

oiltech



PROGRESSIVE CAVITY PUMPS and **WELLHEAD DRIVE SYSTEMS**

Commercial catalogue PCP's and Driveheads



quality integrity innovations

Our Company

OILTECHSYSTEMS is part of SIEBC group of companies working in the energy industry for more than 20 years which produce, engineer and develop systems with the most advanced technologies for the conduction and storage of all kind of fluids at high pressures and temperatures.

The group is working worldwide providing services, installations, products and performing turn key projects.



Content



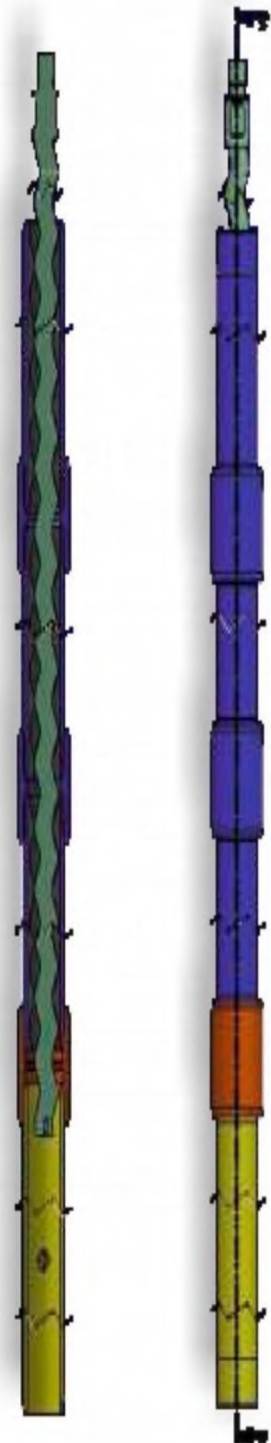
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Technical data sheet



Inside our range of products we offer artificial lifting systems where we produce reinforced thermoplastic umbilicals and also we collaborate and engineer solutions with the most advanced pump manufacturers.



Advantages



Progressive cavity pumps have many advantages. Here are some of them:

- ✓ Progressing Cavity Pump is able to operate with much lower suction pressure than rod pumps. As a result, the well column requires less fluid to feed the pump. Under atmospheric suction pressure, it can function with the fluid level of the well close to the suction intake of the pump without affecting its performance. This enables well production to be increased to the maximum level of fluid available.
- ✓ The PC Pumps do not require a heater, even when pumping high viscosity oils.
- ✓ Pumps oil and water with solids.
- ✓ No internal valves to clog or gas lock.
- ✓ Continuous smooth operation helps in preventing and controlling production of undesired reservoir fluids and particles.
- ✓ Minimal maintenance costs.

MAIN APPLICATIONS:

- Heavy crude
- Medium crude
- Coal Bed Methane (CBM) / Coal Seam Gas (CSG)
- Shale oil and water

