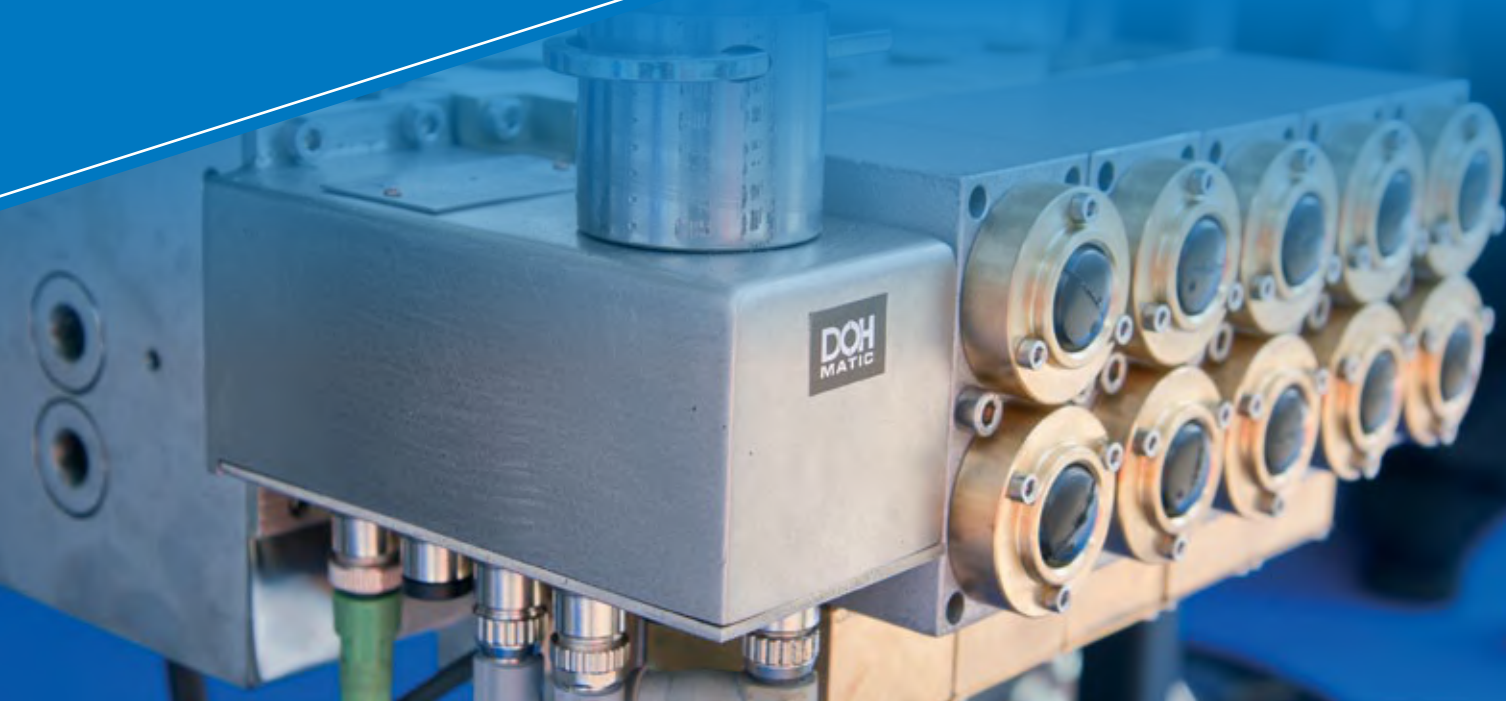


Hydraulics Center
DOH Co. Ltd.



HYDRAULIC CONTROL SYSTEMS



We are here



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RUSSIA

Kemerovo

CHINA

Pingdingshan



Leszek Kocot
President
of the Management Board

WELCOME TO THE DOH HYDRAULICS CENTER

DOH Hydraulics Center in Bytom has been operating in the mining industry for over 20 years.

During this time we have gained both trust and recognition from our customers, owing it to the quality and reliability of our solutions for hydraulic and electro-hydraulic control systems for powered roof supports. Thanks to our experienced and specialised staff, the company is still under development and is able to offer state-of-the-art solutions that meet global standards.

Our products are applicable in hydraulic control systems of longwall shields of all Polish powered roof support manufacturers, and the DOH brand is also recognisable in other European, Asian, and South American countries.

During particular projects proceedings we cooperate with research and development facilities and scientists from the AGH University of Science and Technology, the Silesian University of Technology, as well as other specialists who work directly in the exploitation field in various mining facilities.

We provide our customers with technical advice, customised designs, supervision of startup and exploitation and a twenty-four-seven warranty and post-warranty service of our control systems.

Cooperation with DOH Hydraulics Center is the best, guaranteed method of solving your problems and fulfilling your needs in the field of longwall control systems.

We look forward to cooperating with you.

A handwritten signature in black ink, appearing to be 'L. Kocot'.

