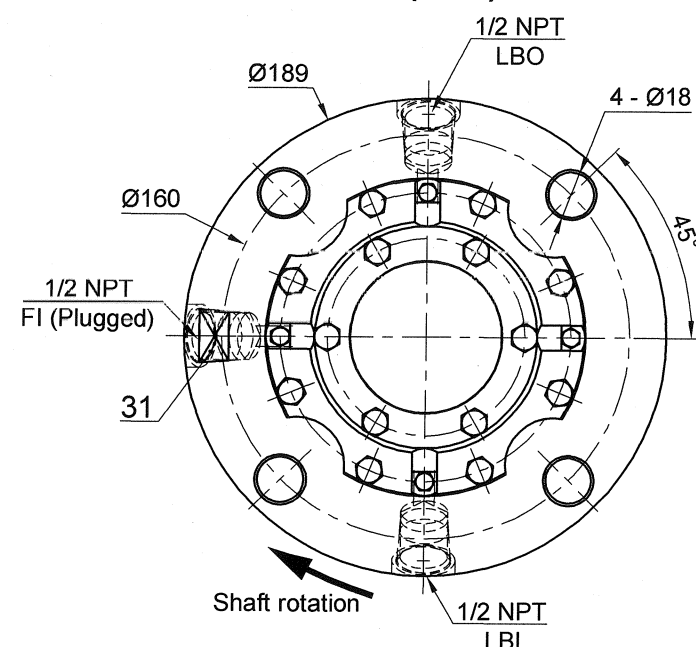
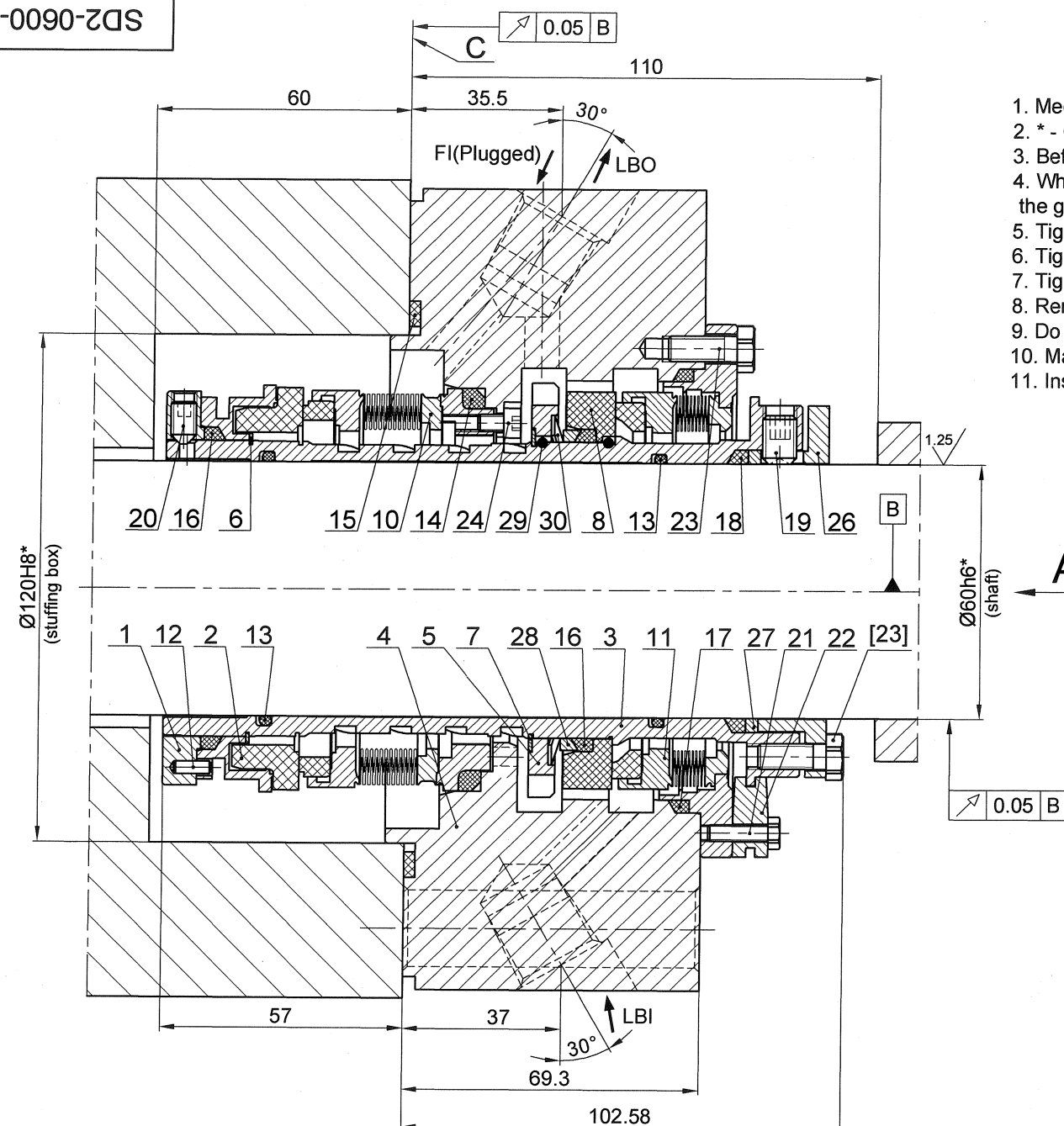