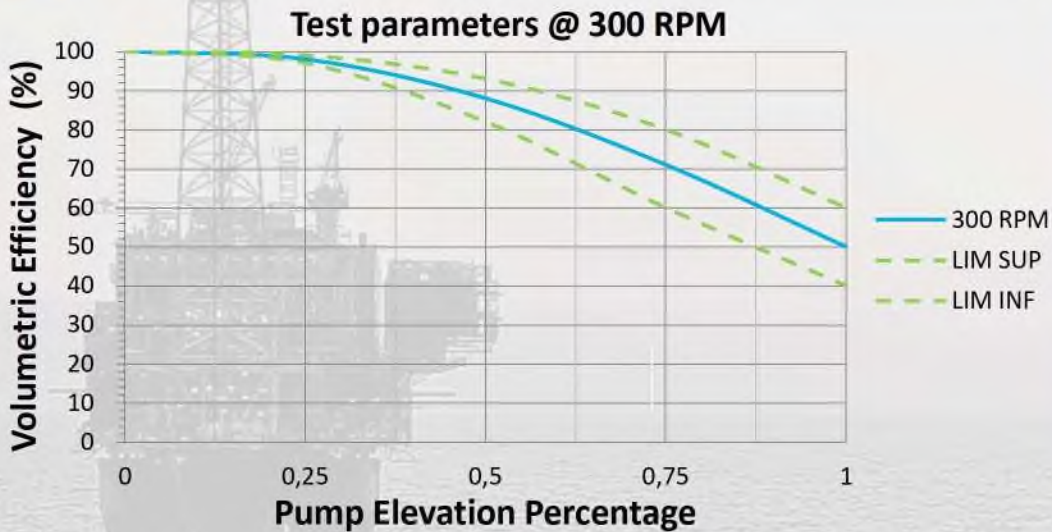


PCP data sheet



2 3/8" PUMPS					
AVAILABLE MODELS		OS-2GV-1900	OS-2,5VG-1200	OS-3VG-600	OS-2VG-1000
Pump Performance (m ³ /day @ 100RPM)		2	2,5	3	3
Pump Lift m (ft)		1900 (6234)	1200 (3937)	600 (1968)	1000 (3281)
Nominal Pressure kPa (psi)		18632 (2702)	11768 (1707)	5884 (853)	9807 (1422)
Nominal Lift Torque N.m (ft.lbs)		40,58 (29,93)		26,26 (19,368)	40,58 (29,93)
ROTOR	Rotor Superior Connection	1/2" API			
	Rotor Head Diameter	27mm			
	Rotor Total Length	2643	1833	2643	
	Minimum Tubing Size	2 3/8" (Min. DRIFT 48,28mm)			
STATOR	External stator Diameter	2 3/8"			
	External Coupling Diameter	78 mm			
	Superior Connection	2 3/8" NU			
	Stator Total Length	2160	1350	2160	
	Tag Bar Length	410			
	Inferior Tag Bar Connection	2.3/8" NU			

2 3/8" PUMPS					
AVAILABLE MODELS		OS-4VG-1900	OS-5VG-1200	OS-6VG-600	OS-6VG-1000
Pump Performance (m ³ /day @ 100RPM)		4	5	6	6
Pump Lift m (ft)		1900 (6234)	1200 (3937)	600 (1968)	1000 (3281)
Nominal Pressure kPa (psi)		18632 (2702)	11768 (1707)	5884 (853)	9807 (1422)
Nominal Lift Torque N.m (ft.lbs)		78,78 (58,11)	81,17(59,87)	54,91 (40,50)	78,78 (58,11)
ROTOR	Rotor Superior Connection	5/8" API			
	Rotor Head Diameter	35mm			
	Rotor Total Length	3130	2193	3130	
	Minimum Tubing Size	2.3/8" (Min. DRIFT 48,28mm)			
STATOR	External Stator Diameter	2.3/8"			
	External Coupling Diameter	78 mm			
	Superior Connection	2.3/8" NU			
	Stator Total Length	2625	1688	2625	
	Tag Bar Length	410			
	Inferior Tag Bar Connection	2.3/8" NU			



