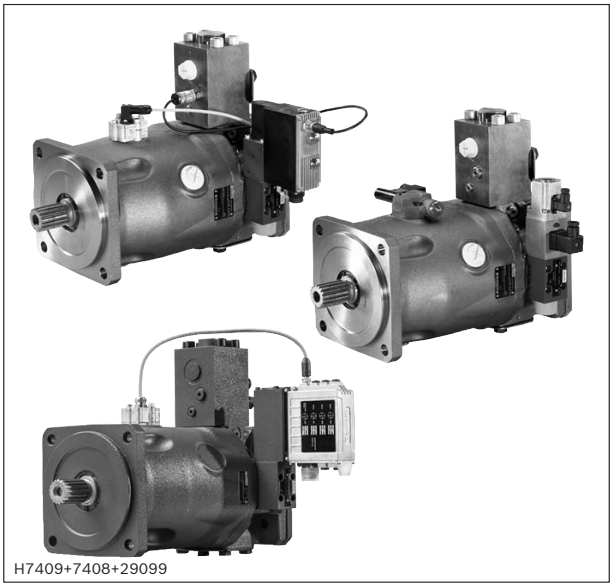
RE 30630
Edition: 2023-01
Replaces: 2021-09

rexroth
A Bosch Company

Pressure and flow control system

Type SYDFE1, SYDFEE, SYDFED, SYDFEF


H7409+7408+29099

- With axial piston variable displacement pump A10VSO.../32
- Size 45 ... 180
- Component series 3X
- Maximum operating pressure 280 bar
- Function: Swivel angle control, pressure control, torque limitation, speed control function, master-slave
- Communication: Sercos, PROFINET, EtherCAT, EtherNET/IP, POWERLINK, VARAN, CAN over EtherCAT, ServoDrive over EtherCAT, analog

Features

The control system is used for the electro-hydraulic control of swivel angle, pressure and power (partially optional) of an axial piston variable displacement pump.
It consists of the following components:

- Axial piston variable displacement pump A10VSO.../32
- Proportional directional valve type VT-DFP with inductive position transducer as pilot control valve. With the exception of type SYDFE1, the pilot control valve contains the electronics for controlling the system.
- Type SYDFE1: External control electronics VT 5041-3X for realizing all electric functions necessary (separate order)
- Position transducer for sensing the swivel angle
- Pressure transducer with suitable signal level and dynamics (optional)
- Preload valve with integrated pressure relief function SYDZ (optional)

Contents

Ordering code: Pump of the control system

01		02		03	04		05	06	07	08	09		See following pages
	–	3X	/		R	–	V		B			–	...

Series

01	Control system for external analog electronics (separate order)	**SYDFE1**
	Control system with internal analog electronics	**SYDFEE**
	Control system with internal digital electronics (Ethernet-based bus systems)	**SYDFED**
	Control system with internal digital electronics (Ethernet-based bus systems)	**SYDFEF**
	Pump combinations (see order example page 7)	**SY2DFE. SY3DFE.**

02	Component series 30 ... 39 (30 ... 39: unchanged installation and connection dimensions)	**3X**

Size		**045**	**071**	**100**	**140**	**180**	
03	Displacement in cm³	045	071	100	140	180	**e.g. 071**

Direction of rotation looking at the drive shaft

04	Clockwise	✓	✓	✓	✓	✓	**R**

Hydraulic fluid

05	Mineral oil according to DIN 51524 (HLP)	✓	✓	✓	✓	✓	**V**

Drive shaft variant

06	Splined shaft profile SAE J 744 [1]	–	–	1 1/2"	1 3/4"	1 3/4"	**S**
	Splined shaft profile SAE J 744 (higher through-drive torque)	1"	1 1/4"	–	–	–	**R**

Connection flange according to ISO 3019-2 (4-hole)

07	Ø centering in mm	125	160	180	180	180	**B**

Subplate design and transmission design

08	**Without** shock and vibration absorption (standard speed)	–[2]	✓	✓	✓	–	**22U00-**
	Without shock and vibration absorption (high speed)	✓	✓	✓	✓	–	**22U00S**
	With shock and vibration absorption (standard speed)	✓	✓	✓	✓	✓	**32U00-**
	With shock and vibration absorption (high speed)	✓	✓	–[2]	✓	–	**32U00S**

Base pump variant

09	Standard (internal pilot oil)	✓	✓	✓	✓	✓	**0000**
	External supply	✓	✓	✓	✓[3]	✓	**0479**
	Regenerative operation **with** external supply (only version "22U00-")	–	✓	✓	✓	–	**0487**
	Regenerative operation **without** external supply (only version "22U00-")	–	✓	✓	–	–	**0541**

1) ANSI B92.1a-1976, 30° pressure angle, flat root, side fit, tolerance class 5
2) On request
3) Not for version "22U00-"

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Ordering code: Type SYDFE1 - pilot control and preload valve

01		02		03	04		05	06	07	08	09		10	11	12	13		14
	–	3X	/		R	–	V		B			–		0	X0XX		–	*

Control spool version

10	Standard	**A**
	2 grooves (only for replacement requirement)	**B**
	4 grooves	**C**

Installation orientation, solenoid

11	Mating connector is orientated radially to the pump axis	**0**

12	Features currently not used	**X0XX**

Preload valve with integrated pressure limitation

13	Pressure limitation 200 bar (tolerance ± 8 bar) [4)]	**1**
	Pressure limitation 250 bar (tolerance ± 10 bar) [4)]	**2**
	Pressure limitation 300 bar (tolerance ± 12 bar) [4; 5)]	**3**
	Without preload valve	**X**

14	Further details in the plain text	*

4) The pressure limiting function of the preload valve is designed for a maximum speed of 1800 rpm for NG140 and for a maximum speed of 1500 rpm for NG180. Higher speeds are available on request.
The pressure limiting function is not suitable for continuous operation.

5) Observe nominal pressure of pump system.

Ordering code: Type SYDFEE - pilot control and preload valve

01	02		03	04		05	06	07	08	09		10	11	12	13	14	15	16		17
	–	3X	/		R	–	V		B			–								–	*

Control spool version

10	Standard	**A**
	4 grooves	**C**

Installation orientation of the integrated electronics (see page 6 and "Dimensions")

11	Radially to the pump axis	**0**
	Folded 90° in the direction of the subplate	**2**

Additional functions: Closed-loop control

12	Switchable pressure controller (high signal)	**A**
	Power limitation adjustable at the OBE valve	**B**
	Power limitation adjustable via analog input	**C**
	Pressure controller that can be switched off (high signal)	**D**

Electronics assembly

13	Standard electronics **with** leakage compensation	**0**
	Standard electronics **without** leakage compensation	**1**

Actual pressure value input (see "Electrical connections")

14	Current input 4 ... 20 mA	Port X1	**C**
	Voltage input 0 ... 10 V	Port X1	**V**
	Voltage input 1 ... 10 V	Port X1	**E**
	Voltage input 0.5 ... 5 V	Port X2	**F**

Pressure transducer

15	HM 20-2X/315-F-C13-0.5, measurement range 315 bar (0.5 ... 5 V) with connection cable 0.5 m for direct connection to X2 (only version "F")	**L**
	Without pressure transducer	**X**

Preload valve with integrated pressure limitation

16	Pressure limitation 200 bar (tolerance ± 8 bar) [4]	**1**
	Pressure limitation 250 bar (tolerance ± 10 bar) [4]	**2**
	Pressure limitation 300 bar (tolerance ± 12 bar) [4; 5]	**3**
	Without preload valve	**X**

17	Further details in the plain text	*

[4] The pressure limiting function of the preload valve is designed for a maximum speed of 1800 rpm for NG140 and for a maximum speed of 1500 rpm for NG180. Higher speeds are available on request.
The pressure limiting function is not suitable for continuous operation.

[5] Observe nominal pressure of pump system.

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Ordering code: Type SYDFED - pilot control and preload valve

01		02		03	04		05	06	07	08	09		10	11	12	13	14	15	16		17
	–	3X	/		R	–	V		B			–	A							–	*

Control spool version

10	Standard	**A**

Installation orientation of the integrated electronics (see page 6 and "Dimensions")

11	Radially to the pump axis	**0**
	Folded 90° in the direction of the subplate	**2**

Additional functions: Closed-loop control

12	Standard	**A**
	For variable-speed operation	**N**

Field bus interface

13	Sercos III	**S**
	EtherCAT (CANopen profile)	**T**
	EtherCAT (Servodrive profile)	**D**
	VARAN (Servo drive profile)	**V**
	Ethernet/IP	**E**
	PROFINET RT	**N**
	Powerlink	**W** [2]

Actual pressure value input (freely configurable)**; parameter setting on delivery** (see "Electrical connections")

14	Voltage input 0 ... 10 V	Port XH4	**V**
	Voltage input 0.5 ... 5 V	Port X2M1	**F**

Pressure transducer

15	HM 20-2X/315-F-C13-0.5, measurement range 315 bar (0.5 ... 5 V) with connection cable 0.5 m for direct connection to X2M1 (only version "F")	**L**
	Without pressure transducer	**X**

Preload valve with integrated pressure limitation

16	Pressure limitation 200 bar (tolerance ± 8 bar) [4]	**1**
	Pressure limitation 250 bar (tolerance ± 10 bar) [4]	**2**
	Pressure limitation 300 bar (tolerance ± 12 bar) [4; 5]	**3**
	Without preload valve	**X**

17	Further details in the plain text	*

[2] On request

[4] The pressure limiting function of the preload valve is designed for a maximum speed of 1800 rpm for NG140 and for a maximum speed of 1500 rpm for NG180. Higher speeds are available on request.
The pressure limiting function is not suitable for continuous operation.

[5] Observe nominal pressure of pump system.

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Ordering code: Type SYDFEF - pilot control and preload valve

01		02		03	04		05	06	07	08	09		10	11	12	13	14	15	16		17
	–	3X	/		R	–	V		B			–	A		A					–	*

Control spool version

10	Standard	**A**

Installation orientation of the integrated electronics (see page 6 and "Dimensions")

11	Radially to the pump axis	**0**
	Folded 90° in the direction of the subplate	**2**

Additional functions: Closed-loop control

12	Standard	**A**

Field bus interface

13	Sercos III	**S**
	EtherCAT (CANopen profile)	**T**
	EtherCAT (Servodrive profile)	**D**
	VARAN (Servo drive profile)	**V**
	Ethernet/IP	**E**
	PROFINET RT	**N**

Actual pressure value input (freely configurable)**; parameter setting on delivery** (see "Electrical connections")

14	Voltage input 0 ... 10 V	Port XH1	**V**
	Voltage input 0.5 ... 5 V	Port X2N	**F**

Pressure transducer

15	HM 20-2X/315-F-C13-0.5, measurement range 315 bar (0.5 ... 5 V) with connection cable 0.5 m for direct connection to X2N (only version "F")	**L**
	Without pressure transducer	**X**

Preload valve with integrated pressure limitation

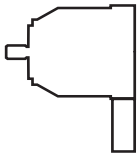
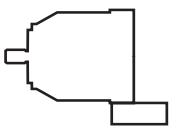
16	Pressure limitation 200 bar (tolerance ± 8 bar) [4]	**1**
	Pressure limitation 250 bar (tolerance ± 10 bar) [4]	**2**
	Pressure limitation 300 bar (tolerance ± 12 bar) [4; 5]	**3**
	Without preload valve	**X**

17	Further details in the plain text	*

[4] The pressure limiting function of the preload valve is designed for a maximum speed of 1800 rpm for NG140 and for a maximum speed of 1500 rpm for NG180. Higher speeds are available on request.
The pressure limiting function is not suitable for continuous operation.

[5] Observe nominal pressure of pump system.

Installation orientation of the valve electronics

Clockwise direction of rotation	
Installation orientation "0"	Installation orientation "2"
	

Ordering code: Order examples

Order example for single pump: SYDFEE-3X/100R-VSB32U00-0479-A0A0XX

Order example for pump combinations (material numbers or type designations must be combined with "+")

▶ Double pump

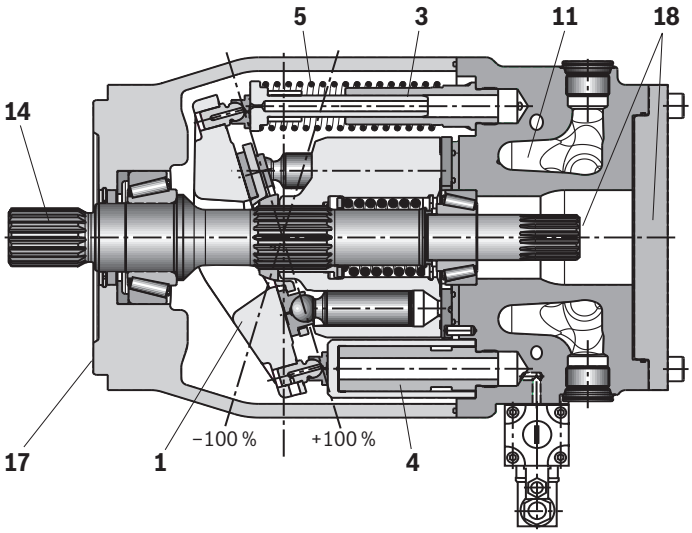
Main pump (1st pump)	+	Attachment pump (2nd pump)
SY2DFEE-3X/100-071/01177440	+	01177441
SY2DFEE-3X/100-071/SYDFEE-3X/100R-VSB32U00-0000-A0A1VX3	+	SYDFEE-3X/071R-VRB32U00-0000-A0A1VX3

- Double pump
- Size of the main pump
- Size of the attachment pump or pump abbreviation if the attachment pump is not SYDFE (e.g., PGF)
- Material number without "R9" for the main pump or type designation if material number not known
- Pump combination, mounted with accessories
- Material number without "R9" for the attachment pump or type designation if material number not known