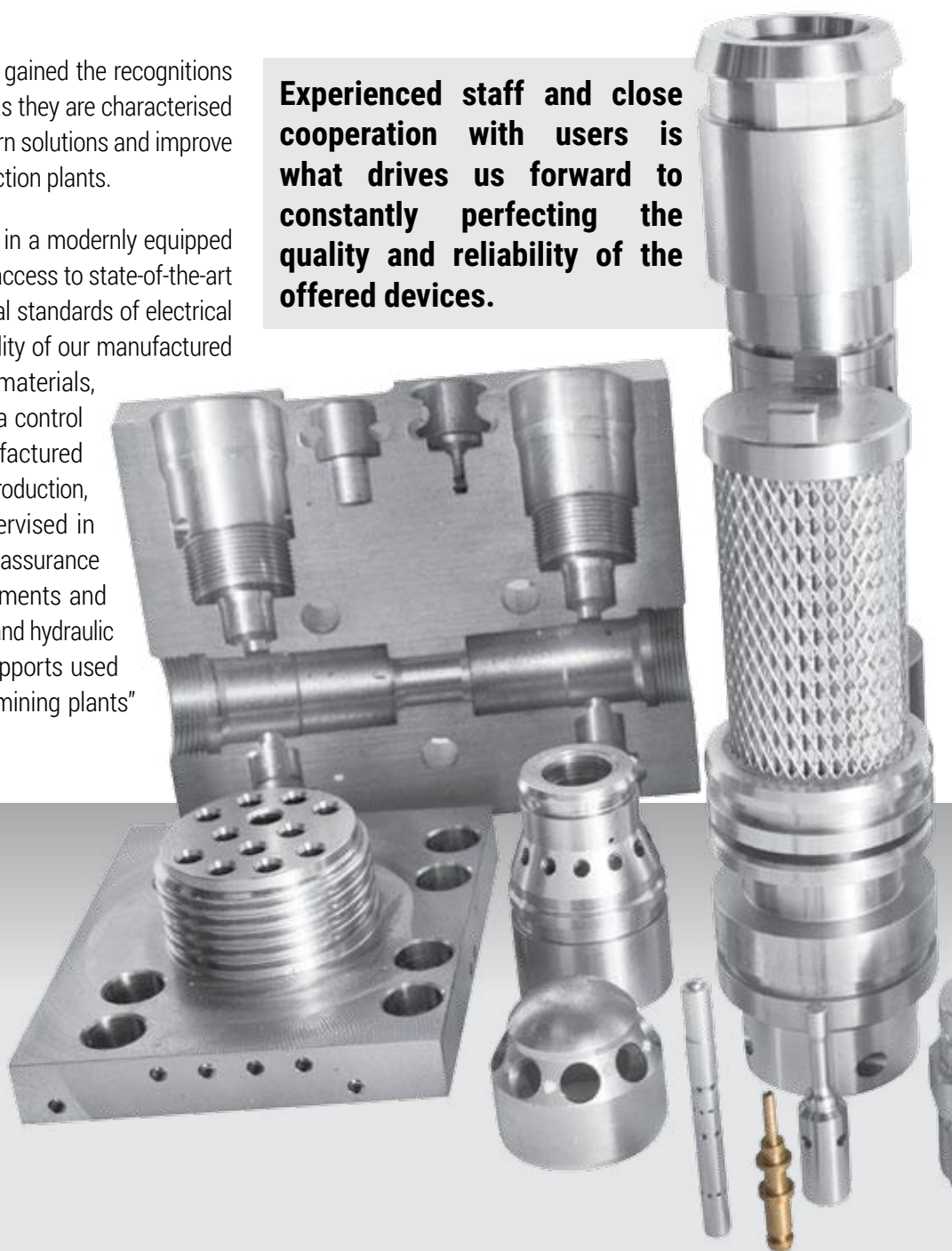
Modern production of innovative control systems

DOH Hydraulics Centre is a famous player on the market of hydraulic systems for automated longwalls. We cooperate in the field of spare parts delivery, repair of hydraulics, and maintenance services with all major Polish supports manufacturers, as well as other companies dealing with providing repair and renovation of supports or directly with mines themselves.

DOH Hydraulics Center products have gained the recognitions of customers from the mining sector as they are characterised by a high level of innovation and modern solutions and improve working conditions and safety in extraction plants.

Our hydraulics production takes place in a modernly equipped facility in Bytom, Poland. This means access to state-of-the-art CNC machines, fully meeting the global standards of electrical machinery industry. The basis for quality of our manufactured elements are high-quality stainless materials, a system of approved suppliers, and a control and testing system for all the manufactured components. All processes of design, production, servicing and development are supervised in accordance with the employed quality assurance system regarding „Production of elements and assemblies applied in electro-hydraulic and hydraulic control systems for powered roof supports used in mining processes in underground mining plants” as per PN-EN ISO 9001;2009.

Experienced staff and close cooperation with users is what drives us forward to constantly perfecting the quality and reliability of the offered devices.



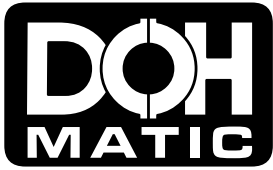


In cooperation with specialists from the Central Mining Institute, the company has also implemented an innovative method of selecting and testing roof support hydraulic systems for conditions at particular risk of rock mass tremor.

In order to meet the market expectations in the field of automation of the extraction process and increase occupational safety, the Hydraulics Center intensively develops production technologies of electronic elements of control hydraulics by offering new products such as: electronic measurement of pressure in roof support racks, wireless pressure monitoring system, etc.