TEST CONDITIONS
 WATER WITH 5% SOLUBLE OIL
 TEMPERATURE 60°C +/- 10°C

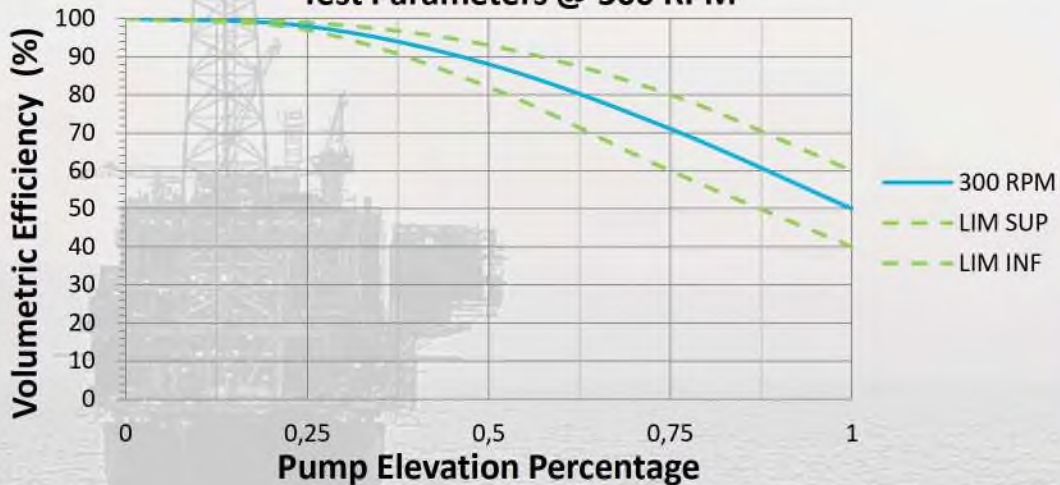
PCP data sheet



2 7/8" PUMPS					
AVAILABLE MODELS		OS-9-VG-1900	OS-12-VG-1200	OS-16-VG-600	OS-16-VG-1000
Pump Performance (m ³ /day @ 100RPM)		9	12	16	16
Pump Lift m (ft)		1900 (6234)	1200 (3935)	600 (1968)	1000 (3280)
Nominal Pressure kPa (psi)		18632 (2702)	11765 (1700)	5885 (850)	9800 (1420)
Nominal Lift Torque N.m (ft.lbs)		200 (145)		120 (88)	200(145)
ROTOR	Rotor Superior Connection	7/8" API			
	Rotor Head Diameter	44 mm			
	Rotor Total Length	4304	2992		4304
	Minimum Tubing Size	2 7/8" (Min. DRIFT 48mm)			
STATOR	External Stator Diameter	2 7/8"			
	External Coupling Diameter	89 mm			
	Superior Connection	2 7/8" NU			
	Stator Total Length	2363	3675		2363
	Tag Bar Length	504			
	Inferior Tag Bar Connection	2 7/8" NU			
3 1/2" PUMPS					
AVAILABLE MODELS		OS-16-VG-1900	OS-20-VG-1200	OS-22-VG-600	OS-22-VG-1000
Pump Performance (m ³ /day @ 100RPM)		16	20	22	22
Pump Lift m (ft)		1900 (6234)	1200 (3935)	600 (1968)	1000 (3280)
Nominal Pressure kPa (psi)		18632 (2702)	11765 (1700)	5885 (850)	9800 (1420)
Nominal Lift Torque N.m (ft.lbs)		195 (140)		330 (240)	195(140)
ROTOR	Rotor Superior Connection	1" API			
	Rotor Head Diameter	60mm			
	Rotor Total Length	4844	3444		4844
	Minimum Tubing Size	3 1/2" (Min. DRIFT 60mm)			
STATOR	External Stator Diameter	3 1/2"			
	External Coupling Diameter	106mm			
	Superior Connection	3 1/2" NU			
	Stator Total Length	4200	2800		4200
	Tag Bar Length	504			
	Inferior Tag Bar Connection	3 1/2" NU			