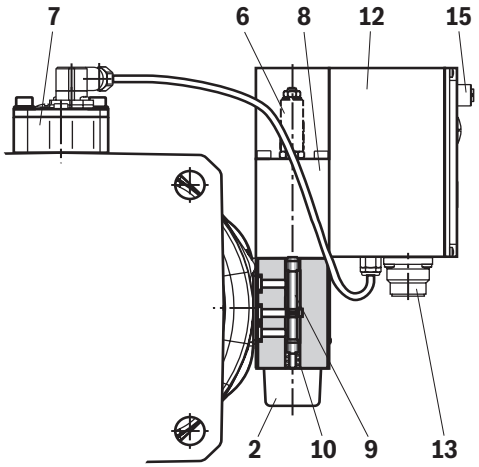
▶ Triple pump

Main pump (1st pump)	+	Attachment pump (2nd pump)	+	Attachment pump (3rd pump)
SY3DFEE-3X/01128835	+	01151805	+	01128836

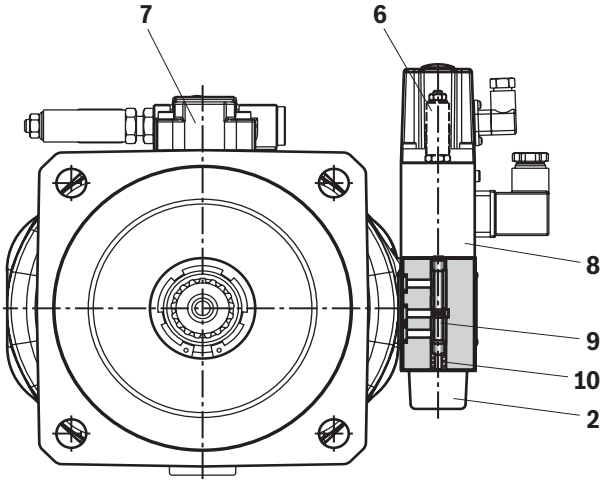
Section: Type SYDFE1, SYDFEE, SYDFED



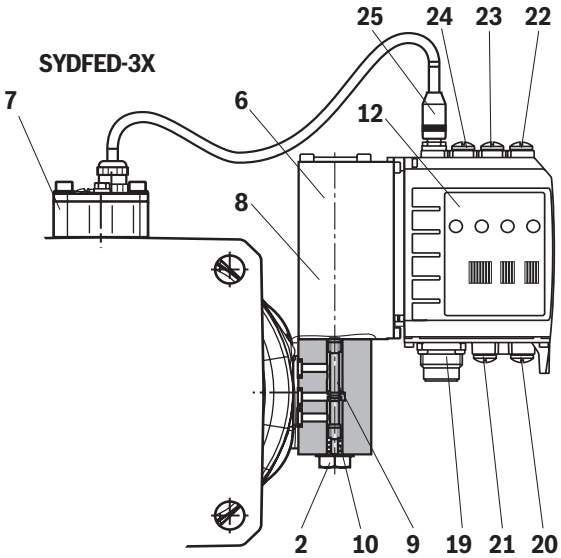
SYDFEE-3X



SYDFE1-3X

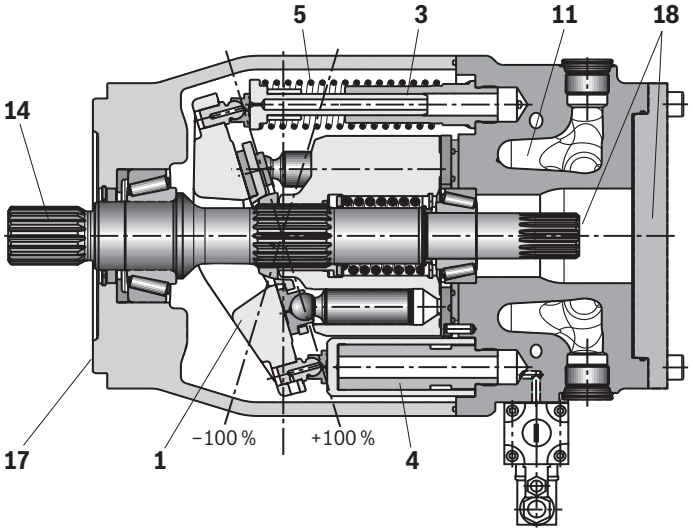


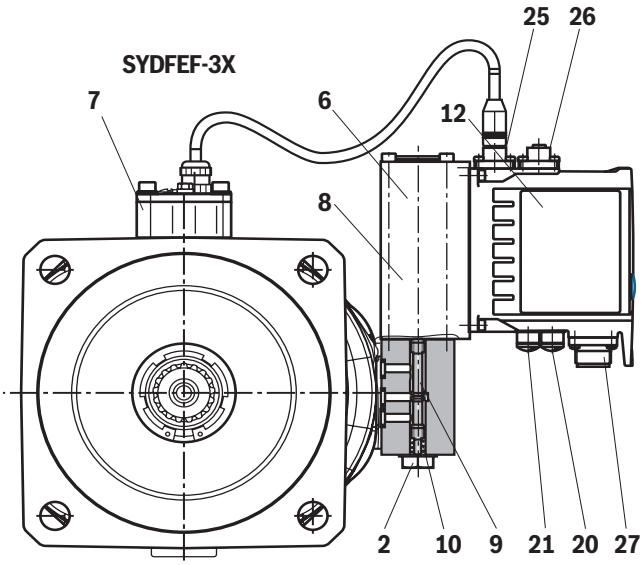
SYDFED-3X



1 Swash plate
2 Pilot control valve
3 Counter piston
4 Actuating piston
5 Spring
6 Inductive position transducer for valve position
7 Swivel angle position sensor
8 Proportional solenoid
9 Valve spool
10 Spring
11 Pre-compression volume PCV
12 Integrated electronics
13 Connector X1
14 Drive shaft
15 Connector X2 for connecting the pressure transducer HM 20, cable version (for SYDFEE only with actual pressure value input "F")
17 Connection flange
18 Through-drive "U.." closed with cover
19 Connector XH4
20 Multi Ethernet interface X7E1
21 Multi Ethernet interface X7E2
22 Configurable sensor interface X2M1
23 Configurable sensor interface X2M2
24 Reserved, X2N
25 Actual swivel angle value input X8A

Section: Type SYDFEF





1 Swash plate
2 Pilot control valve
3 Counter piston
4 Actuating piston
5 Spring
6 Inductive position transducer for valve position
7 Swivel angle position sensor
8 Proportional solenoid
9 Valve spool
10 Spring
11 Pre-compression volume PCV
12 Integrated electronics
14 Drive shaft
17 Connection flange
18 Through-drive "U.." closed with cover
20 Multi Ethernet interface X7E1
21 Multi Ethernet interface X7E2
25 Actual swivel angle value input X8A1
26 Configurable sensor interface X2N
27 Connector XH1

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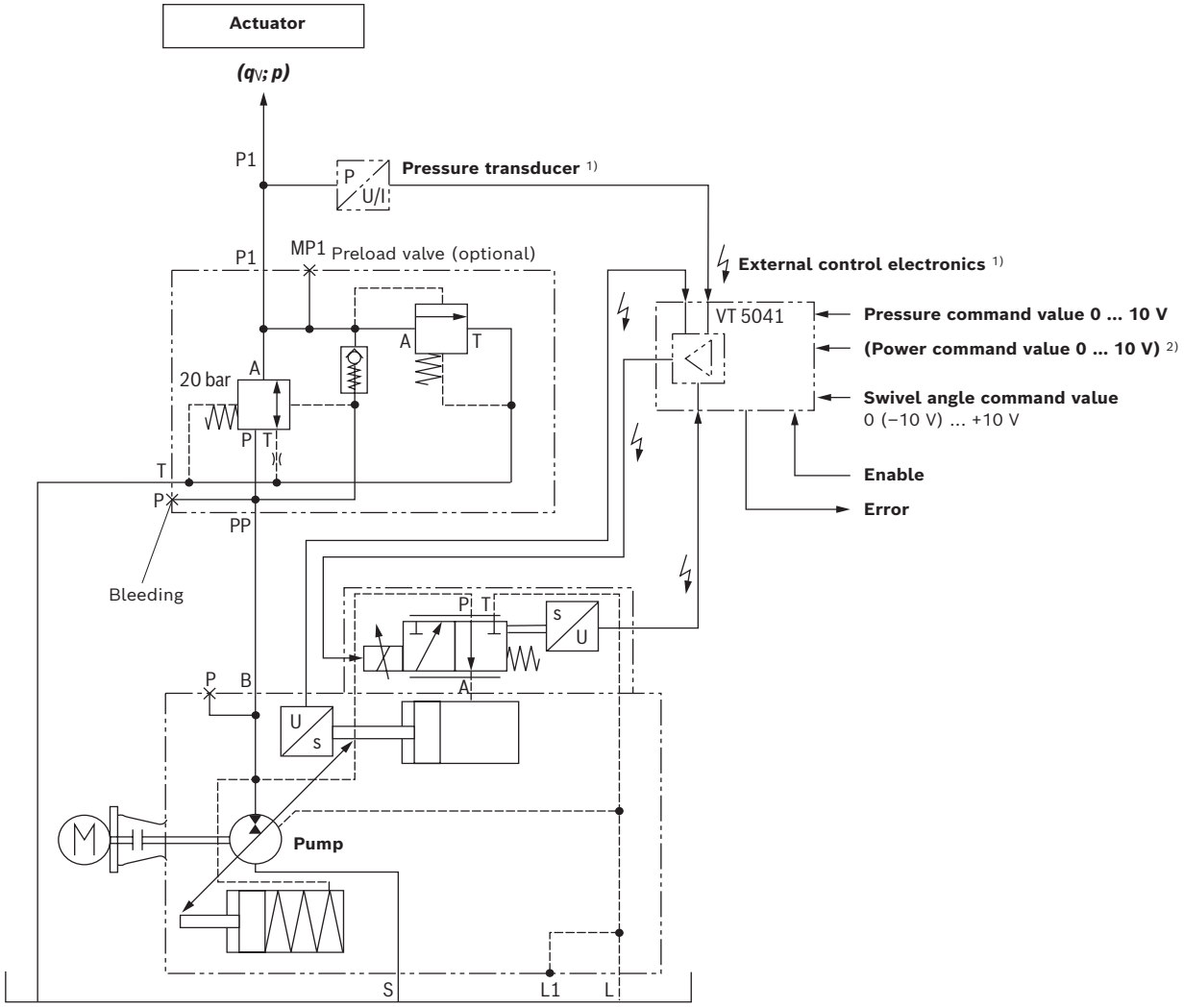
Schematic diagram: Type SYDFE1 - actuating system supplied internally



1) Separate order
2) Optional

Notice:
The actual pressure value at pressure port B must not be less than 10 bar for more than 10 minutes (lubrication).