Electro-hydraulic control system

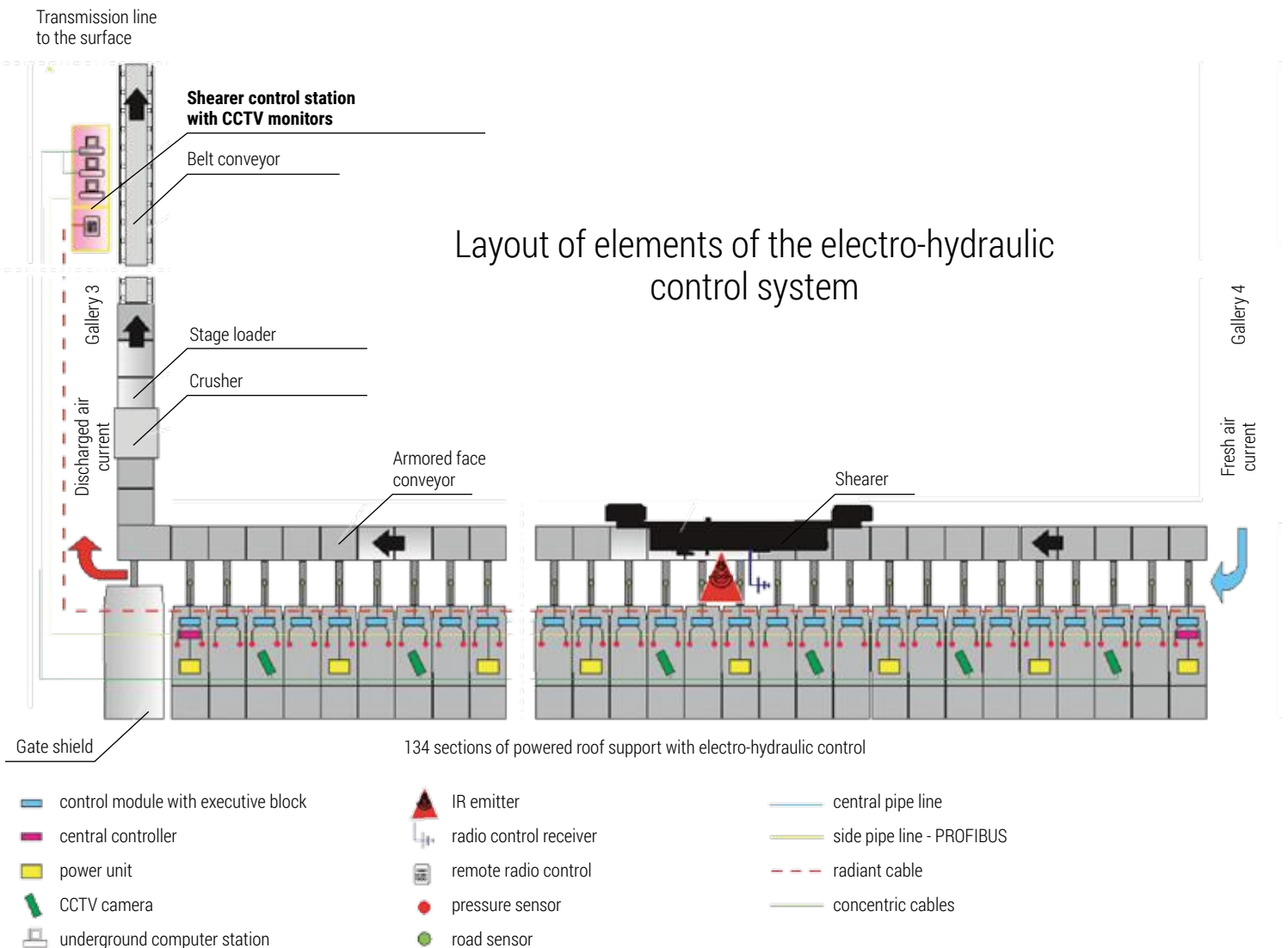


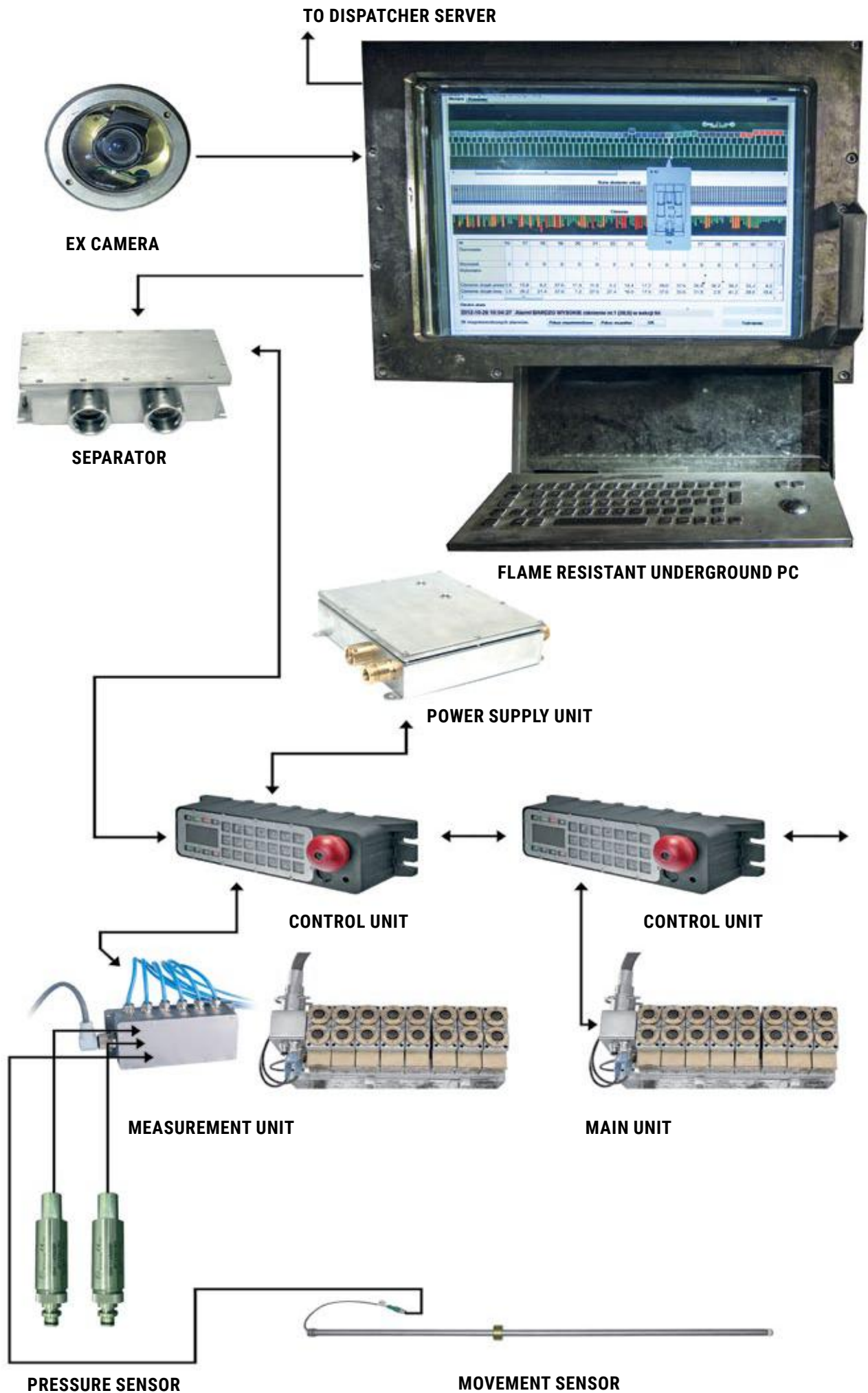
DOH-Matic electro-hydraulic control system enables the extensive operation of powered roof support. The main advantage of this system is the possibility of automating the extraction process in terms of self-operation of the roof support, self-operated relocation of the face conveyor and remote control of the shearer.

Due to continuous monitoring of all machines and devices we can observe the work parameters of the longwall system in real time, such as the shearer position, the condition and location of shields and thus the