RE 30030
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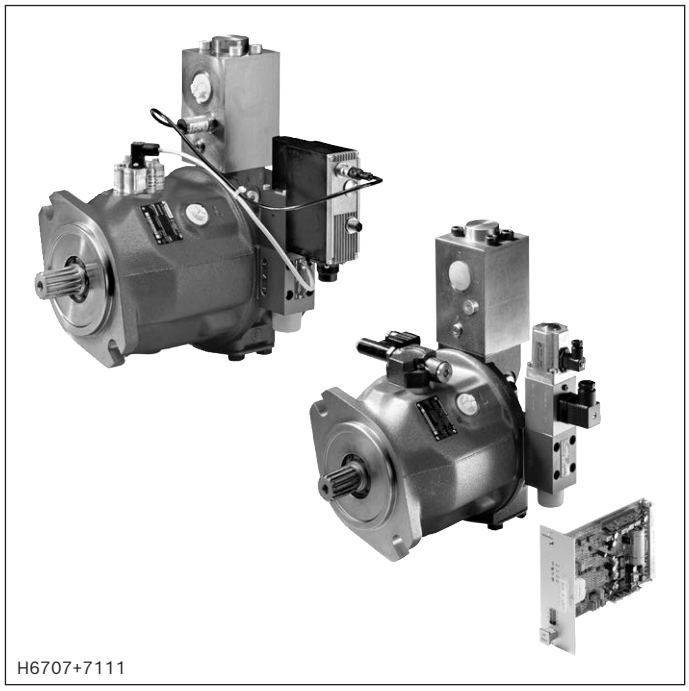
rexroth
A Bosch Company

Pressure and flow control system

Type SYDFE1, SYDFEE, SYDFED, SYDFEF


H6707+7111

- With axial piston variable displacement pump A10VSO.../31
- Size 18 ... 100
- Component series 2X
- Maximum operating pressure 280 bar
- Function: Swivel angle control, pressure control, torque limitation, speed control function, master-slave
- Communication: Sercos, PROFINET, 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.../31
- 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		10		See following pages
	–	2X	/			–	P			12		–		–	...

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 3)	**SY2DFE.** **SY3DFE.**

02	Component series 20 ... 29 (20 ... 29: unchanged installation and connection dimensions)	**2X**

Size		**018**	**028**	**045**	**071**	**100**	
03	Displacement in cm^3	18	28	45	71	100	**e.g. 071**

Direction of rotation looking at the drive shaft

04	Clockwise	✓	✓	✓	✓	✓	**R**
	Counterclockwise	✓	✓	✓	✓	✓	**L**

Hydraulic fluid

05	Mineral oil according to DIN 51524 (HL/HLP)	✓	✓	✓	✓	✓	**P**

Drive shaft variant

06	Cylindrical with fitting key DIN 6885 (not in connection with through-drive)	Ø18	Ø22	Ø25	Ø32	Ø40	**P**
	Splined shaft profile SAE J 744 [1)]	3/4"	–	–	–	1 1/2"	**S**
	Splined shaft profile SAE J 744 (higher torque)	–	7/8"	1"	1 1/4"	–	**R**

Connection flange (Ø centering in mm)

07	ISO 2-hole	80	100	100	125	125	**A**
	SAE 2-hole	82.55	101.6	101.6	127	127	**C**

Port for working lines pressure port B and suction port S

08	SAE, laterally opposite, mounting thread metric	✓	✓	✓	✓	✓	**12**

Through-drive (All through-drives with single pumps come without a hub and are operationally safe, provided with an end cover)

09	**Without** through-drive		✓	✓	✓	✓	✓	**N00**
	Centering	**Attachment pump** [2)] (examples)						
	IS0 Ø100 mm	A10VSO..31 NG28/45	–	✓	✓	✓	✓	**KD3**
	IS0 Ø125 mm	A10VSO..31 NG71/100	–	–	–	✓	✓	**KD5**
	SAE Ø82.55 mm	A10VSO..31 NG18, PGF2, PGH2, PGH3, AZPF	✓	✓	✓	✓	✓	**KC1**
	SAE Ø101.6 mm	PGH4, 1PF2G3, PGF3	–	✓	✓	✓	✓	**KC3**
	SAE Ø127 mm	PGH5	–	–	–	✓	✓	**KC5**

Base pump variant

10	Standard (internal pilot oil)	✓	✓	✓	✓	✓	**0000**
	External supply	–	✓	✓	✓	✓	**0479**
	External supply + regenerative operation	–	–	–	✓	✓	**0487**

Ordering code: Type SYDFE1 - pilot control and preload valve

01		02		03	04		05	06	07	08	09		10		11	12	13	14		15
	–	2X	/			–	P			12		–		–		0	X0XX		–	*

Control spool version

11	Standard (NG28 ... 100)	**A**
	2-notch spool (NG18 ... 100, only for replacement requirement)	**B**
	4-notch spool (NG18)	**C**

Installation orientation, solenoid

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

13	Not used	**X0XX**

Preload valve with integrated pressure limitation

14	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) [3; 4]	**3**
	Without preload valve	**X**

15	Further details in the plain text	*

[1] ANSI B92.1a-1976, 30° pressure angle, flat root, side fit, tolerance class 5

[2] Observe the conditions for the attachment pumps, see page 37.

[3] Observe nominal pressure of pump system.

[4] The pressure limiting function is not suitable for continuous operation.

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		18
	–	2X	/			–	P			12		–		–								–	*

Control spool version

11	Standard (NG28 ... 100)	**A**
	4-notch spool (NG18)	**C**

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

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

Additional functions: Closed-loop control

13	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

14	Standard electronics **with** leakage oil compensation	**0**
	Standard electronics **without** leakage oil compensation	**1**

Actual pressure value input (see "Electrical connections")

15	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

16	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"); NG18 only version "1", "2" or "3" with position 17)	**L**
	Without pressure transducer	**X**

Preload valve with integrated pressure limitation

17	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) [3; 4]	**3**
	Without preload valve	**X**

18	Further details in the plain text	*

[3] Observe nominal pressure of pump system.

[4] The pressure limiting function is not suitable for continuous operation.

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		18
	–	2X	/			–	P			12		–		–				0				–	*

Control spool version

11	Standard (NG28 ... 100)	**A**
	4-notch spool (NG18)	**C**

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

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

Additional functions: Closed-loop control

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

Field bus interface

14	Sercos III	**S**
	EtherCAT (CANopen profile)	**T**
	EtherCAT (Servodrive profile)	**D**
	VARAN (servo drive profile)	**V**
	Ethernet/IP	**E**
	PROFINET RT	**N**
	Powerlink	**W** [5)]

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

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

Pressure transducer

16	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"); NG18 only version "1", "2" or "3" with position 17)	**L**
	Without pressure transducer	**X**

Preload valve with integrated pressure limitation

17	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) [3; 4)]	**3**
	Without preload valve	**X**

18	Further details in the plain text	*

3) Observe nominal pressure of pump system.

4) The pressure limiting function is not suitable for continuous operation.

5) On request

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		18
	–	2X	/			–	P			12		–		–			A	0				–	*

Control spool version

11	Standard (NG28 ... 100)	**A**
	4-notch spool (NG18)	**C**

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

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

Additional functions: Closed-loop control

13	Standard	**A**

Field bus interface

14	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")

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

Pressure transducer

16	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"); NG18 only version "1", "2" or "3" with position 17)	**L**
	Without pressure transducer	**X**

Preload valve with integrated pressure limitation

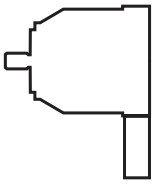
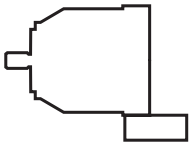
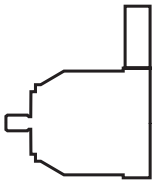
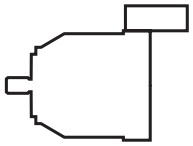
17	Pressure limitation 200 bar (tolerance ± 8 bar) [4)]	**1**
	Pressure limitation 250 bar (tolerance ± 10 bar) [4)]	**2**
	Pressure limitation 300 bar (tolerance ± 12 bar) [3; 4)]	**3**
	Without preload valve	**X**

18	Further details in the plain text	*

3) Observe nominal pressure of pump system.

4) The pressure limiting function is not suitable for continuous operation.

Installation orientation of the valve electronics

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

Ordering code: Order examples

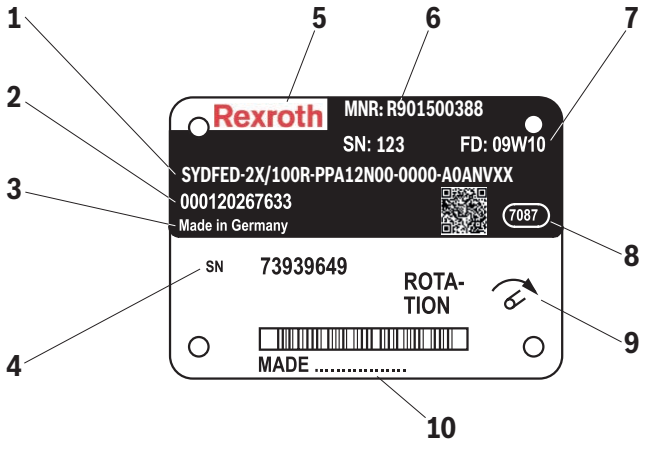
Order example for single pump: SYDFEE-2X/100R-PSA12N00-0479-A0A0VXX

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

Main pump (1st pump)		Attachment pump (2nd pump)
SY2DFEE-2X/100-100/ 00709780	+	00709780
SY2DFEE-2X/100-100/ SYDFEE-2X/100R-PSA12KD5-0000-A0A0CXX	+	SYDFEE-2X/100R-PSA12KD5-0000-A0A0CXX

- 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 is not known
- Pump combination, mounted with accessories
- Material number without "R9" for the attachment pump or type designation if material number is not known

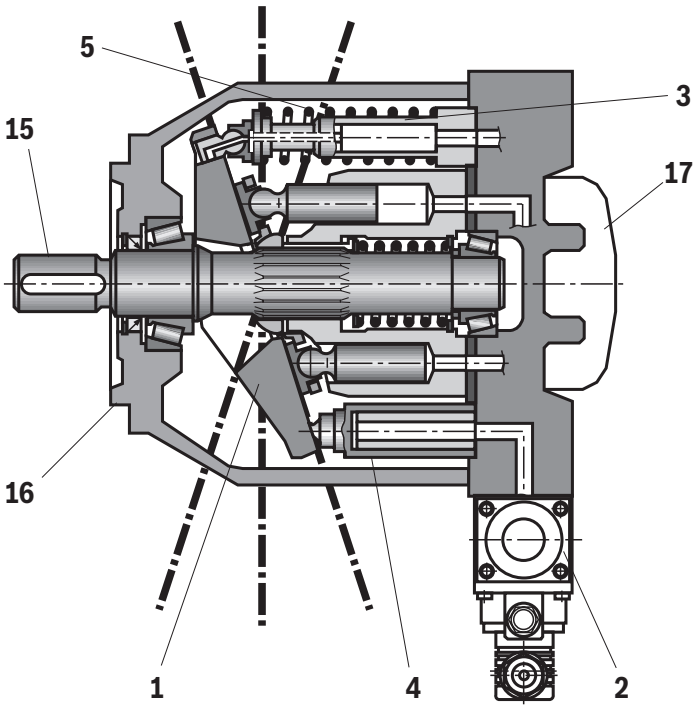
Example of name plate (SYDFED control system)

