston	78.5×74×24	Piston	2