For details regarding the electrical circuitry, see data sheet 30242

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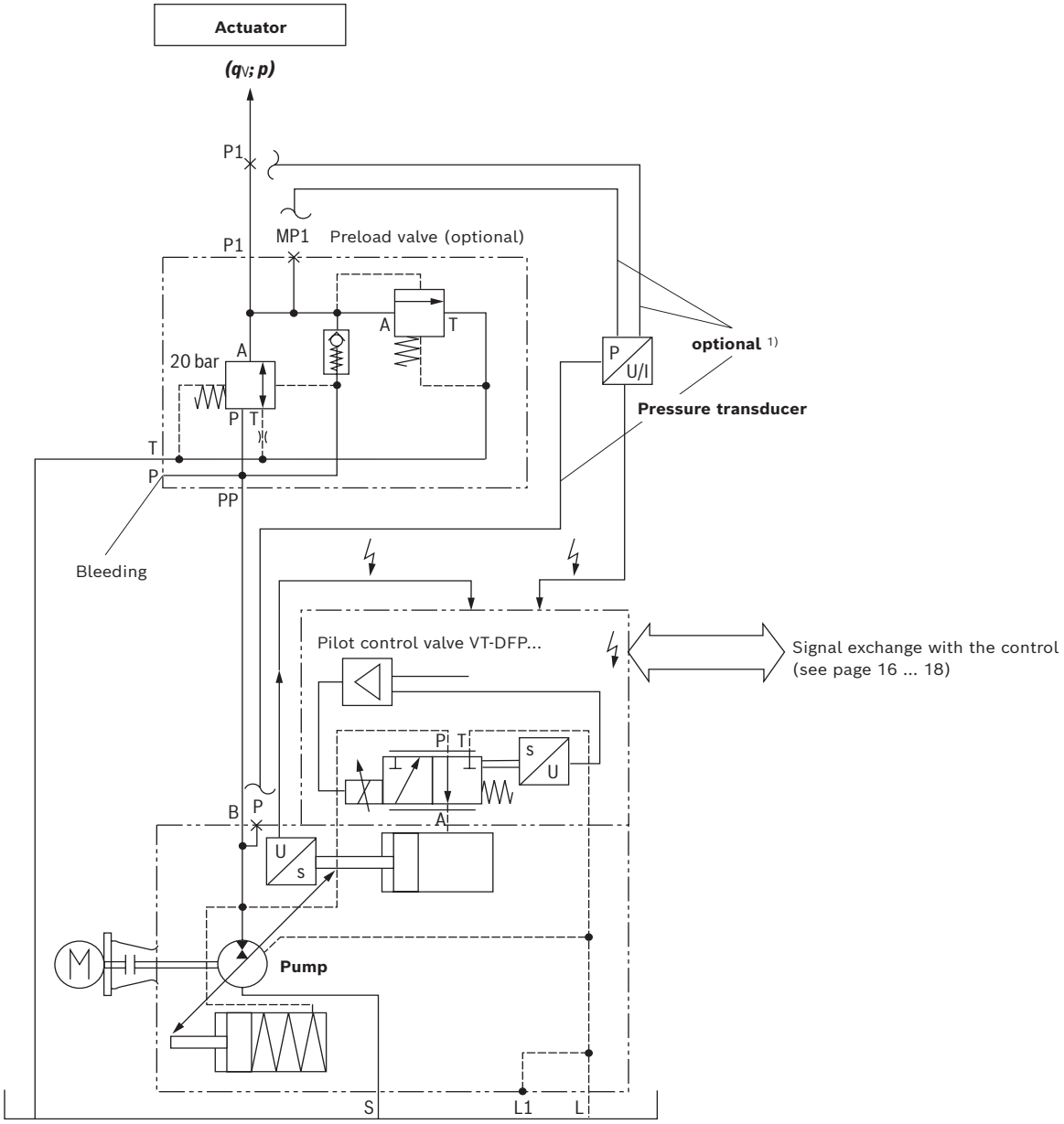
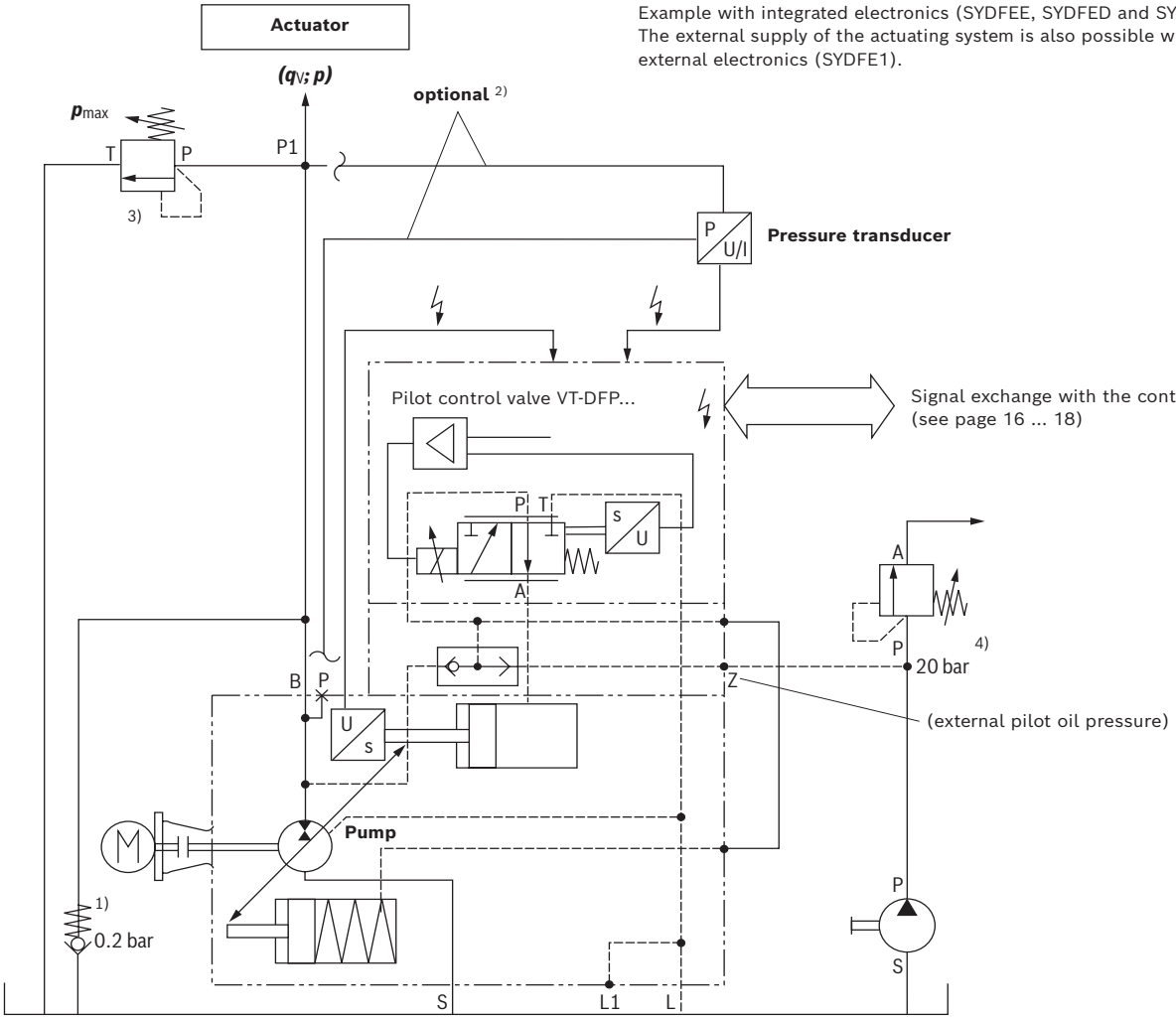
Schematic diagram: Type SYDFEE, SYDFED, SYDFEF – actuating system supplied internally



1) ▶ When using the HM 20 pressure transducer, cable version: Installation in P (pump) or MP1 (preload valve) in connection with actual pressure value input "F"
▶ When using an external pressure transducer: Installation in line P1 (preferably near the actuator) and electrical connection via the central plug.
▶ When using a preload valve: Connection of the pressure transducer to P1 or MP1.

Notice:
The actual pressure value at pressure port B must not be less than 10 bar for more than 10 minutes (lubrication).

Schematic diagram: Type SYDFE... – actuating system supplied externally



Example with integrated electronics (SYDFEE, SYDFED and SYDFEF). The external supply of the actuating system is also possible with external electronics (SYDFE1).

1) The use of an anti-cavitation valve (check valve with 0.2 bar spring) is essential in order to prevent dry-running in case of an error.

2)

Pressure transducer	Mounting options	Comment
HM 20-2X/315-F-C13-0.5 (cable version)	P	Only in connection with actual pressure value input "F"
HM 20-2X/...-.-K35 (connector version)	P1	Preferably close to the actuator

3) Maximum pressure limitation must be provided by the customer.

4) Observe the upper limit for the external pilot oil pressure (see operating instructions), recommendation: 20 bar absolute.

Notes on external supply:

- In the case of an actuating system with external supply, the pump adjustment will – in case of voltage failure – not switch to zero stroke but to the negative stop (displacement of 100% flow from the system to the tank).
- In the case of an active fault message, it is imperative that the machine control reacts (e.g., switching off the drive motor of the pump, interrupting the external supply of the actuating system).
- The command values for pressure and flow must always be greater than zero ($p_{Command} \geq 3$ bar, $\alpha_{Command} \geq 5\%$) as due to drift or tolerances, there is no exact "zero" pressure or "zero" swivel angle. Under unfavorable conditions, smaller command value presettings can lead to cavitation.
- The actual pressure value must not be less than 10 bar for more than 10 minutes (lubrication).

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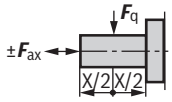
Technical data

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

Mechanical and hydraulic							
Size		NG	45	71	100	140	180
Displacement		cm^3	45	71	100	140	180
Maximum speed	▶ Standard	rpm	1800 [1]	1800 [1]	1800 [1]	1800 [2]	1800 [2]
	▶ High-speed (version "22U..S")	rpm	3000 [2]	2550 [2]	2300 [2]	2050 [2]	–
	▶ High-speed (version "32U..S")	rpm	3000 [2]	2550 [2]	–	2200 [2]	–
Minimum speed		rpm	250				
Maximum flow at ...	▶ Maximum speed (standard)	l/min	81	128	180	252	324
	▶ Maximum speed (high speed (version "22U..S"))	l/min	135	181	230	287	–
	▶ Maximum speed (high speed (version "32U..S"))	l/min	135	181	–	308	–
	▶ n_E = 1500 rpm	l/min	67.5	106.7	150	210	270
Maximum power (Δp = 280 bar) at ...	▶ Maximum speed (standard)	kW	38	59.7	84	118	151
	▶ Maximum speed (high speed (version "22U..S"))	kW	62.8	85	107	134	–
	▶ Maximum speed (high speed (version "32U..S"))	kW	62.8	85	–	144	–
	▶ n_E = 1500 rpm	kW	31	50	70	98	125
Maximum torque (Δp = 280 bar, $n_{0\ max}$)		Nm	200	317	446	624	802
Maximum drive torque	▶ Splined shaft "S" overall torque	Nm			1104	1620	1620
	▶ Maximum through-drive torque	Nm			778	1266	1266
	▶ Splined shaft "R" overall torque	Nm	400	644			
	▶ Maximum through-drive torque	Nm	365	548			
Drive shaft load (see below)	▶ Maximum axial force	N	1500	2400	4000	4800	800
	▶ Maximum radial force [3]	N	1500	1900	2300	2800	2300
Mass	▶ Pump without through-drive (incl. pilot control valve)	kg	32	49	71	75	80
	▶ Additional preload valve	kg	3,3	6.3	6.3	6.3	6.3
	▶ In addition, in case of external supply	kg	2	2	2	2	2
Moment of inertia around drive axis		kgm^2	0.0035	0.0087	0.0185	0.0276	0.033
Filling quantity of the housing		l	1.0	1.6	2.2	3,0	2.7
Nominal pressure		bar	280				
Maximum operating pressure		bar	350 [4]				
Minimum operating pressure	▶ With preload valve	bar	≥1				
	▶ Without preload valve	bar	≥20				
	▶ External supply (20 bar)	bar	>10 in continuous operation; for operation below 10 bar see page 11.				
Admissible inlet pressure at suction port S	▶ Standard	bar	0.8 ... 10				
	▶ High-speed		1.0 ... 10				
Hydraulic fluid			Mineral oil (HLP) according to DIN 51524 [5]				
Hydraulic fluid temperature range		°C	–20 ... +70 [5]				
Maximum admissible degree of contamination of the hydraulic fluid, cleanliness class according to ISO 4406 (c)			Class 18/16/13 (for particle size ≤ 4/6/14 µm)				

1) The values are applicable at an absolute pressure of 0.8 bar in suction port S.
2) The values are applicable at an absolute pressure of 1.0 bar in suction port S.
3) In case of higher radial forces, please consult us.
4) See also data sheet 92714.
5) For version "32U..S" 30 ... 60 °C. Mineral oil HLP/HLPD 32/46 according to DIN 51524 must be used.



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Technical data

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

Electrical				
Type				SYDFEE
Operating voltage			VDC	24 $^{+40\%}_{-5\%}$
Operating range (short-time operation)	▶ Upper limit value		V	35
	▶ Lower limit value		V	21
Current consumption (in static control operation)	▶ Rated current		A	0.6
	▶ Maximum current		A	1.25
Inputs	▶ Actual pressure value input X1; pin 10 and 11			Determined by means of ordering code
	▶ Analog, current, load [6]		Ω	100
	▶ Analog, voltage		kΩ	≥50
	▶ Digital	Logic 0	V	≤ 0.6
		Logic 1	V	≥21
Outputs	▶ p_{actual}		V	0 ... 10
			mA	1.5
	▶ α_{actual}		V	±10
			mA	1.5
	▶ Digital	Logic 0	V	U_a < 1 V
		Logic 1	V	$U_a \geq U_B$ – 5 V; 10 mA (short-circuit-proof)
Ambient temperature range at the pump			°C	0 ... 60
Storage temperature range (pump + electronics)			°C	0 ... 70
Electronics design				Integrated at pilot control valve (OBE)
Protection class according to EN 60529	▶ Pump incl. pilot control valve			IP65 (with correctly installed electrical connection)

[6] Maximum admissible input current 30 mA for configuration on current input.

☞ **Notice:**
Electrical data type SYDFE1 see data sheet 30242.

Technical data

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

Electrical				
Type			SYDFED	SYDFEF
Supply voltage [8]	▶ Nominal value	VDC	24	
	▶ Minimum	VDC	18	
	▶ Maximum	VDC	36	
	▶ Maximum residual ripple	Vpp	2.5	
Maximum power consumption		W	40	
Fuse protection, external		A	4, time-lag	
AD/DA resolution	▶ Analog inputs	Bit	12	
	▶ Analog outputs [7]	Bit	10	
Actual pressure value Input [9]	▶ Analog voltage	V	0 ... 10	
	▶ Analog current	mA	0 ... 20 [6]	
Ambient temperature range at the pump		°C	0 ... +60	
Storage temperature range (pump + electronics)		°C	+5 ... +40	0 ... +40
Electronics design			Integrated at pilot control valve (OBE)	
Protection class according to EN 60529	▶ Pump incl. pilot control valve		IP65 (with correctly installed electrical connection)	

[6] Maximum admissible input current 30 mA for configuration on current input.

[7] Outputs are parameterizable for type SYDFED and SYDFEF. For the condition as supplied see "Electrical connection."

[8] Supply voltage is used directly for the sensor connections X2M1, X2M2 and X8M with type SYDFED and SYDFEF (no internal voltage limitation).

[9] – Type VT-DFPD: XH4, pin 10 and 11 (only voltage 0 ... 10 V)
– Type VT-DFPF: XH1: pin D and E

Notice:
- ▶ For information on environment simulation testing for the fields EMC (electro-magnetic compatibility), climate and mechanical load, see data sheet 29016.
- ▶ For system versions with attached hoses ("0479" and "0487"), please observe the information in the operating instructions, chapter "Maintenance."

Electrical connection: Type SYDFEE

▶ X1, central connection

Assignment of connector or mating connector and cable set

Pin	Signal	Description	Signal direction	Type of signal	Assignment in cable set (accessories)	
1	+ U_B	Voltage supply	IN	24 V DC	1	Supply line 3 x 1.0 mm²
2	0 V = L0	Reference potential for the voltage supply	–	–	2	
PE	Ground	Grounding connection for the electronics	–	–	green/yellow	
3	Fault	Signals faults, e.g., cable break command/ actual values, controller monitoring (logic 0 = error)	OUT	logic 24 V	white	Supply line 10 x 0.14 mm² shielded (one end of the shield must be connected to the control)
4	M0	Reference potential for analog signals	–	–	yellow	
5	$\alpha_{Command}$	Swivel angle command value	IN	analog ± 10 V	green	
6	α_{Actual}	Actual swivel angle value, normalized	OUT	analog ± 10 V	violet	
7	$p_{Command}$	Pressure command value	IN	analog 0 ... 10 V	pink	
8	p_{Actual}	Actual pressure value, normalized	OUT	analog 0 ... 10 V [1]	red	
9		Function depends on type of electronics and additional function, see below	–	–	brown	
10	Actual pressure value H	Actual pressure value input: Signal level depends on pos. 14 in the ordering code. With version "F" (0.5 ... 5 V) reserved	IN	analog	black	
11	Actual pressure value L		–	analog	blue	
n.c.					gray	

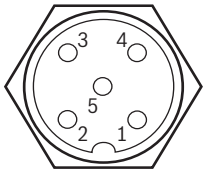
Functions at pin 9

Pin	Additional function	Function dependent on pos. 7 of the ordering code (order, see ordering code)	Signal direction	Type of signal
9	"A"	Selecting a different oil volume adjustment (switch T_D)	IN	logic 24 V
	"B"	Power limitation active	OUT	logic 24 V
	"C"	Command value of power limitation	IN	analog 0 ... 10 V
	"D"	Switch off pressure controller	IN	logic 24 V

[1] When using a pressure transducer with raised zero point (e.g., 4 ... 20 mA), a voltage of −1 ... −2.5 V will be output in case of a cable break.

