

TYPE CODE

	K10V	O	18	DR	/	11	R	-	V	S	C	12	N00	
01	02	03	04	05		06	07		08	09	10	11	12	13

HYDRAULIC FLUIDS

	10	18	28	45	63	71	72	85	100	140	
01 Standard	●	●	●	●	○	●	○	●	●	●	
High-speed version	-	-	-	● ¹⁾	-	● ¹⁾	-	-	● ¹⁾	● ¹⁾	H

AXIAL PISTON UNIT

	10	18	28	45	63	71	72	85	100	140	
02 Swash-plate design, variable pump	●	●	●	●	○	●	○	●	●	●	K10V

OPERATING MODE

03 Pump, open circuit	O
-----------------------	---

SIZE

	10	18	28	45	63	71	72	85	100	140
04 Geometric displacement $q_{v, max}$ [mL/r]	10.5	18	28	45	63	71	72	85	100	140

CONTROL DEVICE

	10	18	28	45	63	71	72	85	100	140	
Direct operated two-point control	-	● ¹⁾	● ¹⁾	● ¹⁾	-	●	-	-	● ¹⁾³⁾	●	DG
Pressure control	●	●	●	●	○	●	○	●	●	●	DR
with flow controller	●	● ¹⁾	● ¹⁾	● ¹⁾	-	● ¹⁾	-	-	● ¹⁾	● ¹⁾	DFR
port X-T open	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	● ⁴⁾	● ²⁾³⁾	● ³⁾	DRF
port X-T plugged	●	● ¹⁾	● ¹⁾	● ¹⁾	-	● ¹⁾	-	-	● ¹⁾	● ¹⁾	DFR1
with flushing	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	● ⁴⁾	● ²⁾³⁾	● ³⁾	DRS
without flushing	●	○ ²⁾	○ ²⁾	○ ²⁾	○	-	○	●	○ ²⁾	-	DRSC
with pressure cut-off	●	●	●	●	○	●	○	●	●	●	DRG
hydraulic remote controlled	●	●	●	●	○	●	○	●	●	●	DRG
electric negative control	-	●	●	●	○	●	○	●	●	●	ED71
U=12 V	-	●	●	●	○	●	○	●	●	●	ED72
U=24 V	-	●	●	●	○	●	○	●	●	●	ED72
electric positive control	-	●	●	●	○	●	○	●	●	●	ER71
U=12 V	-	●	●	●	○	●	○	●	●	●	ER72
U=24 V	-	●	●	●	○	●	○	●	●	●	ER72
Differential pressure control	-	●	●	●	○	●	○	●	●	●	EF71
electric negative control	-	●	●	●	○	●	○	●	●	●	EF72
U=12 V	-	●	●	●	○	●	○	●	●	●	EF72
U=24 V	-	●	●	●	○	●	○	●	●	●	EF72
Pressure/Flow/Power control	-	-	● ¹⁾	● ¹⁾	-	● ¹⁾	-	-	● ¹⁾	● ¹⁾	DFLR
Power control	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾	LA5D
with pressure cut-off,	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾	LA6D
control starts at:	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾	LA7D
10~35 bar	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾	LA8D
36~70 bar	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾	LA9D
71~105 bar	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾	LA9D
106~140 bar	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾	LA9D
141~230 bar	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾	LA9D
hydraulic remote controlled,	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾	LA5DG
control starts at:	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾	LA6DG
10~35 bar	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾	LA6DG
36~70 bar	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾	LA7DG
71~105 bar	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾	LA7DG
106~140 bar	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾	LA8DG
141~230 bar	-	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾	LA9DG

NOTE: ● available; ○ upon request; - unavailable; ■ preferred. 1) 11 series; 2) 13 series; 3) 12 series; 4) Only with D flange.

