Rexroth Bosch Group

4/3 proportional directional valve, direct operated, with pQ functionality and field bus interface (IAC-P) **RE 29050/01.08** Replaces: 07.05 1/28

Type 4WREQ

Sizes 6 and 10 Component series 2X Maximum operating pressure 315 bar Maximum flow 180 l/min

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Features

 Direct operated proportional directional valve with integrated digital control electronics for the closed-loop control of pres- sure, force and flow (Integrated Axis Controller IAC-P)
 Completely matched unit consisting of valve, pressure sensor(s) (optional), digital closed-loop control electronics and field bus interface
 Actuation by proportional solenoid with central thread and detachable coil
 Position-controlled valve spool
 Integrated pressure sensor plate (optional)
 For subplate mounting: Porting pattern to ISO 4401
 Analog interfaces for command and actual values
 Version for CAN bus with CANopen protocol DS 408 or PROFIBUS-DP V0/V1
 Fast commissioning by means of PC and commissioning software WIN-PED 6



HAD 7099/03

Ordering code

	4WRE	Q			<u>–</u> 2	x/ \	/	-24	4			*	_
With integrated c	ligital electro ionality =	on- Q											Further details in clear text
Size 6 Size 10		=	= 6 10									Sens	or interface for external pressure sensor 4)
	A_B a 0 b P'T] ī	= 05-									2 = 3 = 4 = 9 = 0 =	4 to 20 mA 0 to 10 V 0 to 5 V 0.5 to 5 V Without external sensor interface
		<u> </u> <u> </u>	= 0.0 = V								A6 = F6 =	=	Electronics interface ⁵⁾ ±10 VDC 4 to 20 mA
Nominal flow ¹⁾ Size 6 8 /min				_ = 08						C = P =	L		Bus interface CAN bus DS 408 PROFIBUS-DP V0/V1
16 l/min 32 l/min				= 16 = 32					24 =				Supply voltage 24 VDC
Size 10 25 I/min 50 I/min 75 I/min				= 25 = 50 = 75				0 =				Positio	on of pressure sensors External sensor nternal sensor in channel
Component ser (20 to 29: unchang	ies 20 to 29 ed installation) 1 and c	onnection	dimens	= 2X sions)			A = B = C =					A B A + B
FKM - rectangul (HL, HLP) to DIM	ar rings sui V 51524	table	for miner	al oils		= V		F =	A		tion		P + A + B Ordering code
Pressure rating	with interna	l sens	ors				-		(Q con	trol		F
100 bar $\frac{2}{2}$							= 4 - 5		р со	ntrol o	nly in	A	A
250 bar ²⁾							= 8		р со	ntrol o	nly in	В	В
400 bar ³⁾ External sensor							= B = 0	р со	ntrol i	n A + trol	B or <i>I</i>	∆p con-	С

¹⁾ See flow characteristic curves starting on page 12.

 $^{\rm 2)}\,{\rm The}$ selected pressure rating limits the max. valve pressure.

³⁾ Attention: Maximum valve pressure 315 bar

⁴⁾ When internal pressure sensors are used, no external pressure sensor may be connected.

Symbols

⁵⁾ With command value input "A6" only sensor interfaces "3", "4" or "9" are possible.

With command value input "F6" only sensor interface "2" is possible.



Standard types

Size 6

Туре	Material no.
4WREQ 6 Q5-08-2X/V8F-24CA60	R901078399
4WREQ 6 Q5-16-2X/V8F-24CA60	R901054623
4WREQ 6 Q5-32-2X/V8F-24CA60	R901054625
4WREQ 6 Q5-08-2X/VBF-24CA60	R901078402
4WREQ 6 Q5-16-2X/VBF-24CA60	R901078403
4WREQ 6 Q5-32-2X/VBF-24CA60	R901078404
4WREQ 6 Q5-08-2X/V5C-24PF60	R901136691
4WREQ 6 Q5-16-2X/V5F-24PA60	R901164003
4WREQ 6 Q5-32-2X/V5A-24PF60	R901174304
4WREQ 6 V08-2X/V5F-24PF60	R901166349