▶ X2, connection of pressure transducer HM 20

Pin	Signal HM 20	Pin	
1	OUT, +U_B	2	n.c.
3	Reference L0		
4	IN, analog, 0.5 ... 5 VDC	5	n.c.



☞ **Notice:**
- ▶ Mating connectors can be ordered separately, see page 39.
- ▶ Electrical connection for type SYDFE1 see data sheet 30242.

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Electrical connection: Type SYDFED

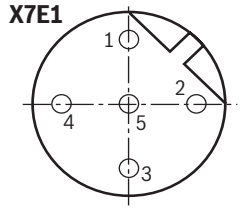
▶ XH4, central connection

Assignment of connector or mating connector and cable set

Pin	Signal	Description	Signal direction	Type of signal	Assignment in cable set (accessories)	
1	$+U_B$	Voltage supply	IN	24 V DC	1	Supply line 3 x 1.0 mm²
2	0 V = L0	Reference potential for the voltage supply	–	–	2	
PE	Ground	Grounding connection for the electronics	–	–	green/yellow	
3	DO	Switching output 24 V max. 1.5 A Factory setting: Error signal	OUT	logic 24 V	white	Supply line 10 x 0.14 mm² shielded (one end of the shield must be connected to the control)
4	M0	Reference potential for analog signals	–	–	yellow	
5	AI2	Analog input 2 (or digital input, configuration via software)	IN	analog ±10 V (digital 24 V)	green	
6	AO2	Analog output 2 Factory setting: Actual swivel angle value, normalized	OUT	analog ±10 V or 0 ... 20 mA [1]	violet	
7	AI1	Analog input 1 (or digital input, configuration via software)	IN	analog ± 10 V (digital 24 V)	pink	
8	AO1	Analog output 1 Factory setting: Actual pressure value, normalized	OUT	analog ±10 V or 0 ... 20 mA [1]	red	
9	DI	Digital input (use freely configurable)	IN	logic 24 V	brown	
10	Actual pressure value H	Actual pressure value input (analog input 8): Signal level depends on parameter setting. Factory setting dependent on pos. 14 of the ordering code: 0 ... 10 V (V) or deactivated (F)	IN	analog 0 ... 10 V (freely configurable)	black	
11	Actual pressure value L		–	analog	blue	
n.c.					gray	

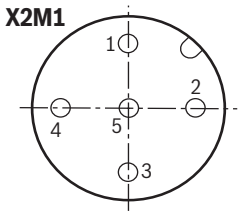
▶ X7E1 and X7E2, connector pin assignment for Ethernet interface (coding D), M12, 4-pole, socket

Pin	Assignment
1	TxD +
2	RxD +
3	TxD –
4	RxD –
5	Not used



▶ X2M1 and X2M2, analog configurable sensor interface (coding A), M12, 5-pole, socket

Pin	Assignment
1	+24 V voltage output (sensor supply) [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)



[1] If the analog inputs AI1 and AI2 are not used, the analog outputs AO1 and AO2 may be parameterized as current outputs (e.g., if the command value presetting is realized via the field bus).

[2] Maximum load capacity 50 mA, voltage output same as voltage supply connected to input XH4.

[3] Only one signal input configurable per interface

Notice:
- ▶ X2N, reserved (not used)
- ▶ X8A, actual swivel angle value input (coding A), M12, 5-pole, socket M12
- ▶ Mating connectors can be ordered separately, see page 39.

Electrical connection: Type SYDFEF

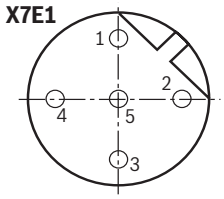
▶ XH1, central connection

Assignment of connector or mating connector and cable set

Pin	Signal	Description	Signal direction	Type of signal	Assignment in cable set (accessories)	
A	$+U_B$	Voltage supply	IN	24 VDC	brown	Line 7 x 0.75 mm² shielded (one end of the shield must be connected to the control)
B	0 V = L0	Reference potential for the voltage supply	–	–	yellow	
PE	Ground	Grounding connection for the electronics	–	–	green/yellow	
C	–	Do not use	–	–	green	
D	AI1	Analog input 1 (freely-configurable)	IN	analog ± 10 V or 0 ... 20 mA	blue	
E	M0	Reference potential for analog signals	–	–	gray	
F	AO1	Analog output 1 (freely-configurable)	OUT	analog ± 10 V or 0 ... 20 mA	white	

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

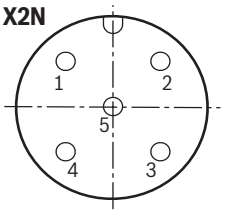
Pin	Assignment
1	TxD +
2	RxD +
3	TxD –
4	RxD –
5	Not used



▶ X2N, analog configurable sensor interface (coding A), M12, 5-pole, socket

Pin	Assignment
1	+24 V voltage output (sensor supply) [1]
2	Analog input voltage 2 (0 ... 10 V)
3	GND
4	Analog input voltage 4 (0 ... 10 V)
5	Analog input voltage 3 (0 ... 10 V)

[1] Maximum load capacity 3 x 25 mA, voltage output same as voltage supply connected to input XH1.



Notice:
- ▶ X8A1, actual swivel angle value input (coding A), M12, 5-pole, socket M12
- ▶ Mating connectors can be ordered separately, see page 39.

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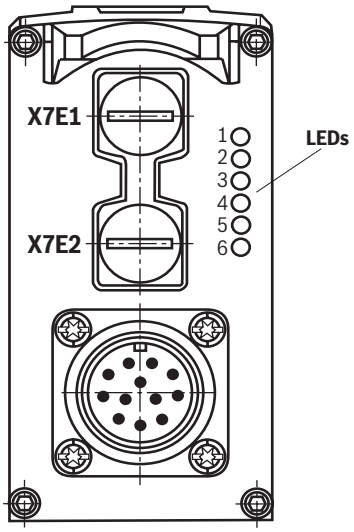
LED indicators: Type SYDFED

LED	Interface	Sercos	EtherNET/IP	EtherCAT	PROFINET RT	POWERLINK	VARAN
1	**X7E1**	Activity	Activity	not used	Activity	not used	Active
2		Link	Link	Link/activity	Link	Link/data activity	Link
3	**Electronics module**	S	Network status	Network status	Network status	Status/error	Network status
4		Module status	Module status	Module status	Module status	Module status	Module status
5	**X7E2**	Activity	Activity	not used	Activity	not used	not used
6		Link	Link	Link/activity	Link	Link/data activity	not used



Meaning of the status LEDs

Network status LED (LED 3)	Indicated status
See functional description 30338-FK	

Module status LED (LED 4)	Indicated status
Off	No voltage supply
Green-red, flashing	Self-test
Green, flashing	Drive ready for operation
Green	In control
Orange, flashing	Warning
Red, flashing	Error

Notice:
- For the connection to the M12 sockets, we recommend using self-locking mating connectors
- 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)
- The network status LED 3 (NS) indicates the status of the control communication.
- Module status LED 4 relates to the electronics module
- For a detailed description of the diagnosis LEDs, please refer to the functional description Rexroth HydraulicDrive HDx.

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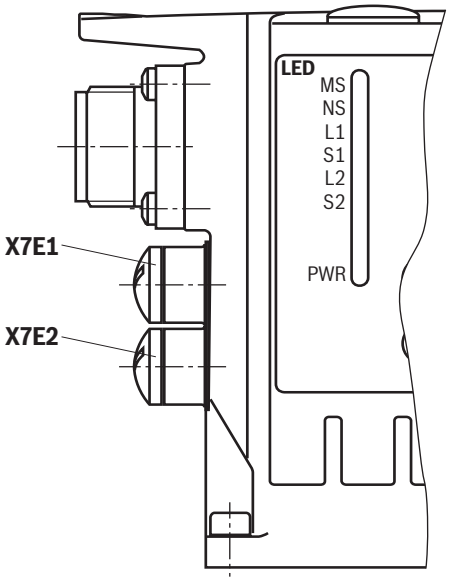
LED indicators: Type SYDFEF

LED	Interface	Sercos	EtherNET/IP	EtherCAT	PROFINET RT	VARAN
MS	**Electronics module**	Module status	Module status	Module status	Module status	Module status
NS		S	Network status and others	Network status and others	Network status and others	Network status and others
L1	**X7E1**	Link and others	Link and others	Link/activity	Link and others	Link and others
S1		Activity and others	Activity and others	not used	Activity and others	Active and others
L2	**X7E2**	Link and others	Link and others	Link/activity	Link and others	not used
S2		Activity and others	Activity and others	not used	Activity and others	not used
PWR	**XH1**	Power	Power	Power	Power	Power



Meaning of the status LEDs

Power LED (LED PWR)	Indicated status
Off	No voltage supply
Green	Operation

Module status LED (LED MS)	Indicated status
Off	No voltage supply
Green-red, flashing	Initialization
Green, flashing	Drive ready for operation
Green	Drive active
Orange, flashing	Warning
Red, flashing	Error
Green, rapidly flashing	Firmware must be loaded

Notice:
- For the connection to the M12 bushes, we recommend using self-locking mating connectors
- The MS module status LED relates to the electronics module
- The NS network status LED indicates the status of the control communication, see application description 30338-FK
- LEDs L1, S1, L2 and S2 relate to interfaces "X7E1" and "X7E2"
  - Link: Cable plugged in, connection established (permanently lit)
  - Activity: Data sent/received (flashing)
- For a detailed description of the diagnosis LEDs, please refer to the functional description Rexroth HydraulicDrive HDx.

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Control loop quality

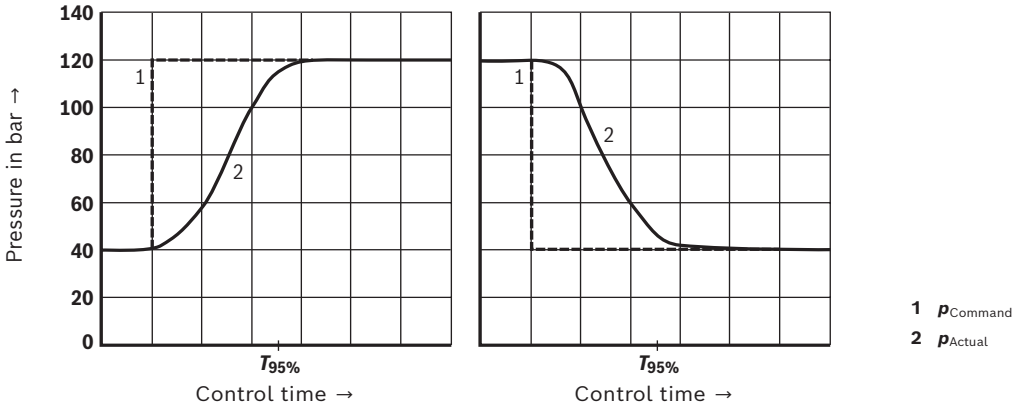
	Swivel angle control	Pressure control [1]
Linearity tolerance	≤ 1.0%	≤ 1.5% (≤ 1.0% [2])
Temperature error	≤ 0.5% / 10 K	≤ 0.5% / 10 K
Hysteresis	≤ 0.2%	≤ 0.2%
Repetition accuracy	≤ 0.2%	≤ 0.2%

1) Without considering the pump pulsation
2) With SYDFED and SYDFEF using the integrated calibration function

Notice:
- The specified values are only valid when using the system components specified in this data sheet (see page 39).
- At pressures <20 bar, higher tolerances have to be anticipated due to lower actuating forces.

Characteristic curves
(measured with HLP46, ϑ_{oil} = 40 ±5 °C)

Transition function for pressure command value step (control spool version "A")



$T_{95\%}$ in ms with connected hydraulic fluid volumes (lines and actuators)

Hydraulic fluid volume in l	$T_{95\%}$ in ms
<5	150
5 ... 10	200
15 ... 25	250

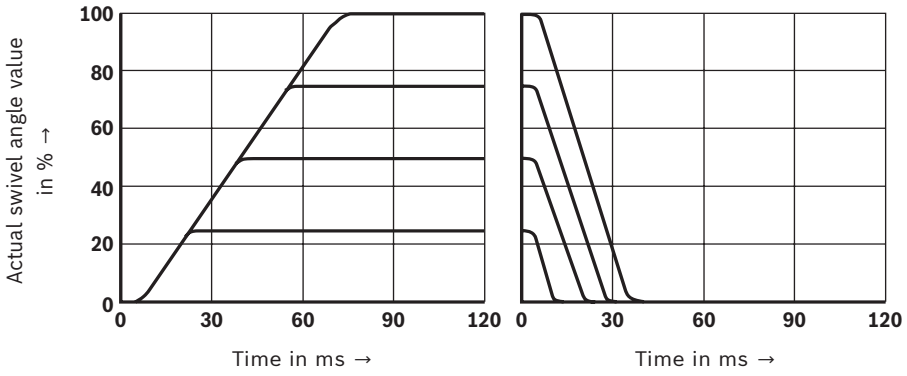
Notice:
- For pressures up to 40 bar, the values of the response times are greater.
- The specified curve shapes and control times refer to a drive speed of 1500 rpm and are only reached with an optimization of the pressure controller.