	K10V	O	18	DR	/	11	R	-	V	S	C	12	N00	
01	02	03	04	05		06	07		08	09	10	11	12	13

CONTROL DEVICE

						10	18	28	45	63	71	72	85	100	140	
05	Power control with pressure cut-off and flow control,	port X-T plugged, with flushing, control starts at:	10~35 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	○	● ²⁾	○	●	● ¹⁾²⁾	● ¹⁾²⁾	● ¹⁾²⁾	LA5DS
			36~70 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	○	● ²⁾	○	●	● ¹⁾²⁾	● ¹⁾²⁾	● ¹⁾²⁾	LA6DS
			71~105 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	○	● ²⁾	○	●	● ¹⁾²⁾	● ¹⁾²⁾	● ¹⁾²⁾	LA7DS
			106~140 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	○	● ²⁾	○	●	● ¹⁾²⁾	● ¹⁾²⁾	● ¹⁾²⁾	LA8DS
			141~230 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	○	● ²⁾	○	●	● ¹⁾²⁾	● ¹⁾²⁾	● ¹⁾²⁾	LA9DS
		port X-T plugged, without flushing, control starts at:	10~35 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	—	—	LA5DC
			36~70 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	—	—	LA6DC
			71~105 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	—	—	LA7DC
			106~140 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	—	—	LA8DC
			141~230 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	—	—	LA9DC
	Power control with separate flow control,	port X-T plugged, control starts at:	10~35 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	—	—	● ²⁾	—	—	—	● ¹⁾²⁾	● ¹⁾²⁾	LA5S
			36~70 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	—	—	● ²⁾	—	—	—	● ¹⁾²⁾	● ¹⁾²⁾	LA6S
			71~105 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	—	—	● ²⁾	—	—	—	● ¹⁾²⁾	● ¹⁾²⁾	LA7S
			106~140 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	—	—	● ²⁾	—	—	—	● ¹⁾²⁾	● ¹⁾²⁾	LA8S
			141~230 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	—	—	● ²⁾	—	—	—	● ¹⁾²⁾	● ¹⁾²⁾	LA9S
	Power control with differential pressure control,	port X-T plugged, control starts at:	10~35 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	LA5EF
			36~70 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	LA6EF
			71~105 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	LA7EF
			106~140 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	LA8EF
			141~230 bar	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	LA9EF
	Electrical control with proportional solenoid,	positive pressure controlled	U=12V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EP1D
			U=24V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EP2D
		pressure & flow controlled with load-sensing	port X-T open U=12V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EP1DF
			U=24V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EP2DF
		port X-T plugged	U=12V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EP1DS
			U=24V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EP2DS
	Electrical control with proportional solenoid & pressure cut-off,	electric hydraulic pressure controlled	U=12V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EP1ED
			U=24V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EP2ED
		positive pressure controlled	U=12V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EK1D
			U=24V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EK2D
		pressure & flow controlled with load-sensing	port X-T open U=12V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EK1DF
			U=24V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EK2DF
		port X-T plugged	U=12V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EK1DS
			U=24V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EK2DS
		electric hydraulic pressure controlled	U=12V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EK1ED
			U=24V	—	○ ¹⁾	○ ¹⁾	○ ¹⁾	○	—	○	—	○	●	○ ¹⁾	—	EK2ED

SERIES

		10	18	28	45	63	71	72	85	100	140	
06	Nominal pressure p_N 280 [bar];	—	●	●	●	—	●	—	—	●	●	11
	Maximum pressure p_{max} 350 [bar].	—	—	—	—	—	●	—	—	●	●	12
	Working pressure p_N 250 [bar] and p_{max} 315 [bar].	●	○	○	○	○	—	○	●	○	—	13

NOTE: ● available; ○ upon request; — unavailable; ■ preferred. 1) 13 series; 2) 12 series.

	K10V	O	18	DR	/	11	R	-	V	S	C	12	N00	
01	02	03	04	05		06	07		08	09	10	11	12	13

DIRECTION OF ROTATION

07	View on drive shaft	clockwise	R
		counterclockwise	L

SEALING

08	[DIN ISO 1629] Fluoroelastomer (FKM), for operation with HFD hydraulic fluid	V
----	--	---

DRIVE SHAFT

		10	18	28	45	63	71	72	85	100	140	
09	[ANSI B92.1a] standard shaft	●	●	●	●	○	●	○	●	●	●	S
	splined shaft											
	similar to S for higher torque	-	●	●	●	○	●	○	○	○ ²⁾	-	R
	reduced diameter, single pump	●	●	●	●	○	● ¹⁾	○	●	●	○ ¹⁾	U
	same as U for higher torque	-	-	●	●	○	● ¹⁾	○	●	●	○ ¹⁾	W
	[DIN 6885] parallel keyed shaft, single pump	●	○ ²⁾	○ ²⁾	○ ²⁾	-	-	-	-	○ ²⁾	-	P

MOUNTING FLANGE

		10	18	28	45	63	71	72	85	100	140	
10	[ISO 3019-2] flange 2-hole	●	-	-	-	-	-	-	-	-	-	A
	[ISO 3019-1] flange 2-hole	●	●	●	●	○	●	○	●	●	●	C
	4-hole	-	-	-	-	○	● ³⁾	○	●	● ^{2/3)}	●	D