Size 10

Туре	Material no.
4WREQ1 0 Q5-25-2X/V8F-24CA60	R901054628
4WREQ 10 Q5-50-2X/V8F-24CA60	R901054633
4WREQ 10 Q5-25-2X/VBF-24CA60	R901078407
4WREQ 10 Q5-50-2X/VBF-24CA60	R901078409
4WREQ 10 Q5-75-2X/V8F-24PA60	R901188093

Structure, function, section (valve with integrated sensors)

Structure

The valve basically consists of:

- Housing (1) and pressure sensor plate (12) with connection face
- Control spool (2) with compression springs (3 and 4) and spring plates (8 and 9)
- Coils (5 and 6) and pole tubes (14 and 15) with central thread
- Position transducer (7)
- Integrated pressure sensors (10)
- Integrated digital closed-loop control electronics IAC-P (11)

Continued on page 4



Note:

Draining of the tank line must be prevented. If the installation situation allows, install a suitable pre-load valve.

Structure, function, section (valve with integrated sensors)

Continued from page 3

Functional description

- When solenoids (5 and 6) are de-energized, control spool (2) is brought by compression springs (3 and 4) between spring plates (8 and 9) to the central position (if V-spool is used, without spring plates). With V-spools, the mechanical zero position is not identical with the hydraulic zero position.
- Depending on the valve type, the following functions can be performed (in some cases, combinations are possible):
- Open-loop flow control (Q)
- Closed-loop flow control (Q)
- Closed-loop pressure control in A and/or B (p)
- Closed-loop force control (p)
- Alternating closed-loop control of p/Q
- The command values can be fed forward alternatively via an analog interface (X1) or via the field bus interface (X2, X3).
- The actual value signals are made available via an analog interface (X1) and can be read out additionally via the field bus (X2, X3).
- The controller parameters are adjusted via the field bus
- For safety reasons, separate supply voltage for bus/controller and power part (output stage)

The digital integrated control electronics allows the following faults to be detected:

- Cable break of pressure sensor (10)
- Undervoltage
- Cable break of position transducer (7)
- Communication error
- Watchdog
- Cable break of command value inputs (with current interface only)

The following additional functions are available:

- Ramp generator
- Internal command value profile
- Enable function analog/digital
- Fault output 24 V

PC program WIN-PED 6

For performing engineering work and parameterizing IAC-P valves, the user can utilize the commissioning software WIN-PED 6.

- Parameterization
- Diagnosis
- Comfortable data administration on a PC

System requirements

- IBM PC or compatible system
- Windows 2000 or Windows XP
- RAM (recommendation 256 MB)
- 150 MB free hard disk space

Note

 The program "WIN-PED 6" is not included in the scope of supply. It can be downloaded free of charge on the Internet! (See page 24)

Structure, function, section (valve for external sensor)

Structure

The valve basically consists of:

- Housing (1) with mounting face
- Control spool (2) with compression springs (3 and 4) and spring plates (8 and 9)
- Coils (5 and 6) and pole tubes (10 and 11) with central thread
- Position transducer (7)
- Integrated digital closed-loop control electronics IAC-P (12)
- Connection (X4) for an external pressure sensor (14)

Structure, function, section (valve for external sensor)

Continued from page 4

Functional description

- When solenoids (5 and 6) are de-energized, control spool (2) is brought by compression springs (3 and 4) between spring plates (8 and 9) to the central position (if V-spool is used, without spring plates). With V-spool, the mechanical zero position is not identical with the hydraulic zero position.
- Functions:
 - Open-loop flow control (Q)
 - Closed-loop pressure control (p)
 - Alternating closed-loop control of p/Q
- The command values can be fed forward alternatively via an analog interface (X1) or via the field bus interface (X2, X3).
- The actual value signals are made available via an analog interface (X1) and can be read out additionally via the field bus (X2, X3).
- The controller parameters are adjusted via the field bus
- For safety reasons, separate supply voltage for bus/controller and power part (output stage)

The digital integrated control electronics allow the following faults to be detected:

- Cable break of pressure sensor supply cable (depending on pressure sensor interface)
- Undervoltage
- Cable break of position transducer (7)
- Communication error

- Watchdog
- Cable break of command value inputs (with current interface only)

The following additional functions are available:

- Ramp generator
- Internal command value profile
- Enable function analog/digital
- Fault output 24 V

PC program WIN-PED 6

For performing engineering work and parameterizing the IAC-P valves, the user can utilize the commissioning software WIN-PED 6.