longwall profile. The system provides diagnostics of emergency states of all installed machines. All measurement data of the system's work parameters are archived in both underground and surface computer stations, which allows for immediate access to:

- evaluate the efficiency of individual components of the system,
- observing changes in geological and mining conditions at any given point of the longwall system.

Layout of elements of the electro-hydraulic control system

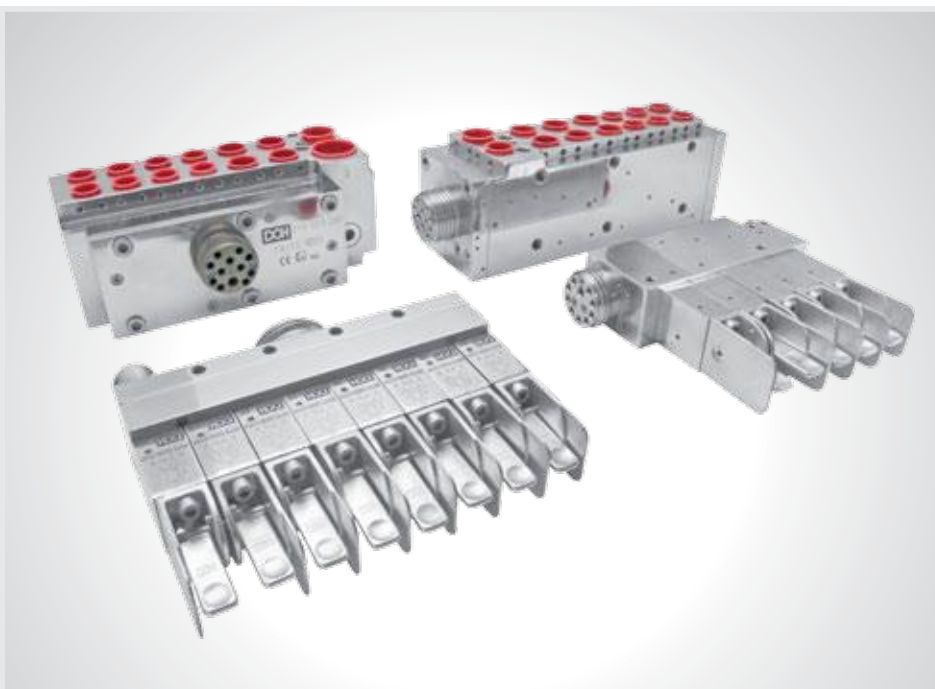




Types of controls

8-22 functions pilot control.
Available in compact and separate version, with side and central connections.

