

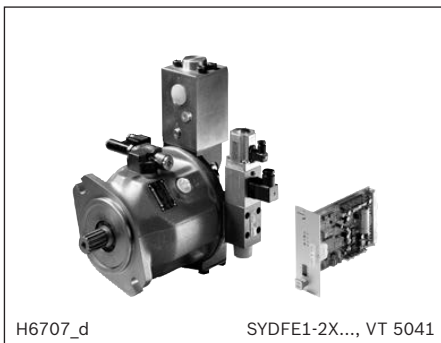
Pressure and flow control system

Type SYDFE1-2X, SYDFEE-2X, SYDFEC-2X,
 SYDFEn-2X, SYDFED-2X

RE 30030

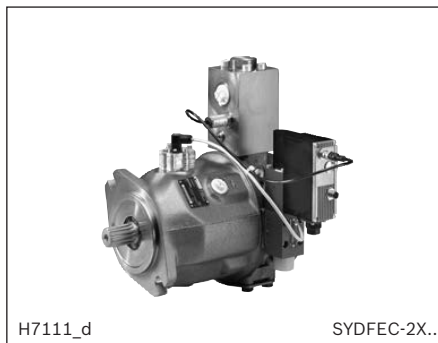
Edition: 2015-09

Replaces: 2014-12



H6707_d

SYDFE1-2X..., VT 5041



H7111_d

SYDFEC-2X...



SYDFED-2X...

- ▶ With axial piston variable displacement pump A10VSO.../31
- ▶ Size 18 ... 140

- ▶ Component series 2X
- ▶ Maximum operating pressure of 280 bar

Features

A SYDFE.-2X control system is used for the electro-hydraulic control of swivel angle, pressure and power (partially optional, see pages 4 and 9) of an axial piston variable displacement pump.

The control system consists of the following components:

- ▶ Axial piston variable displacement pump A10VSO.../31
- ▶ VT-DFP.-2X or VT-DFPD-1X proportional valve as pilot valve including inductive position transducer for valve position sensing. With versions SYDFEE, SYDFEC, SYDFEn and SYDFED, the pilot valve contains electronics for system control.
- ▶ For SYDFE1: External control electronics VT 5041-3X for realizing all electric functions necessary for the SYDFE1-2X (separate order)
- ▶ Position transducer for sensing the swivel angle
- ▶ Pressure transducer with suitable signal level and dynamics (optionally HM 20, otherwise separate order)
- ▶ Preload valve with integrated pressure relief function SYDZ (optional)

Contents

Features	1
Ordering code	2 ... 9
Section	10
Schematic diagrams	11 ... 13
Technical data	14 ... 16
Electrical connection	17 ... 21
LED displays SYDFED-2X	22
Closed-loop control quality	23
Transition function	23, 24
Dimensions: SYDFE	25 ... 29
Dimensions: Combination pumps	30
Dimensions: Ports	31
Hubs for through-drives	31
Dimensions: Through-drives	32 ... 38
Torsionally flexible couplings for attachment to a standard electric motor	39
Project planning information	40
Further information about this control system	40

Information on available spare parts:
www.boschrexroth.com/spc

Ordering code: Pump of the SYDFE control system

01 02 03 04 05 06 07 08 09 See following pages

SYDFE.-2X	/	071	R	-	P	R	A	12	N00	-	0000	-	...
------------------	----------	------------	----------	----------	----------	----------	----------	-----------	------------	----------	-------------	----------	-----

Series

01	Control system for external analog electronics (separate order)	SYDFE1-2X
	Control system with internal analog electronics	SYDFEE-2X
	Control system with internal digital electronics – CAN bus	SYDFEC-2X
	Variable-speed control system with internal digital electronics	SYDFEn-2X
	Control system with internal digital electronics – Ethernet-based bus systems	SYDFED-2X
	Pump combinations (see order example page 8)	SY2DFE.-2X, SY3DFE.-2X

Size		018	028	045	071	100	140	
02	Displacement cm ³	18	28	45	71	100	140	

Direction of rotation looking at the drive shaft

03	Right	●	●	●	●	●	●	R
	Left	●	●	●	●	●	●	L

Hydraulic fluid

04	Mineral oil according to DIN 51524 (HL/HLP)	●	●	●	●	●	●	P
----	---	---	---	---	---	---	---	----------

Drive shaft variant

05	Cylindrical with key DIN 6885 (not in connection with through-drive)	∅ 18	∅ 22	∅ 25	∅ 32	∅ 40	∅ 45	P
	Splined shaft profile SAE J 744 ¹⁾	3/4"	–	–	–	1 1/2"	1 3/4"	S
	Splined shaft profile SAE J 744 (higher torque)	–	7/8"	1"	1 1/4"	–	–	R

Connection flange

		Diameter centering in mm						
06	ISO 2-hole	80	100	100	125	125	–	A
	ISO 4-hole	–	–	–	–	–	180	B
	SAE 2-hole	82.55	101.6	101.6	127	127	–	C
	SAE 4-hole	–	–	–	–	–	152.4	D

Port for working lines pressure port B and suction port S

07	SAE, laterally opposite, mounting thread metric	●	●	●	●	●	●	12
----	---	---	---	---	---	---	---	-----------

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

08	Without through-drive	●	●	●	●	●	●	N00
	Centering	Attachment pump ²⁾ (examples)						
	ISO ∅ 100 mm	A10VSO..31 size 28/45	–	●	●	●	●	KD3
	ISO ∅ 125 mm	A10VSO..31 size 71/100	–	–	–	●	●	KD5
	ISO ∅ 180 mm	A10VSO..31 size 140	–	–	–	–	●	KD7
	SAE ∅ 82.55 mm	A10VSO..31 size 18, PGF2, PGH2, PGH3, AZPF	●	●	●	●	●	KC1
	SAE ∅ 101.6 mm	PGH4, 1PF2G3, PGF3	–	●	●	●	●	KC3
	SAE ∅ 127 mm	PGH5	–	–	–	●	●	KC5
	SAE ∅ 152.4 mm	A10VO140	–	–	–	–	●	KC6

Base pump variant

09	Standard (internal pilot oil)	●	●	●	●	●	●	0000
	External supply	–	●	●	●	●	–	0479
	External supply + regenerative operation	–	–	–	●	●	●	0487

● = available – = not available = Preferred program

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

²⁾ Also observe the conditions for the attachment pumps on page 31.

Ordering code: Pilot and preload valve of the SYDFE1 control system

01	02	03	04	05	06	07	08	09	10	11	12	13	14					
SYDFE1-2X	/	071	R	-	P	R	A	12	N00	-	0000	-	A	0	X0XX	2	-	*

Spool design

10	Standard (size 28 ... size 140)	A
	2-groove spool (size 18 ... size 140, only for replacement requirement)	B
	4-groove spool (size 18)	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)	1
	Pressure limitation 250 bar (tolerance ± 10 bar)	2
	Pressure limitation 300 bar (tolerance ± 12 bar)	3
	without preload valve	X
14	Further details in the plain text e.g. SO variant	*

Ordering code: Pilot and preload valve of the SYDFEE control system

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17					
SYDFEE-2X	/	071	R	-	P	R	A	12	N00	-	0000	-	A	0	A	0	F	L	2	-	*

Spool design

10	Standard (size 28 ... size 140)	A
	4-groove spool (size 18)	C

Integrated electronics, installation orientation (see below)

11	radially to the pump axis	0
	folded 90° in the direction of the subplate	2

Control, additional function

		A	B	C	D	
12	Selectable 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, option

		A	B	C	D	
13	Standard electronics with leakage oil compensation	•	•	•	•	0
	Standard electronics without leakage oil compensation	•	•	•	•	1

Actual pressure value input

(Description of the connector on page 17)

	Connector	C 4 ... 20 mA	V 0 ... 10 V	E 1 ... 10 V	F 0.5 ... 5 V	
14	Current input 4 ... 20 mA	•				C
	Voltage input 0 ... 10 V		•			V
	Voltage input 1 ... 10 V			•		E
	Voltage input 0.5 ... 5 V				•	F

Pressure transducer

		A	B	C	D	
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 in connection with actual pressure value input F)	-	-	-	•	L
	without pressure transducer	•	•	•	•	X

Preload valve with integrated pressure limitation

16	Pressure limitation 200 bar (tolerance ± 8 bar)	1
	Pressure limitation 250 bar (tolerance ± 10 bar)	2
	Pressure limitation 300 bar (tolerance ± 12 bar)	3
	without preload valve	X

17	Further details in the plain text e.g. SO variant	*
----	---	---

Note on feature 11: Valve, installation orientation of the integrated electronics

Clockwise direction of rotation, installation orientation 0	Clockwise direction of rotation, installation orientation 2	Counterclockwise direction of rotation, installation orientation 0	Counterclockwise direction of rotation, installation orientation 2

Ordering code: Pilot and preload valve of the SYDFEC control system

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17					
SYDFEC-2X	/	071	R	-	P	R	A	12	N00	-	0000	-	A	0	A	0	F	L	2	-	*

Spool design

10	Standard (size 28 ... size 140)	A
	4-groove spool (size 18)	C

Valve, installation orientation of integrated electronics (see below)

11	radially to the pump axis	0
	folded 90° in the direction of the subplate	2

Additional functions

12	Standard	A
----	----------	---

Electronics assembly, option

13	Standard	0
----	----------	---

Actual pressure value input

Parameter settings ex factory

(Description of the connector on page 18)

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

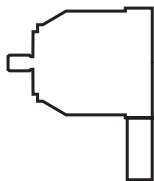
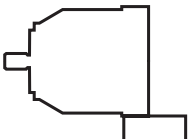
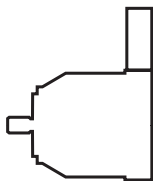
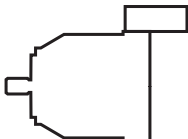
Pressure transducer

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 in connection with actual pressure value input F)					•	L
	without pressure transducer	•	•	•	•		X

Preload valve with integrated pressure limitation

16	Pressure limitation 200 bar (tolerance ± 8 bar)	1
	Pressure limitation 250 bar (tolerance ± 10 bar)	2
	Pressure limitation 300 bar (tolerance ± 12 bar)	3
	without preload valve	X
17	Further details in the plain text e.g. SO variant	*

Note on feature 11: Valve, installation orientation of the integrated electronics

Clockwise direction of rotation, installation orientation 0	Clockwise direction of rotation, installation orientation 2	Counterclockwise direction of rotation, installation orientation 0	Counterclockwise direction of rotation, installation orientation 2
			

Ordering code: Pilot and preload valve of the SYDFEn control system

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17					
SYDFEn-2X	/	071	R	-	P	R	A	12	N00	-	0000	-	A	0	A	0	F	L	2	-	*

Spool design

10	Standard (size 28 ... size 140)	A
	4-groove spool (size 18)	C

Valve, installation orientation of integrated electronics (see below)

11	radially to the pump axis	0
	folded 90° in the direction of the subplate	2

Additional functions

12	Teach-in version for cyclic operation	A
	Real-time version (speed calculation without teach-in)	R

Electronics assembly, options

13	Standard	0
----	----------	---

Actual pressure value input

Parameter settings ex factory

(Description of the connector on page 19)

	Connector	C 4 ... 20 mA	V 0 ... 10 V	E 1 ... 10 V	F 0.5 ... 5 V		
14	Current input 4 ... 20 mA	X1	•			C	
	Voltage input 0 ... 10 V	X1		•		V	
	Voltage input 1 ... 10 V	X1			•	E	
	Voltage input 0.5 ... 5 V ¹⁾	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 in connection with actual pressure value input F)				•	L
	without pressure transducer	•	•	•	•	X

Preload valve with integrated pressure limitation

16	Pressure limitation 200 bar (tolerance ± 8 bar)	1
	Pressure limitation 250 bar (tolerance ± 10 bar)	2
	Pressure limitation 300 bar (tolerance ± 12 bar)	3
	without preload valve	X

17	Further details in the plain text e.g. SO variant	*
----	---	---

Note on feature 11: Valve, installation orientation of the integrated electronics

Clockwise direction of rotation, installation orientation 0	Clockwise direction of rotation, installation orientation 2	Counterclockwise direction of rotation, installation orientation 0	Counterclockwise direction of rotation, installation orientation 2

¹⁾ With the SYDFEn control system with the additional function (feature 12 of the ordering codes) “Teach-in version for cyclic operation” and with analog interfaces, X2 cannot always be used as an actual pressure value input depending on the configuration of the switching inputs. Please observe the instructions in operating instructions 30014-b.

Ordering code: Pilot and preload valve of the SYDFED control system

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17					
SYDFED-2X	/	071	R	-	P	R	A	12	N00	-	0000	-	A	0	A	S	F	L	2	-	*

Spool design

10	Standard	A
	4-groove spool (size 18)	C

Valve, installation orientation of integrated electronics (see below)

11	radially to the pump axis	0
	folded 90° in the direction of the subplate	2

Additional functions

12	Standard	A
----	----------	---

Field bus interface

13	Sercos III	S
	EtherCAT (CANopen profile)	T
	VARAN (Servodrive profile)	V
	Ethernet/IP	E
	PROFINET RT	N
	Powerlink ¹⁾	W

Actual pressure value input (freely configurable)

Parameter settings ex factory

(Description of the connector on page 20 f.)

		Connector	V 0 ... 10 V	F 0.5 ... 5 V	
14	Voltage input 0 ... 10 V	XH4	●		V
	Voltage input 0.5 ... 5 V	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 in connection with actual pressure value input F)			●	L
	without pressure transducer		●	●	X

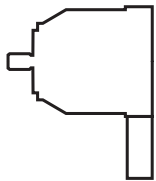
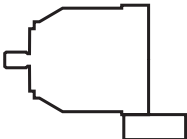
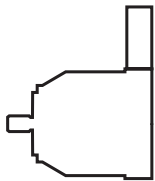
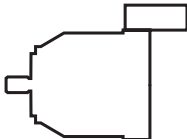
Preload valve with integrated pressure limitation

16	Pressure limitation 200 bar (tolerance ± 8 bar)	1
	Pressure limitation 250 bar (tolerance ± 10 bar)	2
	Pressure limitation 300 bar (tolerance ± 12 bar)	3
	without preload valve	X

17	Further details in the plain text e.g. SO variant	*
----	---	---

¹⁾ Upon request

Note on feature 11: Valve, installation orientation of the integrated electronics

Clockwise direction of rotation, installation orientation 0	Clockwise direction of rotation, installation orientation 2	Counterclockwise direction of rotation, installation orientation 0	Counterclockwise direction of rotation, installation orientation 2
			

Ordering code: Order examples

Order example for single pump:

SYDFEE-2X/100R-PSA12N00-0479-A0A0VXX

Order example for pump combination:

Both material numbers and/or type designations are to be connected by means of “+”.