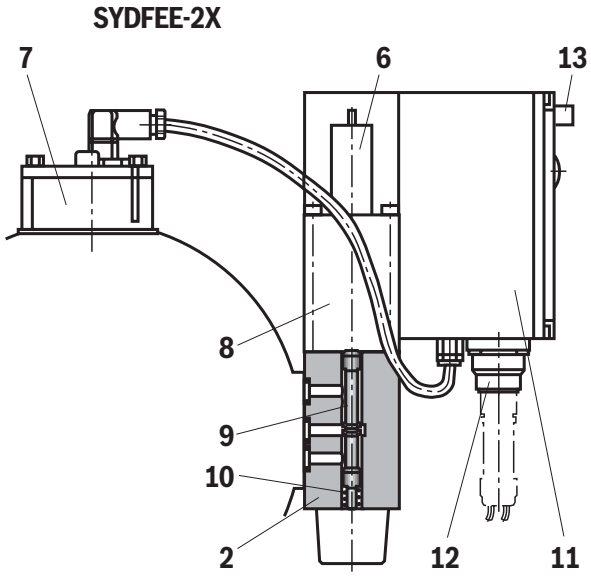


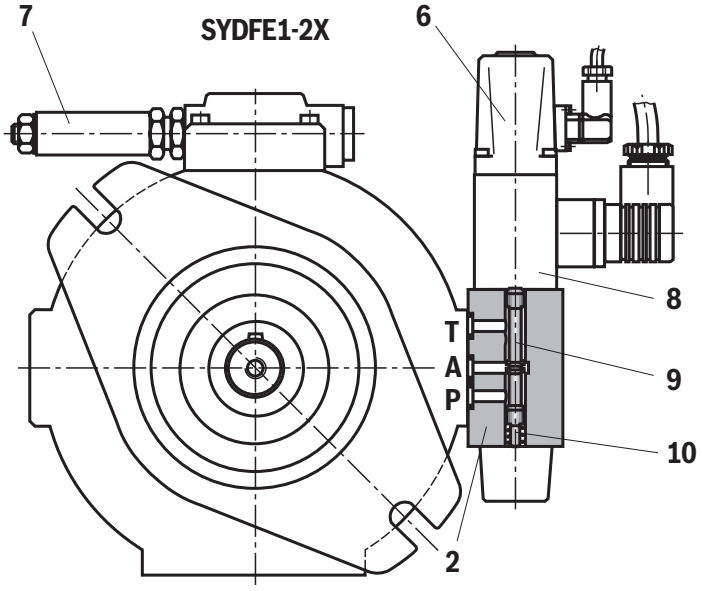
1 Material short text
2 Production order number
3 Designation of origin
4 Fabrication number
5 Word mark
6 Material number, serial number underneath
7 Date of production
8 Plant
9 Indication of direction of rotation
10 Production location

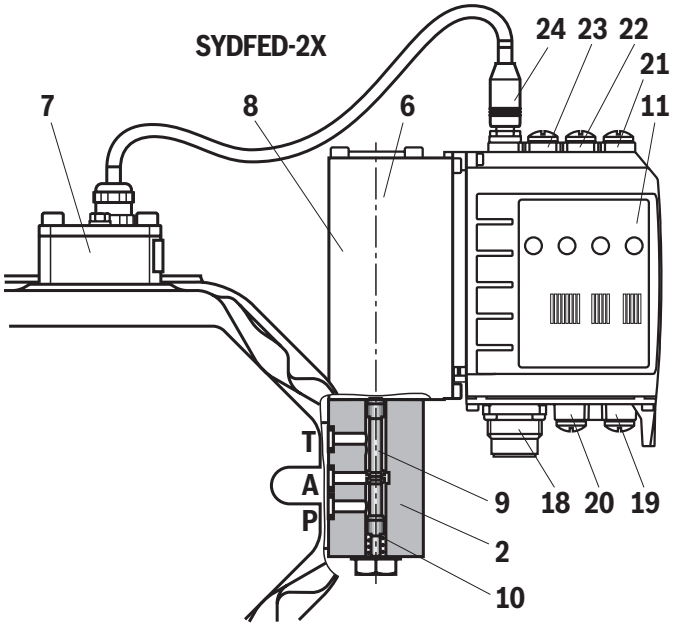
☞ **Notice:**
For enquiries regarding the control system, material number, production order number, serial number, and date of production are necessary.

Section: Type SYDFE1, SYDFEE, SYDFED



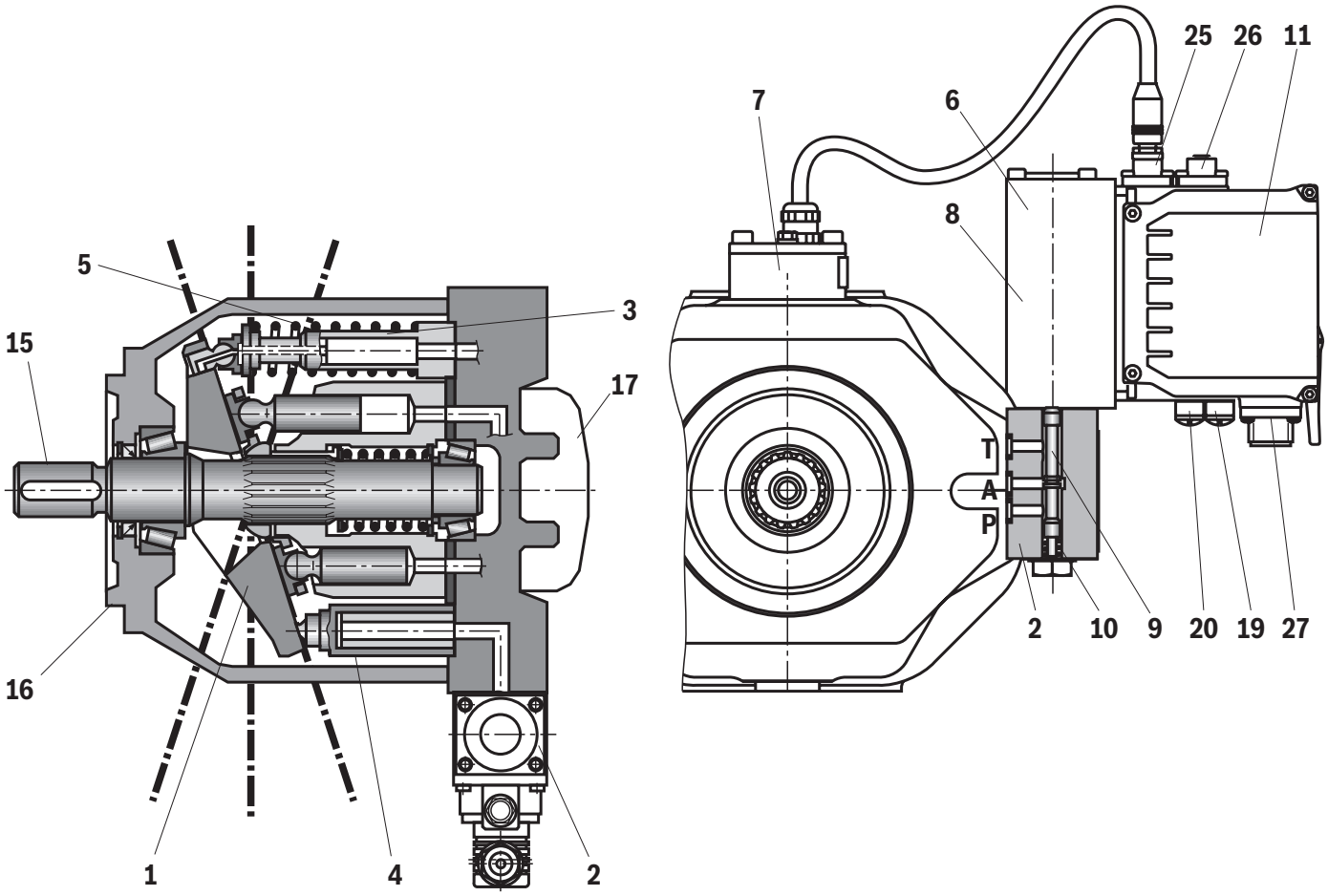






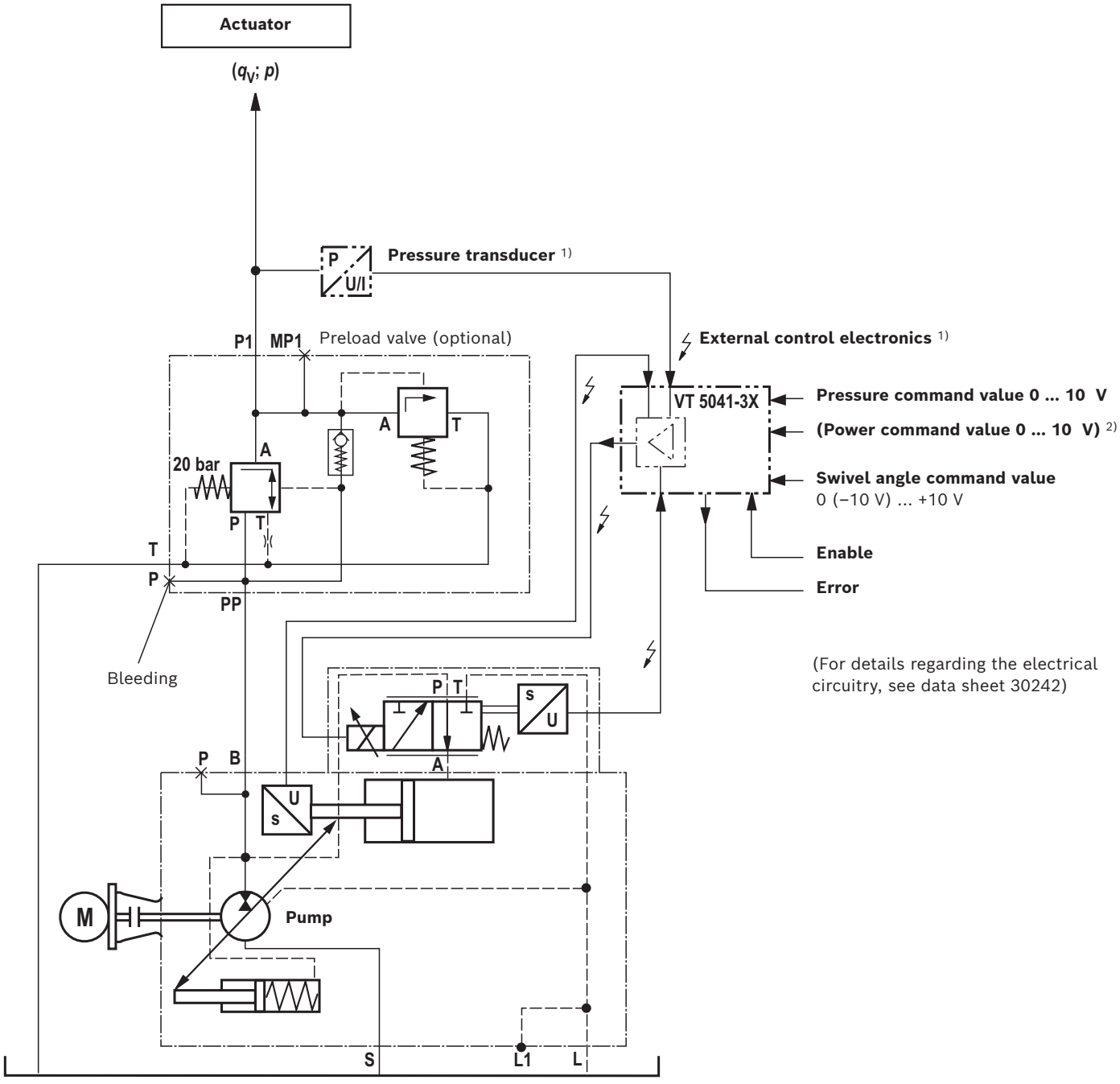
1 Swash plate
2 Pilot control valve
3 Counter piston
4 Actuating piston
5 Spring
6 Inductive position transducer for valve position
7 Swivel angle position sensor
8 Proportional solenoid
9 Valve spool
10 Spring
11 Integrated electronics
12 Connector X1
13 Connector X2 for connecting the pressure transducer HM 20, cable version (for SYDFEE only with actual pressure value input "F")
15 Drive shaft
16 Connection flange
17 Subplate, optionally with through-drive
18 Connector XH4
19 Multi Ethernet interface X7E1
20 Multi Ethernet interface X7E2
21 Configurable sensor interface X2M1
22 Configurable sensor interface X2M2
23 Reserved, X2N
24 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 Integrated electronics
15 Drive shaft
16 Connection flange
17 Subplate, optionally with through-drive
19 Multi Ethernet interface X7E1
20 Multi Ethernet interface X7E2
25 Actual swivel angle value input X8A1
26 Configurable sensor interface X2N
27 Connector XH1