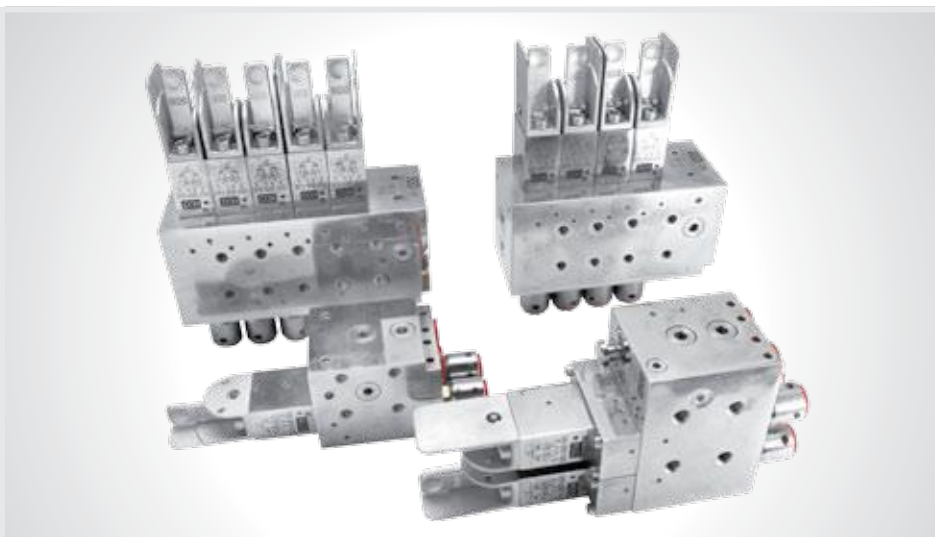
Control distributors type RH4.
Actuation inserts DN10÷DN19
in 300 and 500 versions.



2-12 functions direct pilot control.

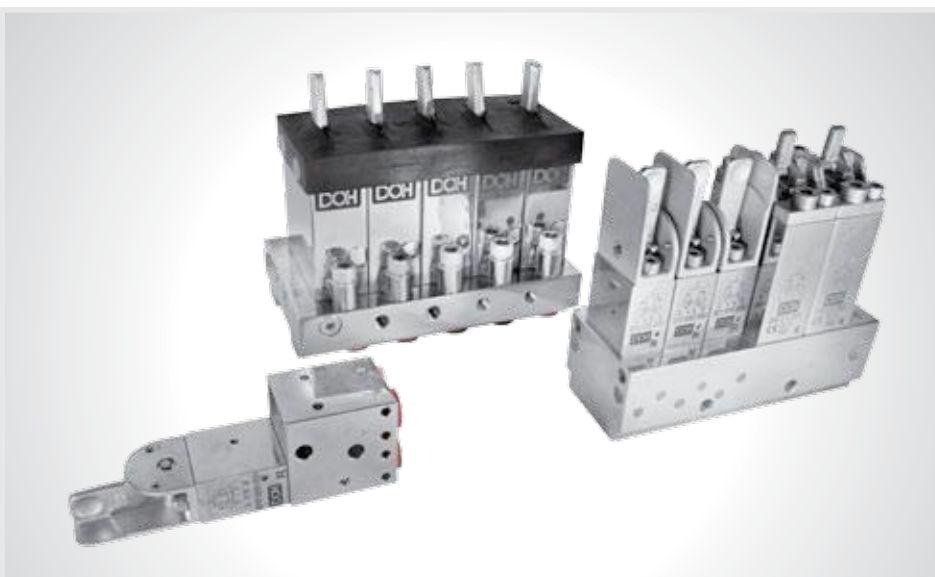
Control distributors type RH4.

Actuation inserts DN10÷DN19
in 300 and 500 versions.

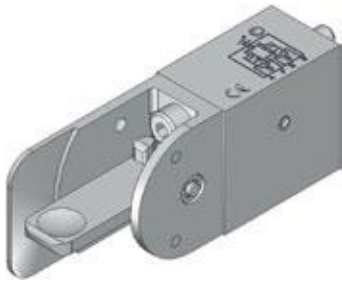


Direct manual control - 2 - 12
functions.

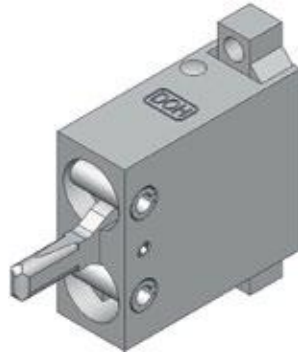
Depending on the needs,
available in versions with 4/3-
way valve distributors type:
RH4, DN8, HV10.



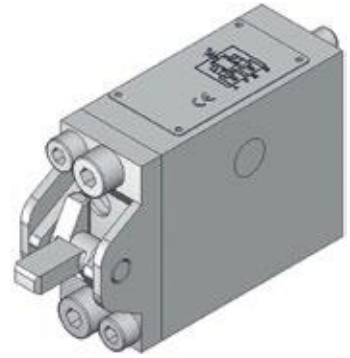
Control and distributing valves



4/3-way RH4 distributor valve



4/3-way DN8 valve distributor



4/3-way HV10 distributor

Type of 4/3-way distributor valve	RH4	DN8	HV10
Max. operating pressure	35 MPa	32 MPa	35 MPa
Flow rate (max)	20 l/min	60 l/min	80 l/min
Nominal flow diameter	4 mm	8 mm	10 mm
Max. pressure drop Δp	52 bar	52 bar	52 bar
Max. number of cycles	30 000	30 000	30 000
Hydraulic liquid	HFA	HFA	HFA
Purity class acc. to PN ISO 4406	18/14	18/14	18/14
Material	Stainless steel	Stainless steel	Stainless steel

3/2-way valve inserts Series 300



DN10



DN12



DN19

3/2-way valve inserts Series 500



DN10



DN12



DN19

Type of 3/2-way valve insert	DN10	DN12	DN19	DN10	DN12	DN19
	series 300			series 500		
Max. pressure	35 MPa	35 MPa	35 MPa	35 MPa	35 MPa	35 MPa
Flow rate (max)	225 l/min	410 l/min	600 l/min	225 l/min	410 l/min	600 l/min
Pressure drop Δp (max)	80 bar			80 bar		
Max. number of cycles	30 000			30 000		
Hydraulic liquid	HFA			HFA		
Purity class acc. to PN ISO 4406	18/14			18/14		

Types of valves

Single and double valve blocks
DN10÷DN25.