- Parameterization
- Diagnosis
- Comfortable data administration on a PC

System requirements

- IBM PC or compatible system
- Windows 2000 or Windows XP
- RAM (recommendation: 256 MB)
- 150 MB free hard disk space

Note

 The program "WIN-PED 6" is not included in the scope of supply. It can be downloaded free of charge on the Internet! (See page 24)



Technical data (for applications outside these parameters, please consult us!)

General				Size 6 Size10				
Installation position				Optionally, preferably horizontal				
Storage temperature ra	ange		°C	-20 +80				
Ambient temperature r	ange		-20 +50					
Weight with sandwich	plate (3 sensors)		kg	3.6	8.5			
Weight without sandw	ich plate		kg	2.4	6.5			
Hydraulic (measur	red with HLP4	6, $\vartheta_{oil} = 40 \text{ °C} \pm$	5 °C)					
Operating pressure ¹⁾		100 bar	bar	up to 100				
Porto P A B	with concor	160 bar	bar	up to 160				
Г 0115 Г, А, В	with sensor	250 bar	bar	up to 250				
		400 bar	bar	up to 315				
		100 bar	bar	up to 100				
Port T	with consor	160 bar	bar	up to 160				
TOILT	with sensor	250 bar	bar	up to 210				
		400 bar	bar	up to 210				
Nominal flow $q_{V nom}$ at	$\Delta p = 10$ bar		l/min	8	25			
See flow characteristic	curves from pag	e 18 on		16	50			
				32	75			
Max. permissible flow			l/min	80 180				
Hydraulic fluid				Mineral oil (HL, HLP) to DIN 51524, further hydraulic fluids on request				
Hydraulic fluid tempera	ature range		°C	-20 +70, preferably +40 +50				
Viscosity range			mm²/s	20 380, preferably 30 46				
Permissible max. degree cleanliness class to IS	ee of contamination O 4406 (c)	on of the hydraulic flui	d -	Class 20/18/15 ²⁾				
Hysteresis (closed-loo	p position contro	- valve spool)	%	≤ 0.1				
Range of inversion (close	ed-loop position co	ontrol - valve spool)	%	≤ 0.05				
Response sensitivity (clo	sed-loop position o	control - valve spool)	%	≤ 0.05				
Valve spool zero point	drift upon change	of hydraulic fluid	%/10 K	< 0.15				
temperature and opera	ting pressure		%/100 bar	< 0.1				
Electrical								
Supply voltage	Nominal volta	ge	VDC	24				
	Lower limit va	ue	VDC	19.4				
	Upper limit va	lue	VDC	35				
	Max. permissibl	e residual ripple content	Vss	2				
Current consumption	/ max		Α	2				
	Impulse curre	nt	A	3				
Command and	Voltage "A6"	U _Q	V	±10				
actual value signals		Up	V	010				
	Current "F6"	$I_{\rm Q}$ and $I_{\rm p}$	mA	4 20				
Converter resolution (c	command/actual	value signals)	Bit	10				
Duty cycle 3)			%	100				
Max. coil temperature 4	1)		°C	up to 150				
Type of protection of v	alve to EN 60529):1991+A1:2000	IP 65 with plug-in connectors mounted and locked					

Technical data (for applications outside these parameters, please consult us!)

Sensorics		Sizes 6 and 10					
Measuring range	ρ _N	bar	100	160	250	400	
Overload safety	p _{max}	bar	200	320	500	800	
Burst pressure	р	bar	400	640	1000	1600	
Calibration error						·	
Zero point			< 0.25 % of final value				
Final value			< 0.5 %				
Temperature coefficient within the nomin	al temperature range						
Highest TC of zero point			< 0.2 % / 10 K				
Highest TC of range			< 0.2 % / 10 K				
Characteristic curve deviation			< 0.2 %				
Hysteresis		< 0.1 %					
Repeatability		< 0.05 %					
Long-term drift (1 year) under reference	conditions	< 0.2 %					

With an external pressure sensor, the accuracy of the closedloop pressure control depends on the accuracy class of the sensor used.