SD2-0600-6511

For offer		Version: 1 Date: 24.05.2011
For approval		Coordinated: Date:
Final for delivery	X	Approved: Date:

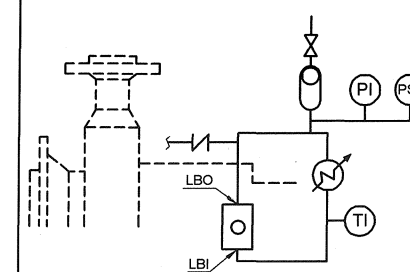


Description:
LBI - liquid buffer inlet;
LBO - liquid buffer outlet;
PSL - pressure switch low;
PI - pressure indicator;
TI - temperature indicator;
FI - flush inlet.

ITEM NUMBER: 02-P1T

1. Mechanical seal is supplied tested and securely packaged ready for installation.
2. * - Check dimensions before installation.
3. Before the installation make sure that the surface "C" is clean and free of scratches and lugs.
4. When tighten nuts of gland studs make sure that the gland fit the surface "C" of the pump completely without the gap all around the full circle.
5. Tighten gland nuts by approximate torque 100 N*m (not less) to compress gasket item 1 5.
6. Tighten set screws item 19 equally crosswise, in 4 steps. Final torque: 15 N *m.
7. Tighten screws item [23] first equally crosswise by torque 2.5-3.5 N*m, then in circle, in 3 steps, to 5-7 N*m.
8. Remove clips item 22 before start-up.
9. Do not start-up pump with tank without barrier fluid.
10. Maximum axial movement (design) ± 2.5 mm.
11. Install clips item 22, before removing seal.

PIPING REQUIREMENTS



Plan 53B

External piping provides fluid for the outer seal of a pressurized dual seal arrangement. Pre-pressurized bladder accumulator provides pressure to the circulation system. Flow is maintained by an internal pumping ring. Heat is removed from the circulation system by an air-cooled or water-cooled heat exchanger. This plan is used with an Arrangement 3 seal.

Item	Part No	Description	Q-ty	Material	Spares	Q-ty
1	45973	Clamp ring	1	AISI304		
2	45904	Mating ring assembly	1	42N/S-SiC	*	1
3	45974	Sleeve	1	2Cr13		
4	48548	Gland	1	AISI304		
5	5111	Impeller	1	2Cr13		
6	21250	Snap ring	1	AISI302	*	1
7	5278	Snap ring	1	AISI302	*	1
8	6090	Mating ring	1	R-SiC	*	1
10	23892	Bellows assembly	1	TC/IN718/AISI316	*	1
11	22017	Bellows assembly	1	TC/IN718/AISI316	*	1
12	20652	Pin	1	A2		
13	4118	O-Ring	2	Viton	*	2
14	5139	Gasket	1	Graphite	*	1
15	4293	Gasket	1	AISI316/Graphite	*	1
16	5138	Gasket	2	Graphite	*	2
17	5133	Gasket	1	Graphite	*	1
18	5136	Gasket	1	Graphite	*	1
19	4877	Screw	6	A2	*	6
20	19621	Screw	9	A2	*	9
21	24017	Screw	4	A2	*	4
22	20086	Clip	4	2Cr13		4
23	4879	Screw	14	A2	*	14
24	22972	Screw	4	A2	*	4
26	20609	Clamp ring	1	2Cr13		
27	5122	Ring	1	2Cr13		
28	5117	Ring	1	2Cr13		
29	5158	Ball	2	AISI304	*	2
30	5281	Wave spring	1	PH17-7	*	1
31	23243	Plug	1	A2		

1	Customer and equipment data	
1.1	Customer	LUKOIL PETROTEL
1.2	End user	LUKOIL PETROTEL
1.3	Unit	
1.4	Equipment item number	02-P1T
1.5	Equipment type	Pump
1.6	Equipment model	PRE-80x40IN
1.7	Project No	
1.8	Seal Chamber	
1.9	Order N, date	
2	Working conditions	
2.1	RPM	Units 2970
2.2	Liquid	Half-tar
2.3	Temperature	149 °C
2.4	Viscosity	cSt
2.5	Density	kg/cm³
2.6	Suction pressure	1.8 bar a
2.7	Discharge pressure	17 bar a
2.8	Seal chamber pressure	bar a
2.9	Saturation pressure	bar a
3	Auxiliary	
3.1	API 682 Plans	53B
3.2	Buffer liquid	
3.3	Orifice hole, mm	mm
3.4	Drawing of plans	
4	Mechanical seal	
4.1	Drawing N	Designed Kuliev 20.09.11
4.2	Seal Data	Checked Nechiporenko 22.06.11
4.3	Data of spare kit	
4.4	Contract, invoice	Approved Batenko 22.06.11

SD2-0600-6511			
Mechanical seal			
Installation drawing and parts list			
JSC TREM Engineering			

Mass	Scale
	1:1