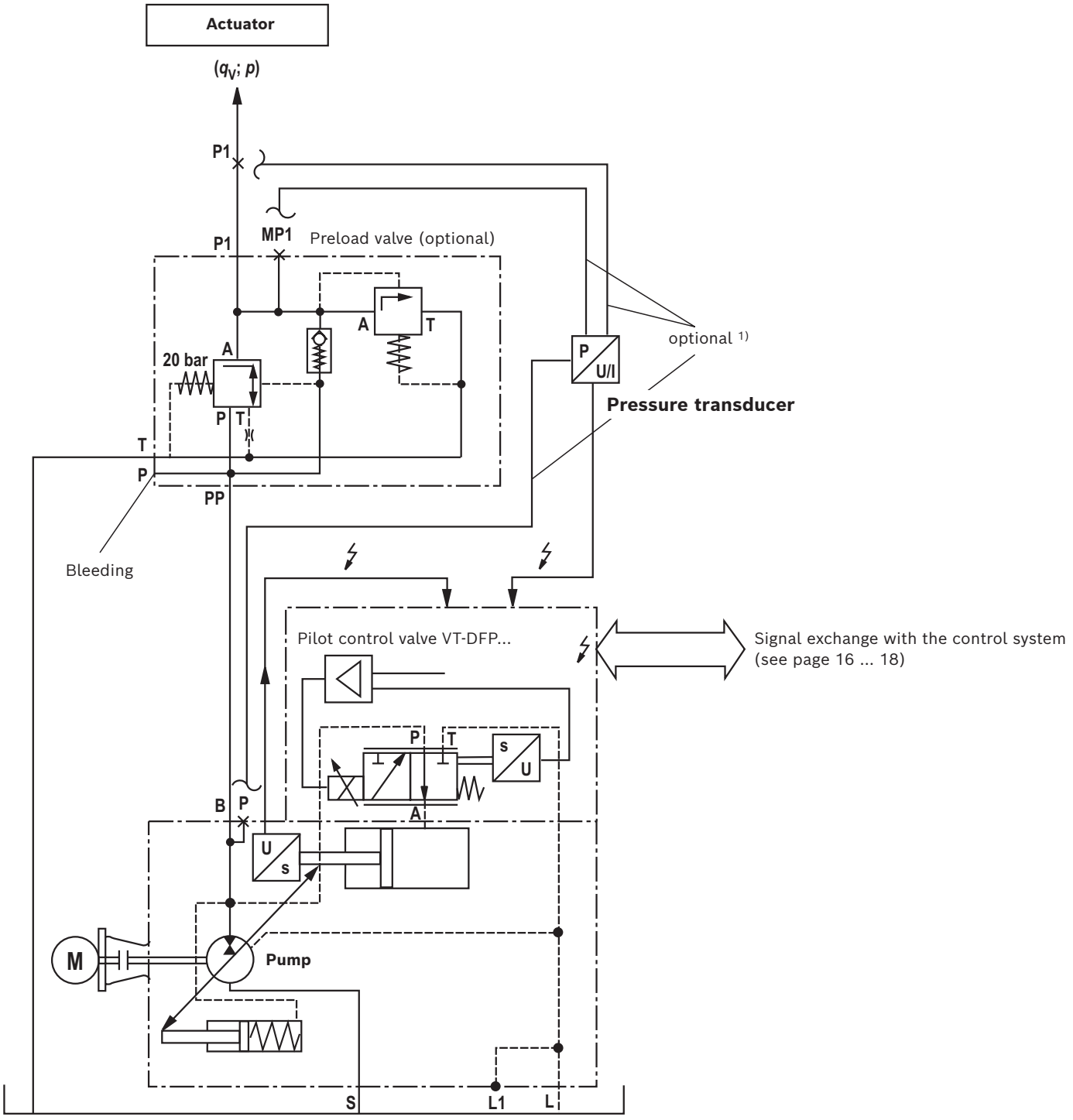
Schematic diagram: Type SYDFE1 – actuating system supplied internally



1) Separate order
2) Optional

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

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

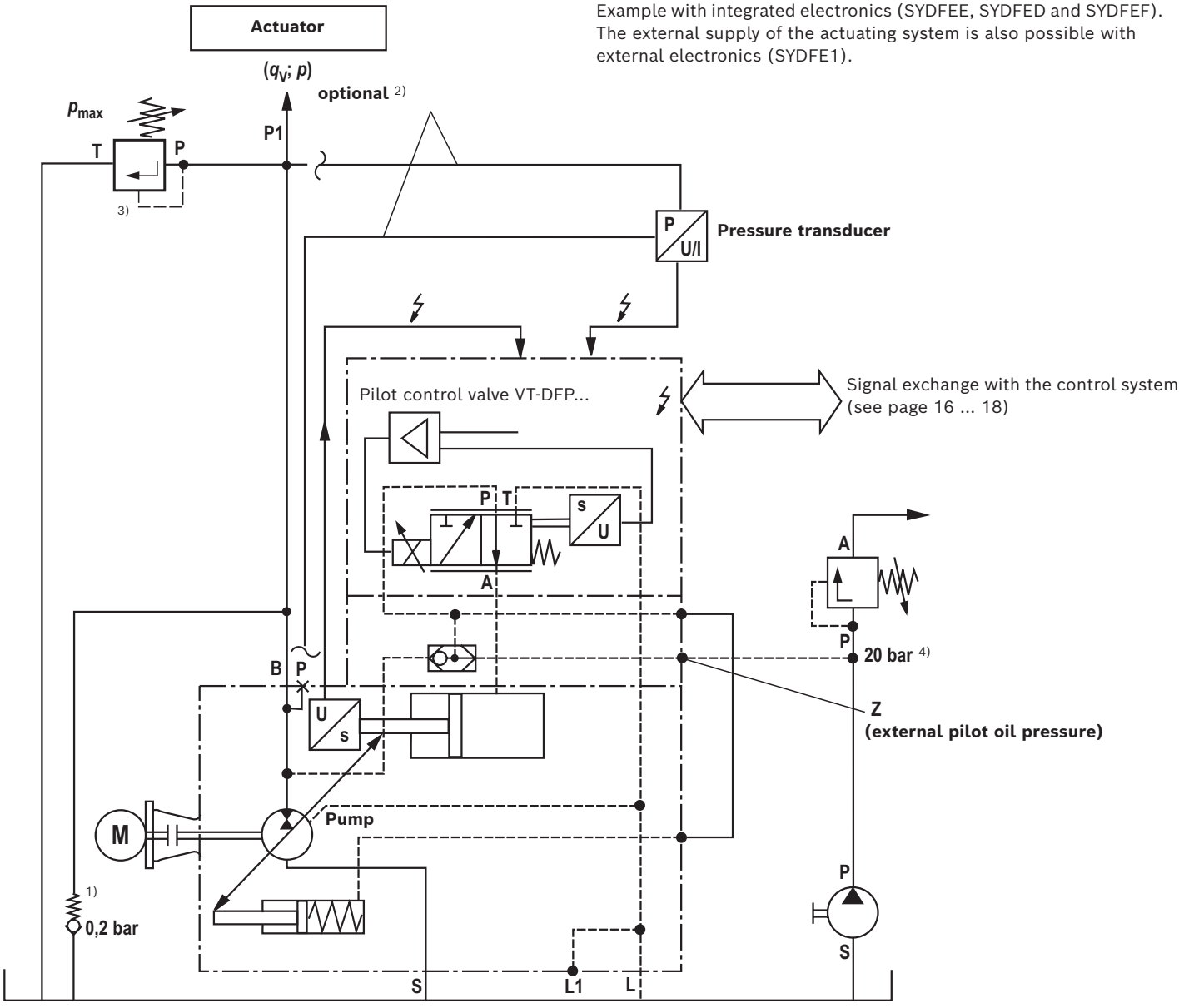


1) ▶ When using the HM 20 pressure transducer, cable version: Installation in P (pump) or MP1 (preload valve) in connection with actual pressure value input "F".
▶ Using an external pressure transducer: Installation in line P1 (preferably near the actuator) and electrical connection via the central plug.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

☞ **Notice:**
The actual pressure value at 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 the error case.

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).
- With 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, $q_{Command} \geq 5\%$) 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).

Technical data

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

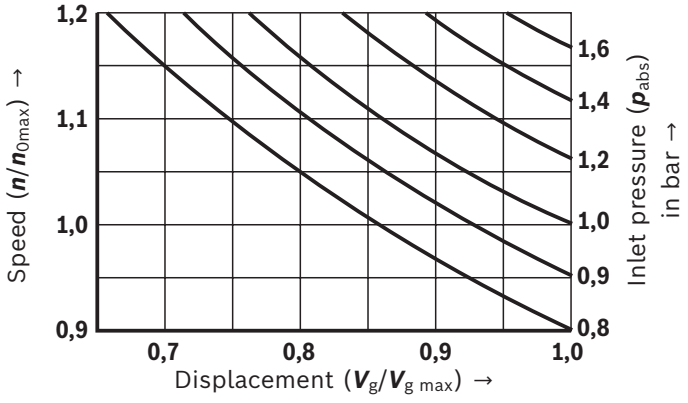
Mechanical and hydraulic							
Size			18	28	45	71	100
Displacement		cm^3	18	28	45	71	100
Speed [1]	▶ Maximum at $V_{g\,max}$	rpm	3300	3000	2600	2200	2000
	▶ Maximum at $V_g < V_{g\,max}$	rpm	3900	3600	3100	2600	2400
Minimum speed		rpm	250				
Maximum flow	▶ n_{nom} and $V_{g\,max}$	l/min	59.4	84	117	156	200
	▶ n_E = 1500 rpm and $V_{g\,max}$	l/min	27	42	68	107	150
Maximum power (Δp = 280 bar)	▶ n_{nom}, $V_{g\,max}$	kW	27.7	39	55	73	93
	▶ n_E = 1500 rpm and $V_{g\,max}$	kW	12.6	20	32	50	70
Maximum torque (Δp = 280 bar)		Nm	80.1	125	200	316	445
Maximum drive torque	▶ Fitting key	Nm	88	137	200	439	857
	▶ Splined shaft "S" overall torque	Nm	124	–	–	–	1104
	▶ Maximum through-drive torque	Nm	108	–	–	–	778
	▶ Splined shaft "R" overall torque	Nm	–	225	400	644	–
	▶ Maximum through-drive torque	Nm	–	176	365	548	–
Drive shaft load (see below)	▶ Maximum axial force	N	700	1000	1500	2400	4000
	▶ Maximum radial force [2]	N	350	1200	1500	1900	2300
Mass	▶ Pump without through-drive (incl. pilot control valve)	kg	15.5	20.5	26	37.5	52
	▶ Pump with through-drive (incl. pilot control valve)	kg	16.5	22	27.5	40.5	58
	▶ Additional preload valve	kg	3.3	3.3	3.3	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	0.0009	0.0017	0.0033	0.0083	0.0167
Filling quantity of the housing		l	0.4	0.7	1.0	1.6	2.2
Maximum operating pressure [3]		bar	280				
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 12.				
Admissible inlet pressure		bar	0.8 ... 10.0				
Hydraulic fluid			Mineral oil (HL, HLP) according to DIN 51524				
Hydraulic fluid temperature range		°C	–20 ... +70				
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)				

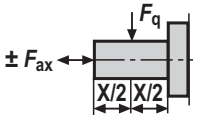
[1] The values apply:
- ▶ to a perfect viscosity range from 36 ... 16 mm^2/s
- ▶ with hydraulic fluids on the basis of mineral oils
- ▶ with an absolute pressure of 1 bar at the suction opening S.

With a reduction of the displacement or an increase in the inlet pressure, the speed can be increased according to the following characteristic curve.
With a reduced inlet pressure, the speed is to be reduced.

[2] In case of higher radial forces, please consult us

[3] In case of higher pressures, please consult us





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

Electric				
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			Determination by means of ordering code
	▶ Analog, current, load [4]		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)

[4] For current input, maximum admissible input current 30 mA.

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

Technical data

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

Electric				
Type			SYDFED	SYDFEF
Supply voltage [6]	▶ Nominal voltage	VDC	24	
	▶ Lower limit value	VDC	18	
	▶ Upper limit value	VDC	36	
	▶ Maximum residual ripple	Vpp	2.5	
Maximum power consumption		W	40	
Required fuse protection, external		A	4, time-lag	
AD/DA resolution	▶ Analog inputs	Bit	12	
	▶ Analog outputs [5]	Bit	10	
Actual pressure value Input [7]	▶ Analog voltage	V	0 ... 10	
	▶ Analog current	mA	0 ... 20 [4]	
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)	

4) Maximum admissible input current 30 mA for configuration on current input.

5) Outputs are parameterizable for type SYDFED and SYDFEF. Condition as supplied see "Electrical connection".

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

7) – 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.
- With 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 VDC	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	$a_{Command}$	Swivel angle command value	IN	analog ± 10 V	green	
6	a_{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 electronic type and additional function, see below	–	–	brown	
10	Actual pressure value H	Actual pressure value input: Signal level depends on pos. 15 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.

Notes:
- ▶ Mating connectors, separate order, see page 38.
- ▶ Electrical connection for type SYDFE1 see data sheet 30242.

Electrical connection: Type SYDFED

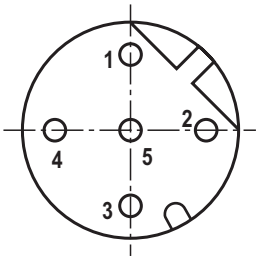
▶ XH4, central connection

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 VDC	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. 15 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	

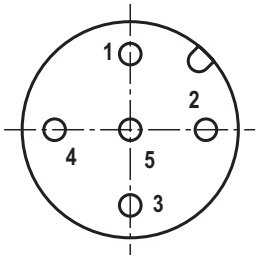
▶ X7E1 and X7E2, connector pin assignment for Ethernet interface (coding D), M12, 4-pole, socket

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 per interface configurable

☞ **Notes:**
- ▶ X2N, reserved (not used)
- ▶ X8A, actual swivel angle value input (coding A), M12, 5-pole, socket M12
- ▶ Mating connectors, separate order, see page 38.

