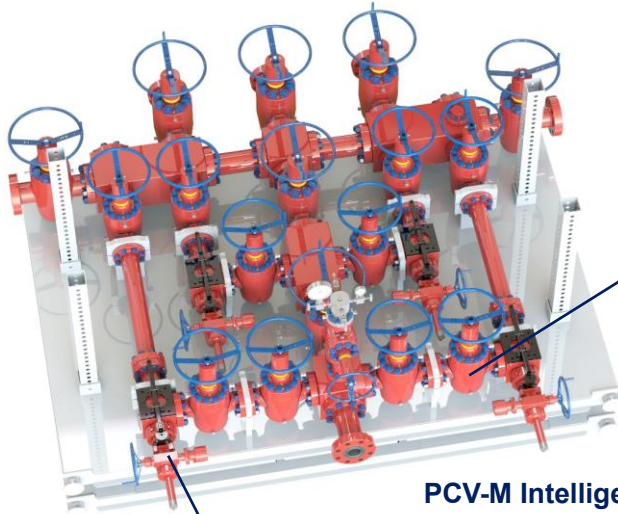


Well control safety equipment— Intelligent Heavy-duty Choke Manifold



Patent Design –
Valve position indicator

PFLS New low
torque concealed
rod gate valve

PFLS New low torque concealed rod gate valve Features

- Equipped with ultra-low pressure opening torque performance (can quickly open the valve during emergency rescue)
- Hidden rod valve with switch display (world's first) safety management function

PCV-M Intelligent Pressure Control Heavy-duty Choke Valve (Worm Gear + Hydraulic Motor Drive) – The valve plug, valve seat, valve plug sleeve, and drive mechanism have been granted a national invention patent. It can be used for MPD intelligent pressure-controlled drilling, as well as for remote intelligent well control and testing. Compared with electric actuators, this choke valve offers strong adaptability in both high-temperature desert environments and low-temperature conditions, delivering stable and reliable performance.

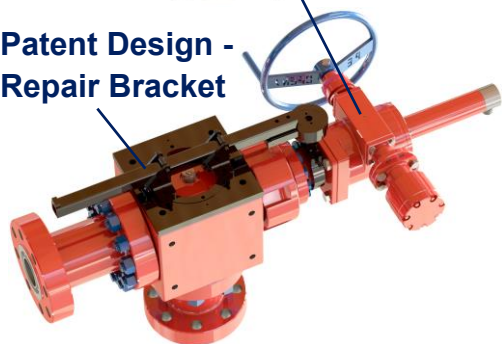
Well control safety equipment— Heavy-duty Kill Manifold



Features of PCV-M Intelligent Pressure Control Heavy-duty Choke Valve

- Excellent pressure control performance with shut-off capability (100% pressure control efficiency) — overturns the traditional belief that a choke valve can only be used for choking and not for shut-off.
- High resistance to vibration-induced fracture
- Strong erosion resistance (no unilateral erosion on downstream equipment)
- Good fluid passage performance (full-bore flow capacity for open discharge)
- Linear flow capacity (Cv value) / excellent linear regulation capability
- Shearing and unblocking function (can shear brittle materials such as rock cuttings)
- Convenient online maintenance (single-person online inspection and repair possible)
- Symmetrical design of valve plug and seat (one choke valve functions equivalently to two choke valves)

Patent Design -
Repair Bracket



**PCV-M Intelligent Pressure
Control Heavy-duty Choke Valve
(Invention Patent)**

Intelligent Heavy-duty Choke Manifold and kill manifold is a well control safety equipment designed specifically to solve the exploration and development problems of ultra deep wells and "three highs" oil and gas wells. It completely solves the long-standing problems of insufficient pressure control ability, poor resistance to high-frequency vibration fracture, poor erosion resistance, and poor fluid passage performance of well control choke valves, as well as the problem of gate valves being unable to open quickly under pressure. It can provide more solutions for drilling construction technology solutions for ultra deep wells and "three highs" oil and gas well exploration and development, as well as efficient exploration and development of deep oil and gas resources and gas reservoir protection, and provide reliable equipment guarantee with inherent safety.



Precedent Energy (Guanghan) Services Ltd.

No.20, South First Section, Yangzhou Road, Guanghan City,

Sichuan Province, 618300, P.R.China

Tel: (86 838) 519 5635 / 519 5936

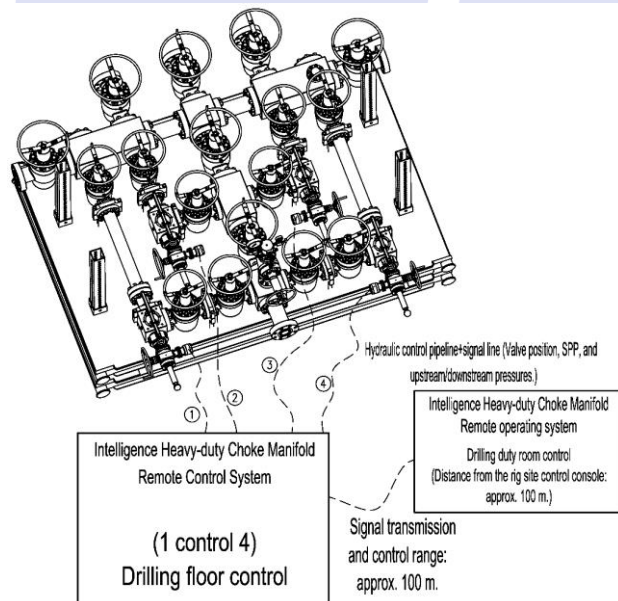
Email:sales@us-precedent.com

Web:www.us-precedent.com

Intelligent Heavy-duty Choke Manifold Remote control system accessory diagram



Intelligent Heavy-duty Choke Manifold and Remote control system—Control connection diagram



Features of the Intelligent Heavy-duty Choke Manifold Remote Control System

- This control system is custom-developed for the intelligent heavy-duty choke manifold, thoroughly resolving the issues of insufficient choke valve adjustment accuracy and signal transmission lag found in traditional control panels. The system has integrated some functions of the MPD intelligent pressure-controlled drilling software. Adopting a closed-loop architecture, it integrates wellhead constant pressure control and remote automatic unblocking functions, driving well control operations towards remote, automated, and digital development. Specific features are as follows:
- The system supports multi-point collaborative control from locations such as the driller's cabin and the drilling duty room. An industrial-grade digital communication protocol is used among control nodes to ensure real-time data synchronization and linkage within the system. The system also provides real-time display of drilling-related parameters and full-process data recording, fully supporting operation monitoring and data analysis.
- The system features advanced wellhead constant pressure control. The operator only needs to set the target wellhead pressure on the control interface; the system will automatically control the choke valve for dynamic adjustment based on real-time pressure feedback, achieving fast and precise pressure tracking and stable control without any manual intervention.
- The system is easy to operate. After a brief training, the operator can enter control parameters via the software interface to achieve remote operation.
- The system monitors pressure in real time upstream and downstream of the choke valve. If the choke valve becomes blocked, the system supports remote unblocking operation. The unblocking procedure is simple, intuitive, and easy to manage.
- The choke valve equipped with the system has powerful shearing capability. Using a “retract two steps, advance one step” or “retract three steps, advance one step” operation, it can shear large rocks into small pieces for discharge. The operation is simple.

Precedent Energy (Guanghan) Services Ltd.

No.20, South First Section, Yangzhou Road, Guanghan City,

Sichuan Province, 618300, P.R.China

Tel: (86 838) 519 5635 / 519 5936

Email:sales@us-precedent.com

Web:www.us-precedent.com

