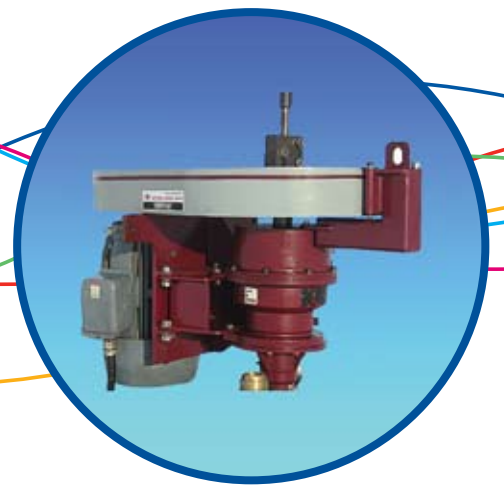


C-33M Electric Drivehead



NOV Monoflo provides a complete line of artificial lift technologies and oilfield equipment through over 30 service center locations across Canada and more than 150 locations around the globe. NOV's entire line of direct driveheads are specifically designed for use with progressing cavity pumping systems.

The C-33M Electric Drivehead is part of the C-series of direct drives, which all employ the efficient hydrodynamic braking system. The C-33M is designed for low to medium horsepower applications. As part of NOV Monoflo's commitment to safety, all of our direct drives have a fully enclosed and hinged belt guard. Each drive is tested and inspected before leaving the manufacturing shop.

Features & Benefits

- Robust frame
- Bearing box is designed with a three bearing system
- Detachable environmental stuffing box
- Efficient brake reservoir for heat dissipation
- Repeatable and reliable brake curve
- Induction hardened seal surfaces eliminate shaft grooving and increase seal life
- Operator-friendly guards and motor adjustments
- Easy-to-adjust hinged door for simple belt tightening
- Easy-to-adjust motor height
- Accessible fill/drain spouts for easy oil changes
- Minimal maintenance
- Service and technical support

Options

- Hydraulic motor
- Rope style stuffing box
- Environmental integral stuffing box
- Retrofit stuffing box

Accessories

- Ejection clamp
- Lock-out device
- Polished rod guard
- Booth guard
- Support arms
- Shipping/support stands



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Specifications

Drive Type	Direct
Shaft Type	Hollow
Drive Style	Bearing
Input Style	Vertical
Drive Ratio	1:1
Backspin Control	Hydrodynamic

Ratings	
Max. Output Torque	1575 ft-lbs (2135 Nm)
Thrust Bearing	45, 100 ISO lbf
Thrust Bearing*	33, 000 Ca90 lbf
Maximum Speed	600 rpm
Horsepower Rating**	10-60
Frame Type	Single Motor
Polish Rod Size	1 1/4 (32mm)
Max. Operating Temp.	428 °F/220 °C

* Ca90 load rating is for 90 million revolutions. Reducing load one half increases life 10 times. Reducing rpm by one half doubles hours of life.

** Maximum HP rating based on frame size only. Care must be taken selecting motor and sheave combinations to ensure input rod torque is not exceeded.

Dimensions (excluding motor)	
Height w/Retro Stuffing Box	44" (1118 mm)
Box Height w/Integral Stuffing Box	29 1/2 (749 mm)
Width	35" (889 mm)
Input Shaft Size	3 1/4 (83 mm)
Weight	1350 lbs (612 kg)

Other data	
API Wellhead Connection	2 1/4 EUE Pin
	3 1/8 - 3000 psi R31 Flange
Prime Mover	Electric or Hydraulic
DriveN Sheave Max. Dia ¹	30" (762 mm)
DriveR Sheave Max. Dia ^{1 2}	14" (356 mm)
DriveR Sheave Min. Dia ¹	Depends On Motor Size
Drive Center to Motor mount	14" (356 mm)

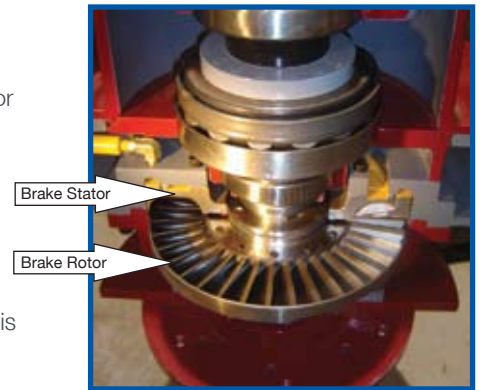
¹ Sheave dia. based on C-groove belts. Values may change when other styles of belts are used.

² Consult motor manufacturer.

Hydrodynamic Brake

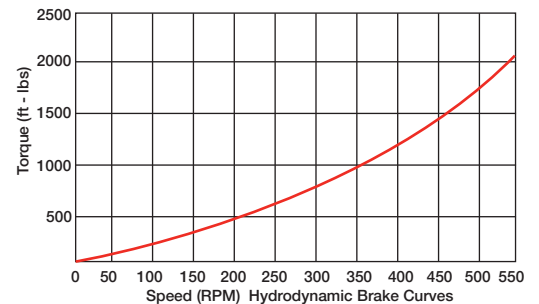
NOV Monoflo has incorporated the well proven principle of the Hydrodynamic Brake into the C-Series direct drives to provide safe, reliable and smooth backspin control.

The Hydrodynamic Brake consists of a stationary half (stator) and a rotary half (rotor). The stator is bolted into the housing and the rotor is coupled to the shaft. During normal operation the rotor spins freely. When the unit goes into backspin, the rotor begins to rotate in the counter clockwise direction. The working fluid is then forced to the outside of the rotor and creates a circular flow path inside the brake cavity. As the energized fluid from the rotor comes into contact with the stationary fins of the stator, the energy is transferred to the stator and then back to the working fluid as heat. A small amount of working fluid is continually removed from the system and replaced with new fluid. The working fluid contained in the drivehead reservoir is used as the braking medium, which allows the energy stored in the fluid column and rod string to safely dissipate without the drivehead reaching excessive backspin speeds.



Advantages of the Hydrodynamic Braking System

- Non friction brake eliminates wear on brake components
- Brake capable of 2000 ft - lbs resisting torque at 250 hp
- Reliable and repeatable braking
- Backspin energy is absorbed by the working fluid
- Heat generated by braking is dissipated by the fluid reservoir
- Consistant braking with minimal maintenance throughout the driveheads life



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