Main pump (1st pump)

+ Attachment pump (2nd pump)

SY2DFEE-2X/100-100/00709780

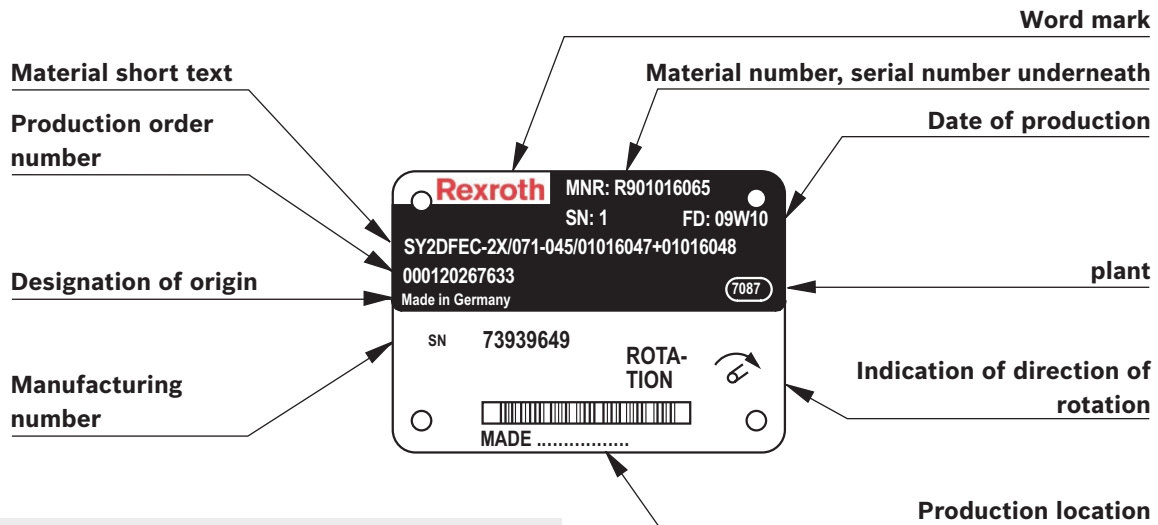
+ 00709780

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 attachment pump is different from 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 a name plate for a pump combination SY2DFEC



Notices:
 For inquiries regarding the control system, material number, fabrication order number, serial number, and date of manufacture are necessary.

Ordering code: Accessories

Version 12/2014, inquire availability

Accessories for 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

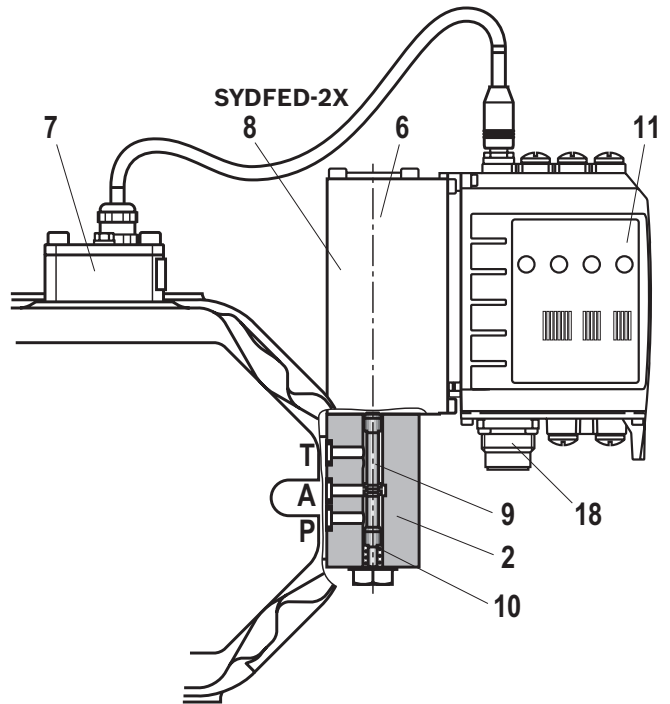
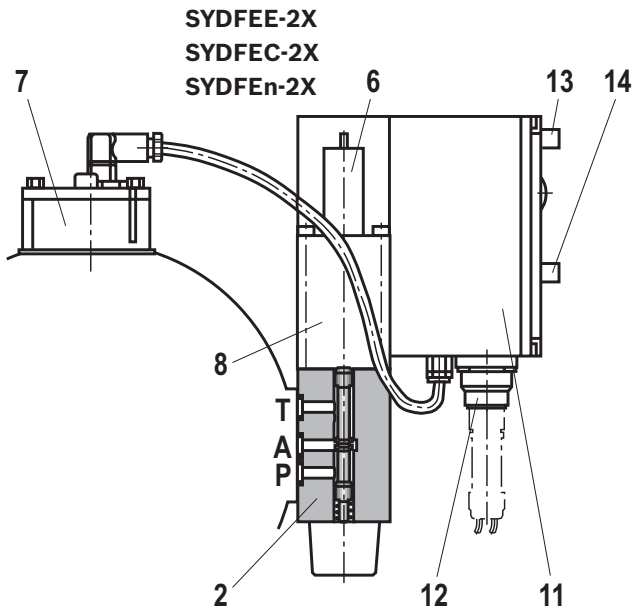
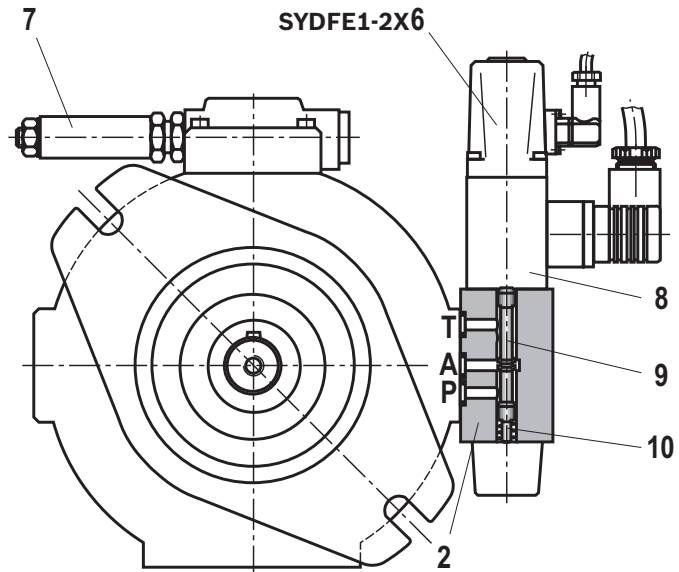
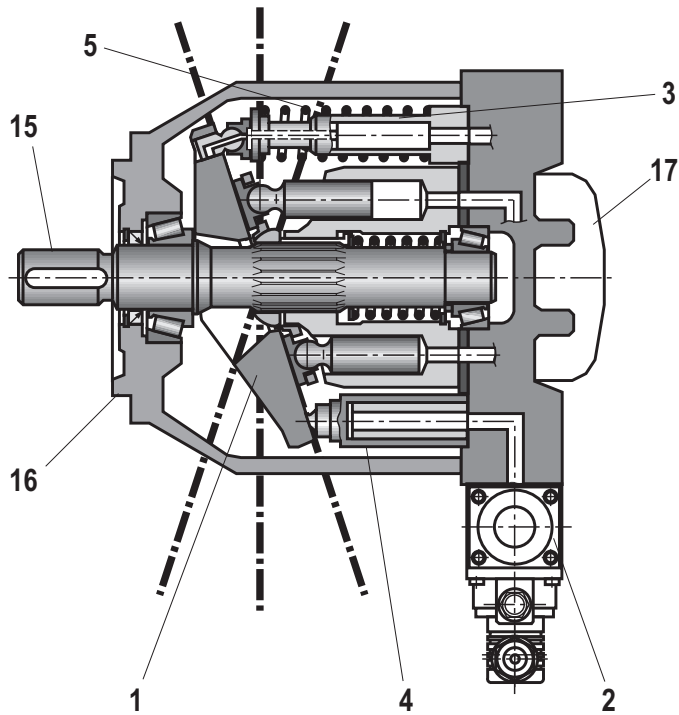
Accessories for SYDFEE, SYDFEC, SYDFEn	Material number	Data sheet
Mating connector 12-pin for central connection X1 without cable (assembly kit)	R900884671	08006
Mating connector 12-pin for central connection X1 with cable set 2 x 5 m	R900032356	
Mating connector 12-pin for central connection X1 with 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
Test device VT-PDFE-1-1X/V0/0	R900757051	29689-B
Compact power supply unit VT-NE32-1X	R900080049	29929

Accessories only for SYDFEC and SYDFEn	Material number	Data sheet
Converter USB/serial for laptops without serial interface, VT-ZKO-USB/S-1-1X/V0/0	R901066684	
Converter USB-CAN bus for connecting the computer to the CAN bus system	R901071963	
Cable for connecting a WIN-PED PC (RS232) to the X2 interface length 3 m	R901156928	
Cable for connecting the CAN bus/X3 to the CAN bus converter (D-Sub)	R901152127	
T connector for the simultaneous connection of a WIN-PED PC (RS232) and use of the pressure transducer at connector X2	R901117164	
Mating connector for interface X3, M12, straight, can be connected independently, 5 pins, shielded, A coded, cable diameter 6 ... 8 mm	R901076910	

Accessories for SYDFED	Material number	Data sheet
Mating connector 12-pin for central connection XH4 without cable (assembly kit)	R900884671	08006
Mating connector 12-pin for central connection XH4 with cable set 2 x 5 m	R900032356	
Mating connector 12-pin 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
Test device VT-PDFE-1-1X/V0/0	R900757051	29689-B
Compact power supply unit VT-NE32-1X	R900080049	29929
Connection cable Ethernet M12 to RJ45 (port X7E1 & X7E2), additionally indication of type designation RKB0044/xxx.x (xxx.x: length in meters)	R911172135	

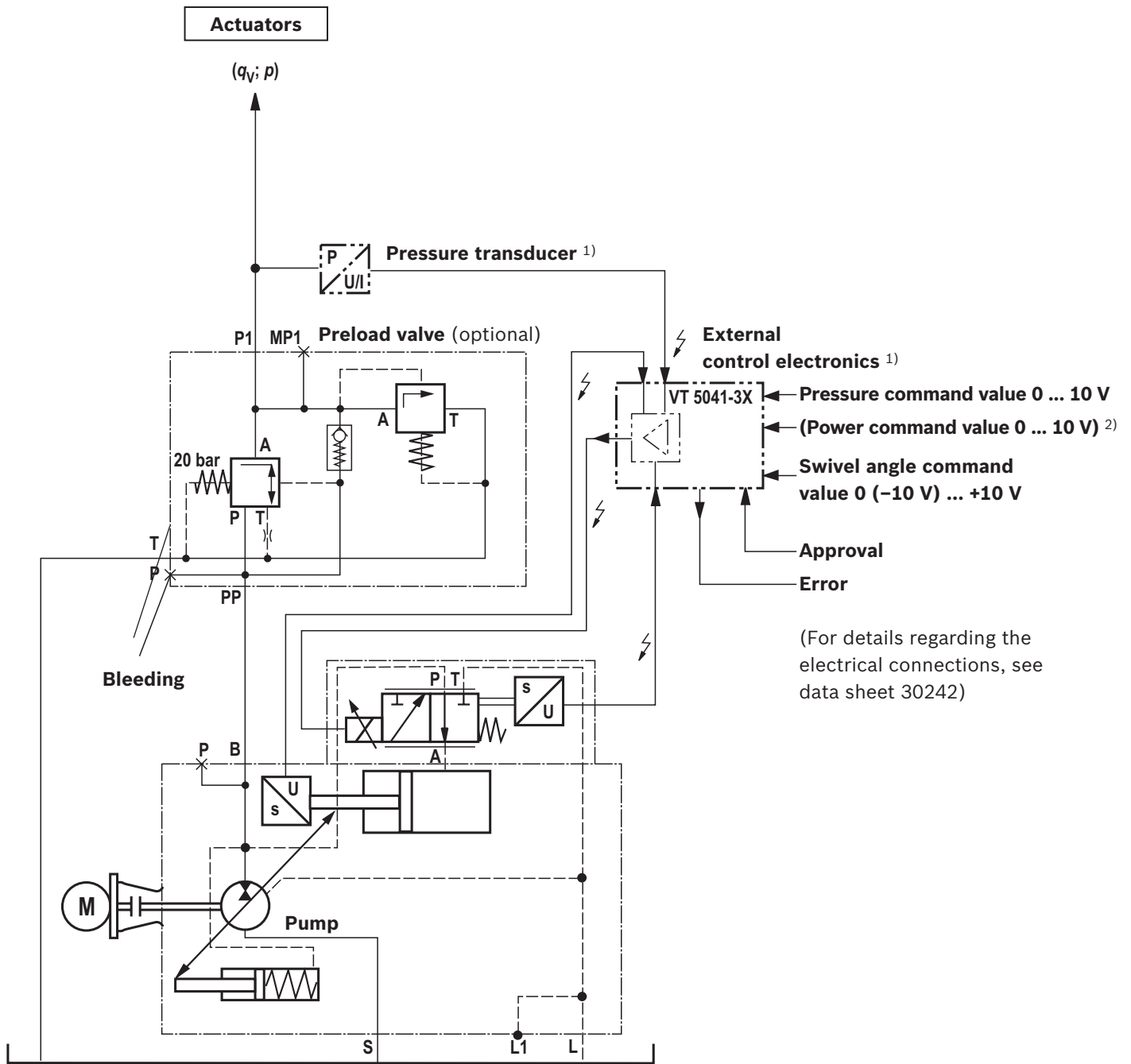
More accessories	Page
Accessories for through-drives	31
Torsionally flexible couplings for attachment to a standard electric motor	39

Section



- 1 Swash plate
- 2 Pilot 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 pressure transducer HM 20 cable version (for SYDFEE only with actual pressure value input F, for SYDFEC/SYDFEn always available)
- 14 Mating connector X3 for connecting the CAN bus (only available with SYDFEC/SYDFEn)
- 15 Drive shaft
- 16 Connection flange
- 17 Subplate, optionally with through-drive
- 18 Connector XH4