Electrical connection: Type SYDFEF

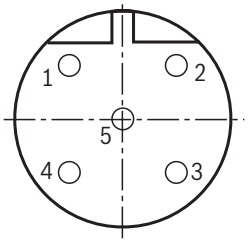
▶ XH1, central connection

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	

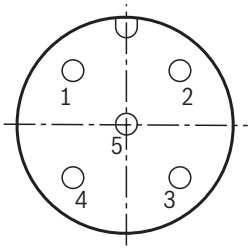
▶ X7E1 and X7E2, connector pin assignment for Ethernet interface (coding D), M12, 4-pole, socket

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)

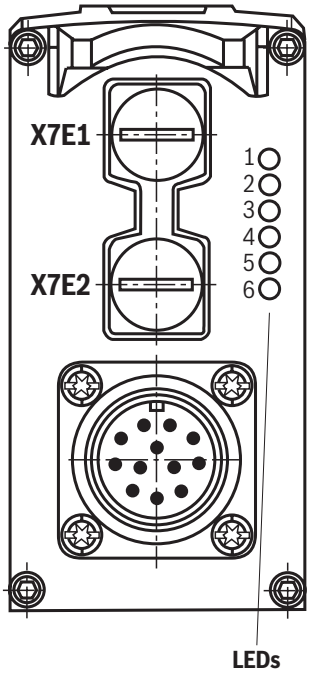


[1] Maximum load capacity 3 x 25 mA, voltage output same as voltage supply connected to input XH1.

☞ **Notes:**
- ▶ X8A1, actual swivel angle value input (coding A), M12, 5-pole, socket M12
- ▶ Mating connectors, separate order, see page 38.

LED displays: 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



Displays of the status LEDs

Network status LED (LED 3)	Display status
See firmware and software description 30338-FK	

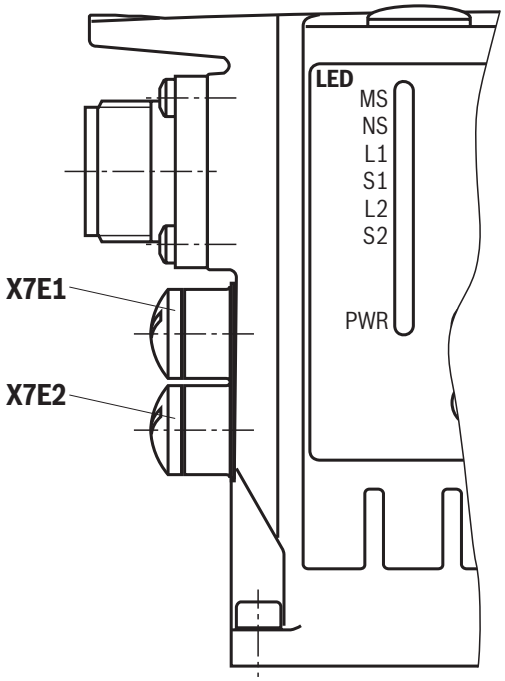
Module status LED (LED 4)	Display status
Off	No voltage supply
Green-red, flashing	Self-test
Green, flashing	Drive ready for operation
Green	In control
Orange, flashing	Warning
Red, flashing	Error

☞ **Notes:**

- 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, see firmware and software description 30338-FK.
- 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.

LED displays: 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



Displays of the status LEDs

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

Module status LED (LED MS)	Display 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

Notes:
- For the connection to the M12 sockets, 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.

Control loop quality

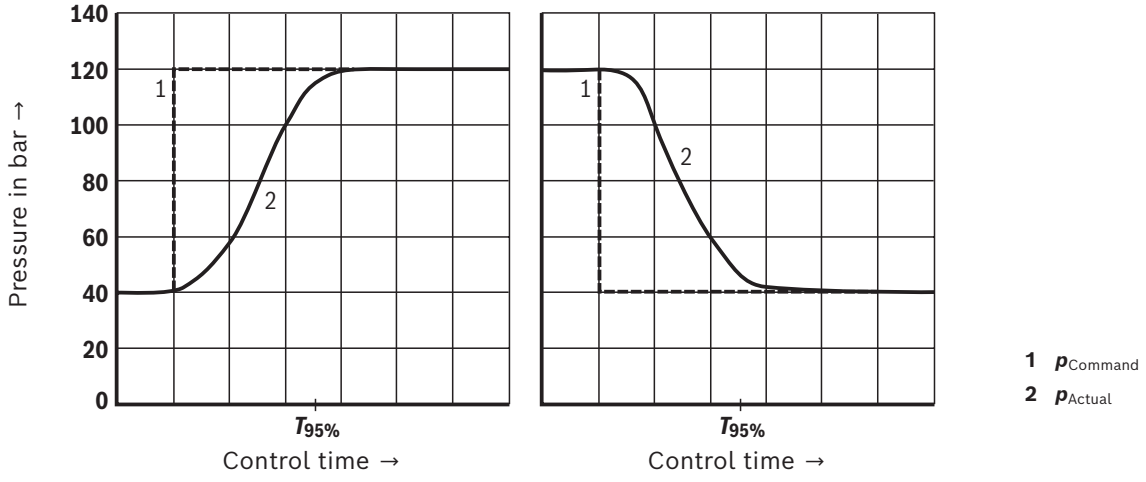
	Swivel angle control	Pressure control [1]
Linearity tolerance	≤ 1.0%	≤ 1.5% (≤ 1.0% [2])
Temperature error	≤ 0.5% / 10 K	≤ 0.5% / 10 K
Hysteresis	≤ 0.2%	≤ 0.2%
Repetition accuracy	≤ 0.2%	≤ 0.2%

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

☞ **Notes:**
- The specified values are only valid when using the system-related components specified in this data sheet (see page 38).
- 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

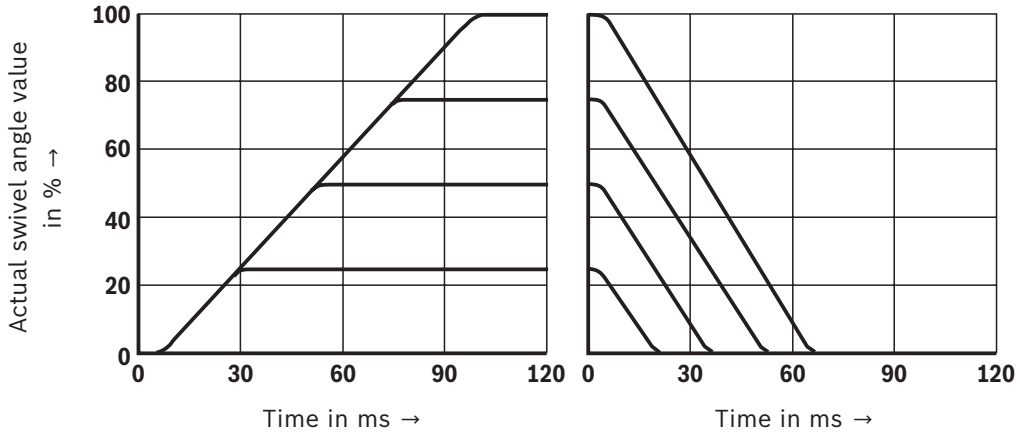
☞ **Notes:**
- For pressures up to 40 bar, the values of the response times are greater.
- The specified curve shapes and control times refer to a drive speed of 1500 rpm and are only reached with an optimization of the pressure controller.

Characteristic curves

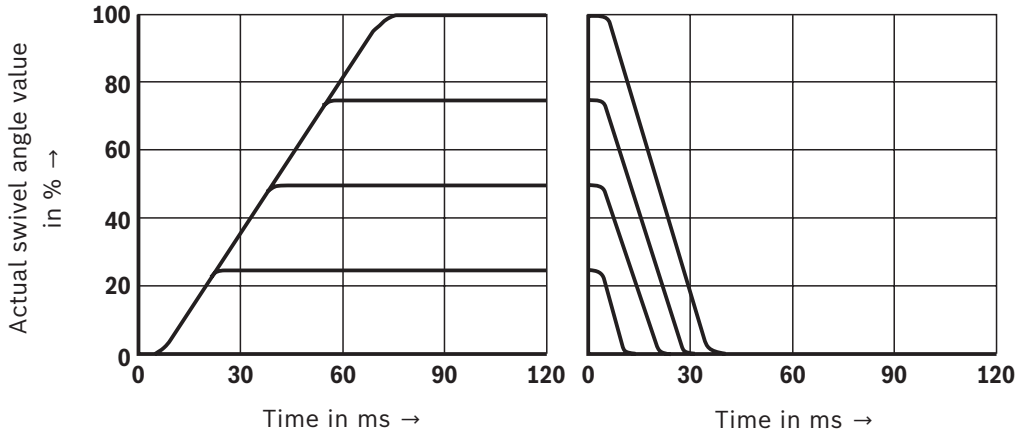
(measured with HLP46, ϑ_{oil} = 40 ±5 °C)

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

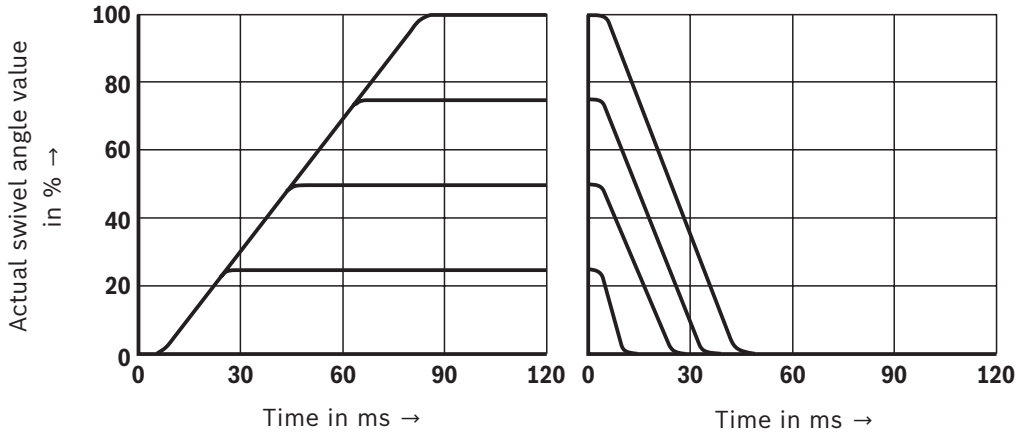
NG18 ... 71 (***p*** = 20 bar)



NG18 ... 71 (***p*** = 50 bar)

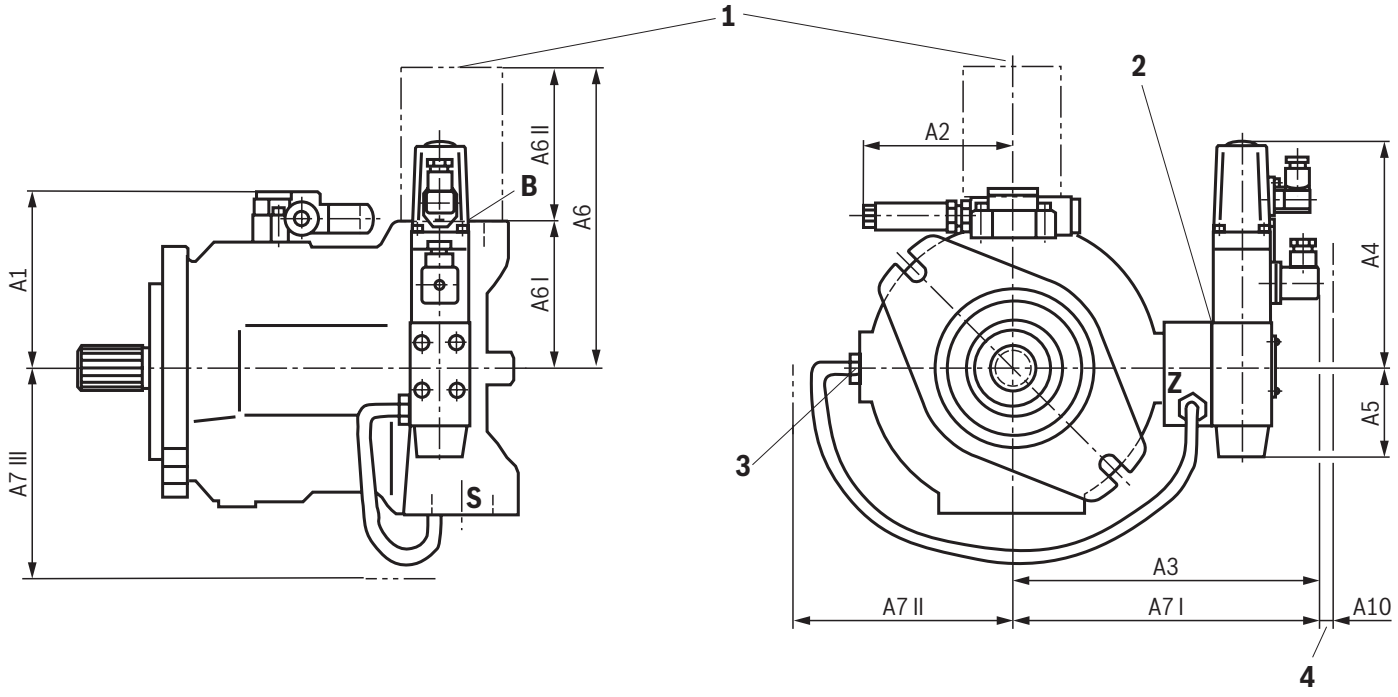


NG100 (***p*** = 50 bar)