Characteristic curves

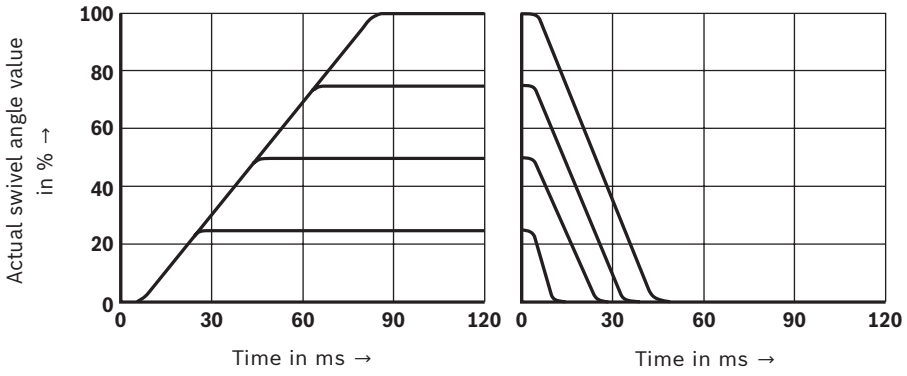
(measured with HLP46, ϑ_{oil} = 40 ±5 °C)

Transition function with swivel angle command value step (control spool version "A")

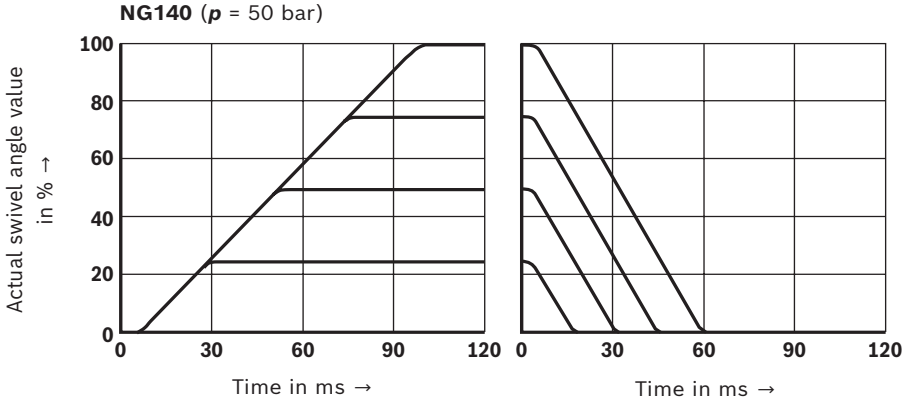
NG45 and 71 (***p*** = 50 bar)



NG100 (***p*** = 50 bar)



NG140 (***p*** = 50 bar)

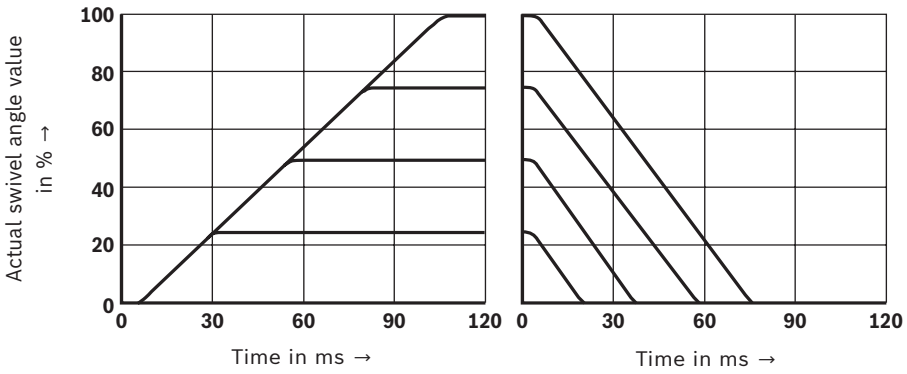


Characteristic curves

(measured with HLP46, ϑ_{oil} = 40 ±5 °C)

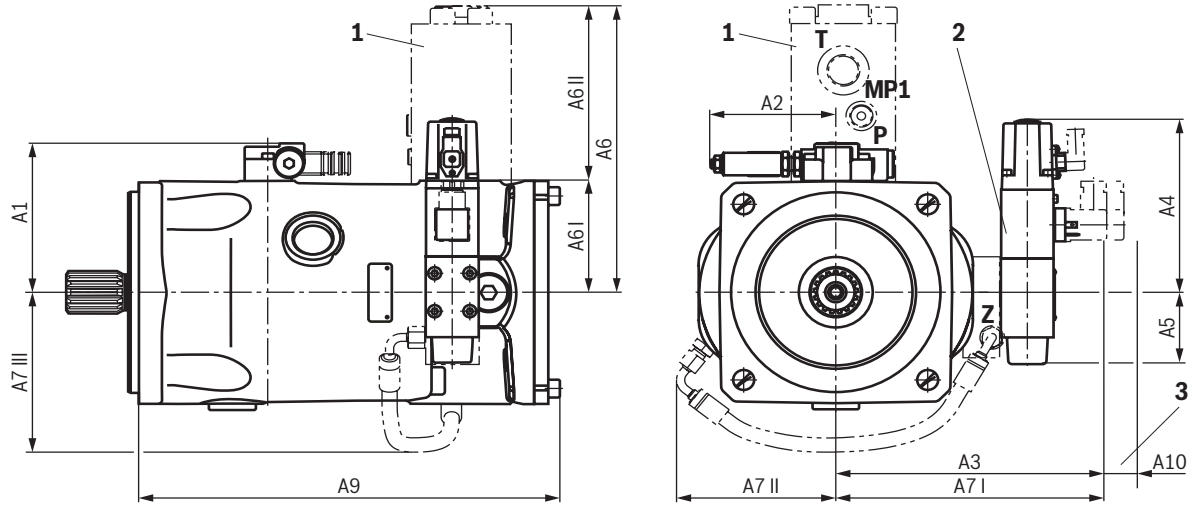
Transition function with swivel angle command value step (control spool version "A")

NG180 (***p*** = 50 bar)



Dimensions: Type SYDFE1 (dimensions in mm)

NG45 ... 180 (installation orientation "0"; shaft design "S" or "R"; with universal through-drive "U.."; representation NG100)



1 Preload valve (optional)
2 Pilot control valve attachment with clockwise direction of rotation
3 Space required for removing the mating connector

NG	A1	A2	A3 [1]	A4	A5	A6	A6 I	A6 II	Version "0479" and "0487" A7 I	A7 II	A7 III	A9	A10	Z
45	112	110	181	158	63	206	91	115	216	145	125	266	15	G1/4
71	124	110	189	158	63	254	104	150	224	159	150	301	15	G1/4
100	129	110	200	158	63	247	100	147	235	164	150	360	15	G1/4
140	140	110	213	158	63	257	110	147	248	182	150	377	15	G1/4
180	140	110	213	158	63	257	110	147	248	182	150	387	15	G1/4

[1] Version "0000" and "0541"

☞ **Notice:**
For the dimensions of the base pump (axial piston variable displacement pump A10VSO.../32) see data sheet 92714.

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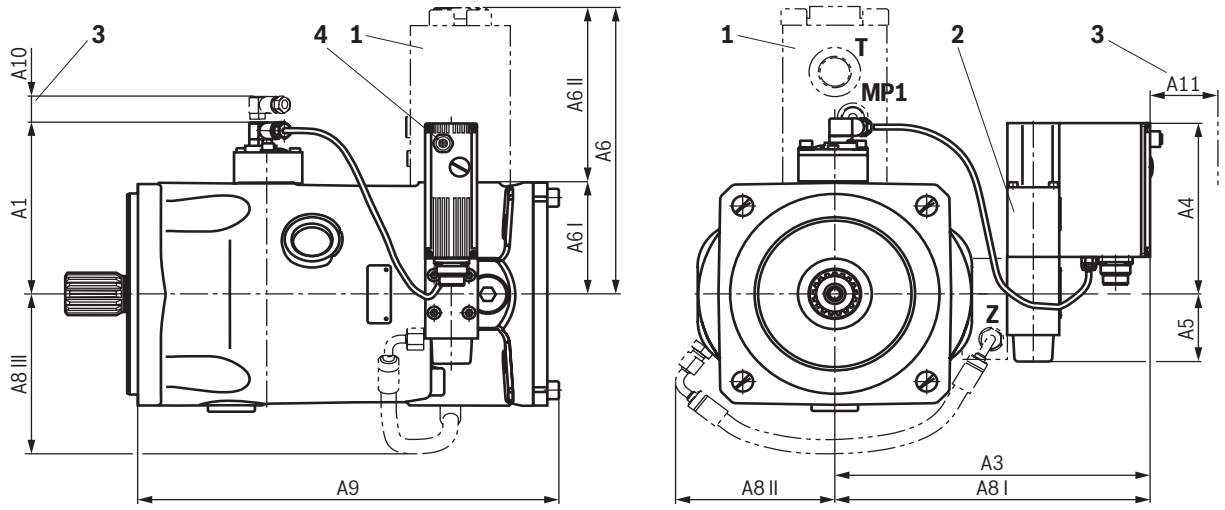
Dimensions: Type SYDFEE (installation orientation "0") (dimensions in mm)

NG45 ... 180 (installation orientation "0"; shaft design "S" or "R"; with universal through-drive "U.."; representation NG100)



1 Preload valve (optional)
2 Pilot control valve attachment with clockwise direction of rotation
3 Space required for removing the mating connector
4 Port X2 (pressure transducer HM 20) with actual pressure value input "F."

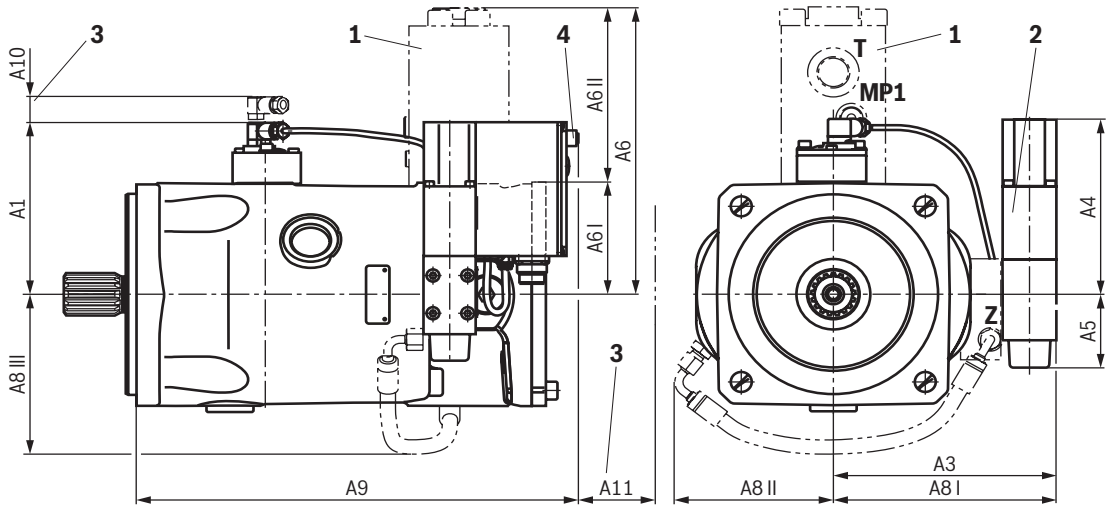
NG	A1	A3 [1]	A4	A5	A6	A6 I	A6 II	Version "0479" and "0487" A8 I	A8 II	A8 III	A9	A10	A11	Z
45	134	218	158	63	206	91	115	253	145	125	266	8	100	G1/4
71	146	226	158	63	254	104	150	261	159	150	301	8	100	G1/4
100	151	237	158	63	247	100	147	272	164	150	360	8	100	G1/4
140	162	250	158	63	257	110	147	285	182	150	377	8	100	G1/4
180	162	250	158	63	257	110	147	285	182	150	387	8	100	G1/4

[1] Version "0000" and "0541"

☞ **Notice:**
For the dimensions of the base pump (axial piston variable displacement pump A10VSO.../32) see data sheet 92714.

Dimensions: Type SYDFEE (installation orientation "2") (dimensions in mm)

NG45 ... 180 (installation orientation "2"; shaft design "S" or "R"; with universal through-drive "U.."; representation NG100)



1 Preload valve (optional)
2 Pilot control valve attachment with clockwise direction of rotation
3 Space required for removing the mating connector
4 Port X2 (pressure transducer HM 20) with actual pressure value input "F."

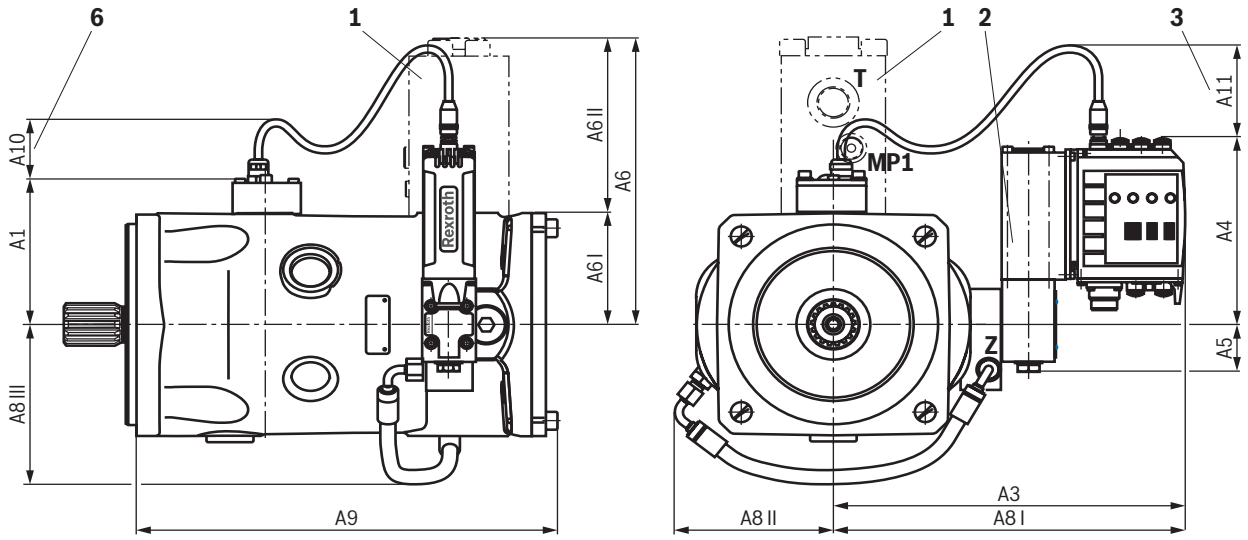
NG	A1	A3 [1]	A4	A5	A6	A6 I	A6 II	Version "0479" and "0487" A8 I	A8 II	A8 III	A9	A10	A11	Z
45	134	138	158	63	206	91	115	173	145	125	287	8	100	G1/4
71	146	146	158	63	254	104	150	181	159	150	316	8	100	G1/4
100	151	157	158	63	247	100	147	192	164	150	372	8	100	G1/4
140	162	170	158	63	257	110	147	205	182	150	382	8	100	G1/4
180	162	170	158	63	257	110	147	205	182	150	392	8	100	G1/4

[1] Version "0000" and "0541"

☞ **Notice:**
For the dimensions of the base pump (axial piston variable displacement pump A10VSO.../32) see data sheet 92714.