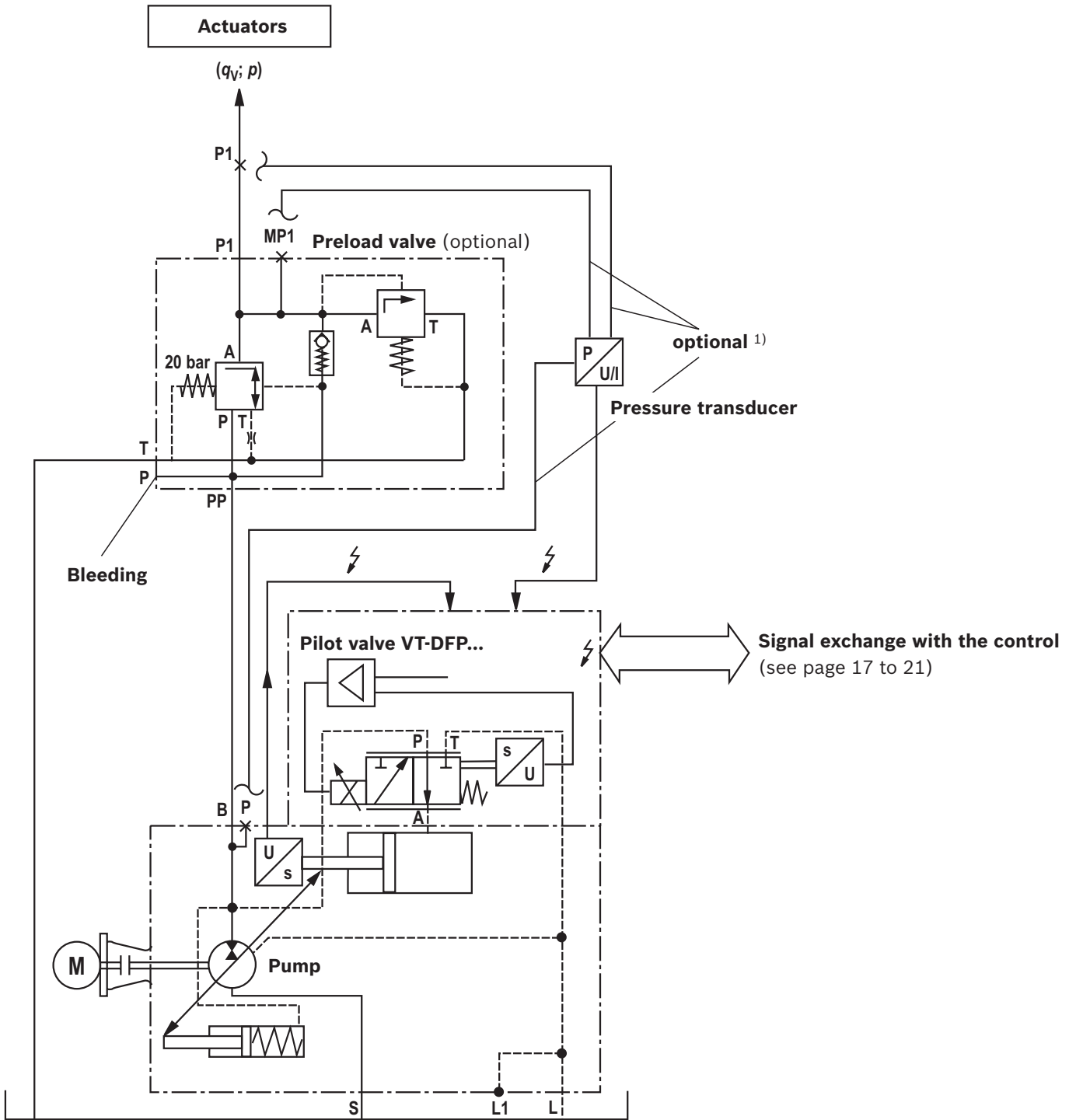
Schematic diagram: SYDFE1-2X, actuating system supplied internally



1) Separate order

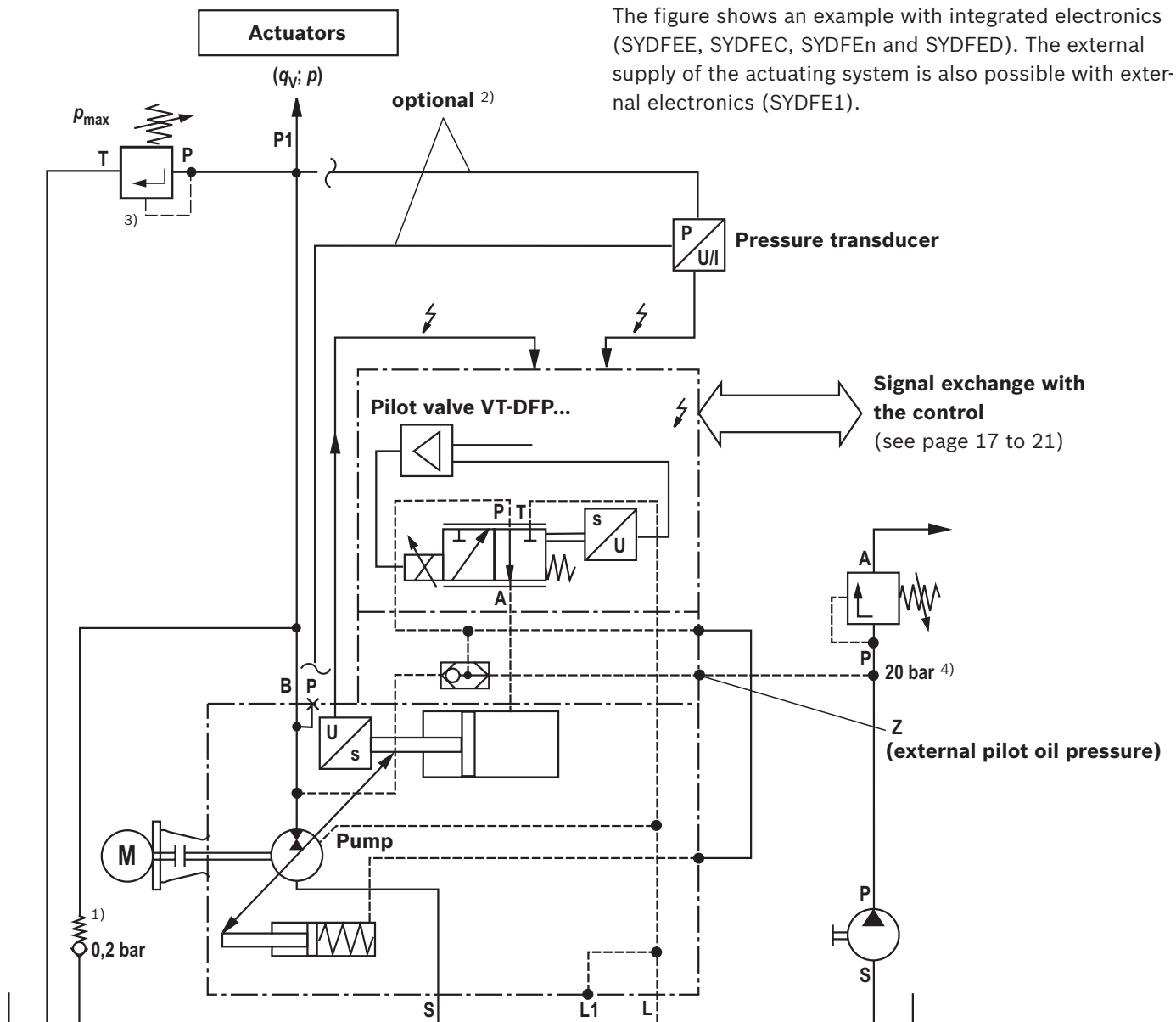
2) Optional

Schematic diagram: SYDFEE-2X, SYDFEC-2X, SYDFEn-2X, SYDFED-2X, actuating system supplied internally



1) When using the pressure transducer HM 20 cable version:
 Installation in P (pump) or MP1 (preload valve) in connection with electronics version "Actual pressure value input F".
 When using an external pressure transducer:
 Installation in the P1 line (preferably close to the actuator) and electrical connection via central connector.
 When using a preload valve, the pressure transducer is to be connected to P1 or MP1.

Schematic diagram: SYDFE...-2X, actuating system supplied externally



- 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) **optional**
- 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.

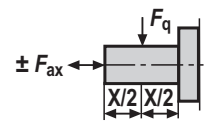
Pressure transducer	Mounting options	Comment
HM 20-2X/315-F-C13-0,5 (cable version)	P	Only in connection with actual pressure value input "F"
HM 20-2X/...-K35 (connector version)	P1	Preferably close to the actuator

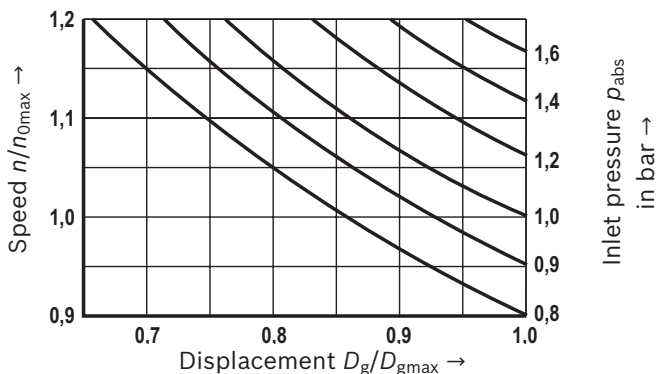
Important notes on external supply:

- ▶ In the case of an actuating system with external supply, the pump 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 ($p_{\text{command}} \geq 3 \text{ bar}$, $q_{\text{command}} \geq 5\%$), as due to drift or tolerances, there is no exact "zero" pressure or "zero" swivel angle. Under unfavorable conditions, smaller command value provisions 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 parameters, please consult us!)

Mechanical and hydraulic									
Size / displacement	$V_{g \max}$	cm ³	18	28	45	71	100	140	
Speed ¹⁾									
▶ max. at $V_{g \max}$	n_{nom}	RPM	3300	3000	2600	2200	2000	1800	
▶ max. at $V_g < V_{g \max}$	$n_{\text{max zul}}$	RPM	3900	3600	3100	2600	2400	2100	
Minimum speed	n_{min}	RPM	50						
Max. flow (displacement)									
▶ at n_{nom} and $V_{g \max}$	$q_{V \max}$	l/min	59.4	84	117	156	200	252	
▶ with $n_E = 1500$ RPM	$q_{VE \max}$	l/min	27	42	68	107	150	210	
Max. power ($\Delta p = 280$ bar)									
▶ at n_{nom} , $V_{g \max}$	P_{\max}	kW	27.7	39	55	73	93	118	
▶ with $n_E = 1500$ RPM and $V_{g \max}$	$P_{E \max}$	kW	12.6	20	32	50	70	98	
Max. speed ($\Delta p = 280$ bar)	T_{\max}	Nm	80.1	125	200	316	445	623	
Max. admissible drive torque									
▶ Key	T_{tot}	Nm	88	137	200	439	857	1206	
▶ Splined shaft S total torque	T_{tot}	Nm	124				1104	1620	
▶ Max. admissible through-drive torque	T_D	Nm	108				778	1266	
▶ Splined shaft R total torque	T_{tot}	Nm		225	400	644			
▶ Max. admissible through-drive torque	T_D	Nm		176	365	548			
Drive shaft load									
	▶ max. adm. axial force	$F_{\text{ax max}}$	N	700	1000	1500	2400	4000	4800
	▶ max. admissible radial force ²⁾	F_q	N	350	1200	1500	1900	2300	2800
Weight									
▶ Pump without through-drive incl. pilot valve	m	kg	14	17	23	35	47	62	
▶ in addition, preload valve	m	kg	3.3	3.3	3.3	6.3	6.3	6.3	
▶ in addition, in case of external supply	m	kg	2	2	2	2	2	2	
Moment of inertia around drive axis		kgm ²	0.0009	0.0017	0.0033	0.0083	0.0167	0.0242	
Filling quantity of the housing		l	0.4	0.7	1.0	1.6	2.2	3.0	
Maximum admissible operating pressure ³⁾	p_{\max}	bar	280						
Minimum operating pressure									
▶ with preload valve	p_{\min}	bar	≥ 1						
▶ without preload valve	p_{\min}	bar	≥ 20						
▶ in case of external supply (20 bar)	p_{\min}	bar	> 10 in continuous operation; during operation under 10 bar, observe the instructions on page 13						
Admissible inlet pressure	p	bar	0.8 ... 10.0						
Hydraulic fluid			Mineral oil (HL, HLP) according to DIN 51524						
Hydraulic fluid temperature range	ϑ	°C	-20 ... +70						
Maximum admissible degree of contamination of the hydraulic fluid according to ISO 4406			Class 18/16/13 (for particle size $\leq 4/6/14 \mu\text{m}$)						



1) The values are applicable at an absolute pressure of 1 bar in suction port 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) For higher radial forces, please consult us

3) For higher pressures, please consult us

Technical data

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

Electrical						
The electrical properties of SYDFE1 are described in data sheet 30242.						
Type				SYDFEE...2X	SYDFEC...2X and SYDFEn...2X	
Operating voltage		U_B	VDC	24 +40% -5%	24 +40% -5%	
Operating range (short-time operation)	▶ Upper limit value	$U_B(t)_{max}$	V	35		
	▶ Lower limit value	$U_B(t)_{min}$	V	21		
Current consumption (in static control operation)	▶ Rated current	I_{Nom}	A	0.6		
	▶ Maximum current	I_{max}	A	1.25		
Inputs	▶ Actual pressure value input X1; Pin 10 and 11	U or I		Determination by means of ordering code	parameterizable: 0 ... 20 mA; 4 ... 20 mA; 0 ... 10 V; 0 ... 5 V; 0.5 ... 5 V; 0.1 ... 10 V; 1 ... 10 V	
	▶ Analog current inputs, load	R_B	Ω	100	100	
	With configuration to current input: Maximal admissible input current 30 mA					
	▶ Analog voltage inputs	R_E	k Ω	≥ 50	≥ 100	
▶ Digital inputs	Logic 0	V	≤ 0.6	≤ 8		
	Logic 1	V	≥ 21	≥ 14		
Outputs	▶ p_{act} / U_{OUT1} ¹⁾	U_A	V	0 ... 10	± 10	
		I_{max}	mA	1.5	2	
	▶ q_{act} / U_{OUT2} ¹⁾	U_A	V	± 10	± 10	
		I_{max}	mA	1.5	2	
	▶ Digital outputs	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		ϑ	$^{\circ}\text{C}$	0 ... 60	0 ... 50	
Storage temperature range (pump + electronics)		ϑ	$^{\circ}\text{C}$	0 ... 70	0 ... 70	
Electronics design				Integrated in the pilot valve (OBE)		
Electrical connection				see page 17	see page 18 ... 20	
Protection class according to EN 60529		▶ Pump incl. pilot valve		IP 65 with mounted and locked plug-in connectors		

¹⁾ Outputs can be parameterized for SYDFEC, SYDFEn and SYDFED, for as-supplied condition, see 18 ... 21.

