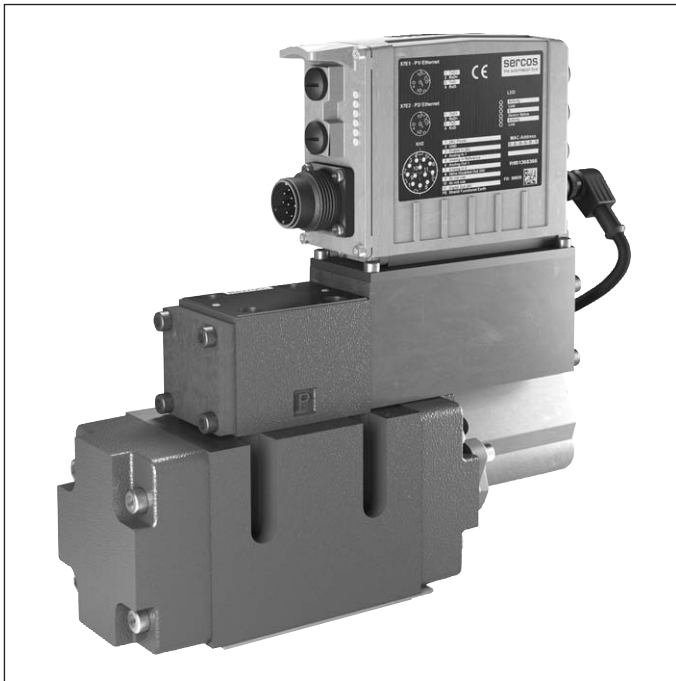


Directional control valve, pilot operated, with integrated digital axis controller (IAC-Multi-Ethernet)

Type 4WRLD

RE 29288

Edition: 2015-01



- ▶ Sizes 10, 16 and 25
- ▶ Component series 3X
- ▶ Symbols V and V1
- ▶ Maximum operating pressure 350 bar (ports P, A, B)
- ▶ Maximum flow of 900 l/min



Features

- ▶ Open
 - Integrated digital axis control functionality (IAC-Multi-Ethernet)
 - Bus connection/service interface (sercos, EtherCAT, EtherNet/IP, PROFINET RT)
- ▶ Scalable
 - 2 configurable analog sensor inputs
 - 1 input for linear measuring system (SSI, 1Vss or EnDat 2.2)
- ▶ Precise
 - Best-in-class hydraulic controller
 - High response sensitivity and low hysteresis
- ▶ Reliable – proven and robust construction
- ▶ High quality – control spool and sleeve of the pilot valve in servo quality

Contents

Features	1
Ordering codes	2, 3
Symbols	3
Function	4, 5
Pilot oil supply	6
Technical data	7 ... 9
Representation of the axis controller in the system network	10
Electrical connections, assignment	11, 12
LED display	13
Characteristics	14 ... 17
Dimensions	18 ... 21
Accessories	21 ... 23
Project planning and maintenance instructions	23
Further information	24

Ordering codes

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
4	WRL	D					-	3X	/		/	24	D6	*

01	4 main ports	4
02	Directional control valve, pilot operated	WRL
03	With integrated digital axis controller	D
04	Size 10	10
	Size 16	16
	Size 25	25
05	Symbols; possible version see page 3.	

Rated flow of with 10 bar pressure differential (5 bar/control edge)

06		Flow characteristics			
		“L”	“M”	“P”	
	– Size 10				
	40 l/min	–	–	✓	40
	55 l/min	✓	✓	–	55
	70 l/min			✓	70
	85 l/min	✓	✓	–	85
	– Size 16				
	90 l/min	–	–	✓	90
	120 l/min	✓	✓	–	120
	150 l/min	–	–	✓	150
	200 l/min	✓	✓	–	200
	– Size 25				
	300 l/min	–	–	✓	300
	370 l/min	✓	✓	–	370

Flow characteristics

07	Linear	L
	Progressive with linear fine control range	M
	Inflection 40 %, linear	P
08	Component series 30 ... 39 (30 ... 39: unchanged installation and connection dimensions)	3X

Seal material

09	NBR seals	M
	FKM seals	V
10	Internal pilot oil supply, internal pilot oil return	PT
	Internal pilot oil supply, external pilot oil return	PY
	Pilot oil supply external, pilot oil return internal	XT
	Pilot oil supply external, pilot oil return external	XY
11	Supply voltage 24 V	24

Ethernet interface

12	EtherNET/IP	E
	PROFINET RT	N
	sercos	S
	EtherCAT (CANopen profile)	T

Ordering codes

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
4	WRL	D					-	3X	/		/	24	D6	*

Electrical interface

13	± 10 VDC or 4 ... 20 mA	D6
----	-------------------------	----

Sensor interfaces

14	0 ... 10 V/4 ... 20 mA/EnDat 2.2	S
	0 ... 10 V/4 ... 20 mA/SSI	T
	0 ... 10 V/4 ... 20 mA/1Vss	U
15	Further details in plain text	*

Symbols

With symbol V1:

P → A: $q_{V \max}$ B → T: $q_{V/2}$

P → B: $q_{V/2}$ A → T: $q_{V \max}$

Note:
Representation according to DIN ISO 1219-1.
Hydraulic interim positions are shown by dashes.

Flow characteristics

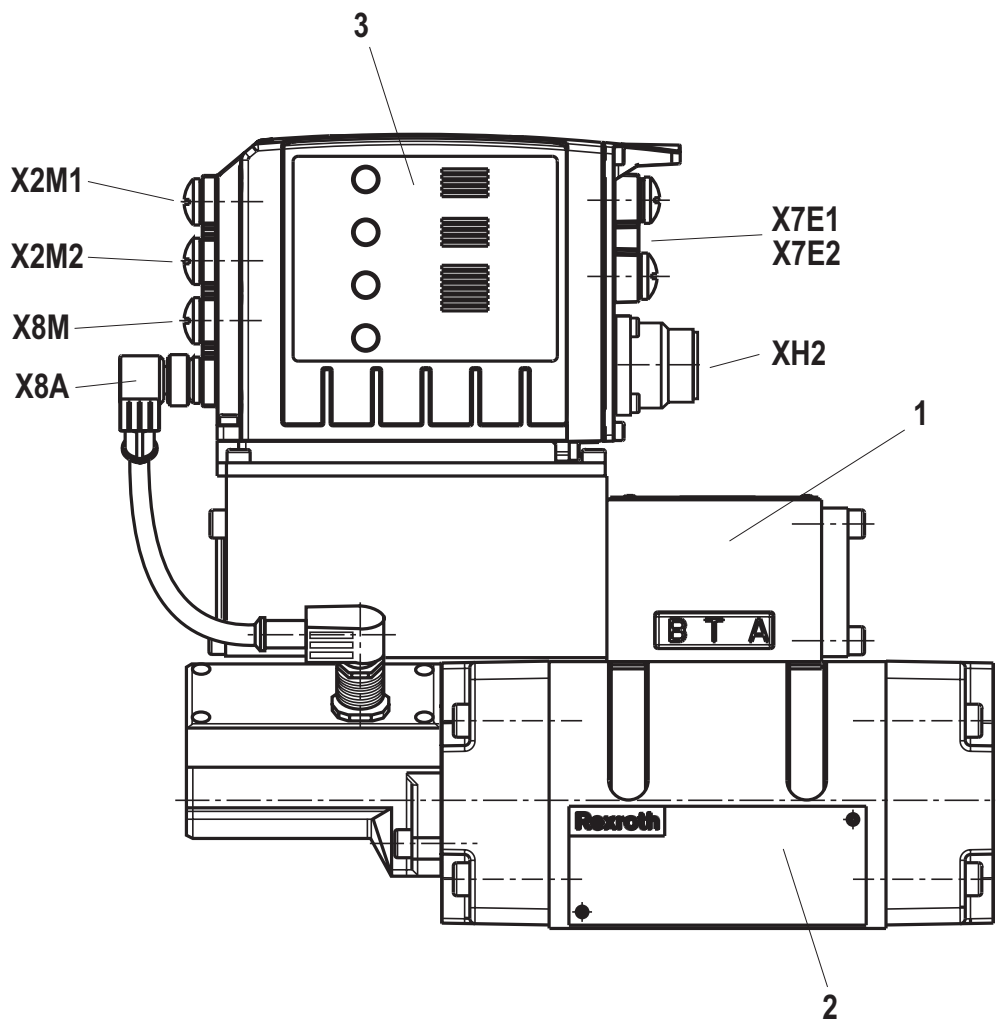
Symbol	Linear characteristic curve (version "L")	Progressive characteristic curve (version "M")	Inflected characteristic curve (version "P") Inflection 40 %, linear
V, V1			

Function

Design

The directional control valve with IAC-Multi-Ethernet electronics mainly consists of:

- ▶ Pilot control valve (1) with control spool and sleeve in servo quality
- ▶ Main stage (2) with centering springs and position feedback
- ▶ Integrated digital axis controller (3) with:
 - analog/digital interface (XH2)
 - Ethernet interfaces (X7E1, X7E2)
 - analog sensor interfaces (X2M1, X2M2)
 - digital sensor interface (X8M)
 - Interface for the position transducer of the main stage (X8A)



Function

General

The pilot operated **IAC-Multi-Ethernet** valve (Integrated **A**xis **C**ontroller based on directional control valves) is a digital directional control valve with integrated axis controller and the following functionalities:

- ▶ Position control
- ▶ Pressure control
- ▶ Force control
- ▶ Override control (position/pressure)

Amongst others, the following operating modes are possible:

- ▶ Valve direct control
- ▶ Drive-controlled position control
- ▶ Drive-controlled positioning
- ▶ Positioning block operation
- ▶ The command values are specified via the Ethernet interface (X7E1 or X7E2) or, alternatively, via the analog/digital interface (XH2)
- ▶ The feedback information of the actual value signals to the superior control system is provided optionally either via the Ethernet interface (X7E1 or X7E2) or the analog/digital interface (XH2)
- ▶ The control parameters are set via the Ethernet interface (X7E1 or X7E2)

Function

If the control solenoid of the pilot control valve is not activated, the pilot control valve's control spool is in the spring-urged failsafe position; the main stage control spool is in its spring-centered offset position at 1 ... 6 % of the stroke toward P after B/A according to T.