With additional control option
and STECKO or flange type
connections.



Yield (overflow) valves

DN10-DN20, Q from 40l/min to
880 l/min.

Relief safety valves with M40x2
and M45x2 connections and
flow rate up to Q=2000 l/min.



Flow direction and rate control
valves DN10- DN25, type:

- Check valves
- Throttle check valves
- Ball valves
- Residual pressure valves
- Circulation selectors
- Circulation switches
- Charge valves
- Filters



Pressure buses and accessories

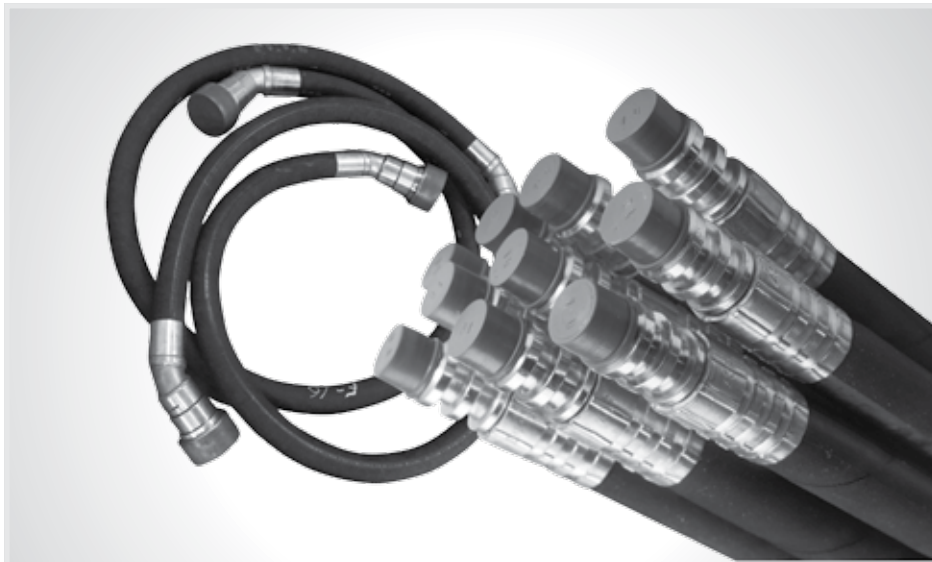


Pipe buses

Longwall and gallery quick-coupling bus pipelines.

For conical-frontal type connections within the range of DN32-DN100 and Pn max = 40 MPa.

For cyllindro-conical type connections within the range of DN32-DN50 and Pn max = 40 .



High-pressure lines

8-22 function multi-hoses with straight and angular connections.

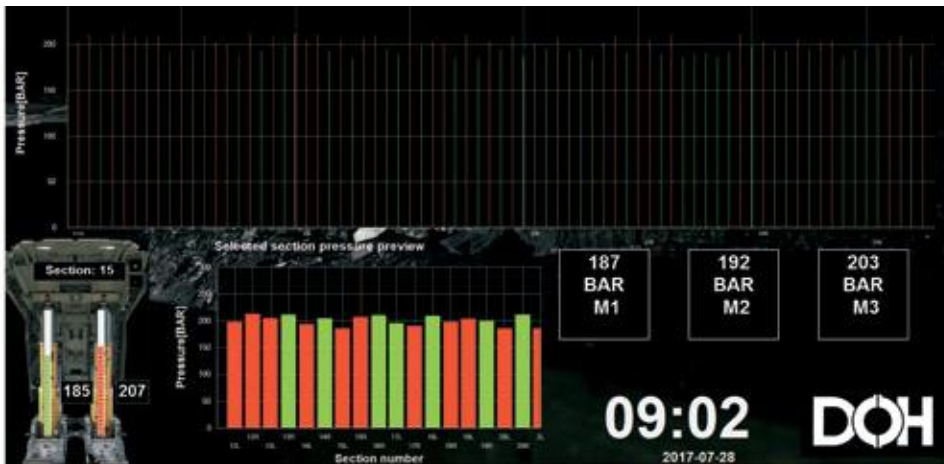
High-pressure hydraulic lines within the range of DN6- DN51 acc. to PN-EN 853 and PN-EN 856.