Technical data

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

Type			Type SYDFED...2X
Supply voltage ²⁾	▶ Nominal voltage	VDC	24
	▶ Lower limit value	VDC	18
	▶ Upper limit value	VDC	36
	▶ Maximum admissible residual ripple	Vpp	2.5
Power consumption	Maximum	W	40
Required fuse protection, external		A	4, time-lag
AD/DA resolution	▶ Analog inputs	Bit	12
	▶ Analog outputs ¹⁾	Bit	10
Actual pressure value input XH4, Pin 10 and 11	▶ Analog voltage	V	0 ... 10
	▶ Analog current	mA	0 ... 20 With configuration to current input: Maximal admissible input current 30 mA
Ambient temperature range at the pump	∅	°C	0 ... +50
Storage temperature range (pump + electronics)	∅	°C	-10 ... +50
Electronics design			Integrated in the pilot valve (OBE)
Electrical connection			see page 20, 21
Protection class according to EN 60529	▶ Pump incl. pilot valve		IP 65 with mounted and locked plug-in connectors

¹⁾ Outputs can be parameterized for SYDFEC, SYDFEn and SYDFED, for as-supplied condition, see 18 ... 21.

²⁾ With SYDFED, supply voltage is used directly for sensor connections X2M1, X2M2 and X8M (no internal voltage limitation)

**Note:**

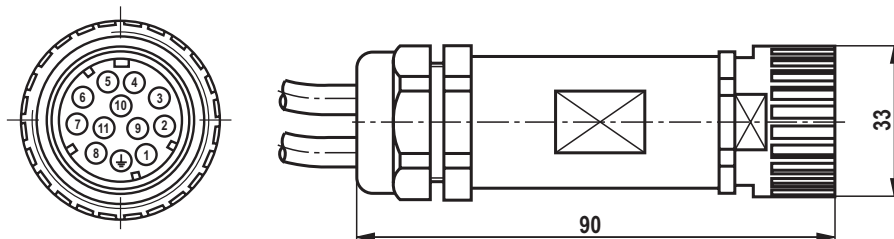
For information on the environment simulation testing for the areas EMC (electro-magnetic compatibility), climate and mechanical load, see data sheet 30030-U.

Electrical connection: SYDFEE...2X

The electrical connection of the SYDFE1 control system is described in data sheet 30242.

X1: Central connection

Mating connector according to EN 175201-804 (12-pin), ordering code see section Accessories on page 9.



Allocation of connector or mating connector and cable set

Pin	Signal	Description	Signal direction	Type of signal	Allocation in the cable set (accessories)
1	+ U_B	Voltage supply	IN	24 V DC	1
2	0 V = L0	Reference potential for the voltage supply	–		2
PE	Earth	Ground connection for the electronics	–		green/ yellow
3	Fault	Signals failures, e.g. cable break command / actual values, controller monitoring (logic 0 = error)	OUT	logic 24 V	white
4	M0	Reference potential for analog signals	–		Yellow
5	α_{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 electronics type and additional function, see below			brown
10	Pressure actual value H	Actual pressure value input: The signal level depends on feature 14 of the ordering codes Reserved with type "F" (0.5 ... 5 V)	IN	Analog	black
11	Pressure actual value L		–	Analog	blue
n.c.					gray

Functions at pin 9

Pin	Additional function	Function depends on feature 12 of the ordering codes (see page 4)	Signal direction	Type of signal
9	-.A...	Switching to 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

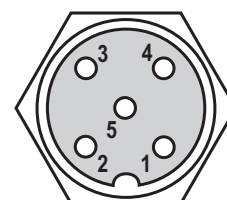
¹⁾ When using a pressure transducer with raised zero point (e.g. 4 ... 20 mA), a voltage of -1 ... -2.5 V will be output in the event of a cable break.

X2: Connection pressure transducer HM 20

HM 20-2X/315-F-C13-0,5 (cable version) (mating connector M12)

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

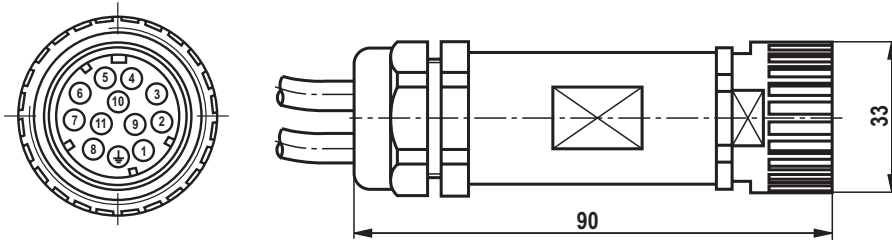
Top view
Mating
connector



Electrical connection: SYDFEC...2X

X1: Central connection

Mating connector according to EN 175201-804 (12-pin), ordering code see section Accessories on page 9.



Allocation of connector or mating connector and cable set

Pin	Signal	Description	Signal direction	Type of signal	Allocation in the cable set (accessories)
1	+ U _B	Voltage supply	IN	24 V DC	1
2	0 V = L0	Reference potential for the voltage supply	–		2
PE	Earth	Ground connection for the electronics	–		green/ yellow
3	Fault	Signals failures, e.g. cable break command / actual values, controller monitoring (logic 0 = error)	OUT	logic 24 V	white
4	M0	Reference potential for analog signals	–		Yellow
5	AI2	Analog input AI2 Factory setting: Swivel angle command value	IN	analog ± 10 V	Green
6	U _{OUT2}	Analog output Factory setting: Actual swivel angle value, normalized	OUT	analog ± 10 V	violet
7	AI1	Analog input AI1 Factory setting: Pressure command value	IN	analog 0 ... 10 V	pink
8	U _{OUT1}	Analog output Factory setting: Actual pressure value, normalized	OUT	analog ± 10 V	Red
9	DI1	Digital input DI1	IN	logic 24 V	brown
10	Pressure actual value H	Actual pressure value input: Signal level depends on feature 14 of the ordering code	IN	Analog	black
11	Pressure actual value L		–	Analog	blue
n.c.					gray

Supply line 3 x 1.0 mm²

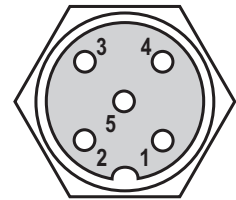
Supply line 10 x 0.14 mm² shielded (one end of the shield must be connected to the control!)

X2: Connection pressure transducer HM 20

HM 20-2X/315-F-C13-0,5 (cable version) and serial interface RS232 (mating connector M12)

Pin	Signal HM 20	Pin	Signal RS232
1	OUT, +U _B	2	RxD
3	Reference L0		
4	IN, analog, 0.5 ... 5 V DC	5	TxD

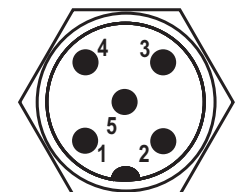
Top view
mating
connector



X3: Connection CAN bus and digital input 2 (DI2) (connector M12)

Pin	Signal input	Pin	Signal CAN
1	n.c.	3	CAN GND
2	IN, digital IN2 (DI2)	4	CAN-HIGH
		5	CAN-LOW

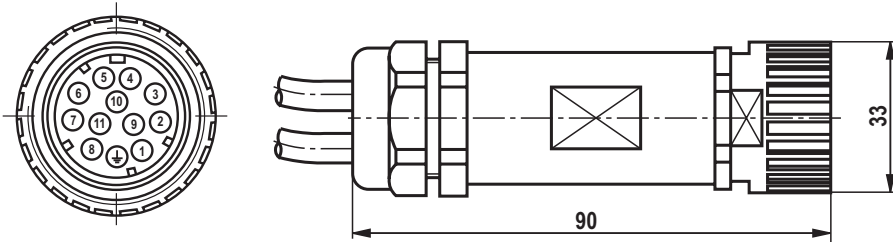
Top view
connector



Electrical connection: SYDFEn...2X

X1: Central connection

Mating connector according to EN 175201-804 (12-pin), ordering code see section Accessories on page 9.



Allocation of connector or mating connector and cable set

Pin	Signal	Description	Signal direction	Type of signal	Allocation in the cable set (accessories)
1	+ U_B	Voltage supply	IN	24 V DC	1
2	0 V = L0	Reference potential for the voltage supply	–		2
PE	Earth	Ground connection for the electronics	–		green/ yellow
3	Fault	Signals failures, e.g. cable break command / actual values, controller monitoring (logic 0 = error)	OUT	logic 24 V	white
4	M0	Reference potential for analog signals	–		Yellow
5	AI2	Analog input AI2 Factory setting: Swivel angle command value	IN	analog ± 10 V	Green
6	U_{OUT2}	Analog output Factory setting: Actual swivel angle value, normalized	OUT	analog ± 10 V	violet
7	AI1	Analog input AI1 Factory setting: Pressure command value	IN	analog 0 ... 10 V	pink
8	U_{OUT1}	Analog output Factory setting: Speed command value	OUT	analog ± 10 V	Red
9	DI1	Digital input DI1 Depending on additional function (feature 12 of the ordering code): ► Teach-In version: Synchronization bit DI1 ► Real-time version: Activate real-time operation, S1	IN	logic 24 V	brown
10	Pressure actual value H	Actual pressure value input: Signal level depends on feature 14 in the ordering code.	IN	Analog	black
11	Pressure actual value L		–	Analog	blue
n.c.					gray

Supply line 3 x 1.0 mm²

Supply line 10 x 0.14 mm² shielded (one end of the shield must be connected to the control!)

X2: Serial interface RS232 and a switchable digital input/pressure transducer input for HM 20 HM 20-2X/315-F-C13-0,5 (cable version) (mating connector M12)

Pin	Signal input	Pin	Signal RS232
1	OUT, + U_B	2	RxD
3	Reference L0		
4	Analog input 0.5 ... 5 V for HM 20 or Digital input 0 V low, 10 V high ¹⁾ Depending on additional function (feature 12 of the ordering code), factory setting: ► Teach-In version: Digital input "Variable-speed operation on, S1" ► Real-time version: Input as analog input for pressure transducer HM 20	5	TxD



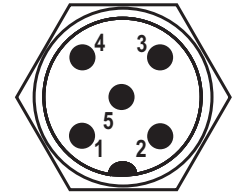
Top view
mating
connector

¹⁾ For valves with date of manufacture up to and including 2013 max. 12 V. For valves with production date 2014 max. U_B .

Electrical connection: SYDFEn...2X

X3: CAN bus and digital input 2 (connector M12)

Pin	Signal input	Pin	Signal CAN
1	n.c.	3	CAN GND
2	IN, digital IN2 (DI2) Depending on additional function (feature 12 of the ordering code), factory settings: ▶ Teach-In version: Start Teach-In, S2 ▶ Real-time version: Manual speed provision active, speed is applied according to the real-time operation status and the setting of the R parameters.	4	CAN-HIGH
		5	CAN-LOW

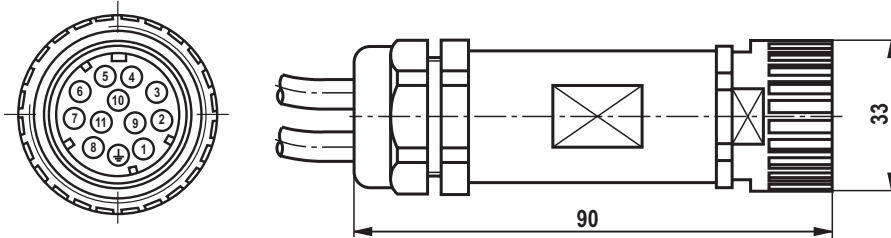


Top view
connector

Electrical connection: SYDFED...2X

XH4: Central connection

Mating connector according to EN 175201-804 (12-pin), ordering code see section Accessories on page 9.



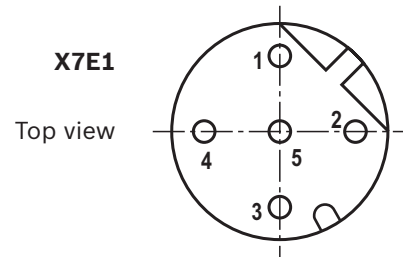
Allocation of connector or mating connector and cable set

Pin	Signal	Description	Signal direction	Type of signal	Allocation in the cable set (accessories)
1	+ U _B	Voltage supply	IN	24 V DC	1
2	0 V = L0	Reference potential for the voltage supply	–		2
PE	Earth	Ground 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
4	M0	Reference potential for analog signals	–		Yellow
5	AI2	Analog input 2 (or digital input, configuration via software)	IN	analog ± 10 V or 0 ... 20 mA (digital 24 V)	Green
6	AO2	Analog output 2 Factory setting: Actual swivel angle value, normalized	OUT	analog ± 10 V or 0 ... 20 mA	violet
7	AI1	Analog input 1 (or digital input, configuration via software)	IN	analog ± 10 V or 0 ... 20 mA (digital 24 V)	pink
8	AO1	Analog output 1 Factory setting: Actual pressure value, normalized	OUT	analog ± 10 V or 0 ... 20 mA	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 depending on the parameter settings. Factory setting depends on feature 14 of the ordering code 0 ... 10 V (V) or deactivated (F)	IN	analog 0 ... 10 V, 0 ... 20 mA (freely configurable)	black
11	Actual pressure value L		–	Analog	blue
n.c.					gray

Electrical connection: SYDFED....2X

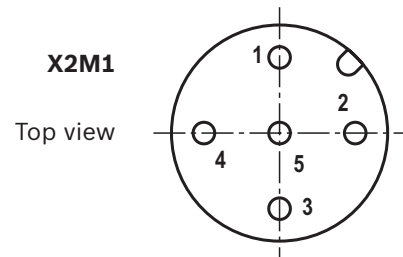
X7E1 and X7E2: Connector assignment for Ethernet interface (coding D), M12, 4-pin, socket

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



X2M1 and X2M2: Analog configurable sensor interface (coding A), M12, 5-pin, socket

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



¹⁾ Maximum load capacity 50 mA, voltage output same as voltage supply connected to input XH4.