Dimensions: Type SYDFE1
(dimensions in mm)

NG18 ... 100 (shaft design "S"; without through-drive "N00"; representation NG71)



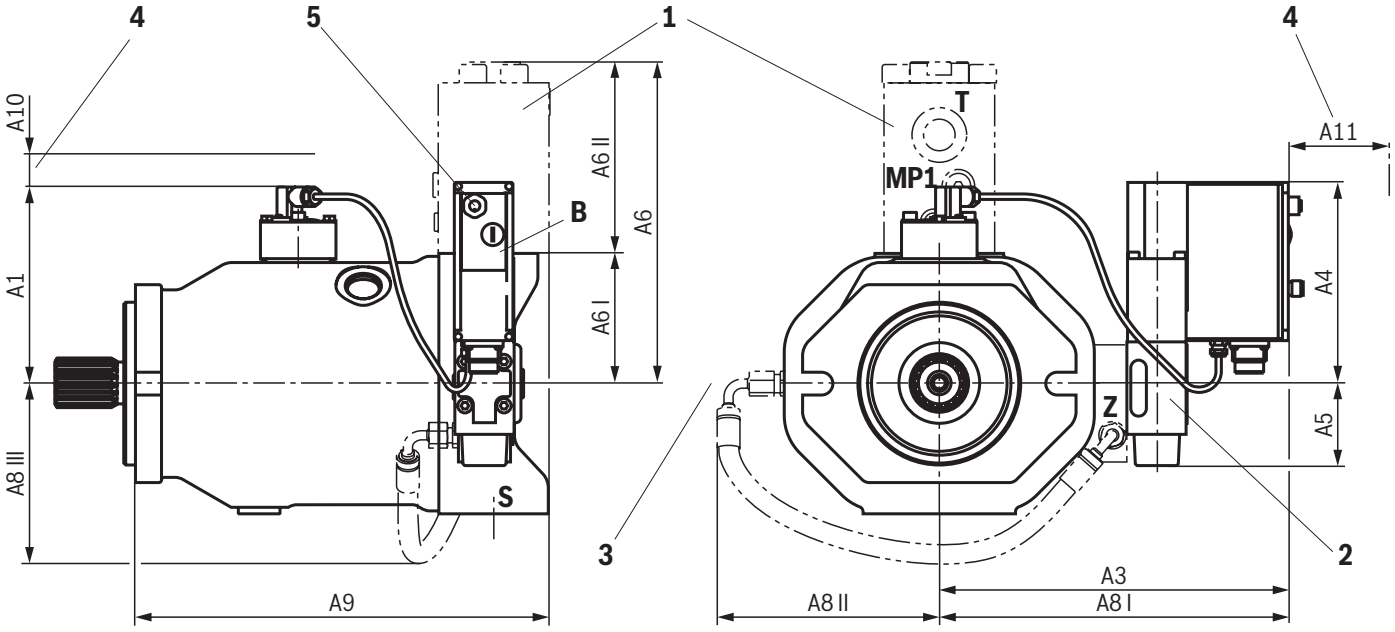
1 Preload valve (optional)
2 Pilot control valve attachment with clockwise direction of rotation
3 Pilot control valve attachment with counterclockwise direction of rotation
4 Space required for removing the mating connector

NG	A1	A2	A3	A4	A5	A6	A6 I	A6 II	Version "0479" and "0487" A7 I	A7 II	A7 III	A10	Z
18	98	110	161	158	63	178	63	115	196	125	100	15	G1/4
28	106	110	171	158	63	195	80	115	206	135	115	15	G1/4
45	112	110	181	158	63	205	90	115	216	145	125	15	G1/4
71	124	110	195	158	63	254	104	150	230	159	150	15	G1/4
100	129	110	200	158	63	247	100	147	235	164	150	15	G1/4

☞ **Notice:**
Dimensions base pump (axial piston variable displacement pump A10VSO.../31) see data sheet 92711.

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

NG18 ... 100 (valve mounting direction "0"; shaft design "S"; without through-drive "N00"; representation NG100)



1 Preload valve (optional)

2 Pilot control valve attachment with clockwise direction of rotation

3 Pilot control valve attachment with counterclockwise direction of rotation

4 Space required for removing the mating connector

5 Port X2 (pressure transducer HM 20) with actual pressure value input "F".

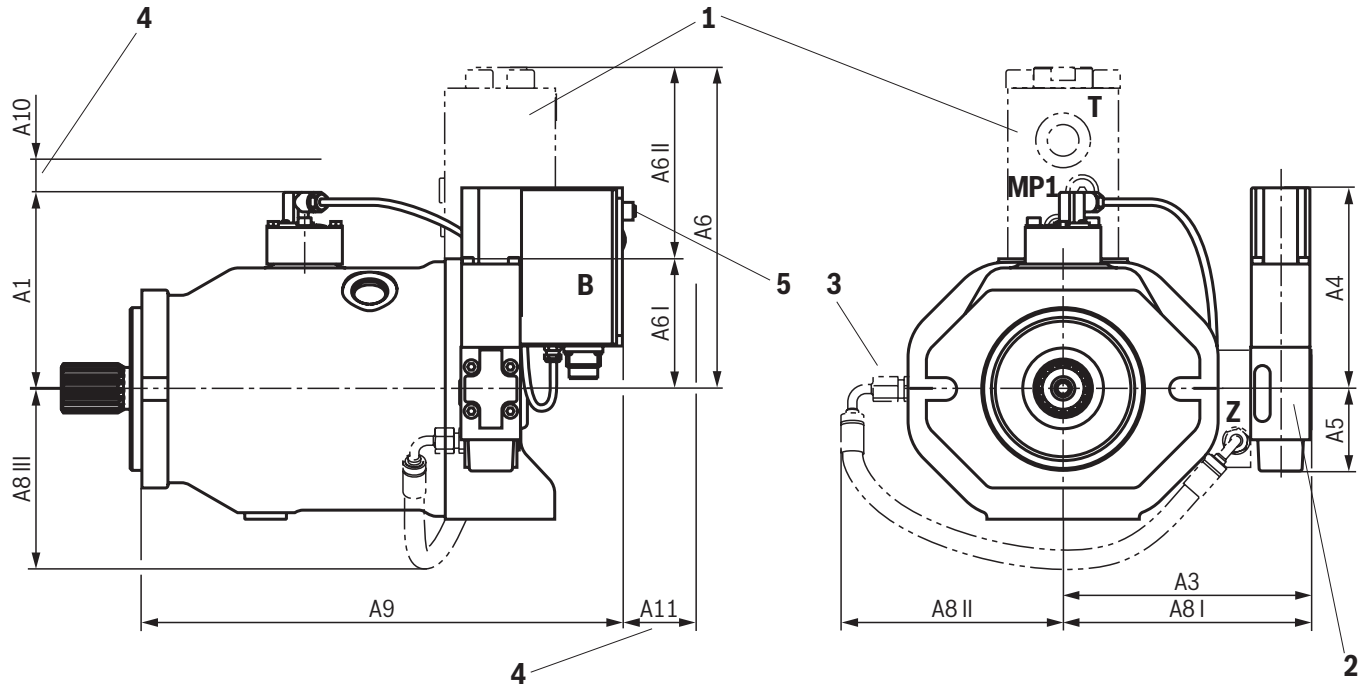
								Version "0479" and "0487"						
NG	**A1**	**A3** [1]	**A4**	**A5**	**A6**	**A6 I**	**A6 II**	**A8 I**	**A8 II**	**A8 III**	**A9**	**A10**	**A11**	**Z**
18	120	198	158	63	178	63	115	233	125	100	170	8	100	G1/4
28	128	208	158	63	195	80	115	243	135	115	194	8	100	G1/4
45	134	218	158	63	205	90	115	253	145	125	219	8	100	G1/4
71	146	232	158	63	254	104	150	267	159	150	257	8	100	G1/4
100	151	237	158	63	247	100	147	272	164	150	317	8	100	G1/4

[1] Version "0000"

☞ **Notice:**
Dimensions base pump (axial piston variable displacement pump A10VSO.../31) see data sheet 92711.

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

NG18 ... 100 (valve mounting direction "2"; shaft design "S"; without through-drive "N00"; representation NG100)



1 Preload valve (optional)

2 Pilot control valve attachment with clockwise direction of rotation

3 Pilot control valve attachment with counterclockwise direction of rotation

4 Space required for removing the mating connector

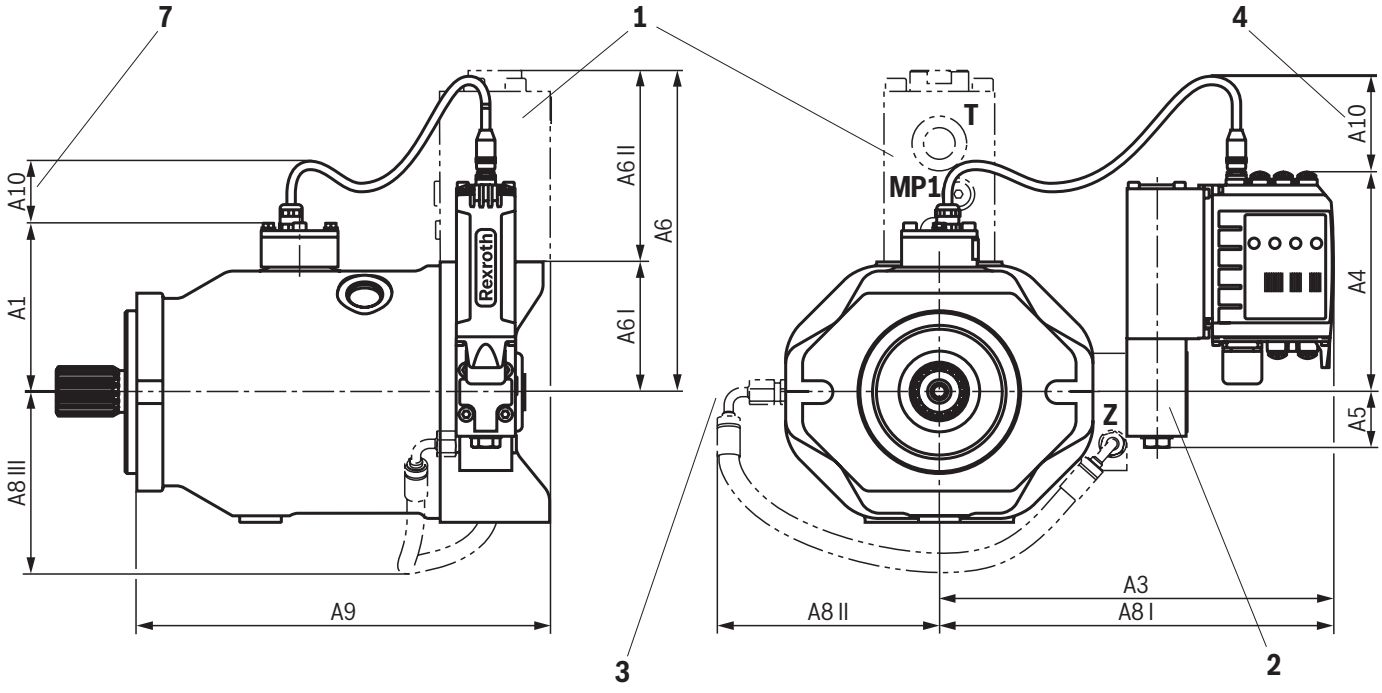
5 Port X2 (pressure transducer HM 20) with actual pressure value input "F".