WORKING PORT (metric fastening thread)

WORKING PORT (metric fastening thread)			10	18	28	45	63	71	72	85	100	140	
11	[ISO 6162] SAE flange ports at rear	single pump	—	○ ²⁾	●	●	○	● ³⁾	○	●	●	●	11
			—	—	—	—	—	● ¹⁾	—	—	—	—	41
	SAE flange ports laterally opposite	for through-drive	—	●	●	●	○	● ³⁾	○	●	●	●	12
			—	—	—	—	—	● ¹⁾	—	—	—	—	42
	SAE flange ports at side, offset 90°	single pump	—	—	—	○ ²⁾	—	—	—	—	—	—	13 ⁴⁾
	Metric threaded ports at rear	single pump	●	—	—	—	—	—	—	—	—	—	14

THROUGH-DRIVE

THROUGH-DRIVE			10	18	28	45	63	71	72	85	100	140	
12	Single pump	without through-drive	●	●	●	●	○	●	○	●	●	●	N00
	2 nd pump's flange	2 nd pump's splined shaft											
	[ISO 3019-1] 82-2	[SAE A] ⅝"-9T-16/32DP	—	●	●	●	○	●	○	●	●	●	K01
		[SAE A-B] ¾"-11T-16/32DP	—	●	●	●	○	●	○	●	●	●	K52
	[ISO 3019-1] 101-2	[SAE B] ⅞"-13T-16/32DP	—	—	●	●	○	●	○	●	●	●	K68
		[SAE B-B] 1"-15T-16/32DP	—	—	—	●	○	●	○	●	●	●	K04
	[ISO 3019-1] 127-2	[SAE C] 1¼"-14T-12/24DP	—	—	—	—	—	●	—	●	●	●	K07
		[SAE C-C] 1½"-17T-12/24DP	—	—	—	—	—	—	—	●	●	●	K24
	[ISO 3019-1] 127-4	[SAE C] 1¼"-14T-12/24DP	—	—	—	—	○	○ ³⁾	○	●	● ³⁾	● ³⁾	K15
		[SAE C-C] 1½"-17T-12/24DP	—	—	—	—	—	—	—	●	—	—	K16
[ISO 3019-1] 152-4	[SAE D] 1¼"-13T-8/16DP	—	—	—	—	—	—	—	—	—	●	K17	

CONNECTOR FOR SOLENOID

		10	18	28	45	63	71	72	85	100	140	
13	Without connector, only for hydraulic control	●	●	●	●	○	●	○	●	●	●	
	Deutsch-molded connector without suppressor diode	-	●	●	●	○	●	○	●	●	●	P

NOTE: ● available; ○ upon request; - unavailable; ■ preferred. 1) 11 series; 2) 13 series; 3) 12 series; 4) Only for L rotated pump.

01 HYDRAULIC FLUIDS

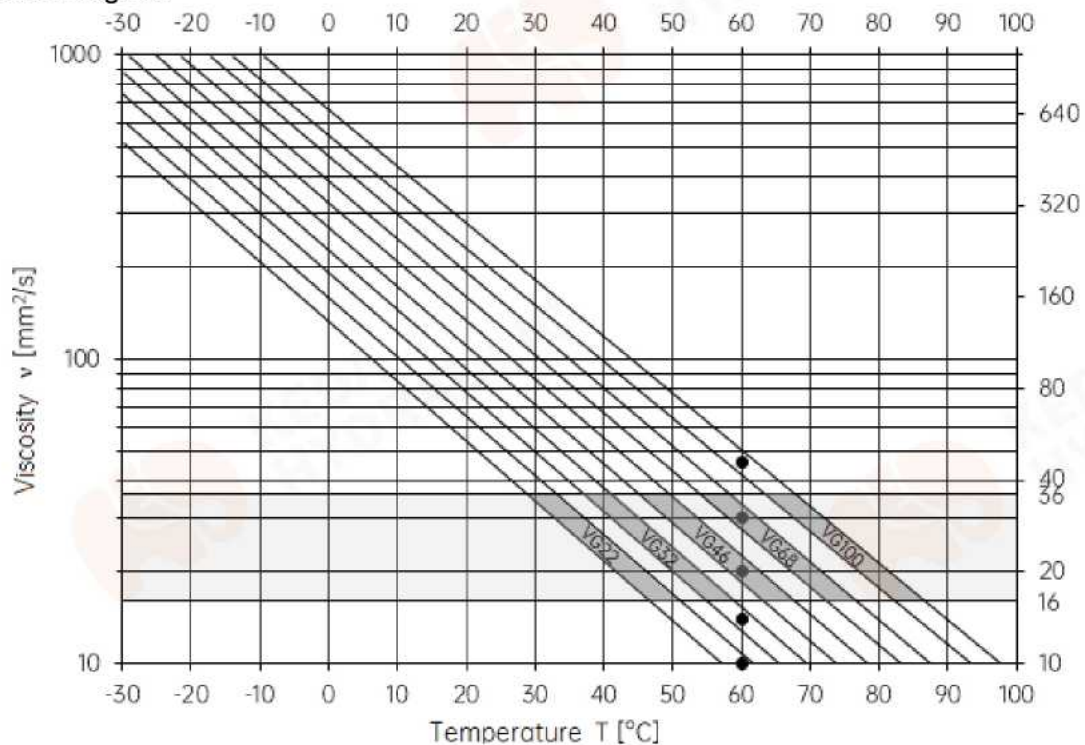
K10VO pump is design for operation with [DIN 51524] HLP mineral oil. Selection of environmentally acceptable hydraulic fluids is allowed but must be specified when ordering. The axial piston unit is NOT suitable for operation with water-free HFD hydraulic fluids or water-containing HFA/HFB/HFC hydraulic fluids. Please contact us if any technical parameter cannot be adhered to.