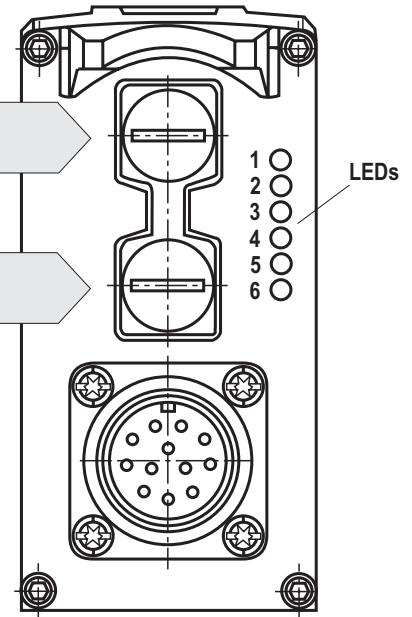
²⁾ Only one signal input per interface, configurable

X2N: Reserved

X8A: Swivel angle actual value input (coding A), M12, 5-pin, socket M12

LED display SYDFED-2X

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



Displays of the status LEDs

Module status LED (LED 4)	Status display
From	no voltage supply
Green-red, flashing	Self-test
Green, flashing	Drive ready
Green	In control mode
Red, flashing	Warning
Red	Error

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

Notices:

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

Closed-loop control quality

👉 Notices:

- ▶ The specified values are only valid when using the system-related components specified in this data sheet.
- ▶ At pressures < 20 bar, higher tolerances have to be anticipated due to lower actuating forces.

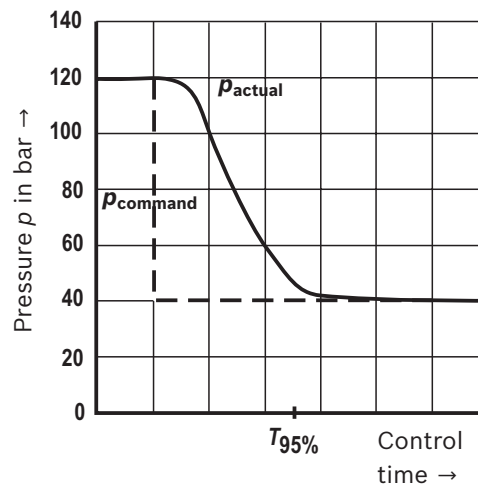
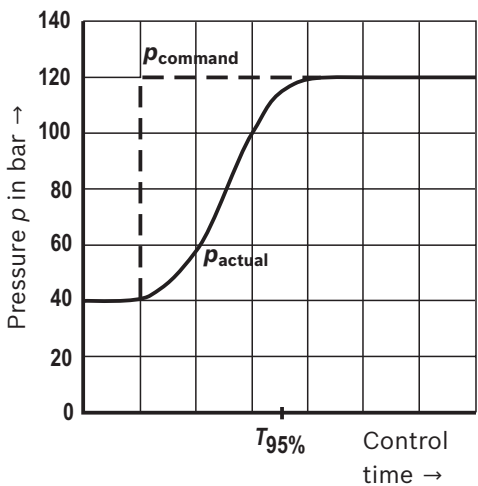
	Swivel angle control	Pressure control ¹⁾
Linearity tolerance	≤ 1.0%	≤ 1.5% (≤ 1.0% ²⁾)
Temperature error	≤ 0.5% / 10 K	≤ 0.5% / 10 K
Hysteresis	≤ 0.2%	≤ 0.2%
Repetition accuracy	≤ 0.2%	≤ 0.2%

1) Without considering the pump pulsation

2) With SYDFEC, SYDFEn and SYDFED, using the integrated calibration function

Transition function with pressure command value step with spool design “A”

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.



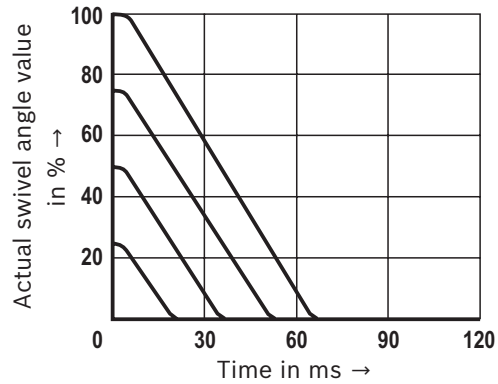
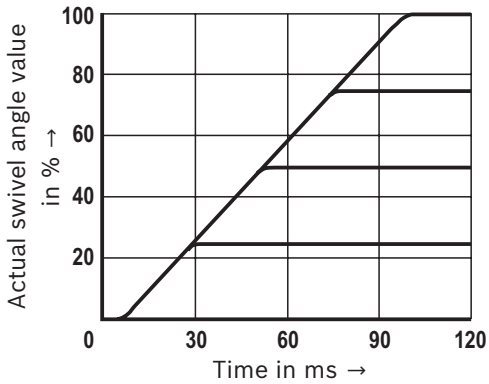
T 95% in ms with a connected hydraulic fluid volume (lines and actuators)

Hydraulic fluid volume in l	T _{95%} in ms
< 5	150
5 ... 10	200
15 ... 25	250

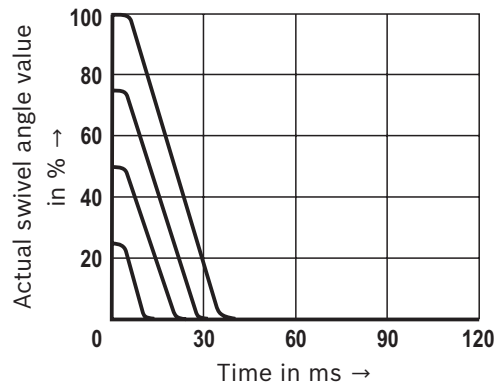
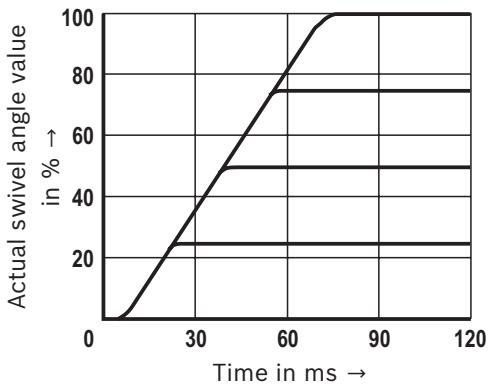
For pressures up to 40 bar, the values of the response times are larger.

Transition function with swivel angle command value step with spool design "A"

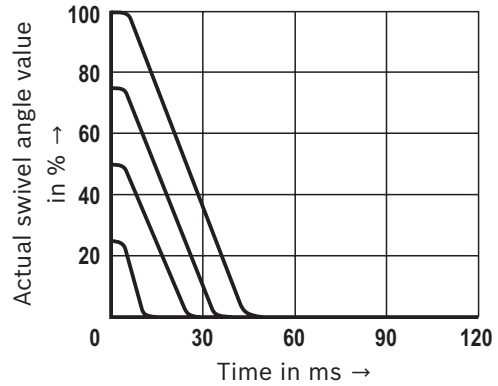
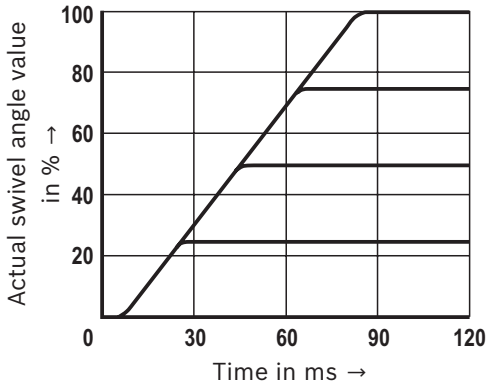
Size 18, 28, 45, 71 $p = 20$ bar



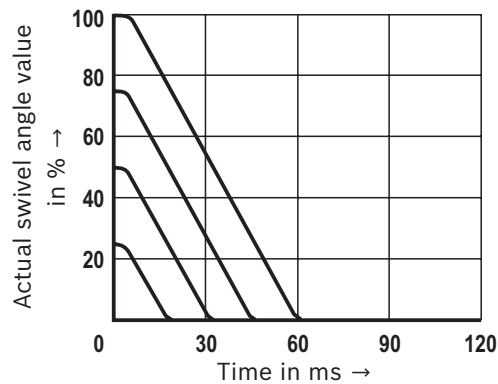
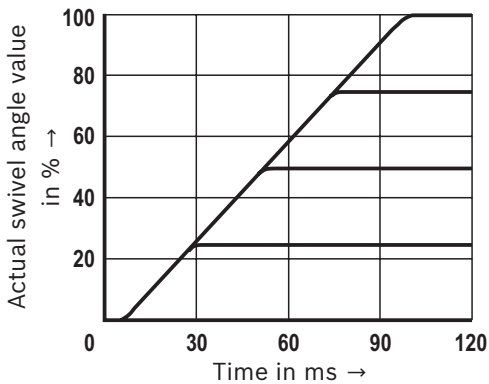
Size 18, 28, 45, 71 $p = 50$ bar



Size 100 $p = 50$ bar



Size 140 $p = 50$ bar

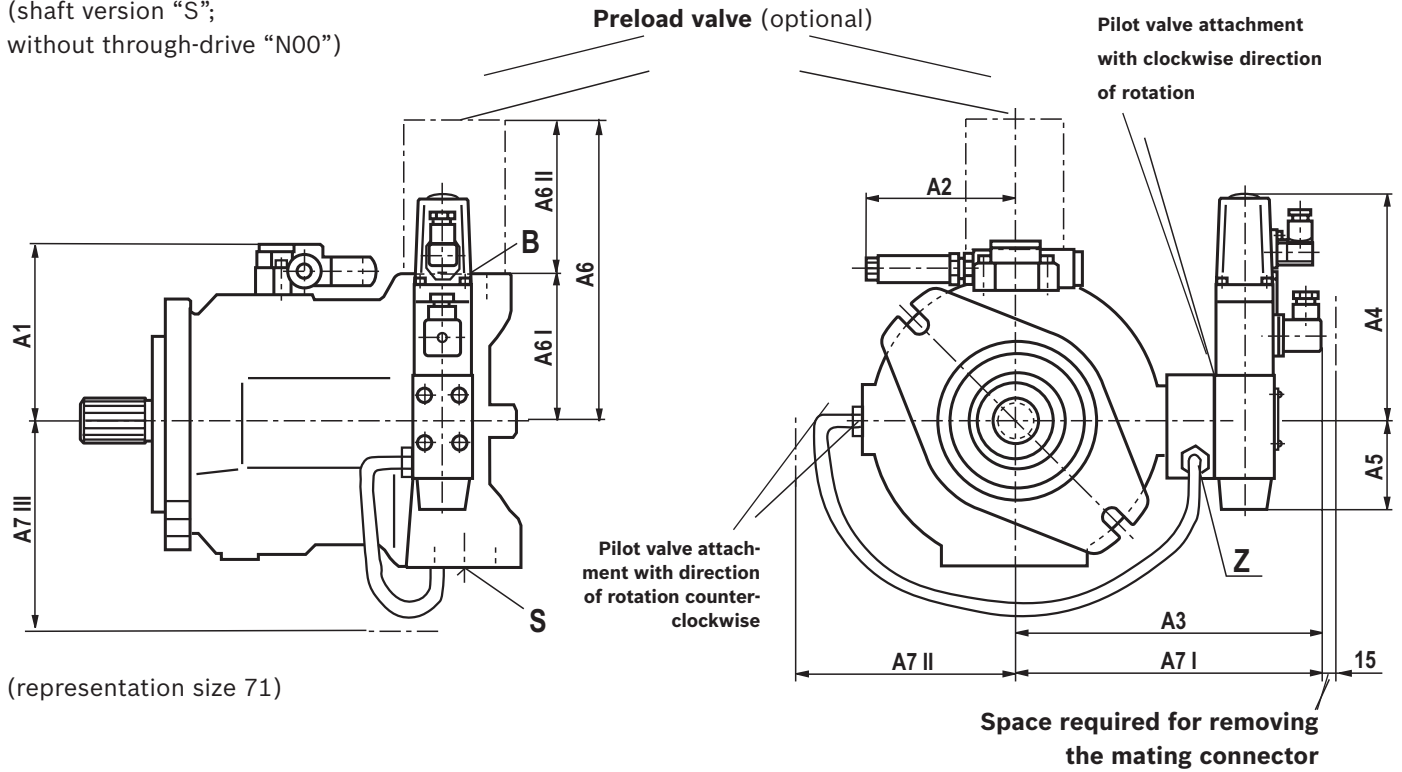


Dimensions: SYDFE1
(dimensions in mm)

The unit dimensions of the base pump (axial piston variable displacement pump A10VSO.../31) are contained in data sheet 92711.

Size 18 ... 140

(shaft version "S";
without through-drive "N00")



(representation size 71)

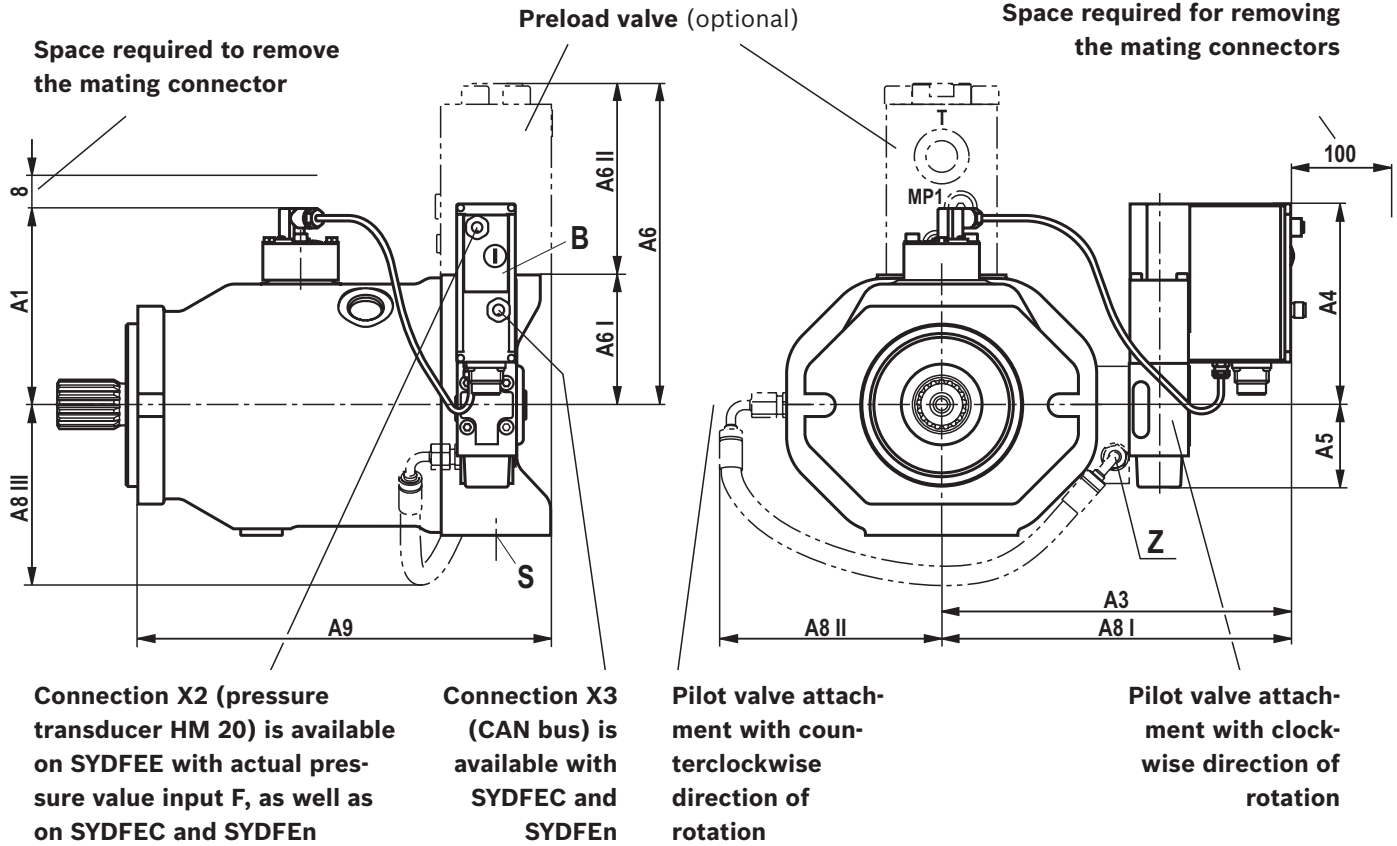
Size	A1	A2	A3	A4	A5	A6	A6 I	A6 II	Dimensions with base pump variant "0479" or "0487"		
									A7 I	A7 II	A7 III
18	98	110	161	158	63	178	63	115	196	125	100
28	106	110	171	158	63	195	80	115	206	135	115
45	112	110	181	158	63	205	90	115	216	145	125
71	124	110	195	158	63	254	104	150	230	159	150
100	129	110	200	158	63	247	100	147	235	164	150
140	140	110	213	143	78	257	110	147	248	182	150