The integrated electronic system compares the specified command value with the actual value of the axis to be controlled. If there is a control deviation, the control solenoid, and with this, adjustment of the control spool, are controlled in the pilot control valve. The flow that is released via the control cross-section causes a shift in the main stage control spool whose stroke/control cross-section is regulated proportional to the command value. With a specified command value of 0 %, the electronics regulates the control spool of the main stage to the center position.

When doing this, the pilot oil is fed to the pilot control valve either internally via port P or externally via port X. Feeding back to the container can be carried out either internally via port T or externally via port Y.

Failure of supply voltage

If the supply voltage fails or there is a cable break, the integrated electronics deenergizes the control solenoid, the pilot control spool takes on the failsafe position and unloads the pilot oil chambers of the main stage. The main stage control spool takes on the offset position on a spring-urged basis.

Monitoring

The digital control electronics enables comprehensive monitoring functions/fault detection including:

- ▶ Undervoltage
- ▶ Communication error
- ▶ Cable break for analog sensor inputs and digital position measurement system
- ▶ Short-circuit monitoring for analog/digital outputs
- ▶ Monitoring of the microcontroller (watchdog)
- ▶ Temperature of the integrated electronics

IndraWorks PC program

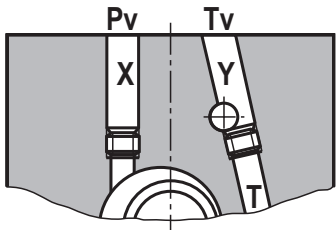
To implement the project planning task and to parameterize the IAC-Multi-Ethernet valves, the user may use the IndraWorks engineering tool (see accessories).

- ▶ Project planning
- ▶ Parameterization
- ▶ Commissioning
- ▶ Diagnosis
- ▶ Comfortable management of all data on a PC
- ▶ PC operating systems: Windows XP (SP3), Windows 7

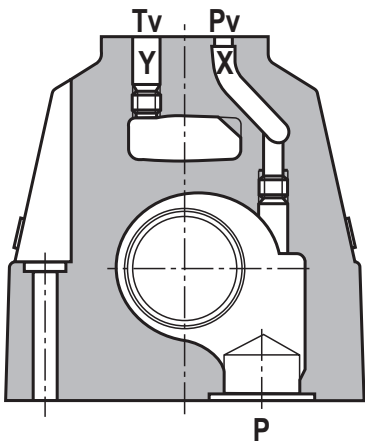
Pilot oil supply

It is possible to supply pilot oil to the pilot control valve via (external) ports X and Y as well as by the (internal) main flow channels P and T.

Sizes 10 and 25



Size 16



Version	simplified	detailed
“XY”		
“PY”		
“PT”		
“XT”		

- Note:**
- At shut-off, (pilot-operated) 4/3 directional control valves do not have a closed central position! They only carry out their task in an active control loop even if the pilot control valve has an easing fourth (failsafe) switching position.
 - For information about switch-off behavior, refer to the Technical Data on page 8.

Technical data

(For applications outside these values, please consult us!)

General				
Size	Size	10	16	25
Design		Directional spool valve, pilot operated		
Actuation		Directional control valve NG6 - OBE, with integrated axis controller (IAC-Multi-Ethernet)		
Connection type		Subplate mounting, porting pattern according to ISO 4401		
Installation position		Any		
Ambient temperature range	°C	−20 ... +60		
Bearing temperature range under UV protection	°C	+5 ... +40		
Transport temperature range	°C	−30 ... +80		
Sine test according to DIN EN 60068-2-6		10...2000 Hz / maximum of 10 g / 10 cycles / 3 axes		
Noise test according to DIN EN 60068-2-64		20...2000 Hz / 10 g _{RMS} / 30 g peak / 30 min / 3 axes		
Transport shock according to DIN EN 60068-2-27		15 g / 11 ms / 3 axes		
Weight	kg	9.1	12.1	18.9
Maximum relative humidity (no condensation)	%	95		
Maximum surface temperature	°C	150		

Hydraulic												
Maximum operating pressure	► Port A, B, P											
	– External pilot oil supply	bar	350									
	– Internal pilot oil supply	bar	250									
	► Port T, X, Y	bar	250									
Minimum pilot pressure (pilot control valve)		bar	10									
Rated flow (Δp = 10 bar per summated edge ²⁾)			40	55	70	85	90	120	150	200	300	370
Maximum flow		l/min	170				450				900	
Rated flow (pilot control valve)		l/min	4				12				24	
Zero flow (at 100 bar)	► Pilot control valve, port X	cm ³ /min	< 180				< 300				< 500	
	► Main valve, connection P	cm ³ /min	< 400		< 600		< 1000				< 1000	
Hydraulic fluid			see table on page 8									
Viscosity range	► Recommended	mm ² /s	20 ... 100									
	► Maximum admissible	mm ² /s	10 ... 800									
Hydraulic fluid temperature range		°C	–20 ... +60									
Maximum admissible degree of contamination of the hydraulic fluid, cleanliness class according to ISO 4406 (c)			Class 18/16/13 ¹⁾									
Direction of flow			see symbols page 3									

¹⁾ The cleanliness classes stated for the components need to be maintained in hydraulic systems. Effective filtration prevents faults and at the same time increases the life cycle of the components.
For the selection of the filters see www.boschrexroth.com/filter.

²⁾ Flow with different Δp (summated edge):

$$q_x = q_{Vnom} \times \sqrt{\frac{\Delta p_x}{10}}$$

Technical data

(For applications outside these values, please consult us!)

Hydraulic fluid		Classification	Suitable sealing materials	Standards	Data sheet
Mineral oils		HL, HLP, HLPD, HVLP, HVLPD	NBR, FKM	DIN 51524	90220
Bio-degradable	► Insoluble in water	HETG	NBR, FKM	ISO 15380	90221
		HEES	FKM		
	► Soluble in water	HEPG	FKM	ISO 15380	
Flame-resistant	► Water free	HFDU, HFDR	FKM	ISO 12922	90222
	► Containing water	HFC (Fuchs Hydrotherm 46M, Petrofer Ultra Safe 620)	NBR	ISO 12922	on request

**Important information on hydraulic fluids:**

- For more information and data about the use of other hydraulic fluids, refer to data sheets above or contact us!
- There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.)!
- The flash point of the hydraulic fluid used must be 40 K higher than the maximum solenoid surface temperature.

► Flame-resistant – containing water:

- Maximum pressure differential per control edge 50 bar
- Pressure pre-loading at the tank port > 20 % of the pressure differential, otherwise increased cavitation
- Life cycle as compared to operation with mineral oil HL, HLP 50 to 100 %

static / dynamic					
Size	Size	10	16	25	
Hysteresis	%	≤ 0.1			
Manufacturing tolerance q_{Vmax}	%	≤ 10			
Actuating time for signal step (at X = 100 bar)	0 ... 100 %	ms	21	23	29
	0 ... 10 %	ms	14	10	15
Switch-off behavior (after electrical shut-off)		Pilot control valve in failsafe position, main valve takes on spring-centered offset position (1 ... 6 %, P-B/A-T)			
Temperature drift		Zero shift < 1 % where $\Delta\theta = 40\text{ °C}$			
Zero compensation		Ex factory ± 1 %			

Technical data

(For applications outside these values, please consult us!)

electrical, integrated electronics (OBE)			
Relative duty cycle		%	100 (continuous operation)
Protection class according to EN 60529			IP 65 with mounted and locked plug-in connectors
Supply voltage ^{3; 4)}	► Nominal voltage	VDC	24
	► Lower limit value	VDC	18
	► Upper limit value	VDC	36
Maximum admissible residual ripple		Vpp	2.5 (Comply with absolute supply voltage limit value!)
Current consumption	► Maximum ⁵⁾	A	2.5
	► Impulse current	A	4
Maximum power consumption		W	40
AD/DA resolution	► Analog inputs		12 bit
	► Analog output		10 bit
Protective grounding conductor and screening			See connector pin assignment on page 11 and 12
Required fuse protection, external		A	4, time-lag
Adjustment			Calibrated in the factory
Conformity			CE according to EMC Directive 2004/108/EC tested according to EN 61000-6-2 and EN 61000-6-3

³⁾ Supply voltage is used directly for sensor connections X2M1, X2M2 and X8M (no internal voltage limitation)

⁴⁾ The voltage limit values must be complied with directly on the valve connector (note the cable length and cable cross-section!)