Test Parameters @ 300 RPM

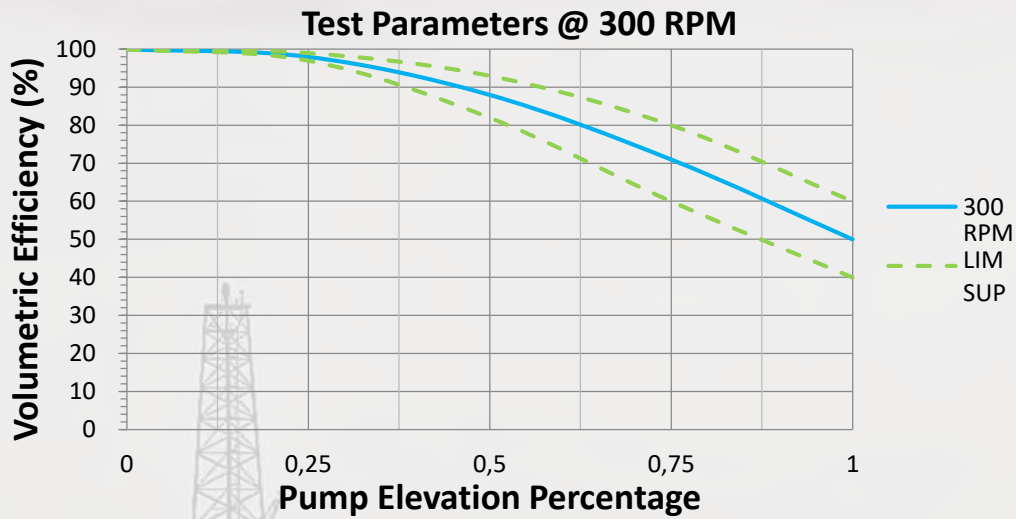


TEST CONDITIONS
 WATER WITH 5% SOLUBLE OIL
 TEMPERATURE 60°C +/- 10°C

PCP data sheet

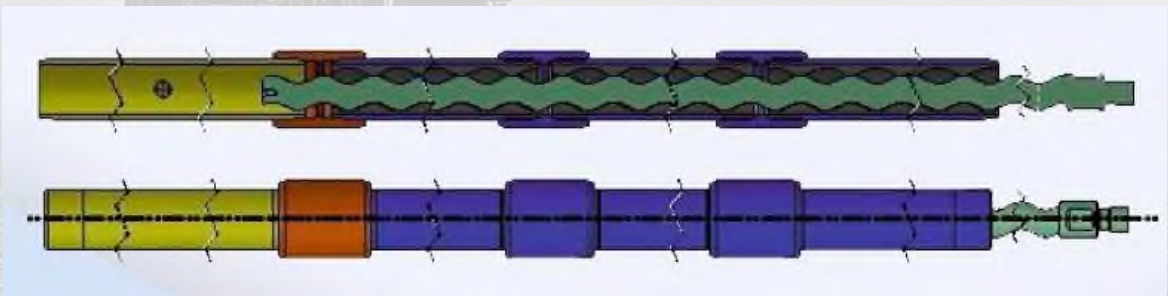


4" PUMPS				
AVAILABLE MODELS		OS-38-VG-1900	OS-48-VG-1200	OS-67-VG-1000
Pump Performance (m ³ /day @ 100RPM)		38 (239 bbl)	48 (302 bbl)	67 (421 bbl)
Pump Lift m (ft)		1900 (6234)	1200 (39375)	1000 (3281)
Nominal Pressure kPa (psi)		18632 (2700)	11765 (1700)	9800 (1420)
Nominal Lift Torque N.m (ft.lbs)		859 (630)	773(570)	688 (500)
ROTOR	Rotor Superior Connection	1" API		
	Rotor Head Diameter	61 mm		
	Rotor Total Length(mm)	5734	5384	
	Minimum Tubing Size	3.1/2" (Min. DRIFT 72,82mm)		
STATOR	External Stator Diameter	4"		
	External Coupling Diameter	114 mm		
	Superior Connection	4" NU		
	Stator Total Length (mm)	5075	4725	
	Tag Bar Length	504		
	Inferior Tag Bar Connection	4" NU		



TEST CONDITIONS

WATER WITH 5% SOLUBLE OIL
TEMPERATURE 60°C +/- 10°C



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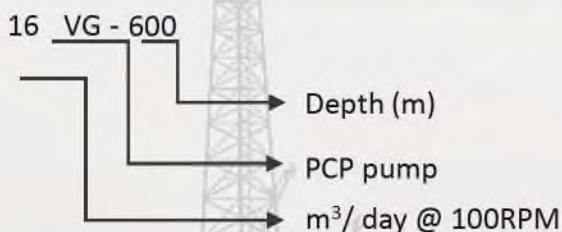


MODEL	ISO MODEL	A(in)	B(mm)	C(mm)	D(mm)	E(mm)	F(in)	Tubing min ϕ (in)	Casing min ϕ (in)	Drive head
OS-2VG-1900	002 19 041	2 3/8"	20	2160	2643	410	3/4" (1/2")	23/8"	41/2"	VGD-1H-15
OS-2.5VG-1200	003 12 041			1350	1833					VGD-1H-9
OS-3VG-600	003 06 041			2160	2643					VGD-1H-15
OS-3VG-1000	003 10 041		25	2625	3130		15/16" (5/8")			VGD-1H-15
OS-4VG-1900	004 19 041			1688	2193					VGD-1H-9
OS-5VG-1200	005 12 041			2625	3130					VGD-1H-15
OS-6VG-600	007 06 041	2 7/8"	32	3675	4304	504	13/16" (7/8")	27/8"	51/2"	VGD-1H-15
OS-6VG-1000	007 10 041			2450	3080					VGD-1H-9
OS-9VG-1900	010 19 050			3675	4304					VGD-1H-15
OS-12VG-1200	012 12 050		40	4200	4844		13/8" (1")			VGD-1H-9
OS-16VG-600	016 06 050			2800	3444					VGD-1H-15
OS-16VG-1000	016 10 050			4200	4844					VGD-1H-9
OS-16VG-1900	016 19 050	3 1/2"	40	2800	3444	27/8"	51/2"	VGD-1H-9		
OS-20VG-1200	026 10 050			4200	4844			VGD-1H-15		
OS-22VG-600	021 12 050			2800	3444			VGD-1H-9		
OS-22VG-1000	026 06 050			4200	4844			VGD-1H-9		