Dimensions: SYDFEE-2X, SYDFEC-2X and SYDFEn-2X, installation orientation 0
(dimensions in mm)

The unit dimensions of the base pump (axial piston variable displacement pump A10VSO.../31) are contained in data sheet 92711.

Size 18 ... 140

(Valve mounting direction “0”; shaft version “S”;
without through-drive “N00”)



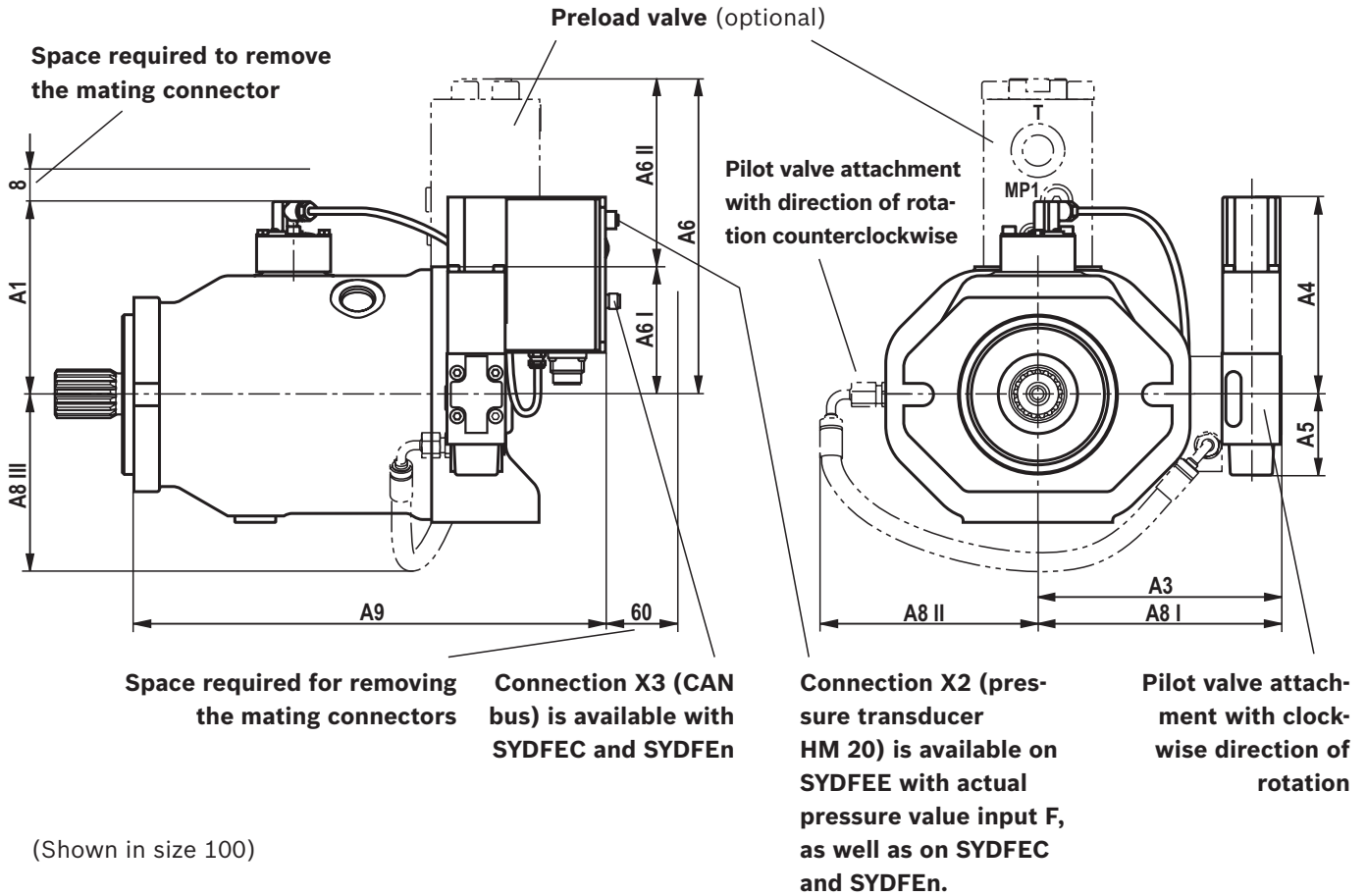
(Shown in size 100)

Size	A1	A3 ¹⁾	A4	A5	A6	A6 I	A6 II	Dimensions with base pump variant "0479" or "0487"			Max. length A9
								A8 I	A8 II	A8 III	
18	120	198	158	63	178	63	115	233	125	100	170
28	128	208	158	63	195	80	115	243	135	115	194
45	134	218	158	63	205	90	115	253	145	125	219
71	146	232	158	63	254	104	150	267	159	150	257
100	151	237	158	63	247	100	147	272	164	150	317
140	162	250	143	78	257	110	147	285	182	150	317

¹⁾ Dimensions with base pump variant "0000"

Dimensions: SYDFEE-2X, SYDFEC-2X and SYDFEn-2X, installation orientation 2
(dimensions in mm)

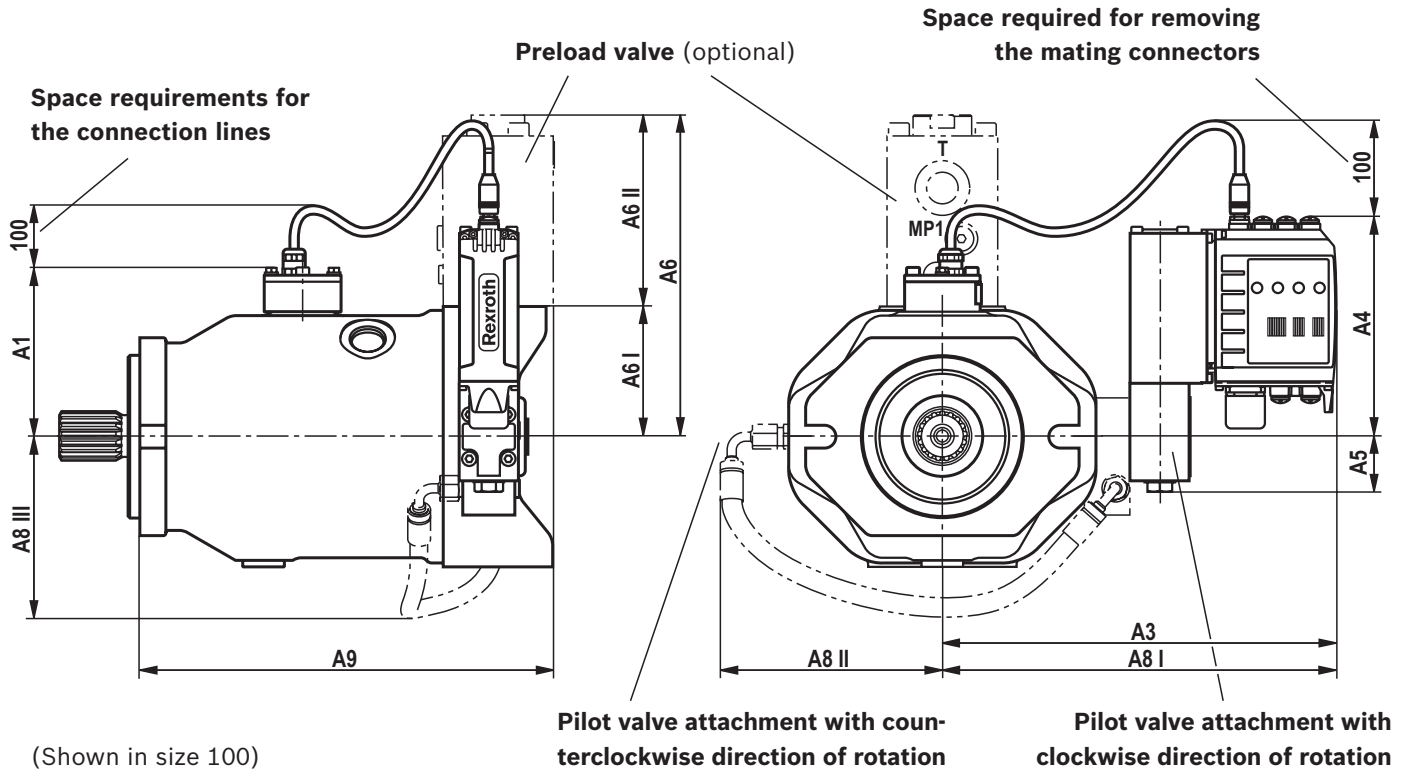
(Valve mounting direction “2”; shaft design “S”;
without through-drive “N00”)



Size	A1	A3	A4	A5	A6	A6 I	A6 II	Dimensions with base pump variant "0479" or "0487"			Max. length A9
								A8 I	A8 II	A8 III	
18	100	116	158	63	178	63	115	151	125	100	253
28	108	127	158	63	195	80	115	162	135	115	263
45	114	137	158	63	205	90	115	172	145	125	278
71	126	151	158	63	254	104	150	186	159	150	306
100	131	156	158	63	247	100	147	191	164	150	373
140	142	180	143	78	257	110	147	215	182	150	373

Dimensions: SYDFED-2x installation orientation 0
(dimensions in mm)

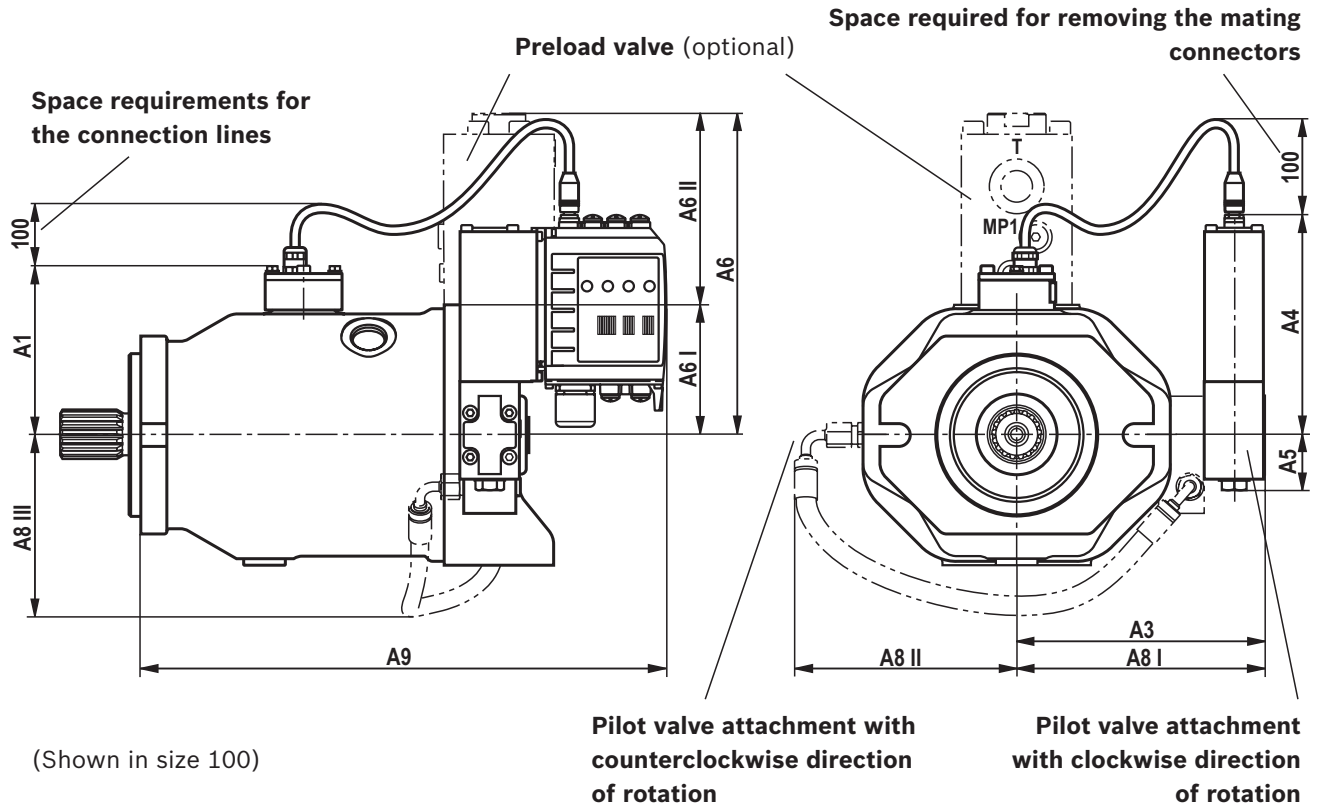
(Valve mounting direction “0”; shaft version “S”;
without through-drive “N00”)



