MAGNETA PCP

PCP PMM DRIVE HEAD & HYDRAULIC BRAKE

MAGNETA PCP DH PMM SYSTEM

The MAGNETA PCP DH PMM SYSTEM is part of BCPMex's PMM (Permanent Magnet Motor) innovation line. The system consists of a CILA2S 5G AFE PMM frequency converter and a MAGNETA PCP DH PMM rotary head, and is complemented for optimal performance by the Value-Added Application Suite (AVAS) for Progressive Cavity Pump (PCP) artificial lift systems.

The CILA2S 5G PCP Dual IM/PMM integrates all the necessary elements: variable frequency drives (VFDs), controllers, electrical protection devices, and components required for the control (motor control firmware, optimization software, etc.), protection, and optimization of the PCP artificial lift system equipped with IM (induction motors) or PMM (permanent magnet motors). Furthermore, the MAGNETA PCP DH PMM Heads attach directly to the wellhead flange and the polished rod, eliminating the need for a belt-and-pulley system to transmit torque to the Progressive Cavity Pump (PCP) artificial lift systems.

Torque is transmitted directly to the sucker rod, eliminating slip losses, preventing belt failures, increasing the efficiency of PCP processes, and contributing to a reduced carbon footprint. The MAGNETA PCP PMM head features a MAGNETA Mechanical Brake (MMB) system, which effectively controls the backspin phenomenon, increasing the safety of the equipment and the PCP system.

BENEFITS

BACKSPIN CONTROL
The PMM heads of the MAGNETA PCP DH PMM system are equipped with the MAGNETA Mechanical Brake (MMB) system. The MMB system for backspin control is essential for ensuring the safety of the equipment, the operating personnel, and the PCP pumping method.

OPTIMIZED MAINTENANCE
The PMM heads in the MAGNETA PCP DH PMM system feature direct drive without pulleys or belts, eliminating the need for periodic replacement and thereby reducing maintenance work and costs.

FLUX ORIENTED SENSORLESS (FOS)
The heads integrated into the MAGNETA PCP DH PMM systems feature FOS technology patented by the BCPGroup, which ensures perfect alignment of the magnets with respect to the stator, thereby contributing to efficient energy consumption.

VALUE-ADDED APPLICATIONS (AVAS)
AVAS are applications installed on the CILA2S 5G PCP Dual IM/PMM control systems. Based on intelligent algorithms, they make the PCP artificial lift system more technologically efficient in production, increasing energy savings and reducing the carbon footprint.

MAGNETA PCP

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MAGNETA PCP DH PMM

MAGNETA PCP DH PMM rotary heads attach directly to the wellhead flange and the polished rod, eliminating the need for a pulley and belt system to transmit torque to the Progressive Cavity Pump (PCP) artificial lift systems.
Torque is transmitted directly to the polished rod, eliminating slip losses, preventing belt failures, increasing the efficiency of PCP processes, and contributing to a reduced carbon footprint.

The MAGNETA PCP DH PMM spindle heads are available in 50 HP, 60 HP, 75 HP, and 100 HP, with axial loads of 37,000 lbs and 50,000 lbs, a rated speed of 300 RPM at 60 Hz, and features a MAGNETA Mechanical Brake (MMB) system, which effectively controls backspin, thereby increasing the safety of the equipment and the PCP system.

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POWER RATINGS FROM 50 TO 100 HP

CO_2 REDUCTION

Reduction in CO_2 emissions: 100 tons per year.

25 %

Energy savings: up to 25% compared to conventional systems.

100 %

Backspin control: 100% with the MAGNETA Mechanical Brake system.

#	DESCRIPTION	MAGNETA PCP DH PMM 50 HP	MAGNETA PCP DH PMM 60 HP	MAGNETA PCP DH PMM 75 HP	MAGNETA PCP DH PMM 100 HP
1	Brake Type	MMB – (MAGNETA Mechanical Brake) Hydraulically actuated mechanical disc brake, backspin control			
2	Disc Type	Self-Cooled Disc			
3	Braking Torque lbs-ft (Nm)	2000 lbs-ft (2712 Nm)			
4	Maximum hydraulic system pressure (psi)	2000 Psi			
DIMENSIONS		**MAGNETA PCP DH PMM 50 HP**	**MAGNETA PCP DH PMM 60 HP**	**MAGNETA PCP DH PMM 75 HP**	**MAGNETA PCP DH PMM 100 HP**
1	Head Height in (mm)	34,65 in (880 mm)	34,65 in (880 mm)	56,69 in (1440 mm)	56,69 in (1440 mm)
2	Head Width in (mm)	27,56 in (700 mm)	27,56 in (700 mm)	38,97 in (990 mm)	38,97 in (990 mm)
3	Stuffing Height in (mm)	23,62 in (600 mm)	23,62 in (600 mm)	23,62 in (600 mm)	23,62 in (600 mm)
4	Weight lbs (Kg)	1279 lbs (580 Kg)	1279 lbs (580 Kg)	1433 lbs (650 Kg)	1764 lbs (800 Kg)