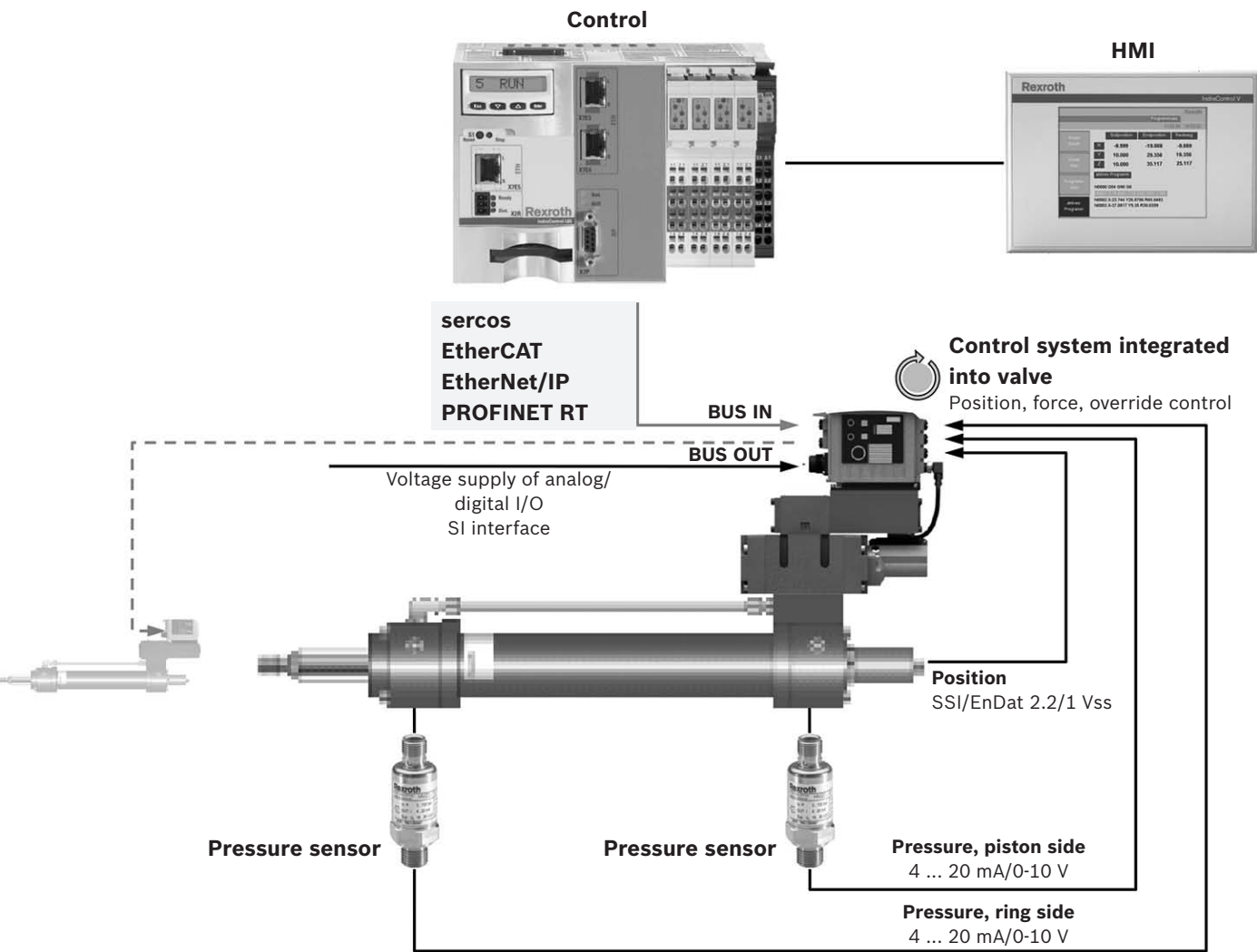
⁵⁾ The maximum current consumption increases according to the external load when the sensor inputs or the switching output are used



Note:

Pilot-operated 4/3 directional control valves only carry out their task in an active control loop and do not have a safe basic position when switched off. In many applications, this means that "external check valves" are needed, which must be taken into account with the On/Off switching series.

Representation of the axis controller in the system network



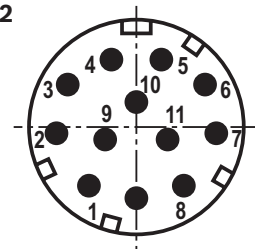
Electrical connections, assignment

Connector pin assignment XH2, 11-pole + PE according to EN 175201-804

Pin	Core marking ¹⁾	Interface D6 assignment
1	1	24 VDC supply voltage
2	2	GND
3	3	Release input output stage 24 VDC (high ≥ 15 V; low < 2 V)
4	4	Command value 1 (4 ... 20 mA/ ± 10 V) ²⁾
5	5	Reference for command values
6	6	Actual value (4 ... 20 mA/ ± 10 V) ^{2, 3)}
7	7	Command value 2 (4 ... 20 mA/ ± 10 V) ²⁾
8	8	Enable acknowledgement, output stage 24 VDC ⁴⁾
9	9	not used
10	10	not used
11	11	Switching output 24 V (error signal or power switching signal) maximum 1.5 A ⁴⁾
PE	green-yellow	Functional ground (connected directly to metal housing)

- 1) Core marking of the connection lines for mating connector with cable set (see accessories on page 22)
- 2) Selection via commissioning software
- 3) For diagnostic purposes, precise actual value response via Ethernet interface
- 4) A load increases the current consumption on pin 1

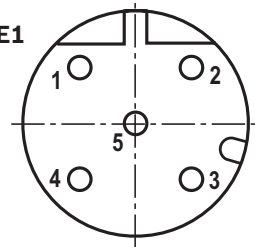
XH2



Connector pin assignment for Ethernet interface "X7E1" and "X7E2" (coding D), M12, 4-pole, socket

Pin	Assignment
1	TxD +
2	RxD +
3	TxD -
4	RxD -
5	not used

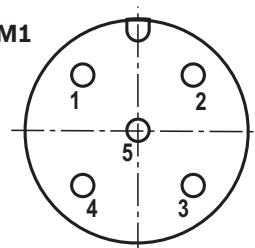
X7E1



Analog configurable sensor interfaces, connections "X2M1", "X2M2" (coding A), M12, 5-pole, socket

Pin	Assignment
1	+24 V voltage output (sensor supply) ^{1, 2)}
2	Sensor signal input current (4 ... 20 mA) ³⁾
3	GND
4	Sensor signal input voltage (0 ... 10 V) ³⁾
5	Negative differential amplifier input to pin 4 (optional)

X2M1

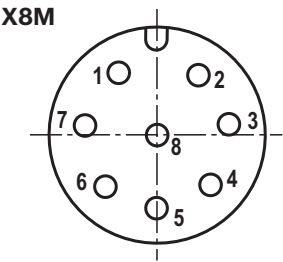


- 1) Voltage output equal to the voltage supply on input XH2! (Maximum load capacity, see page 12)
- 2) A load increases the current consumption of the valve (pin 1 on connector XH2)
- 3) Only one signal input per interface, configurable

Electrical connections, assignment

Digital sensor interface SSI, EnDat 2.2 or 1 Vss measurement system “X8M”, M12, 8-pole, socket

Pin	Allocation SSI ¹⁾	Allocation EnDat 2.2 ^{1; 2)}	1Vss pin assignment
1	GND	GND	GND
2	+24 V ³⁾	+5 V ³⁾	+5 V ³⁾
3	Data +	Data +	A +
4	Data -	Data -	A -
5	GND	GND	B +
6	Clock -	Clock -	B -
7	Clock +	Clock +	R +
8	+24 V ³⁾	+5 V ³⁾	R -

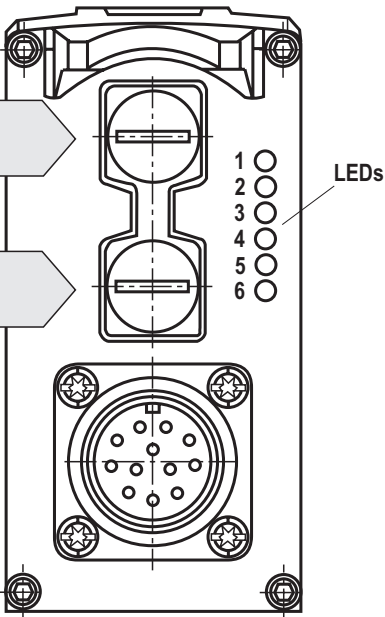


1) Pins 2, 8 and 1, 5 all with the same assignment
2) Supported resolution ≥ 10 nm
3) A load increases the current consumption of the valve (pin 1 on connector XH2)

-  **Notes:**
- ▶ Maximum load on pin 2 of the sensor interfaces “X2M1”, “X2M2” and “X8M” in total (sensor supply) 350 mA (1Vss, EnDat 2.2: 250 mA). This can be divided across “X2M1”, “X2M2” and “X8M” as desired.
 - ▶ SSI:
 - Coding: Gray-Code
 - Data width: adjustable 12 ... 28 bits
 - Line receiver / line driver: RS485
 - ▶ EnDat 2.2:
 - Interface (clock and data) according to EnDat specification in accordance with RS 485
 - Resolution: minimum 10 nm or higher
 - ▶ Reference potential for all signals: GND
 - ▶ We recommend connecting the shields on both sides via the metal housings of the plug-in connectors. Using connector pins will affect the effectiveness of the screen! Internal screens are not required.