Size	A1	A3	A4	A5	A6	A6 I	A6 II	Dimensions with base pump variant "0479" or "0487"			Max. length A9
								A8 I	A8 II	A8 III	
18	100	230	166	43	178	63	115	265	125	100	170
28	108	241	166	43	195	80	115	276	135	115	194
45	114	251	166	43	205	90	115	286	145	125	219
71	126	265	166	43	254	104	150	300	159	150	257
100	131	270	166	43	247	100	147	305	164	150	317
140	142	294	151	58	257	110	147	329	182	150	317

Dimensions: SYDFED-2x installation orientation 2
(dimensions in mm)

(Valve mounting direction “2”; shaft version “S”;
without through-drive “N00”)



Size	A1	A3	A4	A5	A6	A6 I	A6 II	Dimensions with base pump variant "0479" or "0487"			Max. length A9
								A8 I	A8 II	A8 III	
18	100	116	166	43	178	63	115	151	125	100	287
28	108	127	166	43	195	80	115	162	135	115	297
45	114	137	166	43	205	90	115	172	145	125	312
71	126	151	166	43	254	104	150	186	159	150	340
100	131	156	166	43	247	100	147	191	164	150	407
140	142	180	151	58	257	110	147	215	182	150	407

Dimensions: Ports (dimensions in mm)

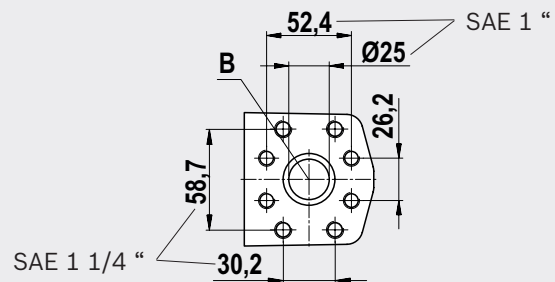
Size	18	28	45	71	100	140
B: Service line (SAE J518 ¹⁾)						
Size	3/4"	3/4"	1"	1"	1 1/4"	1 1/4"
Fixing thread (DIN 13)	M10 x 1,5; 17 deep				M14 x 2; 19 deep	
Peak press. ²⁾	bar 350					
S: Inlet line (SAE J518 ¹⁾)						
Größe	1"	1 1/4"	1 1/2"	2"	2 1/2"	2 1/2"
Fixing thread (DIN 13)	M10 x 1,5; 17 deep		M12 x 1,75; 20 deep		M12 x 1,75; 17 deep	
Peak press. ²⁾	bar 10					

¹⁾ Dimensions according to SAE J518 only, metric mounting thread deviating from the standard.

²⁾ Application dependent pressure spikes can occur. Please consider this when selecting measuring equipment or fittings. Specified pressures are in bar absolute.

Notes on Size 71:

- ▶ At pressure port „B“ there are two SAE flanged ports available, each offset by 90°. SAE 1 1/4", standard pressure range, 3000 psi, for pressures up to 250 bar. SAE 1", standard pressure range, 5000 psi, for pressures up to 350 bar.
- ▶ For operating pressures above 250 bar the standard-pressure SAE 1" port must be used.



Hubs for through-drives

Hubs for combining single pumps or SYDFE with other pumps. Please note 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

Also 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	
Size 18	Size 28	Size 45	Size 71	Size 100	Size 140	Ø shaft	Pump type (examples)
R902436099	R902436199	R902436100	R902436200	R902436201	R902436202	3/4" 19-4 (SAE A-B)	SYDFE-2X, A10VSO..31 Size 018 shaft S
	R902436098	R902436084	R902436083	R902436101	R902436102	7/8" 22-4 (SAE B)	SYDFE-2X, A10VSO..31 Size 028 shaft R; PGF3
		R902436103	R902436104	R902436105	R902436204	1" 25-4 (SAE B-B)	SYDFE-2X, A10VSO..31 Size 045 shaft R; PGH4
			R902436085	R902436086	R902436106	1 1/4" 32-4 (SAE C)	SYDFE-2X, A10VSO..31 Size 071 shaft R
				R910943565	R910943555	1 1/2" 38-4 (SAE C-C)	SYDFE-2X, A10VSO..31 Size 100 shaft S; PGH5
					R910932172	1 3/4" 44-4 (SAE D)	SYDFE-2X, A10VSO..31 Size 140 shaft S
R910943528	R910986299	R910943529	R910943545	R910943560	R910943551	5/8" 16-4 (SAE A)	1PF2G2, PGF2, PGH2, PGH3, AZPF

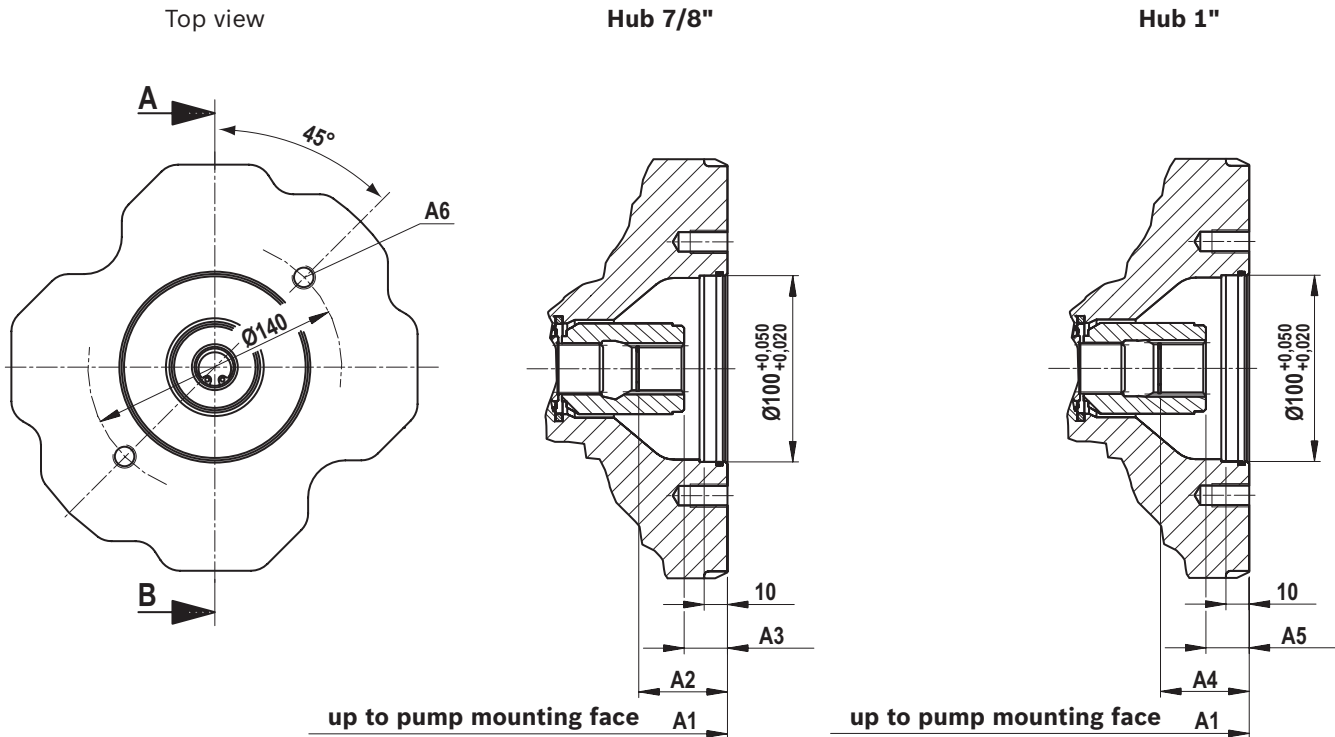
Dimensions: Through-drives (dimensions in mm)

KD3

Flange ISO 100, 2-hole for the attachment of

- ▶ SYDFE.-2X (size 28 and size 45, flange A)
- ▶ A10VSO..31 (size 28 and size 45, flange A, see data sheet 92711)

Sectional presentation with examples for hubs
(Order number for hubs see page 31)



Size	A1	A2	A3	A4	A5	A6
28	204	41.7	17.8	–	–	M12; 15 right through
45	229	41.7	17.9	46.7	18.4	M12; 14 right through
71	267	44.1	20.3	49.1	20.8	M12; 20 deep
100	338	41	17.6	45.9	18.2	M12; 20 deep
140	350	41.1	18	45.9	18.3	M12; 20 deep

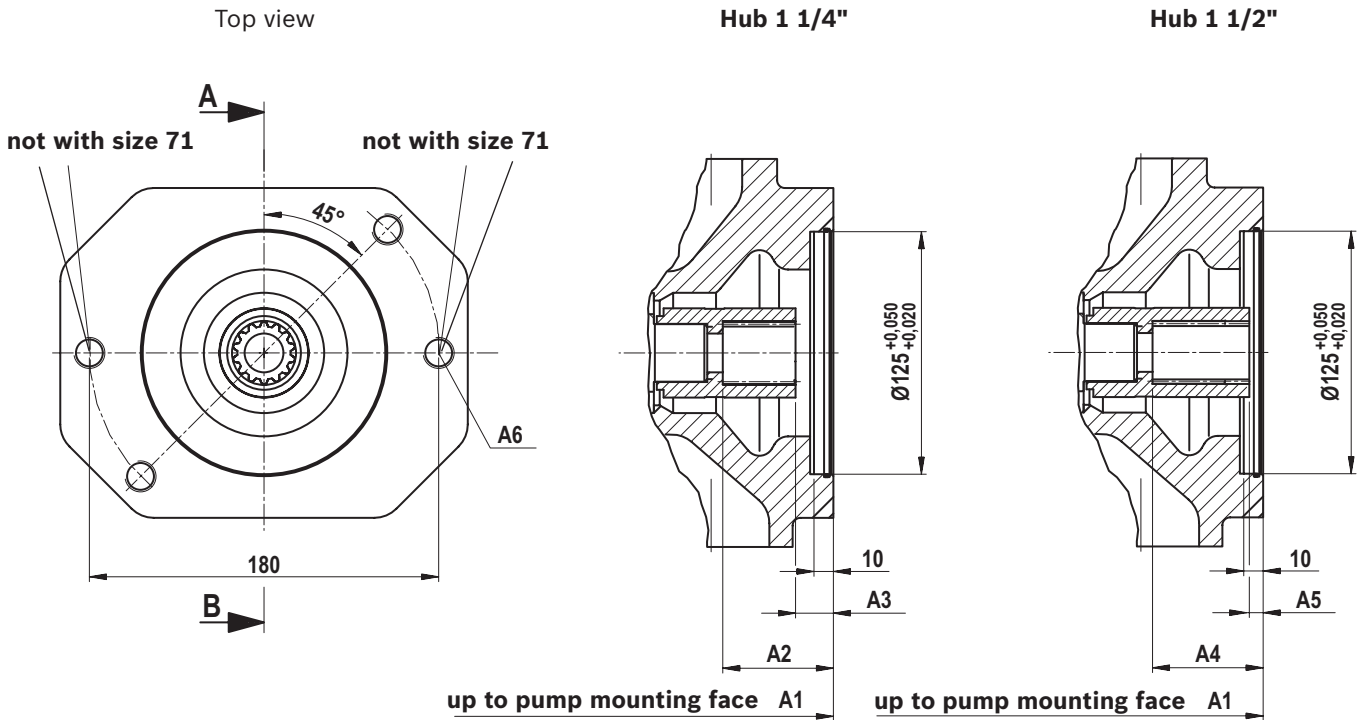
Dimensions: Through-drives
(dimensions in mm)

KD5

Flange ISO 125, 2-hole for the attachment of

- ▶ SYDFE.-2X (size 71 and size 100, flange A)
- ▶ A10VSO..31 (size 71 and size 100, flange A, see data sheet 92711)

Sectional presentation with examples for hubs
(Order number for hubs see page 31)



Size	A1	A2	A3	A4	A5	A6
71	267	58.6	21.8	-	-	M16; 20 right through
100	338	56.4	19.5	63.9	7.9	M16; 20 deep
140	350	55.4	17.4	73.3	7.9	M16; 24 deep

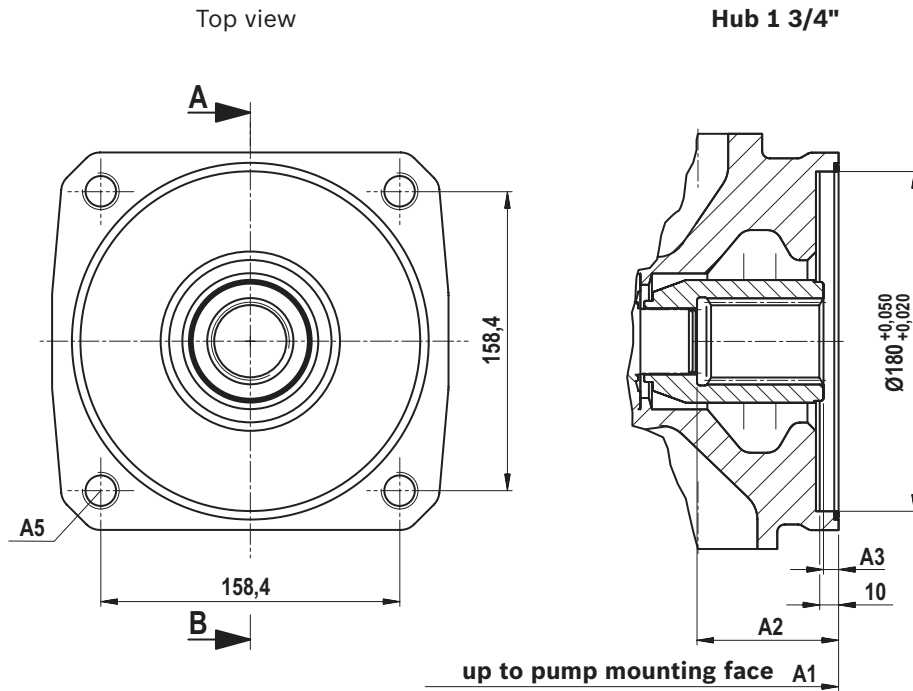
Dimensions: Through-drives
(dimensions in mm)

KD7

Flange ISO 180, 4-hole for the attachment of

- ▶ SYDFE.-2X (size 140, flange B)
- ▶ A10VSO..31 (size 140, flange B, see data sheet 92711)

Sectional presentation with examples for hubs
(Order number for hubs see page 31)