1. Viscosity and temperature of hydraulic fluids

Operation	Temperature	Viscosity	Remarks
Cold start	$t_{\min} = -25\text{ }^{\circ}\text{C}$	$v_{\max} = 1600\text{ mm}^2/\text{s}$	$t < 3\text{ min}$, $p \leq 30^{(1)} 50^{(2)}\text{ bar}$, $n \leq 1000\text{ rpm}$
Warm-up		$v = 400 \sim 1600\text{ mm}^2/\text{s}$	$t \leq 15\text{ min}$, $p \leq 0.7\text{ p}_{N_1}$, $n \leq 0.5\text{ n}_{\max}$
Continuous	$t = -25 \sim +110\text{ }^{\circ}\text{C}$	$v = 10 \sim 400\text{ mm}^2/\text{s}$	at port L/L ₁
Short-term	$t_{\max} = +110\text{ }^{\circ}\text{C}$	$v_{\min} = 7^{(1)} 7 \sim 10^{(2)}\text{ mm}^2/\text{s}$	$t < 1^{(1)} 3^{(2)}\text{ min}$, $p \leq 0.3\text{ p}_{N_1}$ at port L/L ₁

NOTE: 1) 11 series; 2) 12 and 13 series.

2. Selection diagram



Before selection, figure out the relationship between ambient temperature and oil temperature in reservoir in an open circuit. Make sure that any temperature in system must NOT exceed 110 °C.

The hydraulic fluid should be selected so that the operating viscosity in the operating temperature range is within the optimum range $v_{\text{opt}} = 16 \sim 36\text{ mm}^2/\text{s}$ (shaded area in selection diagram) and its viscosity grade should be as high as possible. For example: whereat oil temperature in reservoir is 60 °C, both viscosity grades VG46 and VG68 are within the optimum range (2 spots in shaded area of selection diagram), in this case, VG68 is preferred.

3. Filtration of hydraulic fluids

Finer filtration improves the cleanliness level of the hydraulic fluid, which increases the service life of the axial piston unit. An [ISO 4406] cleanliness level of at least 20/18/15 is to be maintained during continuous operation; In case of high temperature (90~110 °C) during short-term operation, cleanliness level of 19/17/14 is required.