If Note!

For details regarding environment simulation tests in the fields of EMC (electromagnetic compatibility), climate and mechanical stress, see RE 29050-U (declaration on environmental compatibility).

¹⁾ Operating pressure, due to valve and sensor

- ²⁾ The cleanliness classes specified for components must be adhered to in hydraulic systems. Effective filtration prevents malfunction and, at the same time, prolongs the service life of components. For the selection of filters, see data sheets RE 50070, RE 50076 and RE 50081.
- ³⁾ Apply supply voltage for the valve only when required for the functional sequence of the machine.
- ⁴⁾ Due to the surface temperatures of solenoid coils, observe European standards ISO 13732-1 and EN 982!

Closed-loop control electronics (IAC-P), identification and adjustment elements



- 2 Production order number
- **3** Date of production
- 4 Serial number
- 5 Type designation, e.g. 4WREQ...-2X/...
- 6 DIL switch for address and baud rate setting (position B0 on the right), see page 10

Closed-loop control electronics (IAC-P), electrical connections and pinout

Plug-in connector pinout X1, 11-pin + PE to DIN EN 175201-804

Pin	No. or litz wire color ¹⁾	Pinout of interface A6	Pinout of interface F6				
1	1	24 VDC $(u(t) = 19.4 \text{ V})$.	35 V), / _{max} = 1.7 A (for output stage)				
2	2	$0 V riangle ext{load ze}$	ro, reference for pins 1 and 9				
3	white	Enable inp	ut 9 35 V $ riangle$ enable ON				
4	yellow	±10 V command value Q $R_{\rm i}$ > 50 kΩ	420 mA command value Q $R_i = 100 \Omega$				
5	green	Reference for command values Q and P					
6	violet	± 10 V actual value Q (limit load 5 mA)	420 mA actual value Q (load resistance max. 300 Ω)				
7	pink	0 10 V command value P $R_{\rm i}$ > 50 k Ω	420 mA command value P $R_{\rm i} = 100 \Omega$				
8	red	0 10 V actual value P (limit load 5 mA)	420 mA actual value P (load resistance max. 300 Ω)				
9	brown	Control voltage, level like pin 1, $I_{max} = 0.3$ A (for signal part and bus)					
10	black	0V reference potential for pins 3,	6, 8 and 11 (connected to pin 2 within the valve)				
11	blue	Fault output 24 V(19.4 V 35 V), 200 mA max. load				
PE	green-yellow	Connected to	heat sink and valve housing				

Connect shield to PE only on the supply side!

¹⁾ Litz wire color of connection cable for mating connector with cable set (see Accessories)



Closed-loop control electronics (IAC-P), electrical connections and pinout

switches.

Connector plug pinout for CAN bus "X2"/"X3" (coding A), M12, 5-pin, male/female

Pin	Assignment
1	n. c.
2	n. c.
3	CAN_GND
4	CAN_H
5	CAN L

Baud rate kbit/s 20 to 1000 Bus address 1 to 127 CAN-specfic settings: The baud rate and identifier can be set via the bus system or by means of the DIL



Connector plug pinout for PROFIBUS-DP, "X2"/"X3" (coding B), M12, 5-pin, male/female

Pin	Assignment						
1	+5V						
2	RxD/TxD-N (A-cable)						
3	D GND						
4	RxD/TxD-P (B-cable)						
5	Shield						

Baud rate up to 12 MBaud Bus address 1 to 126 Setting by means of DIL switches



Δ

X2

The +5-V voltage of the IAC-P is available for an external terminating resistor.

External pressure sensor connection "X4" (coding A), M12, 5-pin, female

Pin	Assignment voltage interface	Assignment current interface				
1	Supply 24 VDC	Supply 24 VDC				
2	Signal (0+5 V)	Signal (420 mA)				
3	Zero 0 V (GND)	Zero 0 V (GND)				
4	n. c.	n. c.				
5	n. c.	n. c.				



Note:

We recommend that the shields be connected on both sides via the metal housings of the plug-in connectors. The use of plug pins deteriorates the shield effect! Internal shields are not required.

