

Surface Drive Screw Pump Oil Production System

I . Working Principle

The surface drive device controls the motor via the control system and transmits the power to the rotor via the drive card, polished rod and sucker rod. The interference fit between the stator and the rotor will produce a continuous cavity and media transfer can be achieved via the rotational motion of the rotor. As the rotor rotates, sealed cavities will be continuously formed between the rotor at the suction side and the internal surface of the stator rubber bushing, be pushed towards the discharge side and vanish at the discharge side. The oil will be sucked under the pressure difference at the suction side and be squeezed from the suction side to the discharge side. The pressure is continuously rising and the flow rate is extremely uniform.

II . Performance Features

- Compared with electric submersible pumps, hydraulic plunger pumps and pumping units, screw pumps have a simple structure and low one-time investment.
- The ground device has a simple structure and is easy to install, and can be directly connected with the wellhead casing four-way, and covers small area.
- High pump efficiency, low energy consumption and low management costs. Pump volumetric efficiency up to 90%, it is one of the lowest energy consumption and high efficiency of existing mechanical oil production equipment.
- Wide range of viscosity, lift heavy oil.
- Adapt to high sand content wells and high gas content wells.
- Allowing a higher back pressure at the wellhead, and controlling the back pressure of the wellhead to be within 1.5 MPa or higher, which is beneficial to gathering and transporting in remote wells.

III. Specification Parameters

Permanent magnet direct drive type drive specification table

Specification of Drive	Rated Power (kw)	Rated Torque (N.m)	Rotating Speed (rpm)	Voltage (V)	Insulation grade	Protection level	Applicable Polished Rod	Sealing Type
LBQ5	5	200	0-200	380±15%	F	IP55	Φ25~Φ42	Packing/Mechanical Sealing
LBQ12	12	600	0-200	380±15%	F	IP55		
LBQ17	17	800	0-200	380±15%	F	IP55		
LBQ21	21	1000	0-200	380±15%	F	IP55		
LBQ26	26	1200	0-200	380±15%	F	IP55		
LBQ31	31	1500	0-200	380±15%	F	IP55		

Belt drive specification parameter table

Type	LBQ15	LBQ18	LBQ22	LBQ30	LBQ37	LBQ45
Prime mover type	Electric machine					
Power(KW)	15	18.5	22	30	37	45
Rotation speed (r/min)	78-234 within the scope of the customer's request, using infinitely variable speed					
Brake type	Mechanical brakes, hydraulic brakes					
Polished rod size	Φ25~Φ42					
Sealing type	Packing/Mechanical Sealing					
Connection type	Fland					

Screw pump specification parameters table

Type	Theoretical daily output (Barrel/day) (150rpm)	Head (m)	Stator			Rotor		
			Max. OD (mm)	Connecting Tubing Thread TBG	Length (m)	Length (m)	Connection thread (in)	Max. dia meter (mm)

GLB75-27	90	1100	89	3 1/2"	4.8	5.3	1 3/8"	51
GLB75-40	90	1800	89	3 1/2"	4.8	5.3	1 3/8"	51
GLB120-40	146	1800	89	3 1/2"	6.4	6.9	1 3/8"	53
GLB200-27	230	1100	102	4"	4.5	5.0	1 3/8"	58
GLB200-40	230	1800	102	4"	6.4	6.9	1 3/8"	58
GLB300-27	364	1100	102	4"	6.0	6.5	1 3/8"	58
GLB300-36	364	1800	102	4"	7.2	7.6	1 3/8"	58
GLB500-21/	600	1000	114	4"	7.2	7.6	1 9/16"	68
GLB800-24/	969	1200	114	4"	7.2	7.6	1 9/16"	70
GLB1200-16	1400	800	114	4"	7.2	7.6	1 9/16"	70
GLB1400-14	1600	800	114	4"	7.2	7.6	1 9/16"	70
GLB1600-14	1900	800	114	4"	7.2	7.6	1 9/16"	70



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