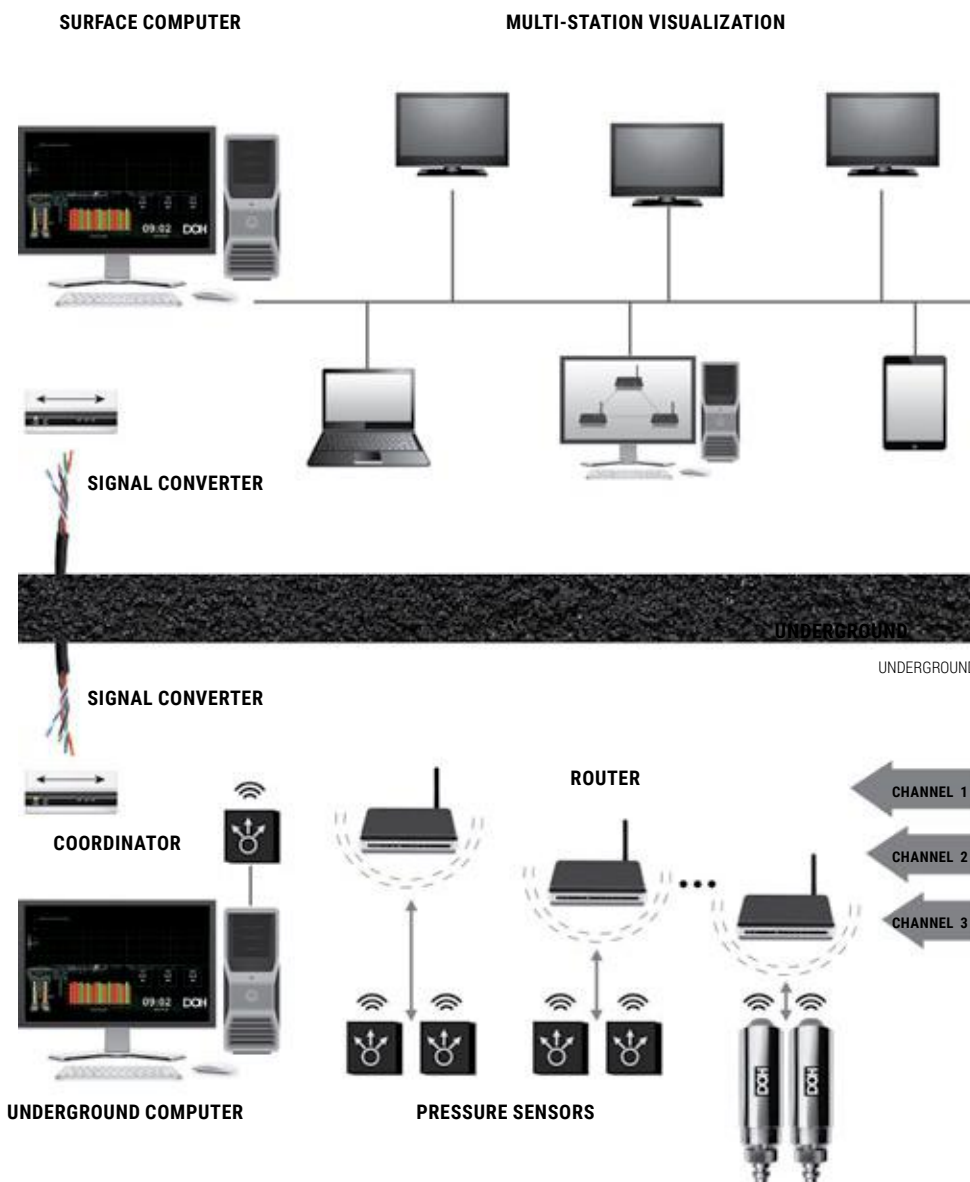
Fittings

Fasteners and fittings within the range of DN6-DN51, STECKO and SSKV type, for hydraulic systems of mining powered roof supports.

DOH Wireless Pressure Monitoring (WPM)