Dimensions: Type SYDFED (installation orientation "0") (dimensions in mm)

NG45 ... 180 (installation orientation "0"; shaft design "S" or "R"; with universal through-drive "U.."; representation NG100)



1 Preload valve (optional)
2 Pilot control valve attachment with clockwise direction of rotation
3 Space required for removing the mating connector
6 Space required for the connection line

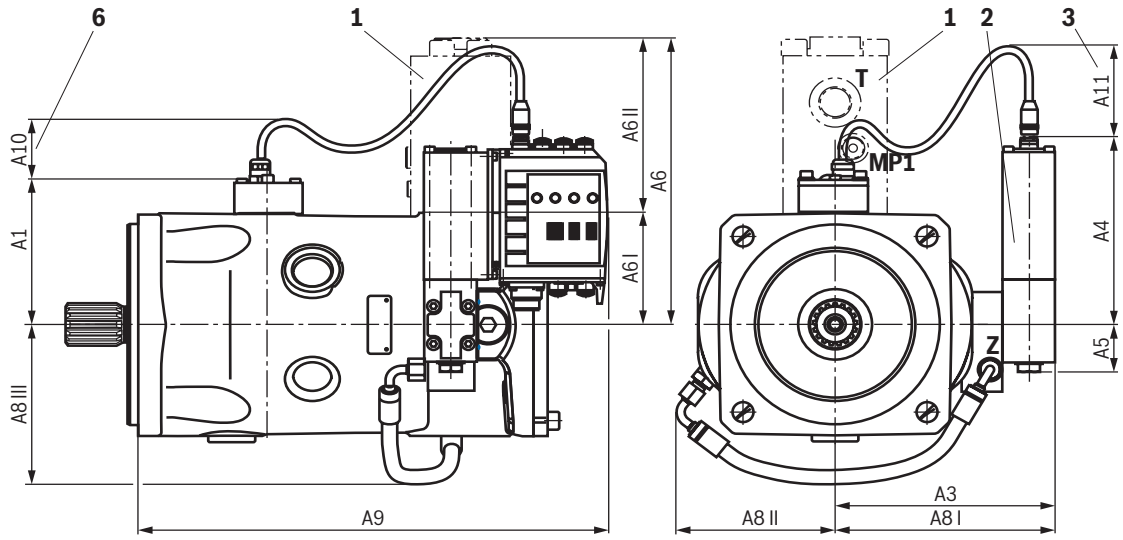
NG	A1	A3 [1]	A4	A5	A6	A6 I	A6 II	Version "0479" and "0487" A8 I	A8 II	A8 III	A9	A10	A11	Z
45	114	251	166	43	206	91	115	286	145	125	266	60	100	G1/4
71	126	259	166	43	254	104	150	294	159	150	301	60	100	G1/4
100	131	270	166	43	247	100	147	305	164	150	360	60	100	G1/4
140	142	294	166	43	257	110	147	329	182	150	377	60	100	G1/4
180	142	294	166	43	257	110	147	329	182	150	387	60	100	G1/4

[1] Version "0000" and "0541"

☞ **Notice:**
For the dimensions of the base pump (axial piston variable displacement pump A10VSO.../32) see data sheet 92714.

Dimensions: Type SYDFED (installation orientation "2") (dimensions in mm)

NG45 ... 180 (installation orientation "2"; shaft design "S" or "R"; with universal through-drive "U.."; representation NG100)



1 Preload valve (optional)
2 Pilot control valve attachment with clockwise direction of rotation
3 Space required for removing the mating connector
6 Space required for the connection line

NG	A1	A3 [1]	A4	A5	A6	A6 I	A6 II	Version "0479" and "0487" A8 I	A8 II	A8 III	A9	A10	A11	Z
45	114	137	166	43	206	91	115	172	145	125	322	60	100	G1/4
71	126	145	166	43	254	104	150	180	159	150	351	60	100	G1/4
100	131	156	166	43	247	100	147	191	164	150	407	60	100	G1/4
140	142	180	166	43	257	110	147	215	182	150	417	60	100	G1/4
180	142	180	166	43	257	110	147	215	182	150	427	60	100	G1/4

[1] Version "0000" and "0541"

☞ **Notice:**
For the dimensions of the base pump (axial piston variable displacement pump A10VSO.../32) see data sheet 92714.

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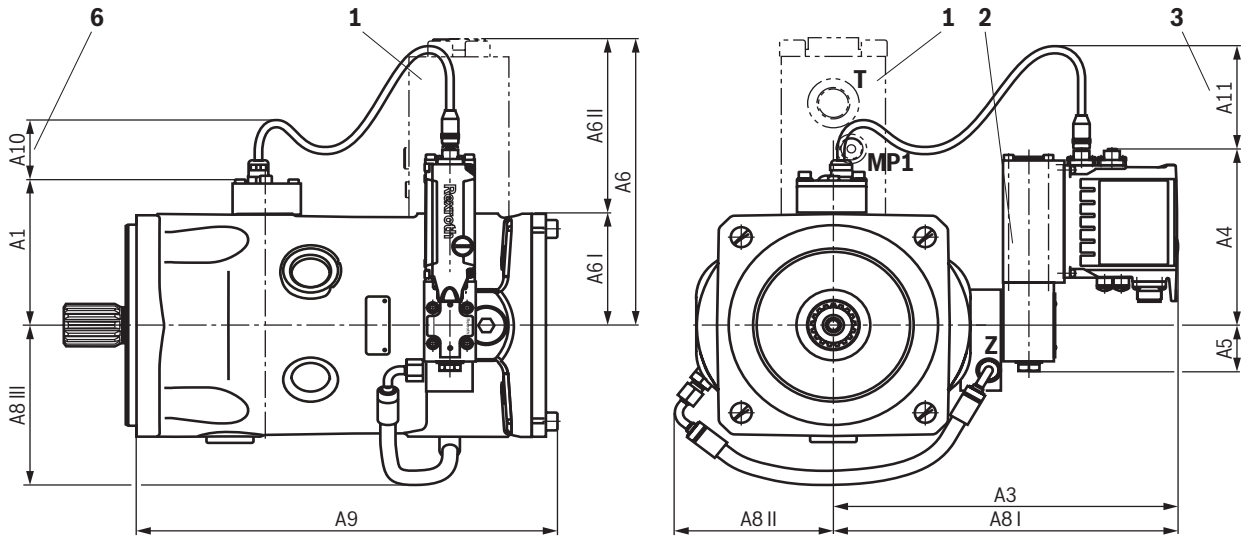
Dimensions: Type SYDFEF (installation orientation "0") (dimensions in mm)

NG45 ... 180 (installation orientation "0"; shaft design "S" or "R"; with universal through-drive "U.."; representation NG100)



1 Preload valve (optional)
2 Pilot control valve attachment with clockwise direction of rotation
3 Space required for removing the mating connector
6 Space required for the connection line

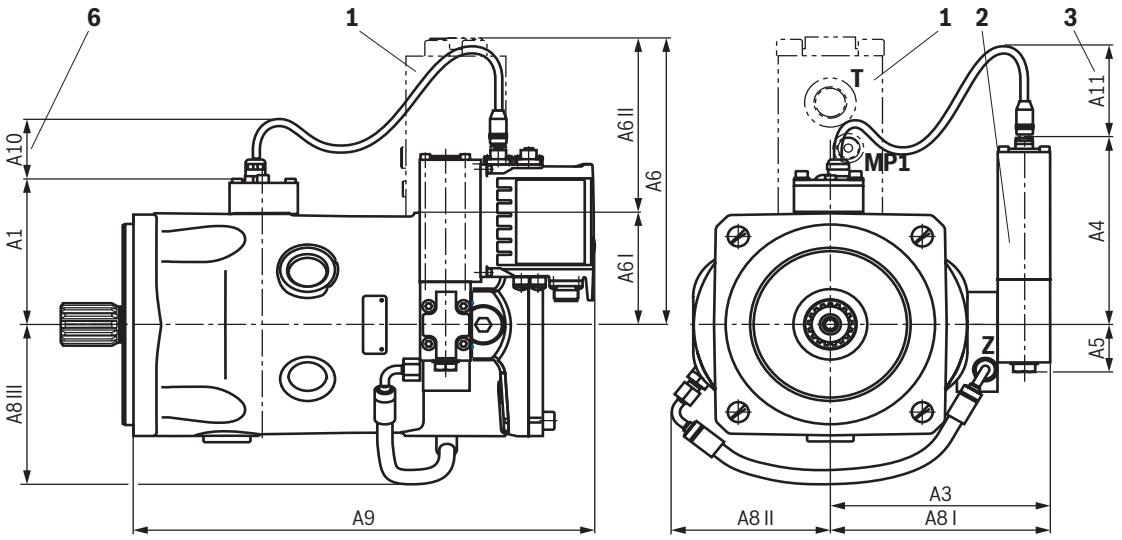
NG	A1	A3 [1]	A4	A5	A6	A6 I	A6 II	Version "0479" and "0487" A8 I	A8 II	A8 III	A9	A10	A11	Z
45	114	249	166	43	206	91	115	284	145	125	266	60	100	G1/4
71	126	257	166	43	254	104	150	292	159	150	301	60	100	G1/4
100	131	268	166	43	247	100	147	303	164	150	360	60	100	G1/4
140	142	292	166	43	257	110	147	327	182	150	377	60	100	G1/4
180	142	292	166	43	257	110	147	327	182	150	387	60	100	G1/4

[1] Version "0000" and "0541"

☞ **Notice:**
For the dimensions of the base pump (axial piston variable displacement pump A10VSO.../32) see data sheet 92714.

Dimensions: Type SYDFEF (installation orientation "2") (dimensions in mm)

NG45 ... 180 (installation orientation "2"; shaft design "S" or "R"; with universal through-drive "U.."; representation NG100)



1 Preload valve (optional)
2 Pilot control valve attachment with clockwise direction of rotation
3 Space required for removing the mating connector
6 Space required for the connection line

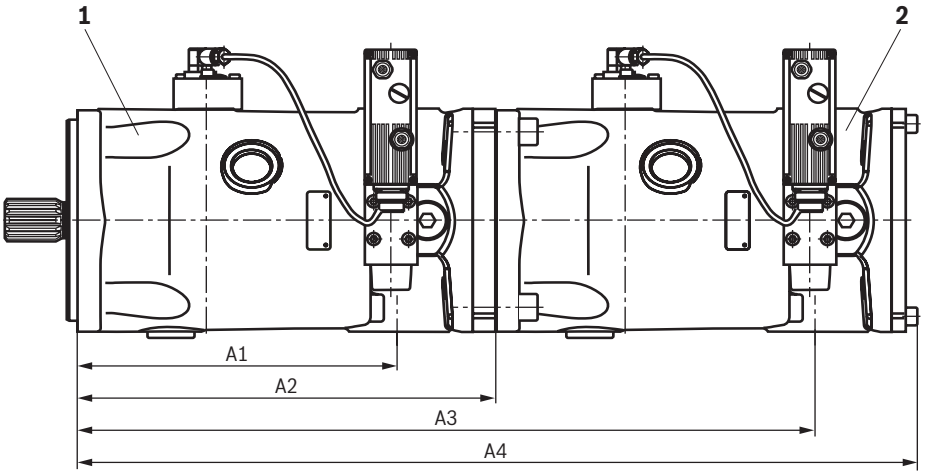
NG	A1	A3 [1]	A4	A5	A6	A6 I	A6 II	Version "0479" and "0487" A8 I	A8 II	A8 III	A9	A10	A11	Z
45	114	137	166	43	206	91	115	172	145	125	320	60	100	G1/4
71	126	145	166	43	254	104	150	180	159	150	349	60	100	G1/4
100	131	156	166	43	247	100	147	191	164	150	405	60	100	G1/4
140	142	180	166	43	257	110	147	215	182	150	415	60	100	G1/4
180	142	180	166	43	257	110	147	215	182	150	425	60	100	G1/4

[1] Version "0000" and "0541"

☞ **Notice:**
For the dimensions of the base pump (axial piston variable displacement pump A10VSO.../32) see data sheet 92714.

Dimensions: Combination pumps BR32 (dimensions in mm)

A10VSO.../32 + **A10VSO.../32**
(SYDFE.-3X...) + (SYDFE.-3X...)