Closed-loop control electronics (IAC-P), settings for CANopen and PROFIBUS-DP

CANopen

B7	B6	B5	B4	B3	B2	B1	B0	HEX	Baud rate: B7, B6	Address range: B5 to B0
	0	0	0	0	0	0	0	00 1)	Standard 20 kBaud	1 = standard or
	0		0	0	0	0	0	00 /	or reprogrammed	reprogrammed
0	0	0	0	0	0	0	1	01		
					to			to	20 kBaud	1 to 63
0	0	1	1	1	1	1	1	ЗF		
0	1	0	0	0	0	0	0	40	125 kBaud	1 = standard or
			0	0	0	0	0	40		reprogrammed
0	1	0	0	0	0	0	1	41		
					to			to	125 kBaud	1 to 63
0	1	1	1	1	1	1	1	7F		
1	0	0	0	0	0	0	0	80	250 kBaud	1 = standard or
'	0		0	0	0	0	0	00	200 (Daud	reprogrammed
1	0	0	0	0	0	0	1	81		
					to			to	250 kBaud	1 to 63
1	0	1	1	1	1	1	1	BF		
1	1	0	0	0	0	0	0	CO	500 kBaud	1 = standard or
'			0	0	0	0	0	00		reprogrammed
1	1	0	0	0	0	0	1	C1		
					to			to	500 kBaud	1 to 62
1	1	1	1	1	1	1	0	FE		
										Monitoring mode/
1	1	1	1	1	1	1	1	FF	250 kBaud	programming mode
										1 = fest

PROFIBUS-DP

B7	B6	B5	B4	B3	B2	B1	B0	HEX	Address range
0	0	0	0	0	0	0	0	00 1)	125 = Standard or reprogrammed
0	0	0	0	0	0	0	1	01	1 to 126
					to			to	
0	1	1	1	1	1	1	0	7E	with parameter channel
1	0	0	0	0	0	0	0	80	1 to 106
					to			to	
1	1	1	1	1	1	1	0	FE	without parameter channel
1	1	1	1	1	1	1	1	FF	Monitoring mode address 125

¹⁾ Factory setting



Activation of the bus termination using the two lower switches (with PROFIBUS-DP only):

Graphic on the left: Graphic on the right: Bus termination not activated Bus termination activated (both switches to "ON")



Closed-loop control electronics (IAC-P), block circuit diagram

	to a flow from $P \rightarrow B$ and $A \rightarrow T$.				
Connection cable:	Recommendation:	– up to 25 m cable length for pins 1; 2 and PE: 0.75 mm ² , otherwise 0.25 mm ² – up to 50 m cable length for pins 1; 2 and PE: 1.00 mm ²			
	For outer diameter, see m	ating connector sketch:			

A positive actual value of 0 to +10 V (or 12 to 20 mA) at pin 6 and reference potential at pin 10 corresponds

A negative actual value of 0 to -10V (or 12 to 4 mA) at pin 6 and reference potential at pin 10 corresponds

¹⁾ The protective conductor (PE) is connected to the heat sink and the valve housing

flow from $P \rightarrow B$ and $A \rightarrow T$.

to a flow from $P \rightarrow A$ and $B \rightarrow T$.

Actual value:

²⁾ Pressure transducers in P, A, B and T according to the ordering code or external pressure sensor via the 5-pin M12 mating connector X4

Pressure/signal characteristic curve (Q5 spool), $p_s = 100$ bar



Pressure/signal characteristic curve (V spool), $p_{\rm s}^{}=$ 100 bar



Tolerance range of the mechanical zero position



Flow, size 6 with V spool



Flow/load function, size 6 with Q5 spool at max. valve aperture



Flow/load function, size 6 with V spool at max. valve aperture





Frequency response, size 6 with Q5 spool, $p_s = 10$ bar







Pressure/signal characteristic curve (Q5 spool), $p_{\rm s} = 100$ bar



Pressure/signal characteristic curve (V spool), $\rho_{\rm s}$ = 100 bar



Tolerance range of mechanical zero position

Characteristic curves size 10 (measured with HLP46, $\vartheta_{oil} = 40$ °C ± 5 °C)