LED display

LED	Interface	Sercos	EtherNET/IP	EtherCAT	PROFINET
1	X7E1	Activity	Activity	Not used	Activity
2		Link	Link	Link/activity	Link
3	Electronics module	S	Network status	Network status	Network status
4		Module status	Module status	Module status	Module status
5	X7E2	Activity	Activity	Not used	Activity
6		Link	Link	Link/activity	Link



Displays of the status LEDs

Module status LED (LED 4)	Status display
From	No voltage supply
Green-red, flashing	Initialization
Green, flashing	Drive ready
Green	Drive active
Orange flashing	Warning
Red, flashing	Error

Network status LED (LED 3)	Status display
From	No voltage supply
Green	Operation

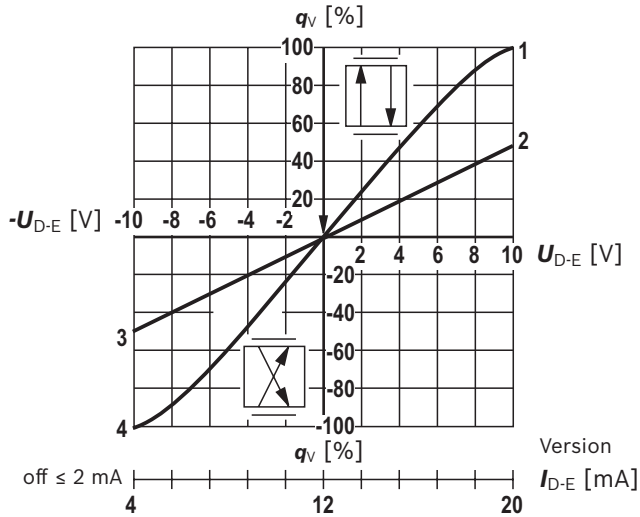
 Notes:

- ▶ LEDs 1, 2, 5 and 6 relate to interfaces “X7E1” and “X7E2”
 - Link: Cable plugged in, connection established (permanently lit)
 - Activity: Data sent/received (flashing)
- ▶ Module status LEDs 3 and 4 relate to the electronics module
- ▶ For a detailed description of the diagnosis LEDs, please refer to the functional description Rexroth HydraulicDrive HDS-xx.

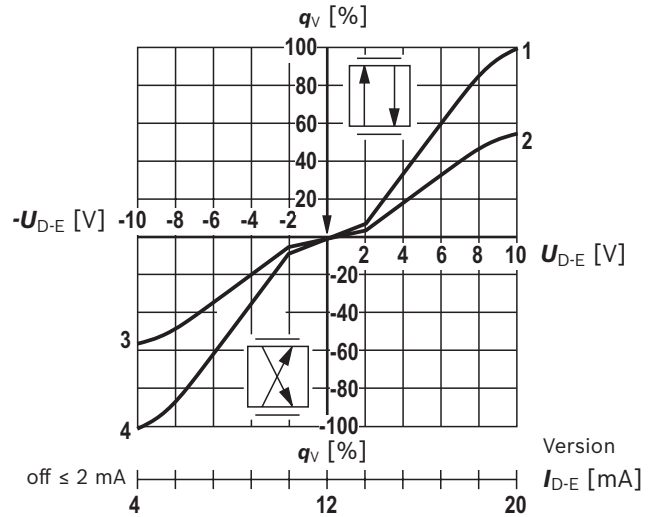
Characteristic curves: Characteristic curves
(measured with HLP46, $\vartheta_{oil} = 40 \pm 5 \text{ } ^\circ\text{C}$)

Flow/signal function $q_v = f(U_{D-E})$, $q_v = f(I_{D-E})$

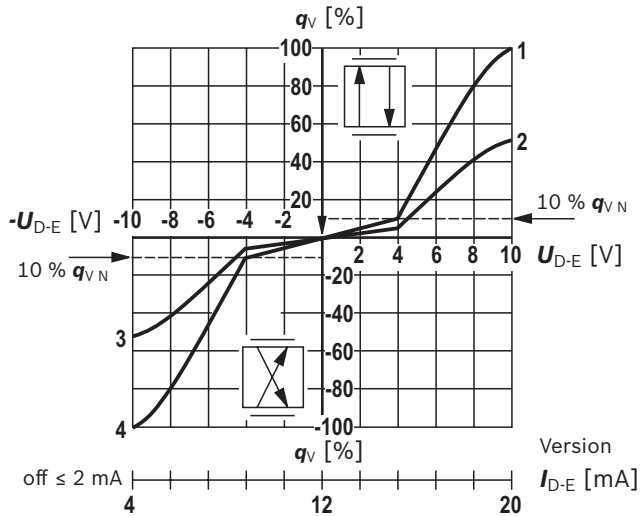
Linear characteristic curve (version “L”)



Progressive characteristic curve (version “M”)



Inflected characteristic curve (version “P”)

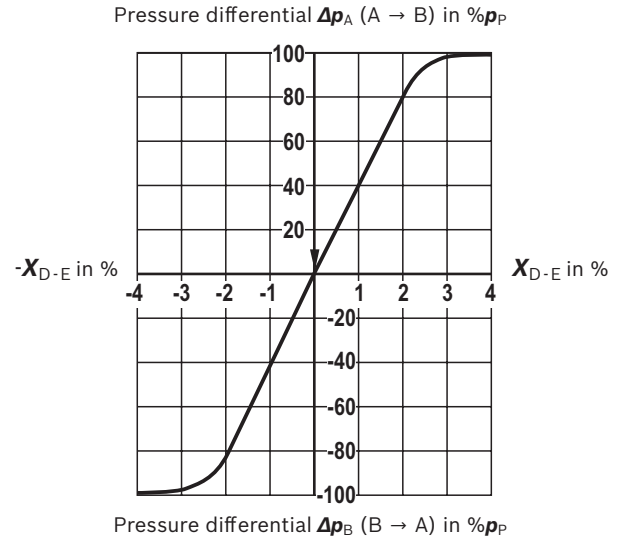
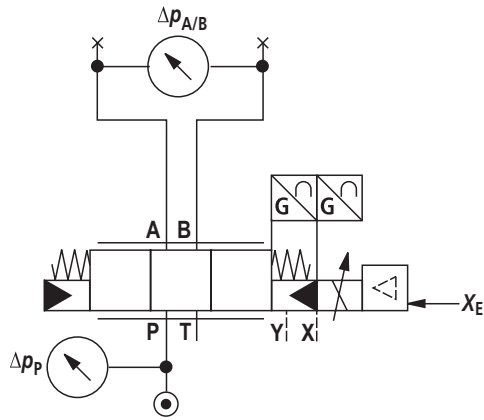


- 1 P-A; B-T (1:1)
- 2 B-T (2:1)
- 3 P-B (2:1)
- 4 P-B; A-T (1:1)