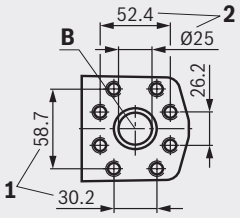
1 Main pump
2 Attachment pump

		Main pump																			
		A10VSO 45				A10VSO 71				A10VSO 100				A10VSO 140				A10VSO 180			
Attachment pump		**A1**	**A2**	**A3**	**A4**	**A1**	**A2**	**A3**	**A4**	**A1**	**A2**	**A3**	**A4**	**A1**	**A2**	**A3**	**A4**	**A1**	**A2**	**A3**	**A4**
A10VSO 18	**BR31**	184	264	409	459	217	299	444	494	275	360	505	555	275	377	522	572	285	387	532	582
A10VSO 28	**BR31**	184	264	428	470	217	299	463	505	275	360	524	566	275	377	541	583	285	387	551	593
A10VSO 45	**BR31**					217	299	483	523	275	360	544	584	275	377	561	601	285	387	571	611
A10VSO 45	**BR32**	184	264	448	530	217	299	483	565	275	360	544	626	275	377	561	643	285	387	571	653
A10VSO 71	**BR32**					217	299	516	600	275	360	577	661	275	377	594	678	285	387	604	688
A10VSO 100	**BR32**									275	360	635	720	275	377	652	737	285	387	662	747
A10VSO 140	**BR32**													275	377	652	754	285	387	662	764
A10VSO 180	**BR32**																	285	387	672	774

Dimensions: Connections (dimensions in mm)

Size			**45**	**71**	**100**	**140**	**180**
B Working line (SAE J518 [1])	▶ Size		1″	1″	1 1/4″	1 1/4″	1 1/4″
	▶ Mounting thread (DIN 13)		M10 x 1,5; 17 deep		M14 x 2; 19 deep		
	▶ Peak pressure [2]	bar	350				
S Suction line (SAE J518 [1])	▶ Size		1 1/2″	2″	2 1/2″	2 1/2″	2 1/2″
	▶ Mounting thread (DIN 13)		M12 x 1.75; 20 deep		M12 x 1.75; 17 deep		
	▶ Peak pressure [2]	bar	10				

Notices regarding size 71:
- For pressure connection B, two SAE fastening connections rotated by 90° are available. SAE 1 1/4" standard pressure series, 3000 psi, for pressures up to 250 bar or SAE 1" standard pressure series, 5000 psi, for pressures up to 350 bar.
- For operating pressures exceeding 250 bar, the pressure flange SAE 1" must be used.



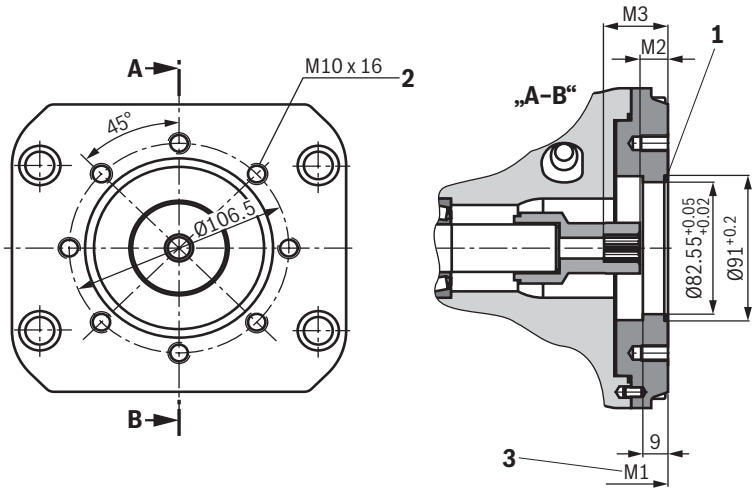
[1] Dimensions according to SAE J518 only, metric mounting thread deviating from the standard.
[2] Application-specific short-time pressure peaks may occur. Please observe when selecting measuring devices and fittings. Specified pressures are in bar absolute.

1 SAE 1 1/4"
2 SAE 1"

RE 30630, edition: 2023-01, **Bosch Rexroth AG**

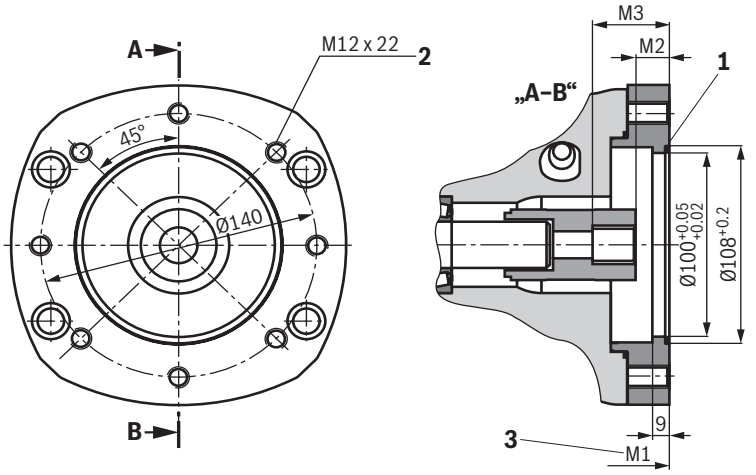
Dimensions: Through-drives (dimensions in mm)

▶ **"U52"** **Flange** ISO 3019-1-82-2
Hub for splined shaft acc. to ANSI B92.1a-1996 – 3/4" 11T 16/32DP [1] (SAE J744 - 19-4 (A-B))



NG	M1	M2	M3
45	264	19	39.4
71	299	20.8	41.2
100	360	19	40
140	377	18.6	39.6
180	387	18.9	39.9

▶ **"UB3"** **Flange** ISO 3019-2 - 100B2HW
Hub for splined shaft acc. to ANSI B92.1a-1996 – 7/8" 13T 16/32DP [1] (SAE J744 - 22-4 (B))



NG	M1	M2	M3
45	264	18	42.4
71	299	19.8	44.2
100	360	18	42.3
140	377	17.6	41.9
180	387	17.9	42.2

1 Seal ring (included in the scope of delivery)
2 Thread according to DIN 13
3 Up to pump mounting face

[1] 30° pressure angle, flat root, side fit, tolerance class 5

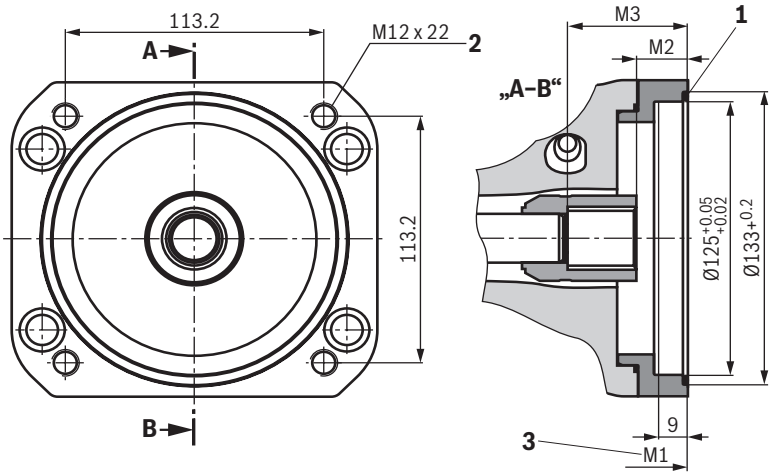
☞ **Notice:**
Before determining the design, please request a binding installation drawing.

Bosch Rexroth AG, RE 30630, edition: 2023-01

Dimensions: Through-drives (dimensions in mm)

▶ **"UE1"** **Flange** ISO 3019-2 - 125, 4-hole

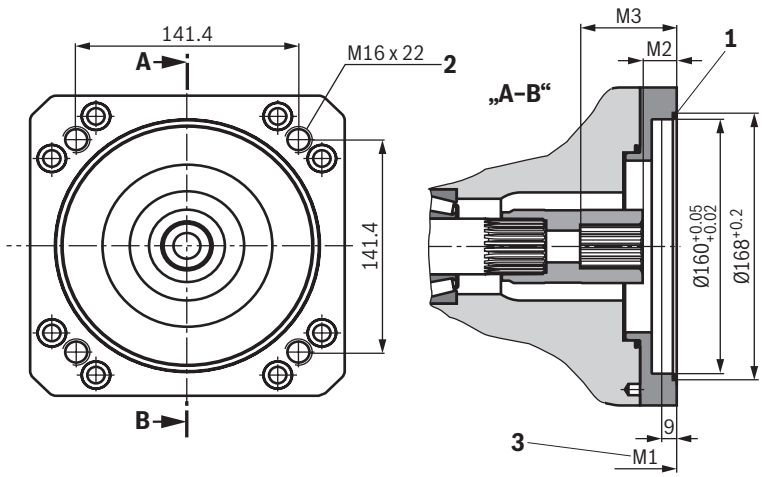
Hub for splined shaft according to ANSI B92.1a-1996 – 1" 15T 16/32DP [1] (SAE J744 - 25-4 (B-B))



NG	M1	M2	M3
45	264	18.5	48.0
71	299	20.3	49.2
100	360	18.2	47.0
140	377	18.1	47.6
180	387	18.4	47.9

▶ **"UB8"** **Flange** ISO 3019-2 - 160B4HW

Hub for splined shaft acc. to ANSI B92.1a-1996 – 1 1/4" 14T 12/24DP [1] (SAE J744 - 32-4 (C))



NG	M1	M2	M3
71	299	20.3	58.3
100	360	19.5	57.5
140	377	19.1	56.4
180	387	19.4	56.7

1 Seal ring (included in the scope of delivery)
2 Thread according to DIN 13
3 Up to pump mounting face

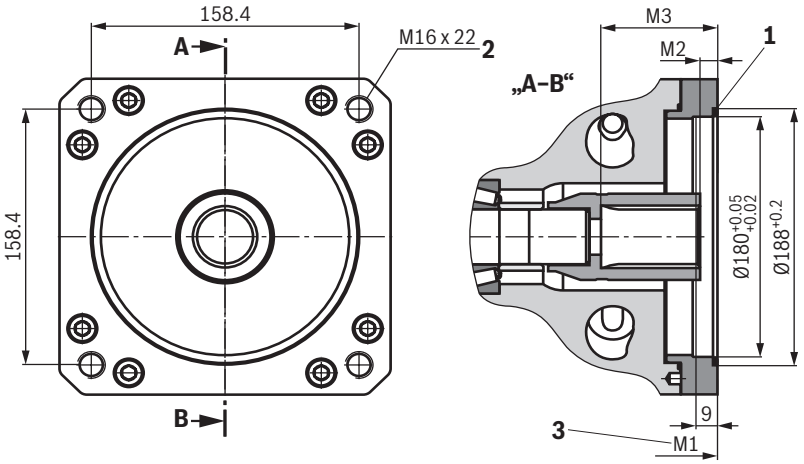
☞ **Notice:**
Before determining the design, please request a binding installation drawing.

[1] 30° pressure angle, flat root, side fit, tolerance class 5

RE 30630, edition: 2023-01, **Bosch Rexroth AG**

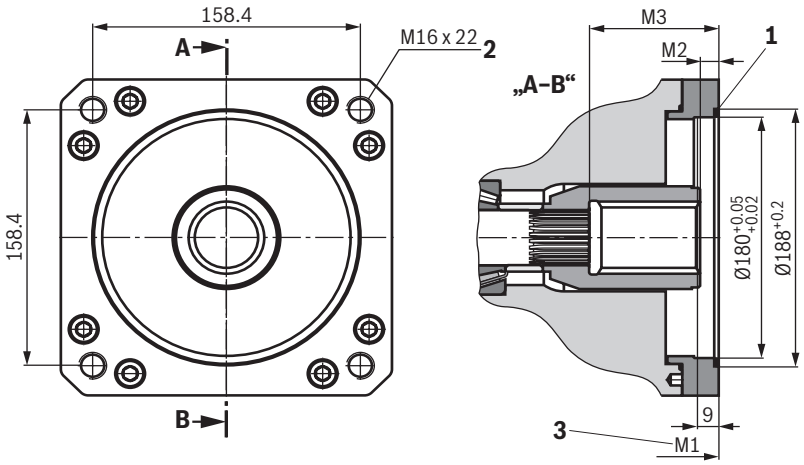
Dimensions: Through-drives (dimensions in mm)

▶ **"UB9"** **Flange** ISO 3019-2 - 180B4HW
Hub for splined shaft acc. to ANSI B92.1a-1996 – 1 1/2" 17T 12/24DP [1] (SAE J744 - 38-4 (C-C))



NG	M1	M2	M3
100	360	21	63
140	377	9.6	68.6
180	387	9.9	68.9

▶ **"UB7"** **Flange** ISO 3019-2 - 180B4HW
Hub for splined shaft acc. to ANSI B92.1a-1996 – 1 3/4" 13T 8/16DP [1] (SAE J744 - 44-4 (D))



NG	M1	M2	M3
140	377	9.3	75.9
180	387	10.4	76.4

1 Seal ring (included in the scope of delivery)
2 Thread according to DIN 13
3 Up to pump mounting face

[1] 30° pressure angle, flat root, side fit, tolerance class 5

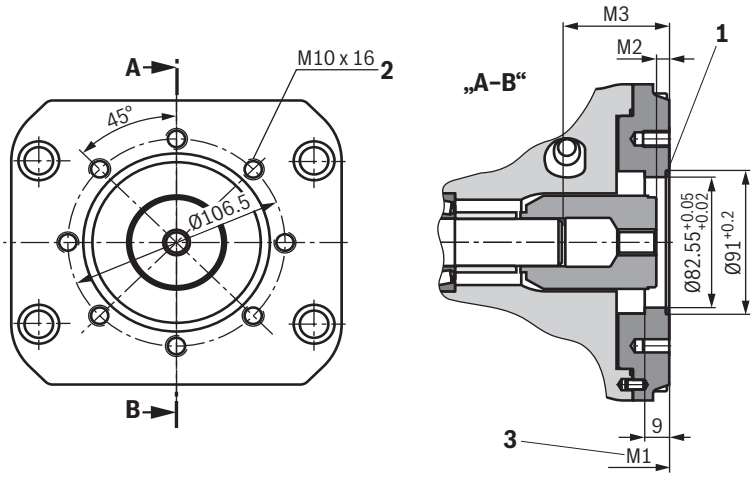
☞ **Notice:**
Before determining the design, please request a binding installation drawing.