Flow, size 10 with V spool



Flow/load function, size 10 with Q5 spool at max. valve aperture



Flow/load function, size 10 with V spool at max. valve aperture



Characteristic curves size 10 (measured with HLP46, $\vartheta_{oil} = 40$ °C ± 5 °C)



Frequency response, size 10 with Q5 spool, $p_s = 10$ bar



Frequency response, size 10 with V spool, $p_s = 10$ bar



Unit dimensions size 6 (dimensions in mm)



- 3 Proportional solenoid "b"
- 4 R-ring 9.81 x 1.5 x 1.78 (ports P, A, B, T)
- 5 Space required to remove mating connector
- 6 Integrated digital closed-loop control electronics
- 7 Mating connector to DIN EN 175201-804; separate order, see page 25
- 8 Nameplate
- 9 Integrated pressure transducers
- 10 Machined valve mounting face, porting pattern to ISO 4401-03-02-0-05
 - Deviating from standard:
 - Ports P, A, B, T Ø8 mm
 - Bore G is not required, since the valve is not provided with a pin.

Subplates according to data sheet RE 45052 and valve mounting screws must be ordered separately.

Subplates:	
------------	--

G341/01 (G1/4) G342/01 (G3/8) G502/01 (G1/2)

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Valve mounting screws:

4 hexagon socket head cap screws ISO 4762-M5x90-10.9-flZn-240h-L (Friction coefficient $~\mu_{\rm total}$: 0.09-0.14 to VDA 235-101) tightening torque $M_{\rm T}$ = 8.9 Nm \pm 10 % Material no. R913000222

Unit dimensions size 6 (dimensions in mm)



Type 4WREQ for external pressure sensor

- 1 Valve housing
- 2 Proportional solenoid "a" with inductive position transducer
- 3 Proportional solenoid "b"
- 4 R-ring 9.81 x 1.5 x 1.78 (ports P, A, B, T)
- 5 Space required to remove mating connector
- 6 Integrated digital closed-loop control electronics
- 7 Mating connector to DIN EN 175201-804; separate order, see page 25
- 8 Nameplate
- 9 Machined valve mounting face, porting pattern to ISO 4401-03-02-0-05

Deviating from standard:

- Ports P, A, B, T Ø8 mm

- Bore G is not required, since the valve is not provided with a pin.

Subplates according to data sheet RE 45052 and valve mounting screws must be ordered separately.

Subplates:	G341/01 (G1/4)
	G342/01 (G3/8)
	G502/01 (G1/2)

Valve mounting screws:

- 4 hexagon socket head cap screws ISO 4762-M5x50-10.9-flZn-240h-L (Friction coefficient $\mu_{total} = 0.09$ to 0.14) tightening torque $M_T = 7$ Nm ± 10 %, Material no. **R913000064** or
- 4 hexagon socket head cap screws ISO 4762-M5x50-10.9 (Friction coefficient $\mu_{\text{total}} = 0.12$ to 0.17) tightening torque $M_{\text{T}} = 8.9$ Nm ± 10 %

Unit dimensions size 10 (dimensions in mm)





- 1 Valve housing
- 2 Proportional solenoid "a" with inductive position transducer
- 3 Proportional solenoid "b"
- **4** R-ring 13.0 x 1.6 x 2.0 (ports P, A, B, T1, T2)
- 5 Integrated digital closed-loop control electronics
- 6 Mating connector to DIN EN 175201-804; separate order, see page 25
- 7 Nameplate
- 8 Integrated pressure transducers
- 9 Machined valve mounting face, porting pattern to ISO 4401-05-04-0-05

Subplates according to data sheet RE 45054 and valve mounting screws must be ordered separately.

Subplates:	G66/01 (G3/8)	
	G67/01 (G1/2)	
	G534/01 (G3/4)	

- Valve mounting screws:
- 4 hexagon socket head cap screws ISO 4762-M6x80-10.9-flZn-240h-L (Friction coefficient $\mu_{total} = 0.09$ to 0.14) tightening torque $M_T = 12.5$ Nm \pm 10 %, Material no. **R913000512** (separate order) or
- 4 hexagon socket head cap screws ISO 4762-M6x80-10.9 (Friction coefficient $\mu_{total} = 0.12$ to 0.17) tightening torque $M_T = 15.5$ Nm ± 10 %