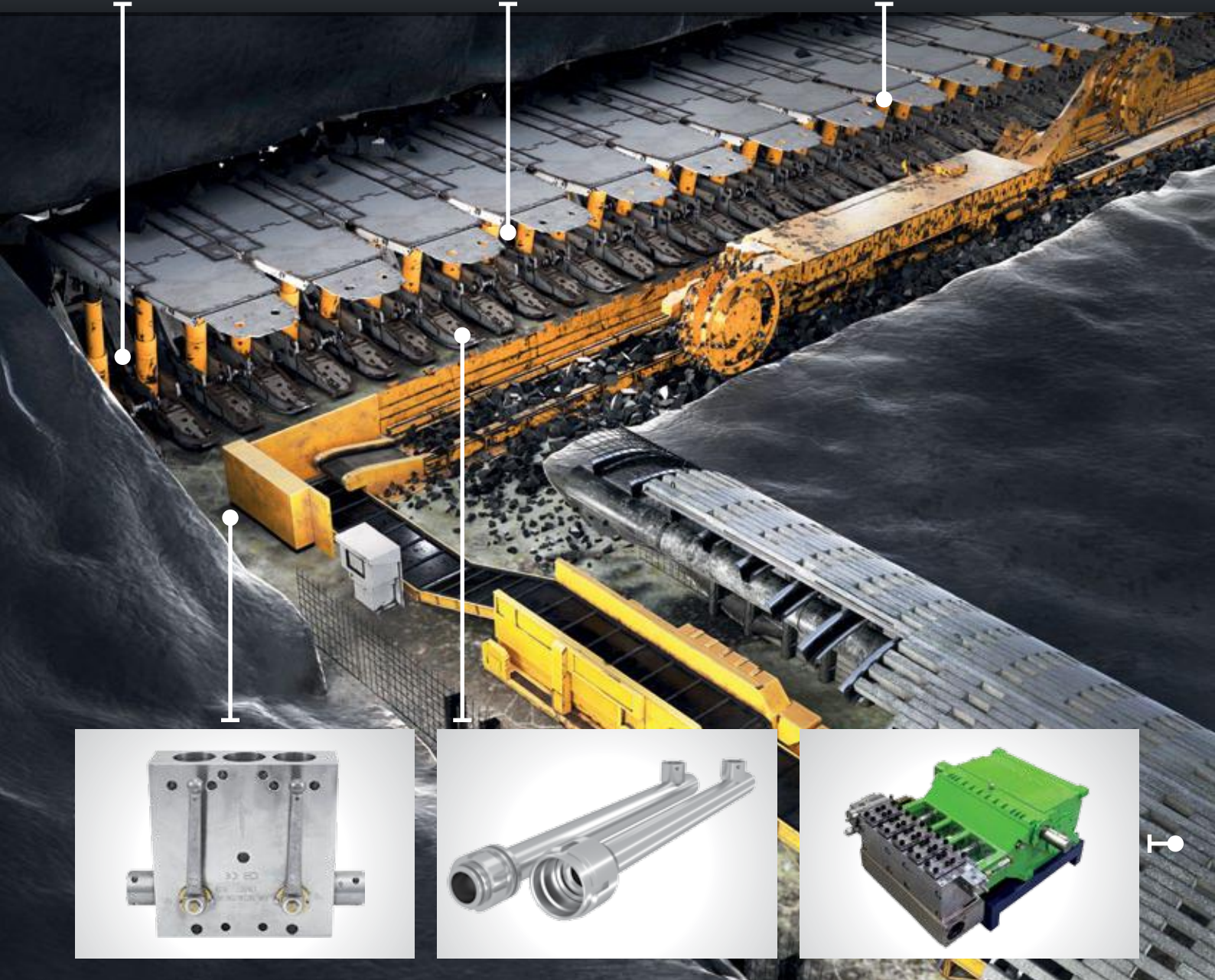
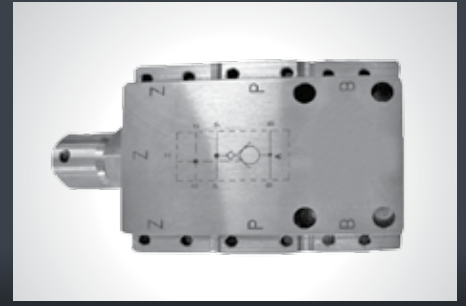
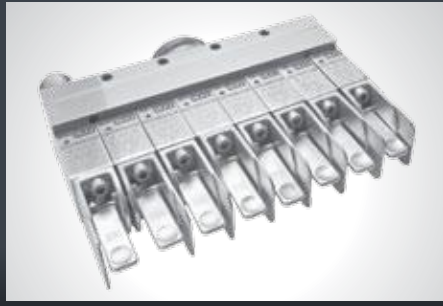
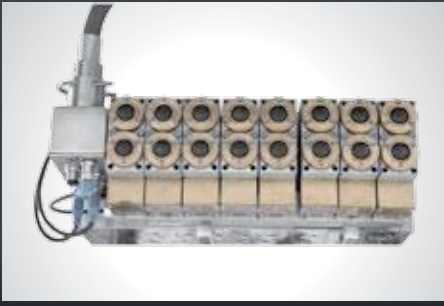


The WPM Wireless Pressure Monitoring System monitors the values of pressures in the spaces under the pistons of powered roof support racks and in the supply and drain buses. Visualization is provided both locally in the form of a light signaling system on the sensor (router) and on a flame resistant underground PC. With support of a dedicated application the system provides comprehensive diagnostics of power hydraulics and indication of alarm conditions. Based on the archived data it enables the installation of applications which let you anticipate underground conditions, as well as the expansion and contraction of rock mass.



Main components of the system:

- wireless auto-configurable pressure sensor,
- wireless auto-configurable indicator module,
- collective communication module,
- flame resistant underground PC.



Comprehensive offer for mechanized longwall systems

In cooperation with partner companies, we design and assemble power supply and hydraulic control systems for mechanized longwall systems including:

- electro-hydraulic, pilot and manual control systems
- monitoring systems
- pipe buses and high-pressure lines
- pumping systems
- filtration systems

Our implementations

China, Fuda mine, FY 6800 system

DOH-Matic electro-hydraulic control, 16 functions



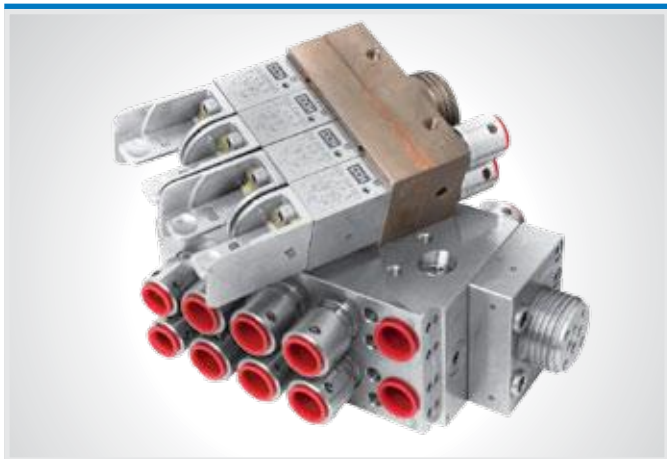
Poland, Ziemowit mine, Fazos 12/24 system

remote control, compact, 16 functions



Ukraine, Geroev Kosmosa mine, 1KD90 system

remote control, 8 functions



Russia, Zarechnaya mine, UPP-3/Becker-Warkop

remote control, 8/10 functions



We look forward to
cooperating with you

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