Characteristic curves

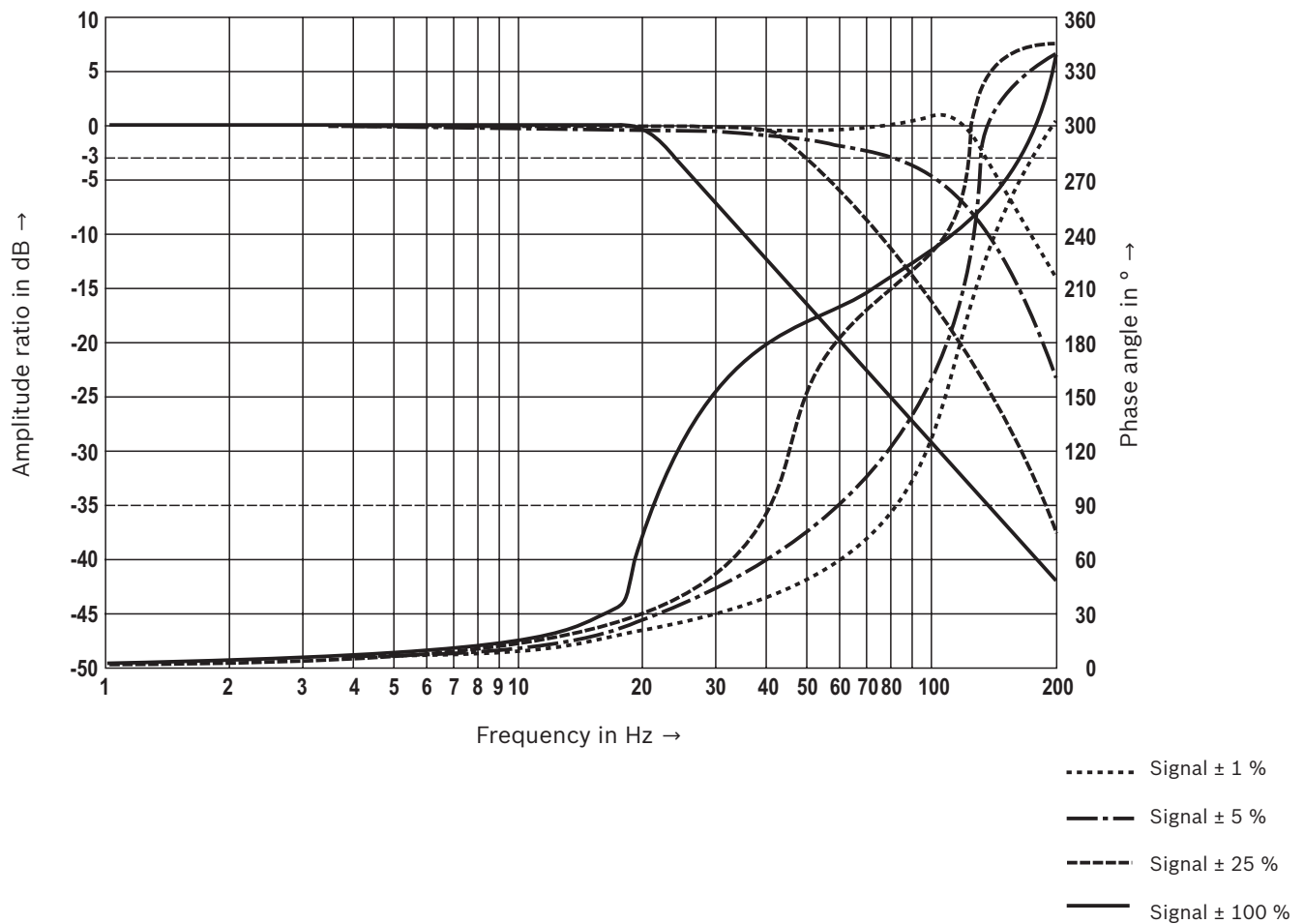
(measured with HLP46, $\vartheta_{oil} = 40 \pm 5 \text{ }^{\circ}\text{C}$)

Pressure/signal characteristic curve



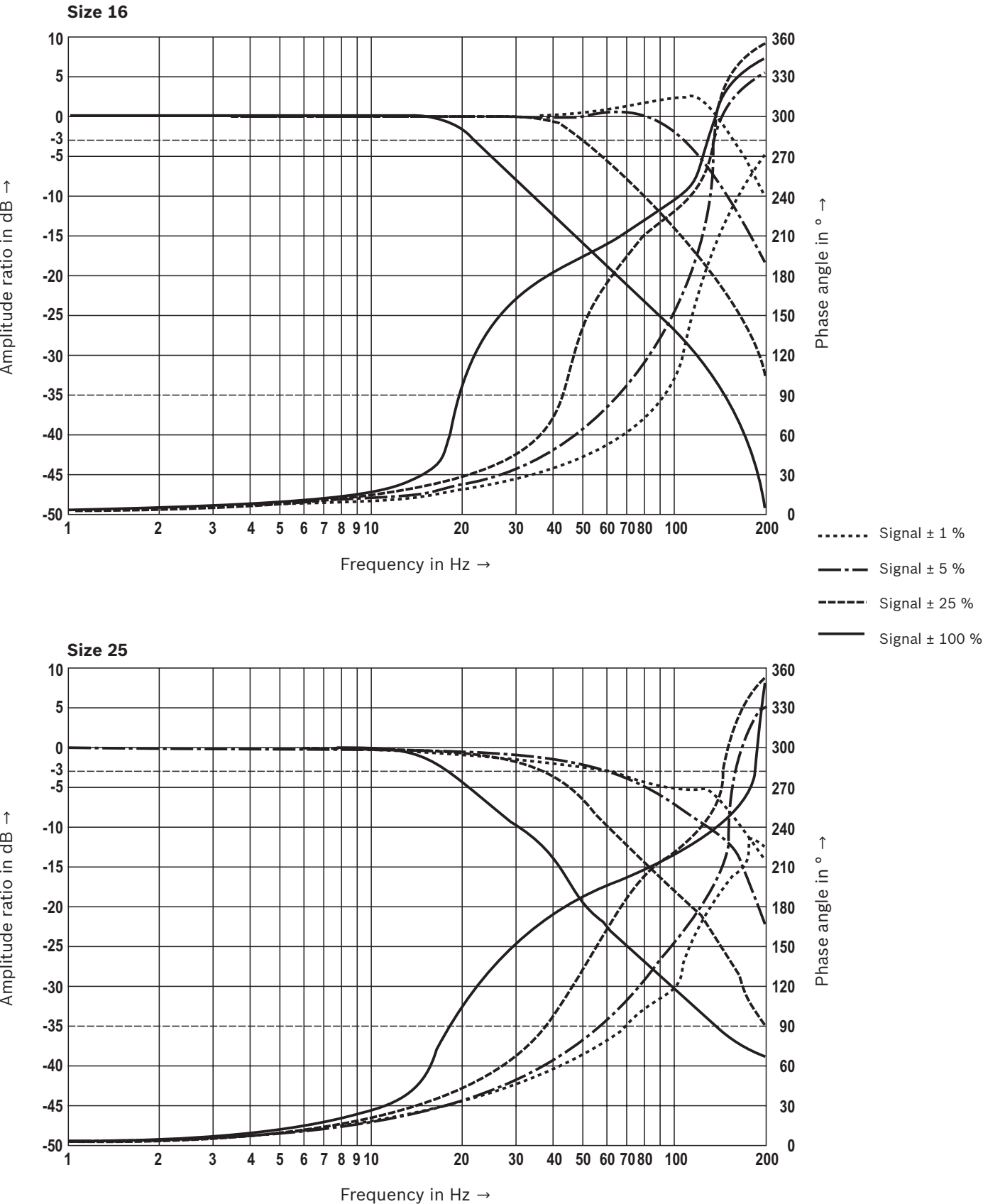
Frequency response (at 210 bar pilot pressure)

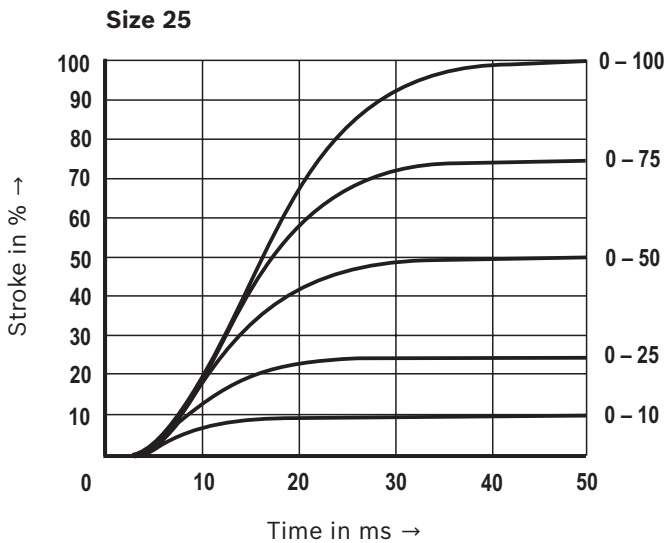
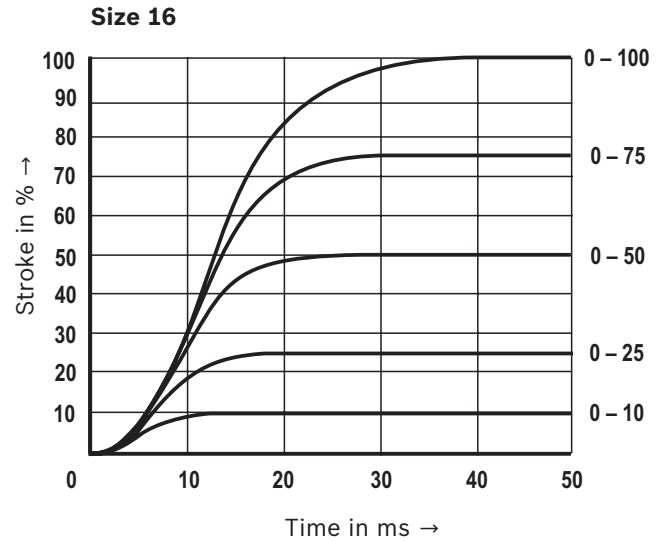
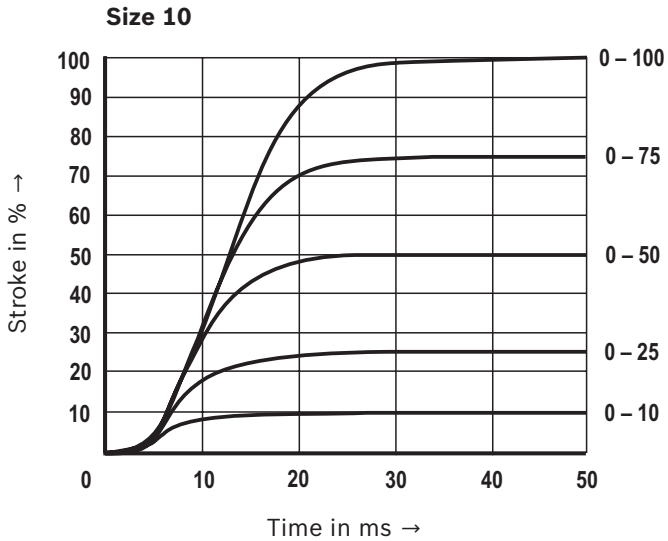
Size 10