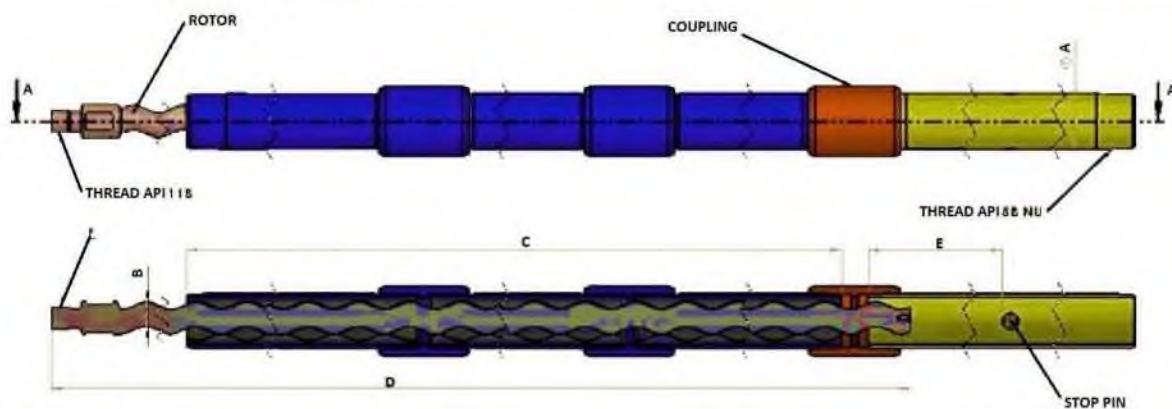
NOTE:

When tubing diameter is smaller than stator diameter, the first production tube connected to the stator (orbit tube) must have the same diameter as the pump stator

PCP pump model identification



ISO pump model identification



PCP elastomer guideline



The selection of an elastomer for a Progressive cavity pump depends on the crude composition.

The table below shows the main properties of the most common elastomer in Progressive cavity pump applications.

MAIN PROPERTIES	NBRM	NBRA	HNBR
Hardness (Shore A)	65	65	70
Maximum Temperature (°F/°C)	195/90	210/100	300/150
Service Temperature (°F/°C)	175/80	190/88	265/130
Mechanical Resistance	++	++	++
Abrasion Resistance	++	+	++
Carbon Dioxide (CO ₂)	-	+	++
Hydrogen Sulfide (H ₂ S)	-	-	++
Aromatic's Resistance	+	++	+
Hot Water	-	+	+
Steam	-	-	-
APPLICATION	Heavy crudes with low content of aromatic and/or presence of abrasives	Light and medium crudes (26<°API<40) with high aromatic contents.	Heavy and medium crudes (with low aromatic contents) under high temperature or presence of H ₂ S