								Version **"0479"** and **"0487"**						
NG	**A1**	**A3**	**A4**	**A5**	**A6**	**A6 I**	**A6 II**	**A8 I**	**A8 II**	**A8 III**	**A9**	**A10**	**A11**	**Z**
18	100	116	158	63	178	63	115	151	125	100	253	8	60	G1/4
28	108	127	158	63	195	80	115	162	135	115	263	8	60	G1/4
45	114	137	158	63	205	90	115	172	145	125	278	8	60	G1/4
71	126	151	158	63	254	104	150	186	159	150	306	8	60	G1/4
100	131	156	158	63	247	100	147	191	164	150	373	8	60	G1/4

☞ **Notice:**
Dimensions base pump (axial piston variable displacement pump A10VSO.../31) see data sheet 92711.

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

NG18 ... 100 (valve mounting direction "0"; shaft design "S"; without through-drive "N00"; representation NG100)



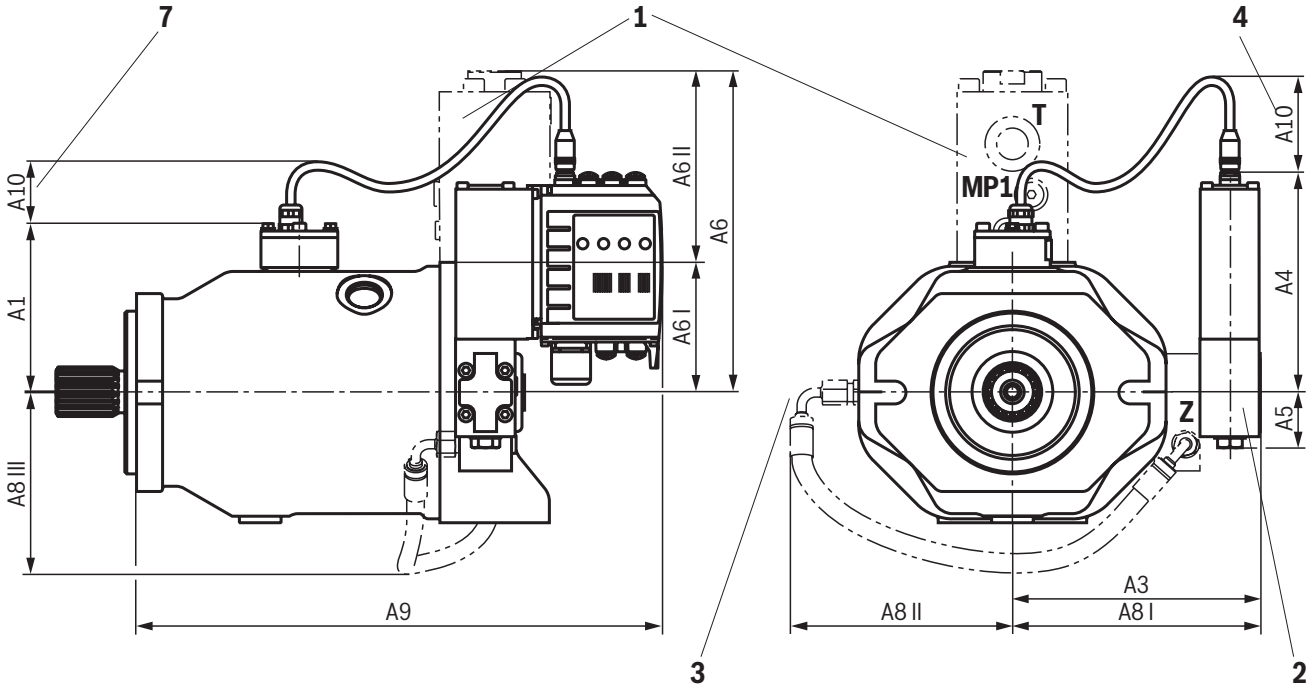
1 Preload valve (optional)
2 Pilot control valve attachment with clockwise direction of rotation
3 Pilot control valve attachment with counterclockwise direction of rotation
4 Space required for removing the mating connector
7 Space required for the connection line

								Version "0479" and "0487"					
NG	**A1**	**A3**	**A4**	**A5**	**A6**	**A6 I**	**A6 II**	**A8 I**	**A8 II**	**A8 III**	**A9**	**A10**	**Z**
18	100	230	166	43	178	63	115	265	125	100	170	100	G1/4
28	108	241	166	43	195	80	115	276	135	115	194	100	G1/4
45	114	251	166	43	205	90	115	286	145	125	219	100	G1/4
71	126	265	166	43	254	104	150	300	159	150	257	100	G1/4
100	131	270	166	43	247	100	147	305	164	150	317	100	G1/4

☞ **Notice:**
Dimensions base pump (axial piston variable displacement pump A10VSO.../31) see data sheet 92711.

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

NG18 ... 100 (valve mounting direction "2"; shaft design "S"; without through-drive "N00"; representation NG100)



1 Preload valve (optional)

2 Pilot control valve attachment with clockwise direction of rotation

3 Pilot control valve attachment with counterclockwise direction of rotation

4 Space required for removing the mating connector

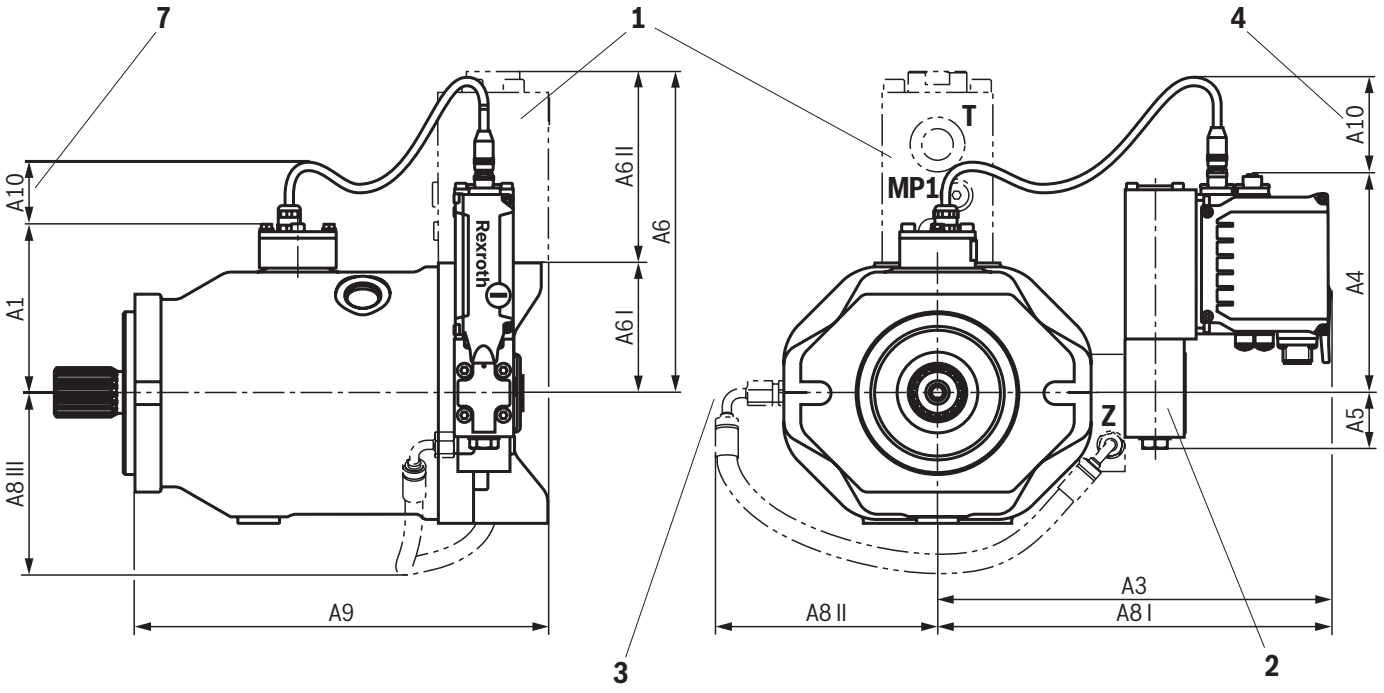
7 Space required for the connection line

NG	A1	A3	A4	A5	A6	A6 I	A6 II	Version "0479" and "0487" A8 I	A8 II	A8 III	A9	A10	Z
18	100	116	166	43	178	63	115	151	125	100	287	100	G1/4
28	108	127	166	43	195	80	115	162	135	115	297	100	G1/4
45	114	137	166	43	205	90	115	172	145	125	312	100	G1/4
71	126	151	166	43	254	104	150	186	159	150	340	100	G1/4
100	131	156	166	43	247	100	147	191	164	150	407	100	G1/4

☞ **Notice:**
Dimensions base pump (axial piston variable displacement pump A10VSO.../31) see data sheet 92711.

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

NG18 ... 100 (valve mounting direction "0"; shaft design "S"; without through-drive "N00"; representation NG100)



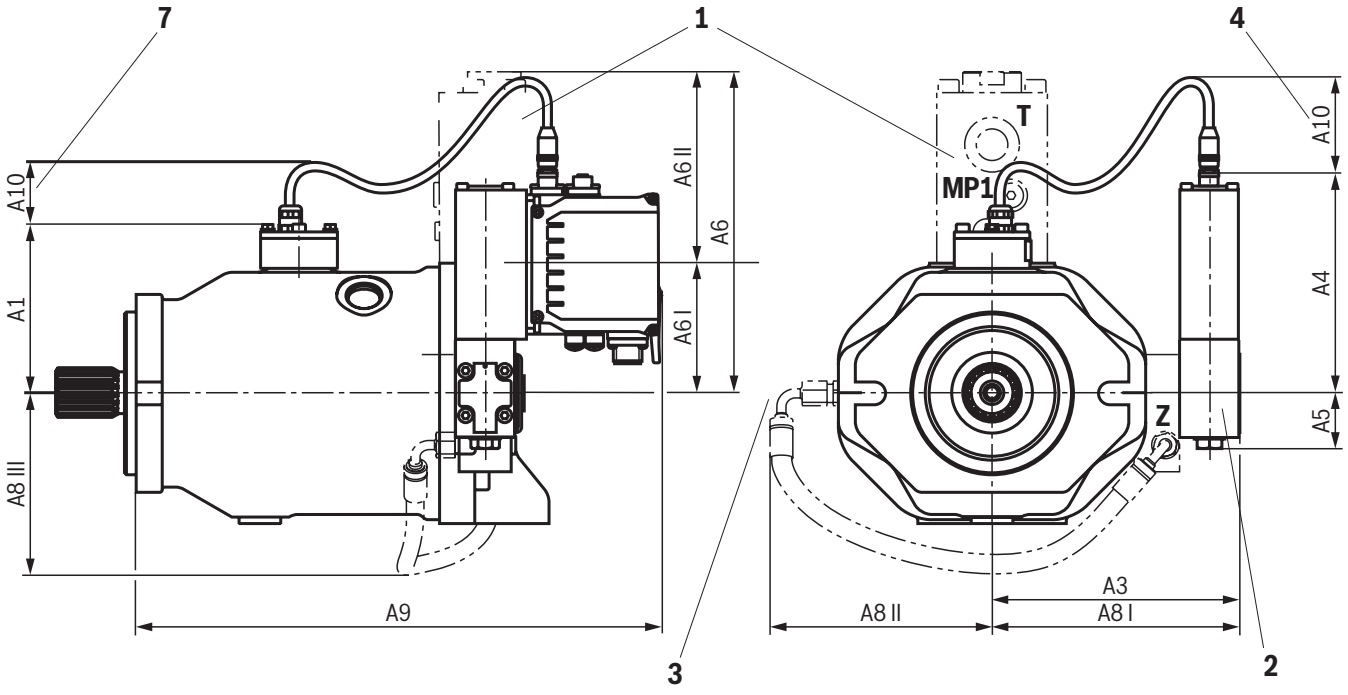
1 Preload valve (optional)
2 Pilot control valve attachment with clockwise direction of rotation
3 Pilot control valve attachment with counterclockwise direction of rotation
4 Space required for removing the mating connector
7 Space required for the connection line

								Version "0479" and "0487"					
NG	**A1**	**A3**	**A4**	**A5**	**A6**	**A6 I**	**A6 II**	**A8 I**	**A8 II**	**A8 III**	**A9**	**A10**	**Z**
18	100	228	166	43	178	63	115	263	125	100	170	100	G1/4
28	108	239	166	43	195	80	115	274	135	115	194	100	G1/4
45	114	249	166	43	205	90	115	284	145	125	219	100	G1/4
71	126	263	166	43	254	104	150	298	159	150	257	100	G1/4
100	131	268	166	43	247	100	147	303	164	150	317	100	G1/4

☞ **Notice:**
Dimensions base pump (axial piston variable displacement pump A10VSO.../31) see data sheet 92711.