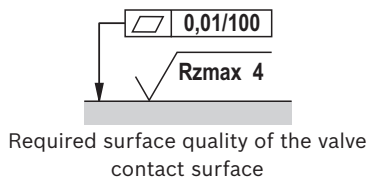
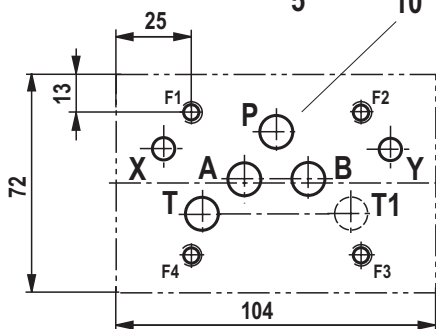
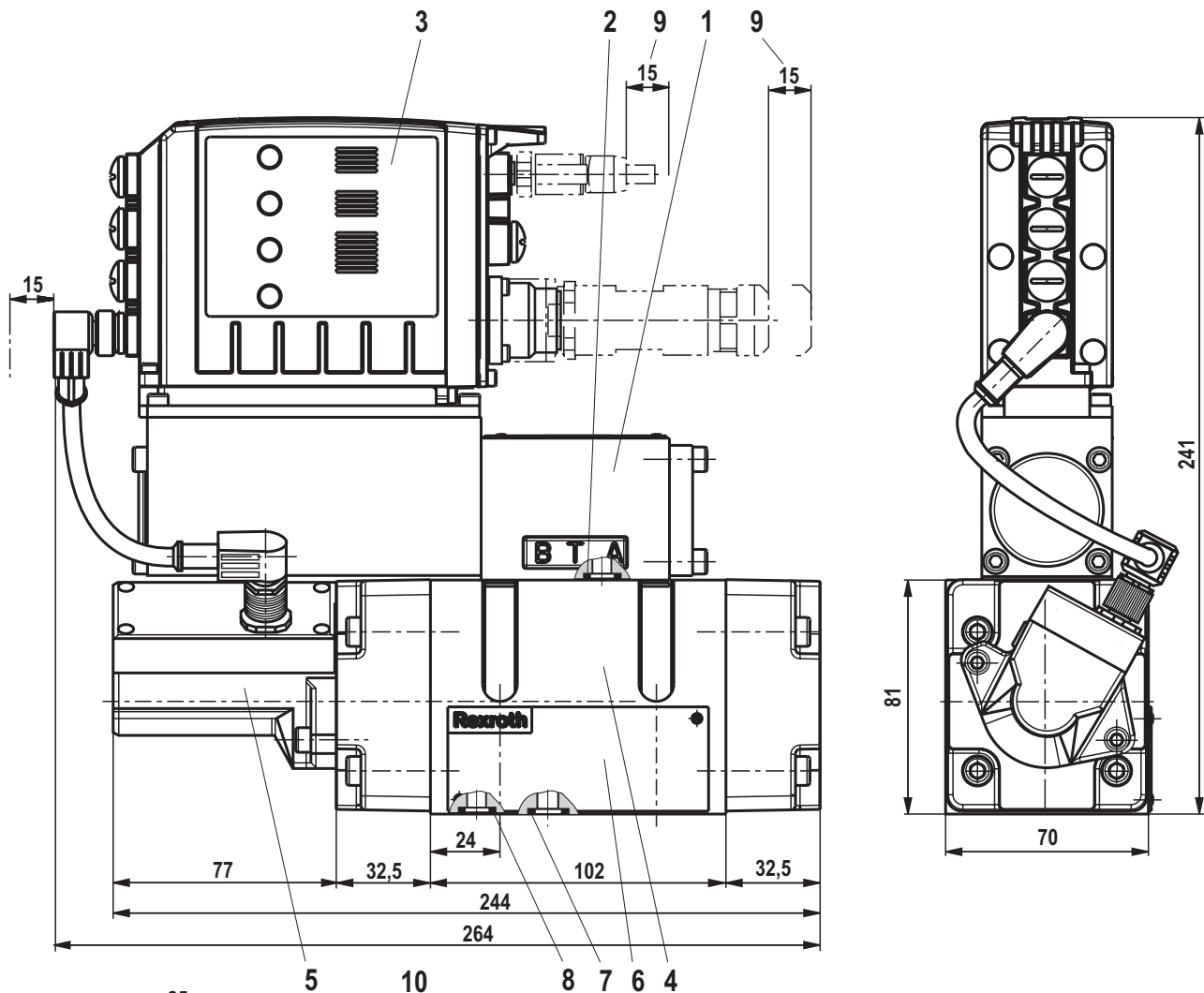
Characteristic curves
(measured with HLP46, $\vartheta_{oil} = 40 \pm 5 \text{ }^{\circ}\text{C}$)

Frequency response (at 210 bar pilot pressure)



Characteristic curves(measured with HLP46, $\vartheta_{oil} = 40 \pm 5 \text{ }^{\circ}\text{C}$)**Transition function with stepped electric input signals**

Dimensions: Size 10 (dimensions in mm)



- 1 Pilot control valve
- 2 Identical seal rings for ports P, A, B, T
- 3 Integrated digital control electronics
- 4 Main valve
- 5 Inductive position transducer (main valve)
- 6 Name plate
- 7 Identical seal rings for ports P, A, B, T, T1
- 8 Identical seal rings for ports X, Y
- 9 Space required for removing the mating connectors
- 10 Machined valve contact surface, porting pattern according to ISO 4401-05-05-0-05
Deviating from the standard:
Ports P, A, B, T, T1 $\varnothing$ 10.5 mm
Minimum screw-in depth: Ferrous metal 1.5 x $\varnothing$, non-ferrous 2 x $\varnothing$

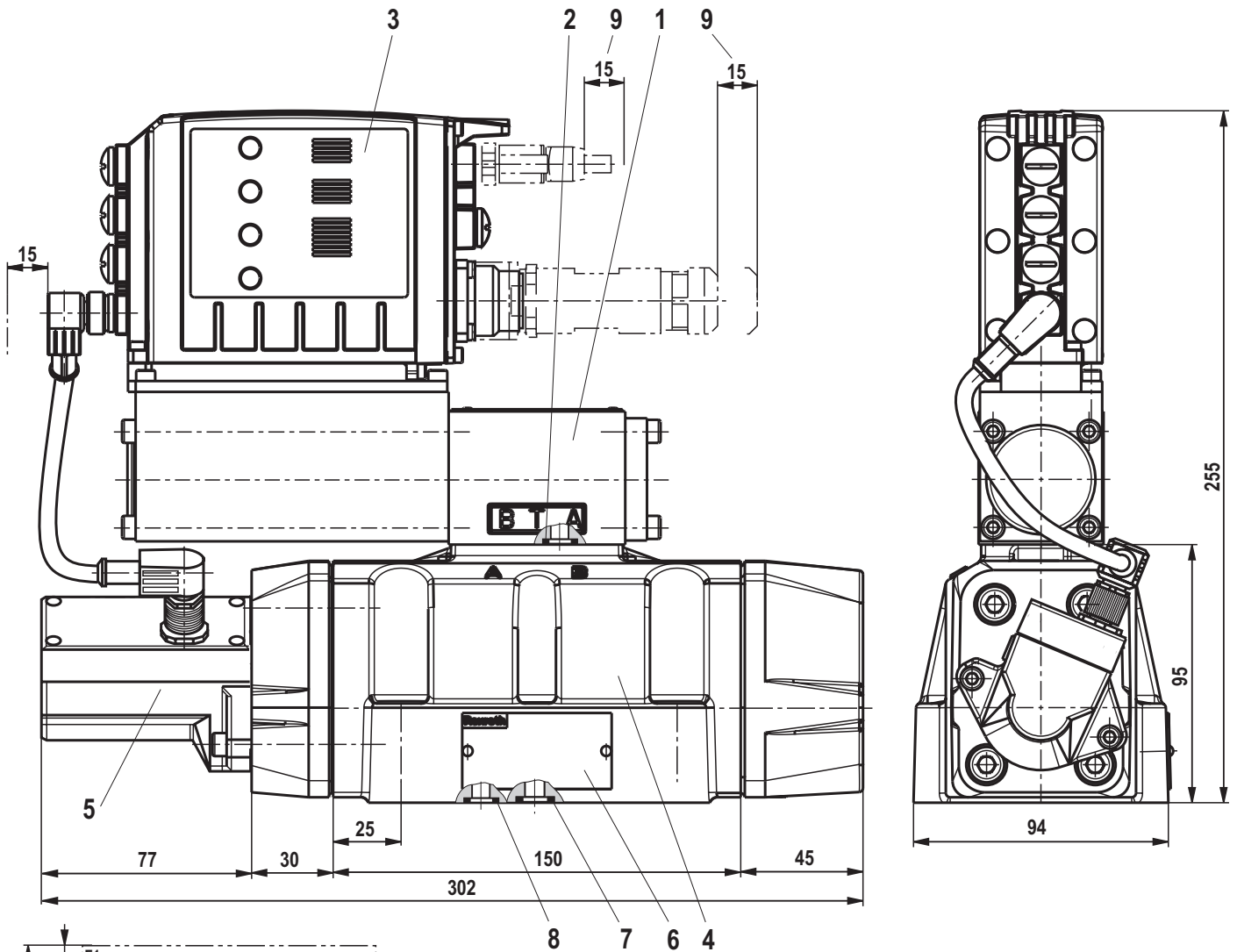


Notes:

The dimensions are nominal dimensions which are subject to tolerances.

For valve mounting screws and subplates see page 21.

Dimensions: Size 16
(dimensions in mm)



- 1 Pilot control valve
- 2 Identical seal rings for ports P, A, B, T
- 3 Integrated digital control electronics
- 4 Main valve
- 5 Inductive position transducer (main valve)
- 6 Name plate
- 7 Identical seal rings for ports P, A, B, T
- 8 Identical seal rings for ports X, Y
- 9 Space required for removing the mating connectors
- 10 Machined valve contact surface, porting pattern according to ISO 4401-07-07-0-05
Deviating from the standard:
Ports P, A, B, T $\varnothing$ 20 mm
Minimum screw-in depth: Ferrous metal 1.5 x $\varnothing$,
non-ferrous 2 x $\varnothing$

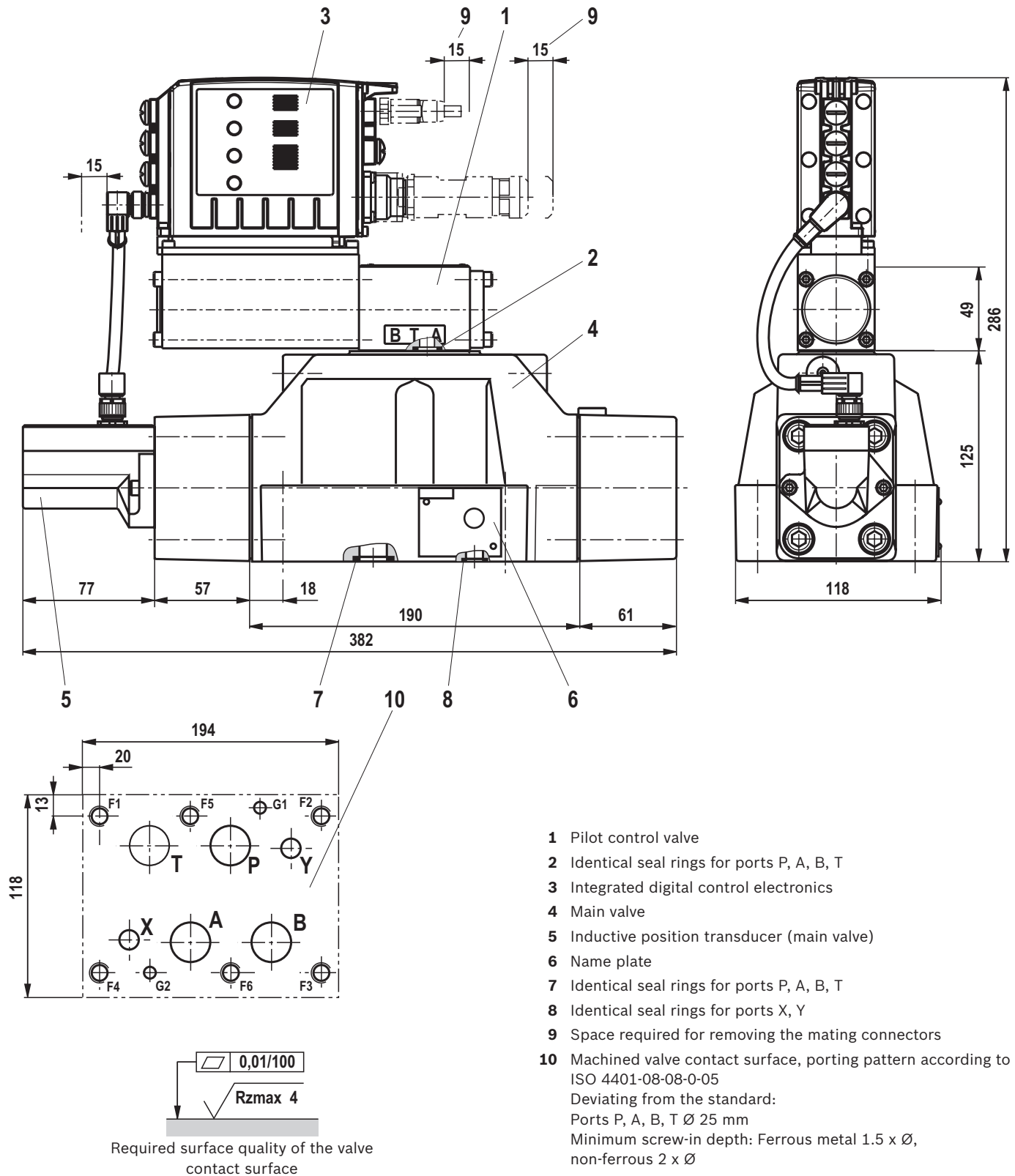
Required surface quality of the valve contact surface

Notes:

The dimensions are nominal dimensions which are subject to tolerances.

For valve mounting screws and subplates see page 21.

Dimensions: Size 25 (dimensions in mm)



Notes:

The dimensions are nominal dimensions which are subject to tolerances.

For valve mounting screws and subplates see page 21.

Dimensions

Valve mounting screws (separate order)

Size	Hex socket head cap screws	Material number
10	4 hexagon socket head cap screws ISO 4762-M6x40-10.9-N67F821 70 (galvanized according to Bosch standard N67F821 70) Tightening torque $M_A = 11^{+3}$ Nm	2910151209
16	2 hexagon socket head cap screws ISO 4762 - M6 x 45 - 10.9 - N67F821 70 (galvanized according to Bosch standard N67F821 70) (Tightening torque $M_A = 11^{+3}$ Nm	2910151211
	4 hexagon socket head cap screws ISO 4762 - M10 x 50 - 10.9 - N67F821 70 (galvanized according to Bosch standard N67F821 70) Tightening torque $M_A = 50^{+10}$ Nm	2910151301
25	6 hexagon socket head cap screws ISO 4762 - M12 x 60 - 10.9 - N67F821 70 (galvanized according to Bosch standard N67F821 70) Tightening torque $M_A = 90^{+30}$ Nm	2910151354


Note:

The tightening torque of the hexagon socket-head screws refers to the maximum operating pressure.

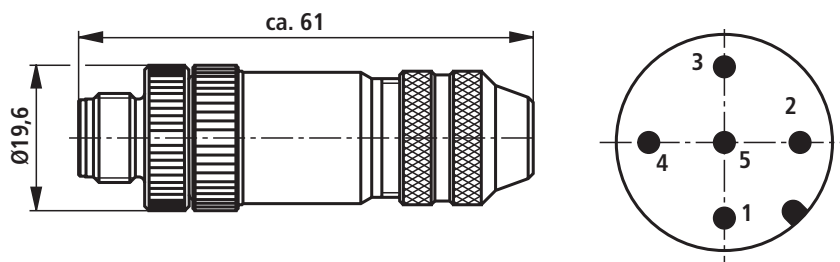
Subplates (separate ordering)

Size	Data sheet	Material number
10	45054	–
16	45056	–
25	45058	–

Accessories (separate order)

Sensor connections X2M1 and X2M2

Cable set (analog sensors)	Length in m	Material number
Cable set for connecting Rexroth Type HM20 pressure sensors, Shielded, 5-pole, A coding, PUR/PVC, straight connector M12, on straight socket M12, line cross-section 0.34 mm ²	0.6	R901111709
	1.0	R901111712
	2.0	R901111713
Connectors (analog sensors)	View, dimensions	Material number
Connectors, 5-pole, M12 x 1, pins, A coding, metal version (cable diameter 4 ... 6 mm)	see below	R901075542



Sensor connection X8M

Cable set (only SSI, 1Vss) ¹⁾	Length in m	Material number
Shielded, 8-pole, A coding, straight connector M12, on free line end, line cross-section 0.25 mm ²	10,0	R913002641

¹⁾ **Recommendation:** If an EnDat 2.2 sensor is used, please refer to the sensor manufacturer Heidenhain with respect to a cable set.