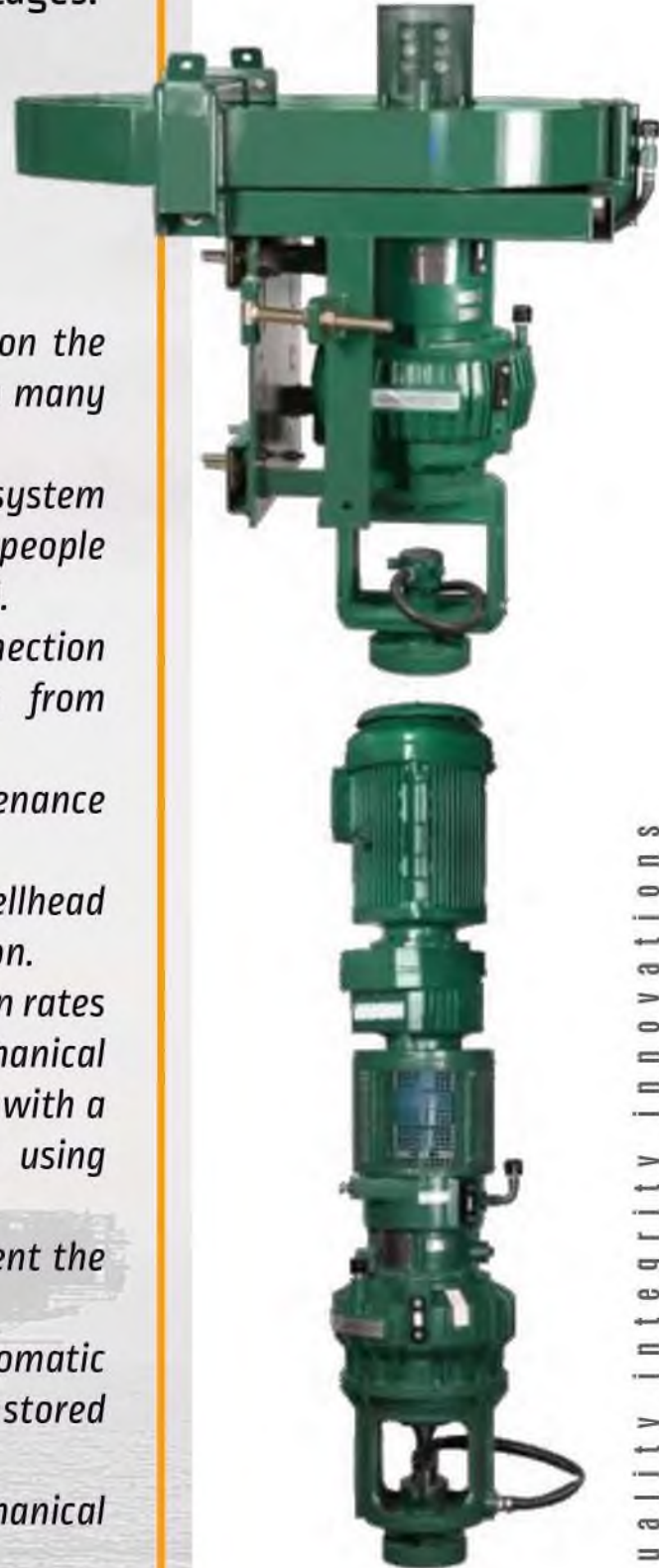
Legend: ++ Very good +Good -Weak

HARD CHROMIUM LAYER FOR ROTOR	
Normal	0,12 mm (0.005")
Thick	0,30 mm (0.012")

Wellhead drive motor

Wellhead drive motor main advantages:

- ✓ *PCP wellhead drive motor is attached directly to the wellhead, eliminating the concrete base required by some other pumping systems.*
- ✓ *The space required for installation on the well is much smaller and lower than many other artificial lift systems.*
- ✓ *Unlike other pumping systems, PCP system has a much lower risk of accident if people or animals come near to the wellhead.*
- ✓ *The API flange allows direct connection without adapters when changing from other systems to the PCP system.*
- ✓ *The simple design minimizes maintenance and requires little lubrication.*
- ✓ *The bearing system of the PCP wellhead drive motor provides minimal vibration.*
- ✓ *It can be easily adjusted to production rates or changing rotations by mechanical process or with speed controllers (or with a simple change of acceleration if using internal combustion motors).*
- ✓ *Equipped with safety device to prevent the polished rod from ejecting.*
- ✓ *Hydrodynamic brake system for automatic and safe controlled release of energy stored at rod string (backspin).*
- ✓ *Safe against leakage and mechanical failures.*



Wellhead drive motor technical parameters



The table below shows technical parameters of the basic wellhead drive motor models.