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

NG18 ... 100 (valve mounting direction "2"; shaft design "S"; without through-drive "N00"; representation NG100)



1 Preload valve (optional)

2 Pilot control valve attachment with clockwise direction of rotation

3 Pilot control valve attachment with counterclockwise direction of rotation

4 Space required for removing the mating connector

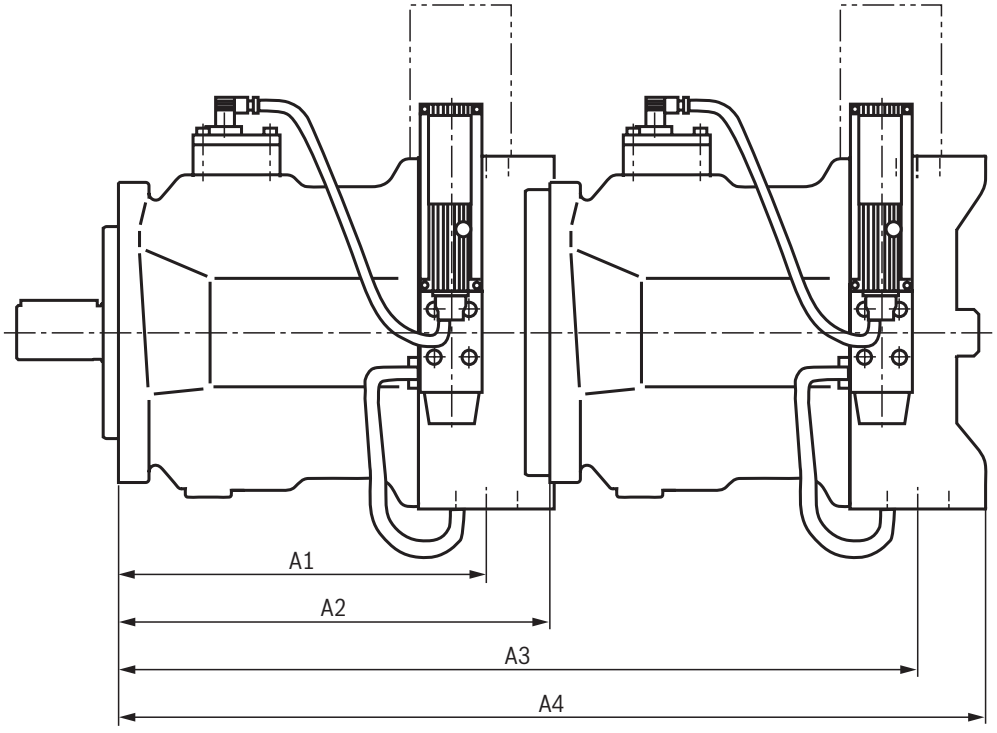
7 Space required for the connection line

NG	A1	A3	A4	A5	A6	A6 I	A6 II	Version "0479" and "0487" A8 I	A8 II	A8 III	A9	A10	Z
18	100	116	166	43	178	63	115	151	125	100	285	100	G1/4
28	108	127	166	43	195	80	115	162	135	115	295	100	G1/4
45	114	137	166	43	205	90	115	172	145	125	310	100	G1/4
71	126	151	166	43	254	104	150	186	159	150	338	100	G1/4
100	131	156	166	43	247	100	147	191	164	150	405	100	G1/4

☞ **Notice:**
Dimensions base pump (axial piston variable displacement pump A10VSO.../31) see data sheet 92711.

Dimensions: Combination pumps (dimensions in mm)

A10VSO.../31 + **A10VSO.../31**
(SYDFE.-2X...) + (SYDFE.-2X...)



1 Main pump
2 Attachment pump

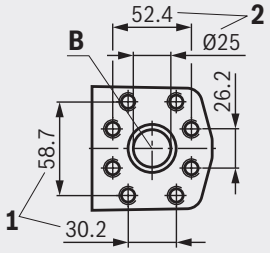
	Main pump																			
	A10VSO 18				A10VSO 28				A10VSO 45				A10VSO 71				A10VSO 100			
Attachment pump	**A1**	**A2**	**A3**	**A4**	**A1**	**A2**	**A3**	**A4**	**A1**	**A2**	**A3**	**A4**	**A1**	**A2**	**A3**	**A4**	**A1**	**A2**	**A3**	**A4**
A10VSO 18	145	182	349	399	164	204	349	399	184	229	374	424	217	267	412	462	275	338	483	533
A10VSO 28					164	204	368.5	410	184	229	393.5	435	217	267	431.5	473	275	338	502.5	544
A10VSO 45									184	229	413	453	217	267	451	491	275	338	522	562
A10VSO 71													217	267	484	524	275	338	555	595
A10VSO 100																	275	338	613	664

Dimensions: Connections (dimensions in mm)

Size			18	28	45	71	100
B Working line (SAE J518 [1])	▶ Size		3/4″	3/4″	1″	1″	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 1/4″	1 1/2″	2″	2 1/2″
	▶ Mounting thread (DIN 13)		M10 x 1,5; 17 deep		M12 x 1.75; 20 deep		M12 x 1.75; 17 deep
	▶ Peak pressure [2]	bar	10				

☞ **Notes regarding size 71:**

- With 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.

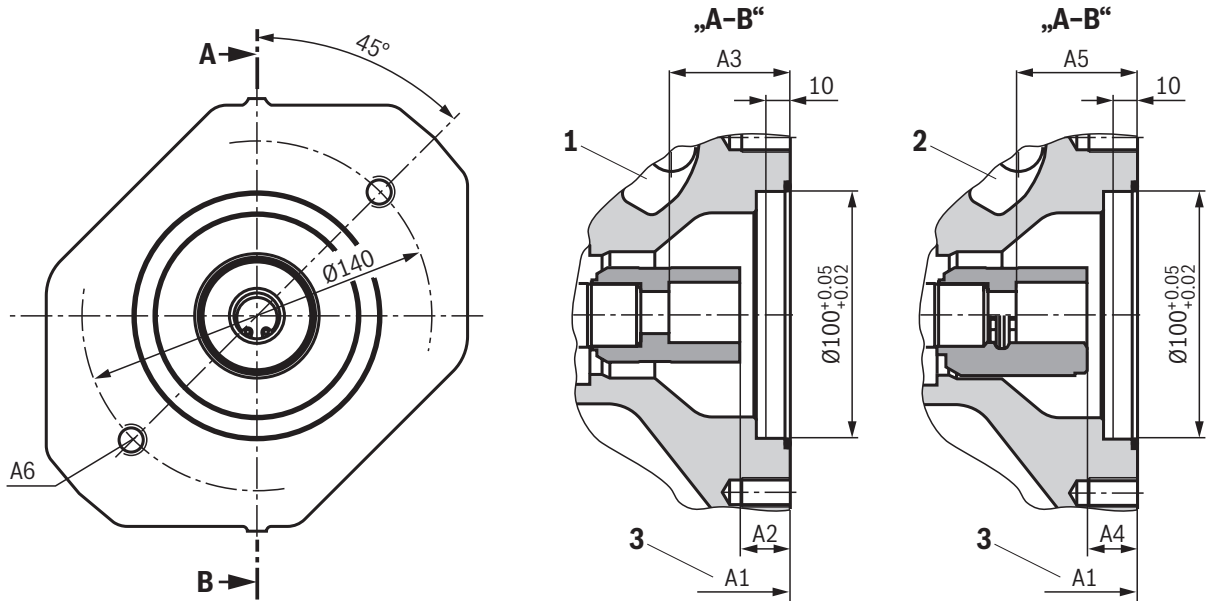
2) Application-specific short-time pressure peaks may occur. Please observe when selecting measuring devices and fittings. Specified pressures are in bar absolute.

1 SAE 1 1/4"

2 SAE 1"

Dimensions: Through-drives (dimensions in mm)

- **"KD3"** **Flange** ISO 100, 2-hole for the attachment of
  - SYDFE.-2X (NG28 and 45, flange "A")
  - A10VSO..31 (NG28 and 45, flange "A", see data sheet 92711)



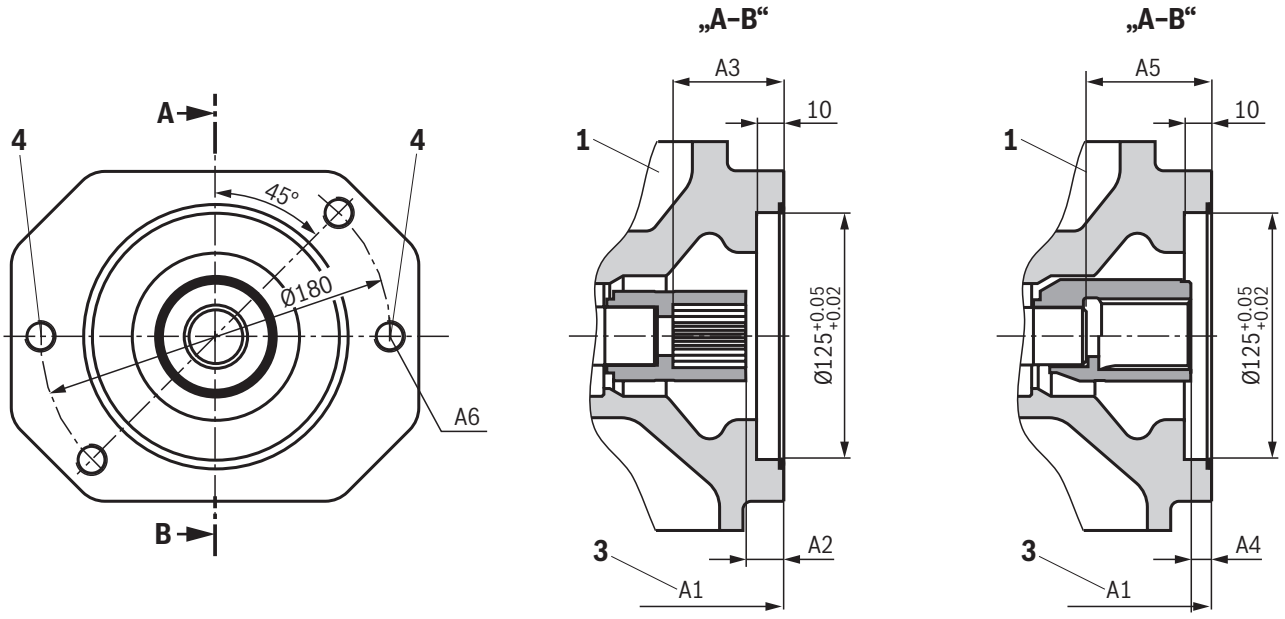
NG	A1	A2	A3	A4	A5	A6
28	204	17.8	41.7	–	–	M12 x 1.75; right through
45	229	17.9	41.7	18.4	46.7	M12 x 1.75; right through
71	267	20.3	44.1	20.8	49.1	M12 x 1.75; 20 deep
100	338	18	41.9	18.2	45.9	M12 x 1.75; 20 deep

☞ **Notice:**
Sectional presentation with examples of hubs (order number for hubs see page 37).

1 Hub 7/8"
2 Hub 1"
3 Up to pump mounting face

Dimensions: Through-drives (dimensions in mm)

- **"KD5"** **Flange** ISO 125, 2-hole for the attachment of
  - SYDFE.-2X (NG71 and 100, flange "A")
  - A10VSO..31 (NG71 and 100, flange "A", see data sheet 92711)



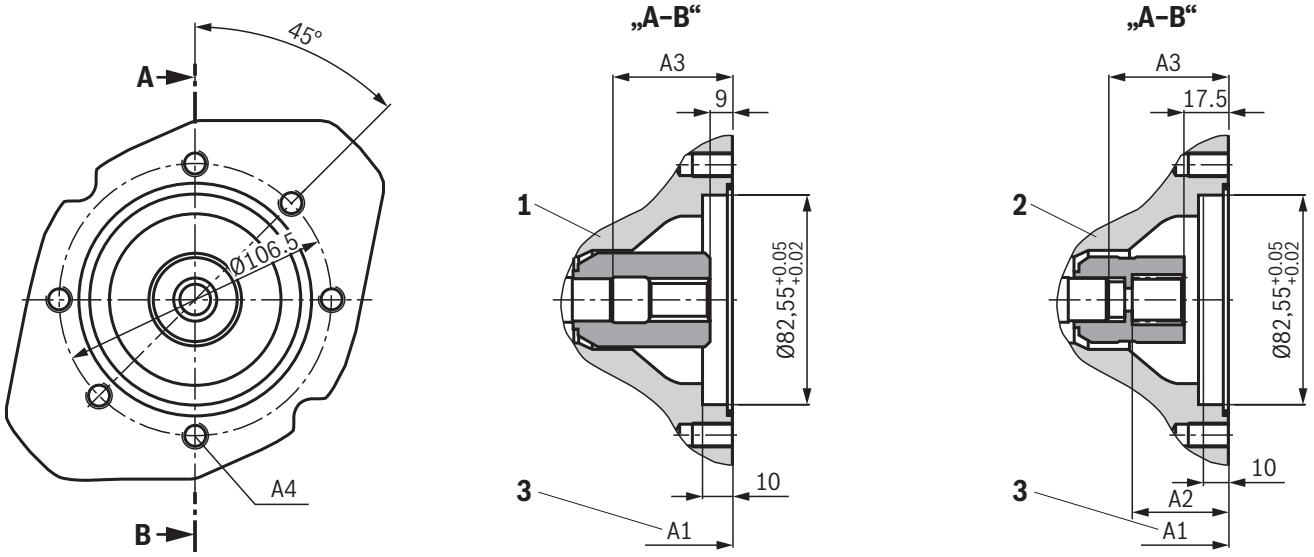
NG	A1	A2	A3	A4	A5	A6
71	267	21.8	58.6	–	–	M16 x 2; right through
100	338	19.5	56.4	10.5	65	M16 x 2; right through

☞ **Notice:**
Sectional presentation with examples of hubs (order number for hubs see page 37).