Size	A1	A2	A3	A5
140	350	75	8	M16; 22 right through

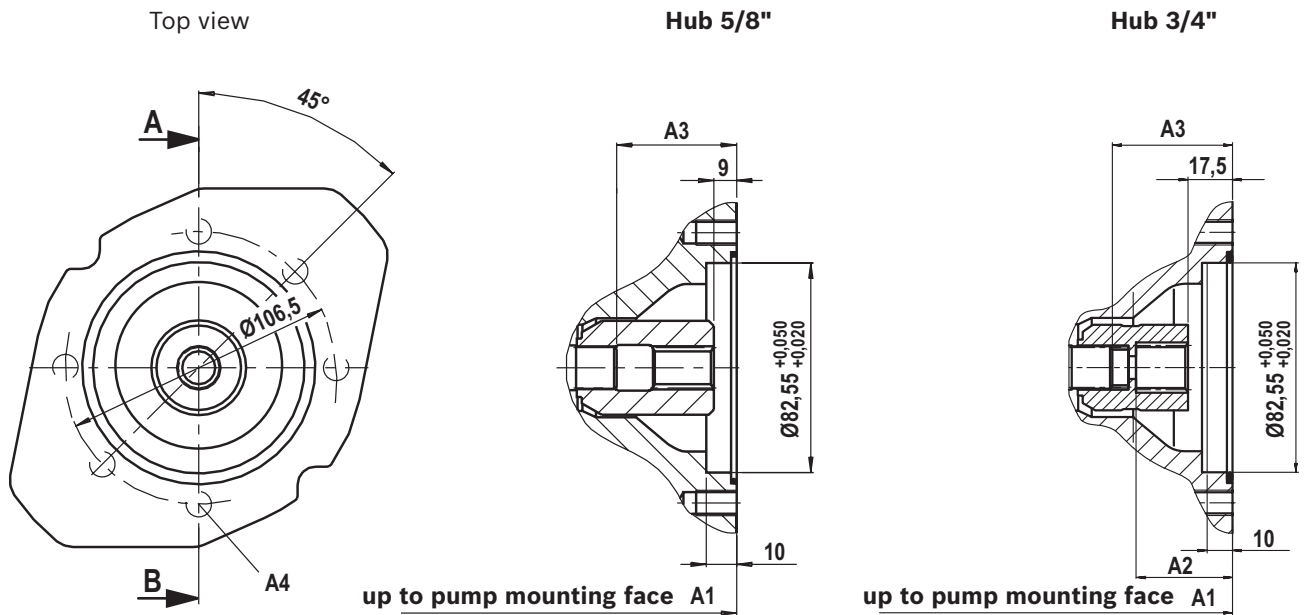
Dimensions: Through-drives
(dimensions in mm)

KC1

Flange SAE 82-2 (SAE A, 2-hole) for the attachment of

- ▶ SYDFE.-2X (size 18, flange C)
- ▶ A10VSO..31 (size 18, 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)

Sectional presentation with examples for hubs
(Order number for hubs see page 31)



Size	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
140	350	41	77	M10; 17 deep

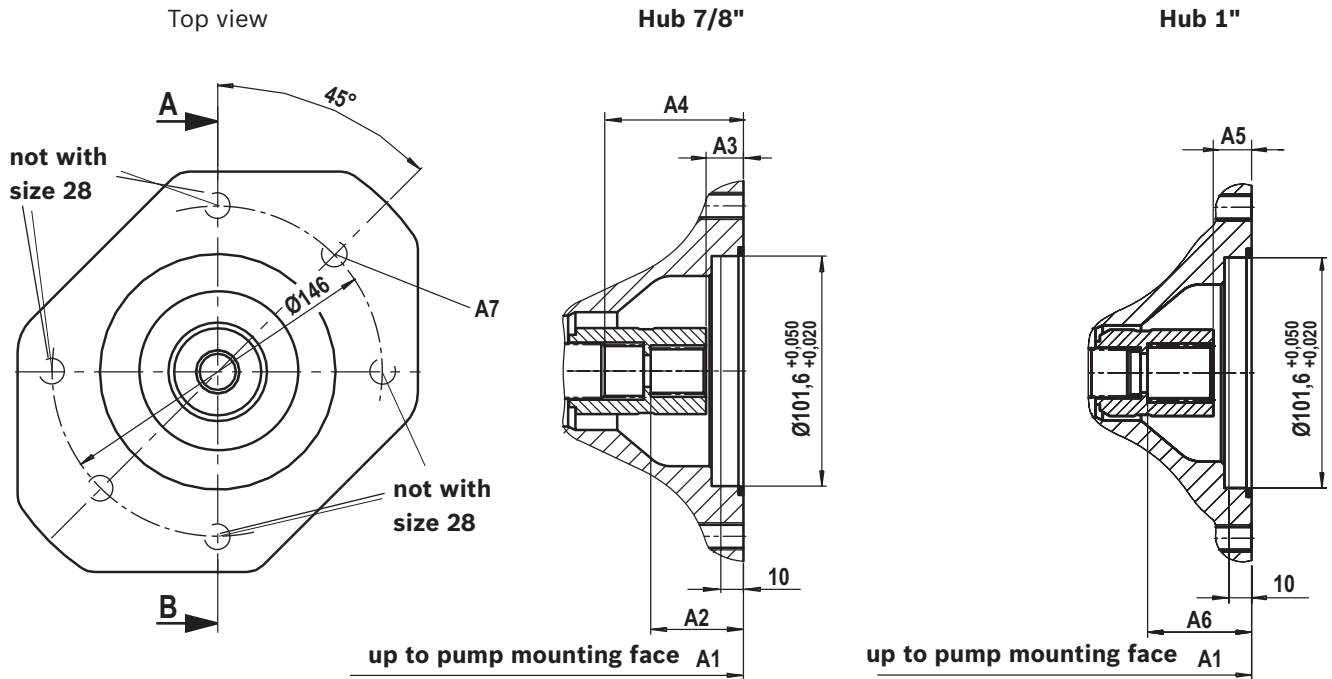
Dimensions: Through-drives
(dimensions in mm)

KC3

Flange SAE 101-2 (SAE B, 2-hole) for the attachment of

- ▶ SYDFE.-2X (size 28 and size 45, flange C)
- ▶ A10VO..31 (size 28 and size 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)

Sectional presentation with examples for hubs
(Order number for hubs see page 31)



Size	A1	A2	A3	A4	A5	A6	A7
28	204	43	16.5	47	-		M12; 15 deep
45	229	42	16.5	53	18.4	46.7	M12; 18 deep
71	267	43	16.5	61	20.8	49.1	M12; 20 deep
100	338	41	16.5	65	10.5	65	M12; 20 deep
140	350	44	16.5	77	18.3	45.9	M12; 20 deep

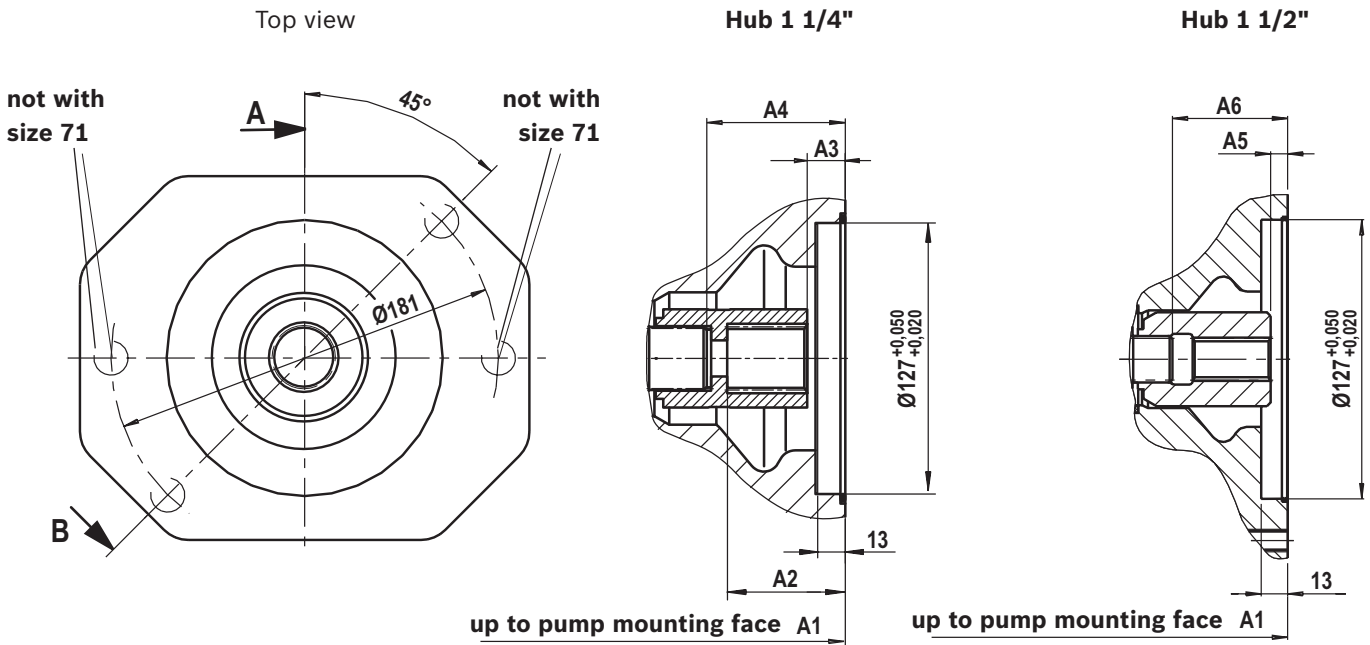
Dimensions: Through-drives
(dimensions in mm)

KC5

Flange SAE 127-2 (SAE C, 2-hole) for the attachment of

- ▶ SYDFE.-2X (size 71 and size 100, flange C)
- ▶ A10VO..31 (size 71 and size 100, flange C, see data sheet 92701)
- ▶ PGH5 (shaft R, flange U2, see data sheet 10223)

Sectional presentation with examples for hubs
(Order number for hubs see page 31)



Size	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
140	350	60	17.9	77	9	77.3	M16; 32 deep

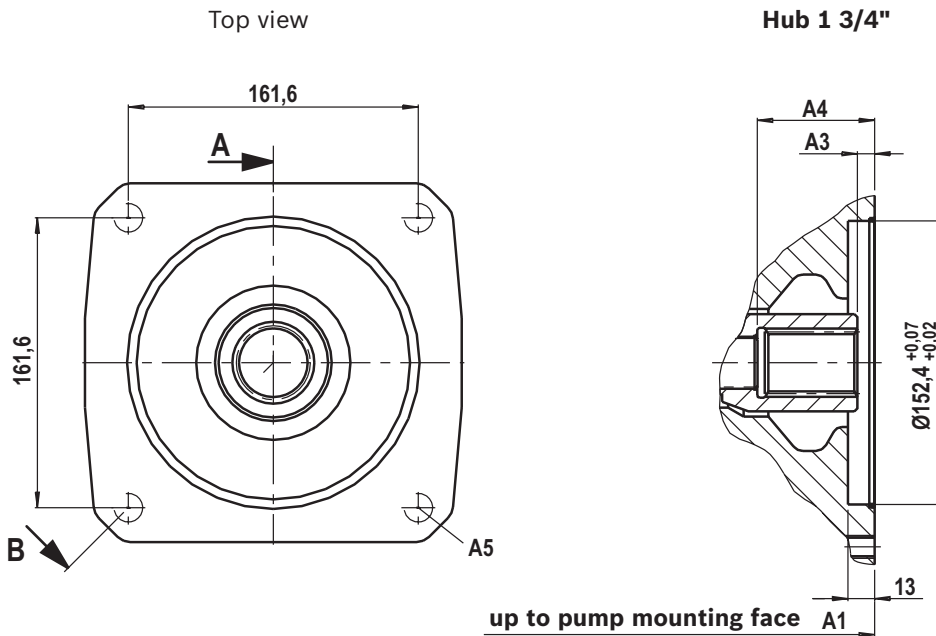
Dimensions: Through-drives
(dimensions in mm)

KC6

Flange SAE 152-4 (SAE D, 4-hole) for the attachment of

- ▶ SYDFE.-2X (size 140, flange D)
- ▶ A10VO..31 (size 140, flange D, see data sheet 92701)

Sectional presentation with examples for hubs
(Order number for hubs see page 31)



Size	A1	A3	A4	A5
140	350	10.5	77	M16; 24 deep

Torsionally flexible couplings for attachment to a standard electric motor

Size/ characteristics	Motor		SYDFE.-2X	
	Shaft diameter	Size 18 Shaft S, 3/4"	Size 28 Shaft S or R, 7/8"	Size 45 Shaft S or R, 1"
100/0 112/0	28		R901038012	R901038017
132/0	38	R900704699	R901012344	R900772898
160/0	42	R900726977	R900991864	R900994283
180/0	48		R900032918	R900062159
200/0	55		R901038026	R901038025
225/0	60		R900750847	R901066409
250/0	65			R900988348

Size/ characteristics	Motor		SYDFE.-2X	
	Shaft diameter	Size 71 Shaft S or R, 1 1/4"	Size 100 Shaft S, 1 1/2"	Size 140 Shaft S, 1 3/4"
160/0	42	R900228413		
180/0	48	R900240468	R900242567	
200/0	55	R901038021	R901104689	R901038048
225/0	60	R900228375	R901050508	R900988121
250/0	65	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

Project planning information

- ▶ Always shield command value lines and actual value cables.
- ▶ The distance to aerial lines or radios must be at least 1 meter!
- ▶ Do not lay signal lines close to power lines.
- ▶ For supplementary notices on the SYDFE control system, see the operating instructions (see section “More information about this control system” on this page).

Further information about this control system

▶ Operating instructions for SY(H)DFE1	30011-B
▶ Operating instructions for SY(H)DFEE	30012-B
▶ Operating instructions for SY(H)DFEC	30027-B
▶ Operating instructions for SY(H)DFED	30017-B
▶ Operating instructions for SY(H)DFEn	30014-B
▶ Data sheet for axial piston variable displacement pump A10VSO../31	92711
▶ Data sheet for external control electronics VT 5041-3X for SYDFE1	30242
▶ Data sheet for pilot valve VT-DFP.-2X	29016
▶ Data sheet for pump preload valve SYDZ 0001-1X	29255
▶ Data sheet for swivel angle sensor VT-SWA-1-1X	30268
▶ Data sheet for pressure transducer HM 20-2X	30272
▶ Operating instructions for test device VT-PDFE	29689-B

Current information is also available on the Internet at the address <http://www.boschrexroth.com/sydfc> (English) or <http://www.boschrexroth.de/sydfc> (German).