MODEL	OS-VGD-1H	OS-VGD-2H	OS-VGD-1H-M	OS-VGL-2H
Shaft Mount Type:	Vertical Input Shaft	Vertical Input Shaft	Vertical Input Shaft	Right Angle Input Shaft
Box Type:	Bearing box	Bearing box	Bearing box	Bearing box
Shaft Type:	Hollow shaft	Hollow shaft	Solid shaft	Hollow shaft
Wellhead Connection (mm): (in):	79,375 3 1/8	79,375 3 1/8	79,375 3 1/8	79,375 3 1/8
Polish Rod Size (mm): (in):	38,1 1 1/2	38,1 1 1/2	N/A	38,1 1 1/2
Sealing System:	Packing Rings	Packing Rings	Packing Rings	Packing Rings
Max. Torque Rating at Polish Rod (Nm):	5600	6535	5600	1430
Max. Axial Load Capacity (ton):	9/12/15	9/15/30	9/15	9/15
Max. Power (kW): (hp):	44,74 60	74,57 100	44,74 60	44,74 60
Max. Speed at Polish Rod (RPM):	600	600	600	600
Gearbox - Gear Reduction:	N/A	N/A	N/A	4,1
Hydraulics Compatible:	Yes	Yes	Yes	Yes
Belts Compatible:	Yes	Yes	No	Yes
Maximum Driven Sheave Size (mm):	600	711	N/A	250
Minimum Driven Sheave Size (mm):	500	500		125
Maximum Driving Sheave Size (mm):	240	240		250
Minimum Driving Sheave Size (mm):	130	130		125
Maximum Sheave Ratio:	5	6		2
Minimum Sheave Ratio:	2	2		1

Wellhead drive motor technical parameters



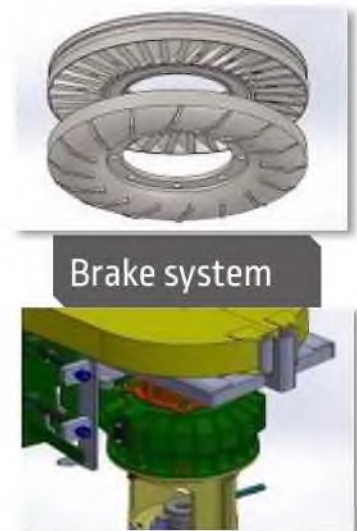
Wellhead drive motor can be supplied with different options of stuffing boxes, according to the drive model and wellhead connection requirement.



Characteristics:

- Provides continuous compression adjustment of packing elements from a spring loaded assembly.
- Bronze guide bushings to keep the polished rod aligned to prevent the stuffing box from premature wear.
- Dual protection (top & bottom) against leakage.
- 1" NPT bottom leakage drain.
- Open access to run a clamp to lock the polished rod in position for maintenance or removal of the drive.

Wellhead drive motors are supplied with a Hydrodynamic Brake System. This system is designed to release the resultant torque stored at the rod string by the time the prime mover is shut-down (maintenance, power failure, etc). The full release of the stored energy is made gradually in a continuous and uniform way to avoid the risk of accidents.



PCP Data sheet



Prepared by: _____

Date: ____/____/____/

Company name:	Country:
Field name:	Well name:
Vertical <input type="radio"/> Horizontal <input type="radio"/> Slant <input type="radio"/>	

WELL DATA	Units
Total Depth	Meters
Pump landing depth	Meters
Producing fluid level from surface	
Current	Meters
Projected	Meters
Flow line pressure	PSI
Casing pressure	PSI
Tubing size	in
Casing size	in
Rod size & grade	in
Tubing thread type and size	

PRODUCTION & FLUID DATA	Units
API grade	
Current flow rate	m ³ / Day
Projected flow rate	m ³ / Day
Water cut	%
Abrasive cut	%
Gas Oil Ratio	M ³ / m ³
Fluid viscosity	cP
H ₂ S	PPM
CO ₂	PPM
Aromatics	Mol %
Bottom hole temperature	°C
Ambient temperature	°C

SURFACE EQUIPMENT	
Prime Mover Type	Electric <input type="radio"/> Gas <input type="radio"/>
Surface Drive	Direct <input type="radio"/> Hydraulics <input type="radio"/>
Operating Frequency	Hz
Voltage	V
Flow tee to drive head connecton	
Wellhead connecton type and size	

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