MAGNETA PCP

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CILA2S® PCP

The CILA2S PCP is an intelligent controller for artificial lift systems that integrates specialized hardware and software. It incorporates artificial intelligence-based applications (AVAS) to optimize crude oil production, protect well integrity, and extend system life. Its design allows it to adapt to different lifting methods and motor types (IM or PMM), ensuring the best torque/ampere ratio and adjusting to customer needs.

Its IP 54 cabinet includes Rockwell Automation's PowerFlex 755 or 755TR power module, electrical protections, and the SWC PRO control system with a 10" or 15" screen, which contains advanced algorithms that ensure the stability and safety of the pumping process. Overall, the CILA2S PCP offers state-of-the-art technology, easy integration, flexibility, and high performance, achieving greater productivity and well optimization.

POWER RATINGS FROM 60 HP TO 300 HP

PCP - Operation and Control Applications (OPAS)

BACKSPIN CONTROL

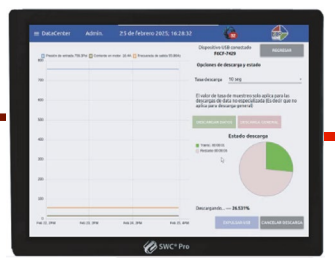
The Backspin Control application is activated when the PCP system is stopped due to the phenomenon of cable return. The CILA2S 5G PCP manages the regeneration energy and brakes the Backspin phenomenon in a controlled manner, stopping the PCP system safely.

AUTOMATIC RESTART

The CILA2S 5G PCP can be configured to start automatically when the system stops due to a power failure or protection. The SWC PRO analyzes the current operating conditions in advance and starts automatically and safely.

PROCESS PROTECTIONS

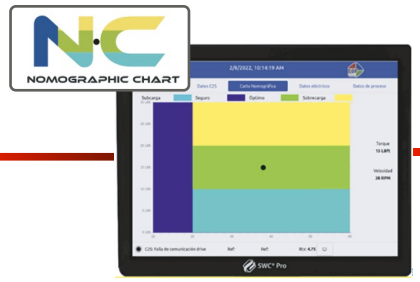
The software module dedicated to PCP system protection integrates a series of configurable parameters that allow visualization or control actions to be performed in the event that any variable related to the process is outside the established limits, generating a history of events that can be downloaded to a USB memory stick.



Intelligent Datalogger

The Intelligent Datalogger application optimizes system data logging by automatically adjusting the sampling frequency when an unexpected event is detected. In normal situations, it maintains a standard logging rate, but when anomalies or faults are identified, it increases the sampling accuracy to one sample per second.

PCP - Value-Added Applications (AVAS)



NOMOGRAPHIC CHART

This intelligent control and diagnostic algorithm and graphical tool identifies the current status of the system based on torque, speed, and operating conditions, visually identifying the operating zone of the PCP system on a graph that allows the operator to quickly analyze the current operating regime of the well (overload, underload, or normal).

POWER SAGS

PowerSAGS is an application designed to mitigate power interruptions of up to 1000 ms. These failures, caused by various factors, can lead to delays in oil field production. The electrical phenomenon occurs in the form of micro power outages or voltage variations such as sags or swells.

INTELLIGENT RUNLIFE

It is a value-added application (AVAS) designed to analyze and extend the service life of surface and downhole equipment in PCP systems. Its main function is to monitor key process variables, such as voltage, current, speed, temperature, and vibrations, to identify normal, critical, and extreme operating conditions. It increases sampling accuracy to one sample per second.

PCP SENSORLESS

PCP Sensorless is an application developed by BCPGroup designed for progressive cavity pump (PCP) artificial lift systems.

This application allows the calculation of downhole operating variables without the need to install physical sensors in the oil well. It uses advanced algorithms integrated into the CILA2S smart controller, which correlate electrical variables with fluid flow behavior in the reservoir, providing real-time information for oil production control and optimization.

SensorLess

BENEFITS OF PCP SENSORLESS

1. **Cost reduction:** Reduces the need for additional hardware and acoustic measurement services.
2. **Greater reliability:** Less susceptibility to failure and reduced maintenance requirements.
3. **Access to information:** Continuous monitoring and integration with control systems.
4. **Increased safety:** Reduction of human intervention and risk prevention.
5. **Flexibility:** Adaptation to different wells and continuous updates.