Accessories (separate order)

Ethernet connections X7E1 and X7E2

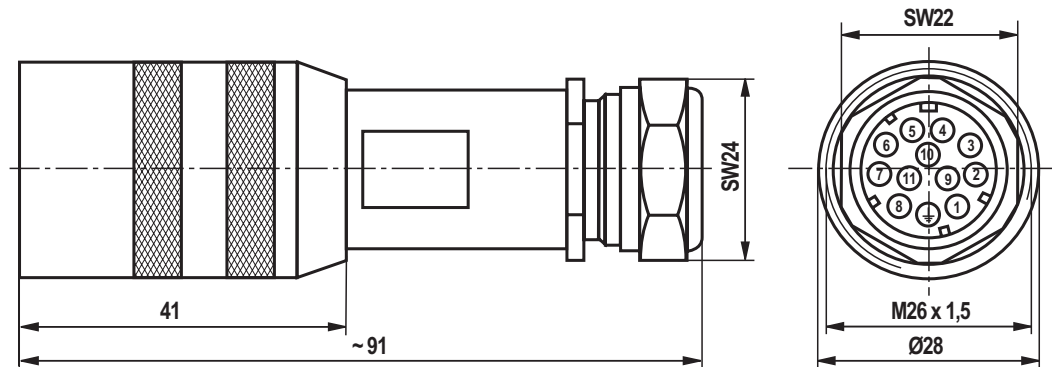
Cable set (Ethernet interface)	Length in m	Material number
Cable set, shielded, 4-pole, D coding, straight connector M12, on straight connector M12, line cross-section 0.25 mm², CAT 5e	freely selectable (= xx.x)	R911172111 (additionally indication of type designation RKB0040/xx.x)
Cable set, shielded, 4-pole, straight connector M12, on straight connector RJ45, line cross-section 0.25 mm², CAT 5e	freely selectable (= xx.x)	R911172135 (additionally indication of type designation RKB0044/xx.x)

Protective cap

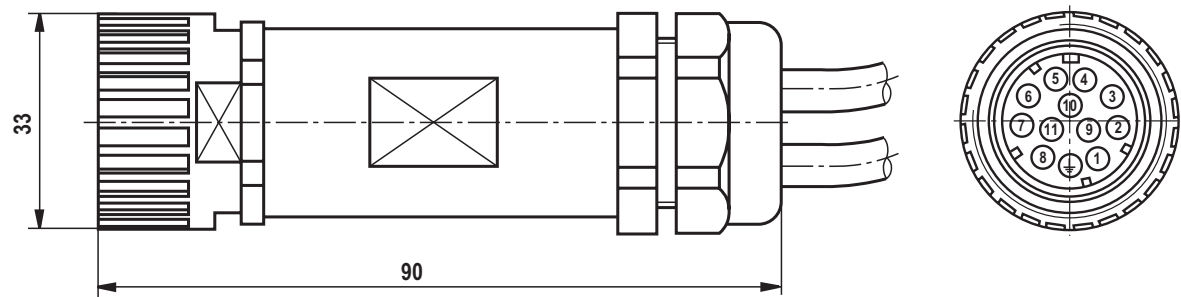
Protective cap M12	Version	Material number
		R901075563

Connection XH2

Mating connector	Version	Material number
Mating connector according to DIN EN 175201-804 (12-pole, metal design)	Mating connector (assembly kit) for a cable diameter of 12 ... 15 mm	R901268000
	Mating connector with 5 m cable, 12 x 0.75 mm² with cable shield, assembled	R901272854
	Mating connector with 20 m cable, 12 x 0.75 mm² with cable shield, assembled	R901272852



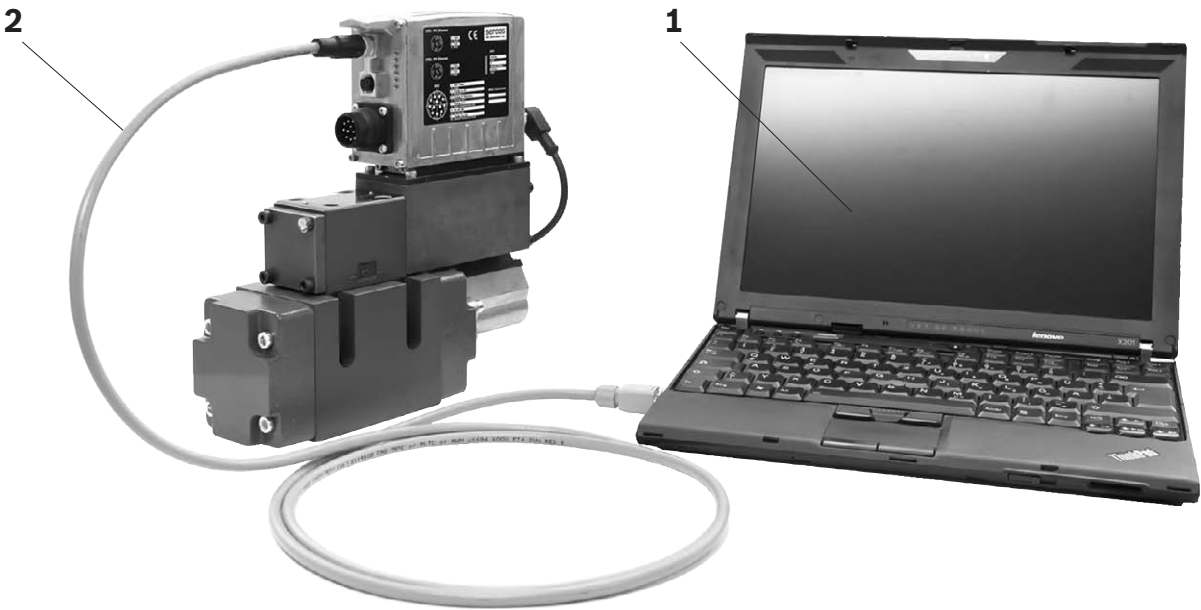
Mating connector in accordance with DIN EN 175201-804 (12-pole, plastic version)	Mating connector (assembly kit)	R900884671
	Mating connector with 2 x 5 m cable, supply line (3 x 1.0 mm²) and signal line (10 x 0.14 mm²) separated, with cable shield, assembled	R900032356
	Mating connector with 2 x 20 m cable, supply line (3 x 1.0 mm²) and signal line (10 x 0.14 mm²) separated, with cable shield, assembled	R900860399



Accessories (separate order)

Parameterization

The following is required for the parameterization via PC		Material number/download
1 Commissioning software	IndraWorks, Indraworks D, Indraworks DS	www.boschrexroth.com/IAC
2 Connection cable, 3 m	Shielded, M12 on RJ45, length can be freely chosen (= xx.x)	R911172135 (additionally indication of type designation RKB0044/xx.x)



Project planning and maintenance instructions

- ▶ The supply voltage must be permanently connected, as otherwise bus communication is not possible.
- ▶ If electromagnetic interference is to be anticipated, suitable measures must be taken to ensure the function (depending on the application, e.g. shielding, filtration)!
- ▶ The devices have been tested in the plant and are supplied with default settings.
- ▶ Only complete units can be repaired. Repaired devices are returned with default settings. User-specific settings are not maintained. The machine end-user will have to re-transfer the corresponding user parameters.

Further information

- ▶ Directional control valve with integrated digital axis controller (IAC-Multi-Ethernet, component series 2X)
- ▶ CE Declaration of Conformity
- ▶ Subplates

- ▶ Mineral oil-based hydraulic fluids
- ▶ Environmentally compatible hydraulic fluids
- ▶ Flame-resistant, water-free hydraulic fluids
- ▶ Hexagon socket-head screws metric/UNC
- ▶ Hydraulic valves for industrial applications
- ▶ Assembly, commissioning and maintenance of hydraulic systems
- ▶ Operation IAC-Multi-Ethernet electronics (xx = software version):
 - Functional description Rexroth HydraulicDrive HDS-xx
 - Parameter description Rexroth HydraulicDrive HDS-xx
 - Diagnosis description Rexroth HydraulicDrive HDS-xx
- ▶ Commissioning software and documentation on the Internet
- ▶ Filter range

Data sheets 29391 and 29391-B

on request

Data sheets 45054, 45056 and 45058

Data sheet 90220

Data sheet 90221

Data sheet 90222

Data sheet 08936

Data sheet 07600-B

Data sheet 07900

www.boschrexroth.com/IAC

www.boschrexroth.com/filter

Bosch Rexroth AG
 Hydraulics
 Zum Eisengiesser 1
 97816 Lohr am Main, Germany
 Phone +49 (0) 93 52/18-0
documentation@boschrexroth.de
www.boschrexroth.de

© All rights for this document, are the property of Bosch Rexroth AG, including registrations of industrial property rights. It may not be reproduced or transferred to third parties without our consent.

The data specified is only intended as a description of the product. No conclusions concerning a certain condition or suitability for a certain application can be derived from our information. The information provided does not release the user from the obligation to exercise their own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.