Bosch Rexroth AG, RE 30630, edition: 2023-01

Dimensions: Through-drives (dimensions in mm)

▶ **"U01"** **Flange** ISO 3019-1-82-2

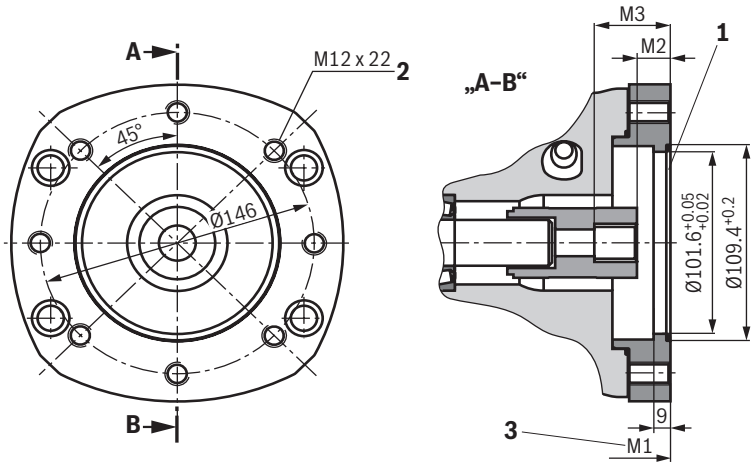
Hub for splined shaft acc. to ANSI B92.1a-1996 – 5/8" 9T 16/32DP [1] (SAE J744 - 16-4 (A))



NG	M1	M2	M3
45	264	21.2	53.3
71	299	8.4	60.6
100	360	9.7	64.7
140	377	9.7	76.8
180	387	10.8	77.1

▶ **"U68"** **Flange** ISO 3019-1-101-2

Hub for splined shaft acc. to ANSI B92.1a-1996 – 7/8" 13T 16/32DP [1] (SAE J744 - 22-4 (B))



NG	M1	M2	M3
45	264	18	42.4
71	299	19.8	44.2
100	360	18	42.3
140	377	17.6	41.9
180	387	17.9	42.2

1 Seal ring (included in the scope of delivery)
2 Thread according to DIN 13
3 Up to pump mounting face

☞ **Notice:**
Before determining the design, please request a binding installation drawing.

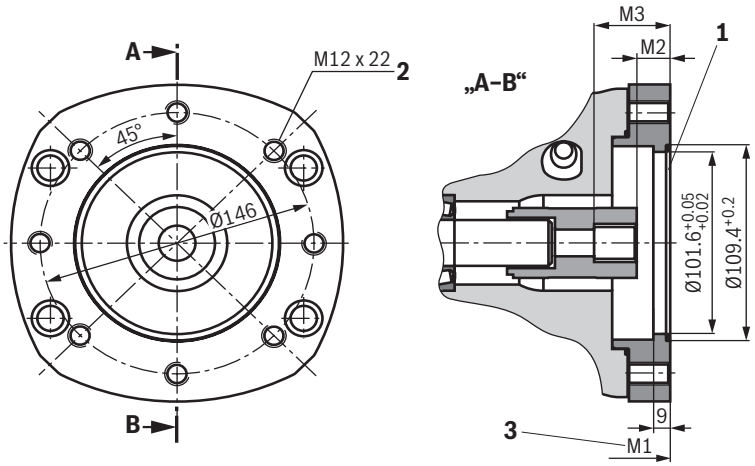
[1] 30° pressure angle, flat root, side fit, tolerance class 5

RE 30630, edition: 2023-01, **Bosch Rexroth AG**

Dimensions: Through-drives (dimensions in mm)

▶ **"U04"** **Flange** ISO 3019-1-101-2

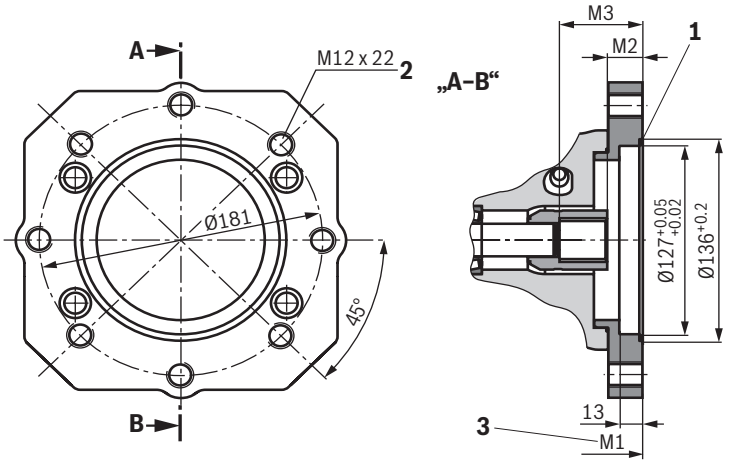
Hub for splined shaft acc. to ANSI B92.1a-1996 – 1" 15T 16/32DP [1] (SAE J744 - 25-4 (B-B))



NG	M1	M2	M3
45	264	18.5	48
71	299	20.3	49.2
100	360	18.2	47
140	377	18.1	47.6
180	387	18.4	47.9

▶ **"U24"** **Flange** ISO 3019-1-127-2

Hub for splined shaft acc. to ANSI B92.1a-1976 – 1 1/2" 17T 12/24DP [1] (SAE J744 - 38-4 (C-C))



NG	M1	M2	M3
100	360	21	63
140	377	9.6	68.6
180	387	9.9	68.9

1 Seal ring (included in the scope of delivery)
2 Thread according to DIN 13
3 Up to pump mounting face

[1] 30° pressure angle, flat root, side fit, tolerance class 5

☞ **Notice:**
Before determining the design, please request a binding installation drawing.

Bosch Rexroth AG, RE 30630, edition: 2023-01

Torsionally flexible couplings for attachment to a standard electric motor

Motor		SYDFE.-3X			
Frame size/ characteristic value	**Shaft diameter** in mm	**NG45** Splined shaft "R," 1"	**NG71** Splined shaft "S" or "R," 1 1/4"	**NG100** Splined shaft "S," 1 1/2"	**NG140, 180** Splined shaft "S," 1 3/4"
100/0, 112/0	28	**R901038017**			
132/0	38	**R900772898**			
160/0	42	**R900994283**	**R900228413**		
180/0	48	**R900062159**	**R900240468**	**R900242567**	
200/0	55	**R901038025**	**R901038021**	**R901104689**	**R901038048**
225/0	60	**R901066409**	**R900228375**	**R901050508**	**R900988121**
250/0	65	**R900988348**	**R900986404**	**R901046864**	**R900708084**
280/0	75		**R900218487**	**R901055216**	**R901052451**
315/0	80			**R901046894** [1]	**R901041730** [1]
315/1	80				**R901046885**

[1] Up to 40 °C

Accessories for through-drives

With the introduction of A10VSO, series 32, a universal through-drive for combining several pump stages is used. The required components can be found in the following table and are to be ordered separately. The pumps with universal through-drive are closed at the factory with an end cover to ensure reliable operation.

The following conditions apply to the attachment pumps listed in the table:
- SYDFE and A10VSO with shaft "S" or "R"
- PGH with shaft "R," flange "U2," see data sheet 10223
- PGF3 with shaft "J," flange "U2," see data sheet 10213
- AZPF with shaft "R," front cover "R," see data sheet 10089

Flange and through-drive (see ordering code page 2) must be the same. Check in the current data sheet of the gear pump whether the shaft ends have the same specified dimensions.

Attachment kits for universal through-drive

Main pump SYDFE..-3X/..U..					Attachment pump			
NG45	NG71	NG100	NG140	NG180	Size and type		Through-drive centering hub	Flange designation
R902496472	**R902496473**	**R902496474**	**R902496475**	**R902496475**	NG18	SYDFE..-2X/ A10 VSO / BR31	"U52" 82.55 mm 3/4"	ISO 3019-1-82-2
R902492531	**R902512434**	**R902496445**	**R902496446**	**R902496446**	NG28		"UB3" 100 mm 7/8"	ISO 3019-2 100B2HW
R902510125	**R902510126**	**R902510127**	**R902510129**	**R902510129**	NG45	SYDFE..-3X/..U.. A10 VSO / BR32	"UE1" 125 mm 1"	ISO 3019-2 125B4HW
	R902496458	**R902496459**	**R902496460**	**R902496461**	NG71		"UB8" 160 mm 1 1/4"	ISO 3019-2 160B4HW
		R902496462	**R902496463**	**R902496464**	NG100		"UB9" 180 mm 1 1/2"	ISO 3019-2 180B4HW
			R902496465	**R902496466**	NG140		"UB7" 180 mm 1 3/4"	ISO 3019-2 180B4HW
				R902496466	NG180			
R902496467	**R902496468**	**R902496469**	**R902496470**	**R902496471**	PGF2, PGH2, PGH3, AZPF		"U01" 82.55 mm 5/8"	ISO 3019-1-82-2
R902496477	**R902496478**	**R902496479**	**R902496480**	**R902496481**	PGF3		"U68" 101.6 mm 7/8"	ISO 3019-1-101-2
R902496482	**R902496663**	**R902496664**	**R902496665**	**R902496666**	PGH4		"U04" 101.6 mm 1"	ISO 3019-1-101-2
		R902510136	**R902510137**	**R902510138**	PGH5		"U24" 127 mm 1 1/2"	ISO 3019-1-127-2

☞ **Note:**
Combinations are only possible with shaft ends according to SAE J744.

Bosch Rexroth AG, RE 30630, edition: 2023-01

Accessories (separate order)

SYDFE1	Material number	Data sheet
External control electronics VT 5041-3X/1 without power limitation, without swivel angle display	**R901236404**	30242
External control electronics VT 5041-3X/2 without power limitation, with swivel angle display	**R901263598**	30242
External control electronics VT 5041-3X/3 with power limitation, with swivel angle display	**R901196678**	30242
Mating connector for solenoid plug	**R901017011**	08006
Mating connector for position transducer of valve	**R900023126**	08006
Mating connector for position transducer of pump	**R900013674**	–
Pressure transducer HM 20-2X, measurement range 315 bar (4 ... 20 mA)	**R901342029**	30272
Pressure transducer HM 20-2X, measurement range 315 bar (0.1 ... 10 V)	**R901342030**	30272
Card holder VT 3002-1-2X/32D	**R900020153**	29928
Compact power supply unit VT-NE32-1X	**R900080049**	29929

SYDFEE	Material number	Data sheet
12-pole mating connector for central connection X1 without cable (assembly kit)	**R900884671**	08006
12-pole mating connector for central connection X1 with cable set 2 x 5 m	**R900032356**	–
12-pole mating connector for central connection X1 with cable set 2 x 20 m	**R900860399**	–
Pressure transducer HM 20-2X, measurement range 315 bar (4 ... 20 mA)	**R901342029**	30272
Pressure transducer HM 20-2X, measurement range 315 bar (0.1 ... 10 V)	**R901342030**	30272
Pressure transducer HM 20-2X, measurement range 315 bar (0.5 ... 5 V) with 0.5 m cable	**R901342038**	30272
Test device VT-PDFE-1-1X/V0/0	**R900757051**	29689-B
Compact power supply unit VT-NE32-1X	**R900080049**	29929

SYDFED	Material number	Data sheet
12-pole mating connector for central connection XH4 without cable (assembly kit)	**R900884671**	08006
12-pole mating connector for central connection XH4 with cable set 2 x 5 m	**R900032356**	–
12-pole mating connector central connection XH4 with cable set 2 x 20 m	**R900860399**	–
Pressure transducer HM 20-2X, measurement range 315 bar (4 ... 20 mA)	**R901342029**	30272
Pressure transducer HM 20-2X, measurement range 315 bar (0.1 ... 10 V)	**R901342030**	30272
Pressure transducer HM 20-2X, measurement range 315 bar (0.5 ... 5 V) with 0.5 m cable	**R901342038**	30272
Test device VT-PDFE-1-1X/V0/0	**R900757051**	29689-B
Compact power supply unit VT-NE32-1X	**R900080049**	29929
Ethernet connection cable M12 to RJ45 (connection X7E1 & X7E2), additional information type designation RKB0044/xxx.x (xxx.x: length in meters)	**R911172135**	
Commissioning software IndraWorks DS from version 14V14	**–**	–

SYDFEF	Material number	Data sheet
6-pole mating connector for central connection XH1 without cable (assembly kit)	**R900021267**	08006
6-pole mating connector for central connection XH1 with cable set 3 m	**R901420483**	08006
6-pole mating connector for central connection XH1 with cable set 5 m	**R901420491**	08006
6-pole mating connector for central connection XH1 with cable set 10 m	**R901420496**	08006
Pressure transducer HM 20-2X, measurement range 315 bar (4 ... 20 mA)	**R901342029**	30272
Pressure transducer HM 20-2X, measurement range 315 bar (0.1 ... 10 V)	**R901342030**	30272
Pressure transducer HM 20-2X, measurement range 315 bar (0.5 ... 5 V) with 0.5 m cable	**R901342038**	30272
Ethernet connection cable M12 to RJ45 (connection X7E1 & X7E2), additional information type designation RKB0044/003,0	**R911343806**	–
Commissioning software IndraWorks DS from version 14V14	**–**	–

RE 30630, edition: 2023-01, **Bosch Rexroth AG**

Project planning information

- Always shield command and actual value cables.
- The distance to aerial lines or radios must be at least 1 m.
- Do not lay signal lines close to power lines.
- For further information on the SYDFE control system, see the operating instructions (see "Further information").

Further information

Operating instructions for SY(H)DFE1	Operating instructions 30011-B
Operating instructions for SY(H)DFEE	Operating instructions 30012-B
Operating instructions for SY(H)DFED	Operating instructions 30017-B
Operating instructions for SY(H)DFEF	Operating instructions 30013-B
Data sheet for axial piston variable displacement pump A10VSO../32	Data sheet 92714
Data sheet for external control electronics VT 5041-3X for SYDFE1	Data sheet 30242
Data sheet for pilot control valve VT-DFP.-2X	Data sheet 29016
Data sheet for pump preload valve SYDZ 0001-1X	Data sheet 29255
Data sheet for swivel angle sensor VT-SWA-1-1X	Data sheet 30268
Data sheet for pressure transducer HM 20-2X	Data sheet 30272
Axial piston variable displacement pump universal through-drive	Data sheet 95581
Operating instructions for test device VT-PDFE	Operating instructions 29689-B
Internet	
Information on available spares	

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