Unit dimensions size 10 (dimensions in mm)



Type 4WREQ for external pressure sensor

- 1 Valve housing
- 2 Proportional solenoid "a" with inductive position transducer
- 3 Proportional solenoid "b"
- 4 R-ring 13.0 x 1.6 x 2.0 (ports A, B, P, T, T1)
- 5 Integrated digital closed-loop control electronics
- 6 Mating connector to DIN EN 175201-804; separate order, see page 25
- 7 Nameplate
- 8 Machined valve mounting face, porting pattern to ISO 4401-05-04-0-05

Subplates according to data sheet RE 45054 and valve mounting screws must be ordered separately.

Subplates:	G66/01 (G3/8)	
	G67/01 (G1/2)	
	G534/01 (G3/4)	

Valve mounting screws:

- 4 hexagon socket head cap screws ISO4762-M6x40-10.9-flZn-240h-L (Friction coefficient $\mu_{total} = 0.09$ to 0.14) tightening torque $M_T = 12.5$ Nm \pm 10 %, Material no. **R913000058** (separate order) or
- 4 hexagon socket head cap screws ISO 4762-M6x40-10.9 (Friction coefficient $\mu_{\text{total}} = 0.12$ to 0.17) tightening torque $M_{\text{T}} = 15.5$ Nm ± 10 %

Accessories (not included in the scope of supply)

The for tion b	ollowing is required for parameteriza- by means of a PC:	CANopen	PROFIBUS-DP	
1	Interface converter (USB)	VT-ZKO-USB/CA-1-1X/V0/0	VT-ZKO-USB/P-1-1X/V0/0	
		Mat. no. R901071963	Mat. no. R901071962	
2 Commissioning software		WIN-	WIN-PED 6	
	-	Download über www	Download über www.boschrexroth.de\IAC	
3	Connection cable, 3 m	D-Sub / M12, coding A	D-Sub / M12, coding B	
		Mat. no. R900751271	Mat. no. R901078053	



Accessories, connection X1 (not included in the scope of supply)

Mating connector für X1

Mating connector to DIN EN 175201 - 804 (11-pin + PE), plastic variant

- Mating connector without cable (kit)
- Mating connector with cable set 2 x 5 m 12-pin
- Mating connector with cable set 2 x 20 m 12-pin

Material no. **R900884671** Material no. **R900032356** Material no. **R900860399**



Accessories, sensor connection (not included in the scope of supply)

Description	Detail, dimensions	Pin pattern, order information
X4 (analog sen- sor)	ca. 61	
Plug-in connector, 5-pin, M12, male, A coding, straight connec- tor, metal variant	9'610	
		Mat. no.: R901075542 (Cable diameter 4 to 6 mm)

Accessories, CAN bus (A coding) (not included in the scope of supply)



Accessories, PROFIBUS (B coding) (not included in the scope of supply)

Description	Detail, dimensions	Pin pattern, order information
X2 Circular plug-in connector, to be wired by user, 5-pin, M12 Straight plug-in connector, metal	ca. 61	
variant.		Mat. no.: R901075545 (Cable diameter 6 to 8 mm)
X3 Circular plug-in connector, to be wired by user, 5-pin, M12 Straight mating connector, metal variant.	ca. 56	Mat. no.: R901075550 (Cable diameter 6 to 8 mm)
M12 protective cap (for mating connector only)		Mat. no.: R901075563

Engineering / maintenance notes / supplementary information

Product documentation for IAC-P



Commissioning software WIN-PED 6 and documentation on the Internet: www.boschrexroth.com/IAC

Maintenance notes:

- The units are tested in the factory and shipped with default settings.
- Only complete components can be repaired. The repaired components are returned again with the default settings. User settings are not retained or reloaded. The user is responsible for reloading the corresponding user parameters.

Notes:

- Cut the supply voltage to the valve only in when required for the functional sequence of the machine.
- Electrical signals brought out via control electronics (e.g. signal "ready for operation") must not be used for switching safety-relevant machine functions! (See also European standard "safety requirements for fluid power systems and components - hydraulics ", EN 982.)
- If electromagnetic interference is to be expected, take suitable measures to safeguard the function (depending on application, e.g. shield, filter)!

Notes

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