1 Hub 1 1/4"
2 Hub 1 1/2"
3 Up to pump mounting face
4 Not NG71

Dimensions: Through-drives (dimensions in mm)

- **"KC1"** **Flange** SAE 82-2 (SAE A, 2-hole) for the attachment of
  - SYDFE.-2X (NG18, flange "C")
  - A10VSO..31 (NG18, flange "C", see data sheet 92711)
  - PGF2 (shaft "J", flange "U2", see data sheet 10213)
  - PGH2 and PGH3 (shaft "R", flange "U2", see data sheet 10223)
  - AZPF (shaft "R", front cover "R", see data sheet 10089)



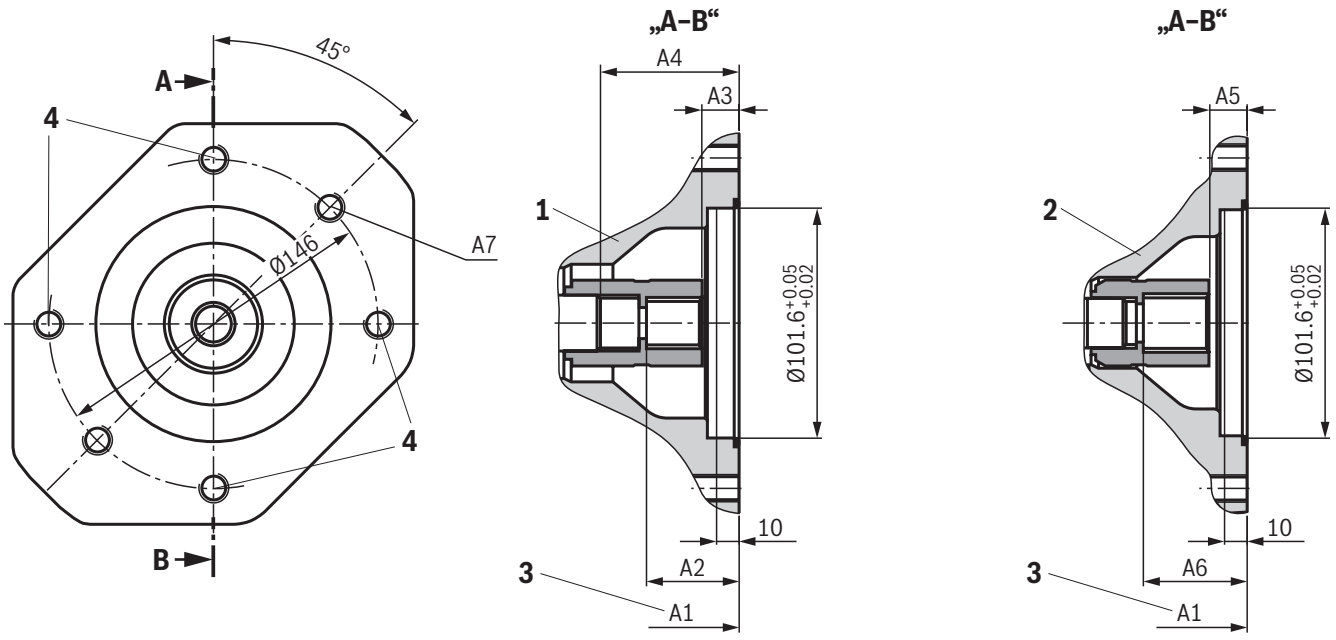
NG	A1	A2	A3	A4
18	182	40	43	M10; 14.5 deep
28	204	39	47	M10; 16 deep
45	229	40.5	53	M10; 16 deep
71	267	40	61	M10; 20 deep
100	338	40	65	M10; 20 deep

☞ **Notice:**
Sectional presentation with examples of hubs (order number for hubs see page 37).

1 Hub 5/8"
2 Hub 3/4"
3 Up to pump mounting face

Dimensions: Through-drives (dimensions in mm)

- **"KC3"** **Flange** SAE 101-2 (SAE B, 2-hole) for the attachment of
  - SYDFE.-2X (NG28 and 45, flange "C")
  - A10VO..31 (NG28 and 45, flange "C", see data sheet 92701)
  - PGF3 (shaft "J", flange "U2", see data sheet 10213)
  - PGH4 (shaft "R", flange "U2", see data sheet 10223)



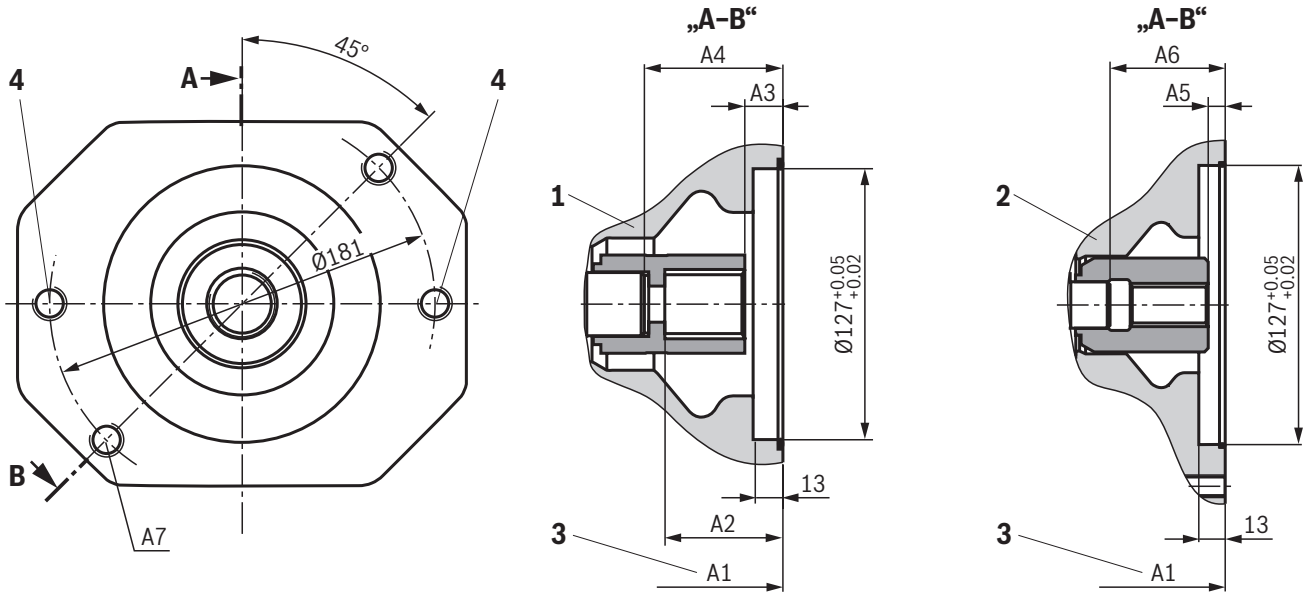
NG	A1	A2	A3	A4	A5	A6	A7
28	204	41.7	17.8	47	–	–	M12; right through
45	229	41.7	17.9	53	18.4	46.7	M12; 18 deep
71	267	44.7	20.3	61	20.8	49.1	M12; 20 deep
100	338	41.9	18	65	18.2	46.6	M12; 20 deep

☞ **Notice:**
Sectional presentation with examples of hubs (order number for hubs see page 37).

1 Hub 7/8"
2 Hub 1"
3 Up to pump mounting face
4 Not NG28

Dimensions: Through-drives (dimensions in mm)

- **"KC5"** **Flange** SAE 127-2 (SAE C, 2-hole) for the attachment of
  - SYDFE.-2X (NG71 and 100, flange "C")
  - A10VO..31 (NG71 and 100, flange "C", see data sheet 92701)
  - PGH5 (shaft "R", flange "U2", see data sheet 10223)



NG	A1	A2	A3	A4	A5	A6	A7
71	267	55.5	17.9	61	–	–	M16; 18 deep
100	338	57	17.9	65	8	65	M16; 25 deep

☞ **Notice:**
Sectional presentation with examples of hubs (order number for hubs see page 37).

1 Hub 1 1/4"
2 Hub 1 1/2"
3 Up to pump mounting face
4 Not NG71

Torsionally flexible couplings for attachment to a standard electric motor

Motor		Type SYDFE.				
Frame size/ characteristic	**Shaft diameter** in mm	**NG18** Shaft "S", 3/4"	**NG28** Shaft "S" or "R", 7/8"	**NG45** Shaft "S" or "R", 1"	**NG71** Shaft "S" or "R", 1 1/4"	**NG100** Shaft "S", 1 1/2"
100/0 112/0	28		**R901038012**	**R901038017**		
132/0	38	**R900704699**	**R901012344**	**R900772898**		
160/0	42	**R900726977**	**R900991864**	**R900994283**	**R900228413**	
180/0	48		**R900032918**	**R900062159**	**R900240468**	**R900242567**
200/0	55		**R901038026**	**R901038025**	**R901038021**	**R901104689**
225/0	60		**R900750847**	**R901066409**	**R900228375**	**R901050508**
250/0	65			**R900988348**	**R900986404**	**R901046864**
280/0	75				**R900218487**	**R901055216**
315/0	80					**R901046894** [1]

[1] Up to 40 °C

Hubs for through-drives

Hubs for the combination of single pumps or the combination of SYDFE with other pumps. Observe that the attachment pump has a splined shaft SAE J744 with the specified diameter.

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

Observe that the through-drive of the main pump and the flange of the attachment pump (see ordering code page 2) are identical. Check in the current data sheet of the gear pump whether the shaft ends have the specified dimensions.

Main pump SYDFE or A10VSO...					Attachment pump	
NG18	**NG28**	**NG45**	**NG71**	**NG100**	**Ø shaft**	**Pump type** (example)
R902436099	**R902436199**	**R902436100**	**R902436200**	**R902436201**	3/4″ 19-4 (SAE A-B)	SYDFE-2X, A10VSO..31 NG018 shaft "S"
	R902436098	**R902436084**	**R902436083**	**R902436101**	7/8″ 22-4 (SAE B)	SYDFE-2X, A10VSO..31 NG028 shaft "R"; PGF3
		R902436103	**R902436104**	**R902436105**	1″ 25-4 (SAE B-B)	SYDFE-2X, A10VSO..31 NG045 shaft "R"; PGH4
			R902436085	**R902436086**	1 1/4″ 32-4 (SAE C)	SYDFE-2X, A10VSO..31 NG071 shaft "R"
				R910943565	1 1/2″ 38-4 (SAE C-C)	SYDFE-2X, A10VSO..31 NG100 shaft "S"; PGH5
R910943528	**R910986299**	**R910943529**	**R910943545**	**R910943560**	5/8″ 16-4 (SAE A)	1PF2G2, PGF2, PGH2, PGH3, AZPF

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
Mating connector 12-pole for central connection X1 without cable (assembly kit)	**R900884671**	08006
Mating connector 12-pole for central connection X1 with cable set 2 x 5 m	**R900032356**	–
Mating connector 12-pole 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
Mating connector 12-pole for central connection XH4 without cable (assembly kit)	**R900884671**	08006
Mating connector 12-pole for central connection XH4 with cable set 2 x 5 m	**R900032356**	–
Mating connector 12-pole for 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
Mating connector 6-pole for central connection XH1 without cable (assembly kit)	**R900021267**	08006
Mating connector 6-pole for central connection XH1 with cable set 3 m	**R901420483**	08006
Mating connector 6-pole for central connection XH1 with cable set 5 m	**R901420491**	08006
Mating connector 6-pole 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	**–**	–

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 amending notes 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)DFEC	Operating instructions 30027-B
Operating instructions for SY(H)DFED	Operating instructions 30017-B
Operating instructions for SY(H)DFEF	Operating instructions 30013-B
Operating instructions for SY(H)DFEn	Operating instructions 30014-B
Data sheet for axial piston variable displacement pump A10VSO../31	Data sheet 92711
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
Operating instructions for test device VT-PDFE	Operating instructions 29689-B
Internet	
Information on available spare parts	