INSTALLATION INSTRUCTIONS

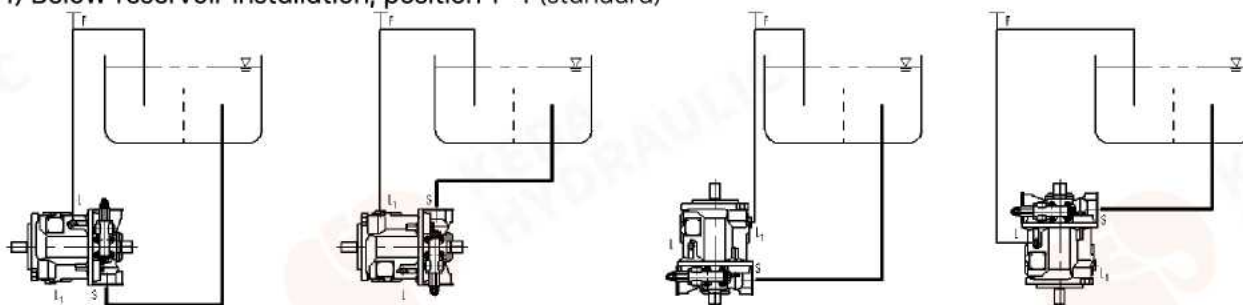
GENERAL

— The axial piston unit must be filled with hydraulic fluid and vented during commissioning and operation. This must also be observed during longer standstills, as the axial piston unit can empty itself via the hydraulic lines.

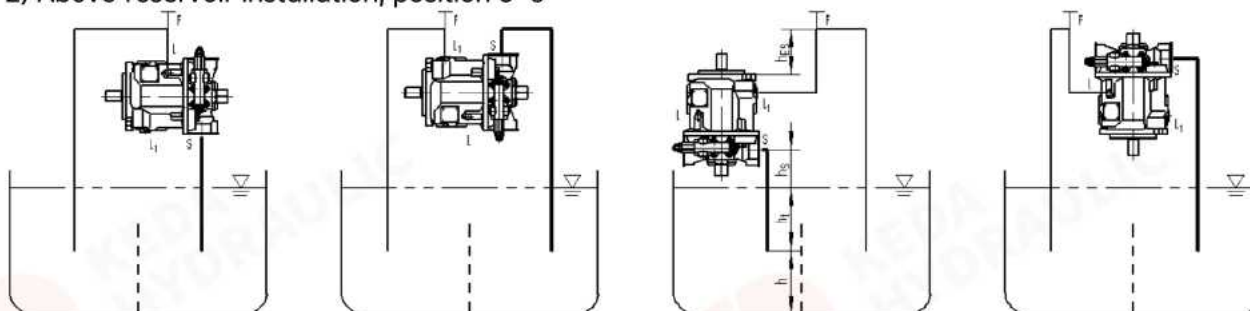
— Installation positions see the following examples 1~12. We recommend installation position 1 and 2.

Installation position	1	2	3	4	5	6	7	8	9	10	11	12
Filling	L(F)	L ₁ (F)	L ₁ (F)	L(F)	L(F)	L ₁ (F)	L ₁ (F)	L(F)	L/L ₁	L/L ₁	L/L ₁	L/L ₁
Air bleed	F	F	F	F	F	F	F	F	L	L ₁	L ₁	L

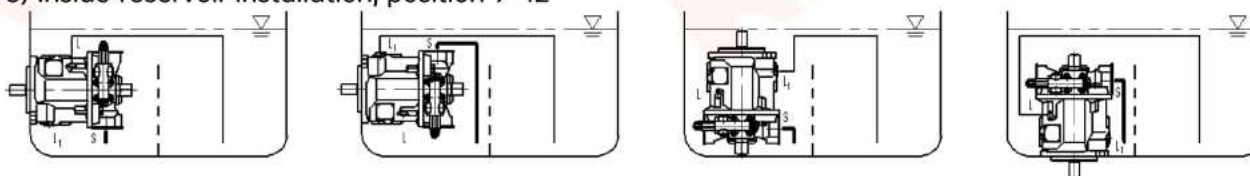
1) Below-reservoir installation, position 1~4 (standard)



2) Above-reservoir installation, position 5~8



3) Inside-reservoir installation, position 9~12



NOTICE

Installation dimension	Permissible suction height	Required immersion depth	Distance to reservoir bottom
Height limit	$h_{S, \max} = 800 \text{ mm}$	$h_{t, \min} = 200 \text{ mm}$	$h_{\min} = 100 \text{ mm}$

— Installation dimensions refer to position 7.

— To prevent the axial piston unit from draining, a height difference h_{ES} of at least 25 mm is required in position 7.

— Because complete air bleeding and filling are not possible in position 12, the pump should be air bled and filled in a horizontal position before installation.

— Port F is part of the external piping and must be provided on customer side to make filling and air bleeding easier.

— For reservoir design, ensure that there is an adequate distance between the suction line and the drain line. Using a baffle plate in between can improve the air separation ability as it gives the hydraulic fluid more time for desorption, and prevent the heated returning flow from being drawn directly back into the suction line.

02 TECHNICAL DATA

1. Working pressure range (when using hydraulic fluid based on mineral oils)

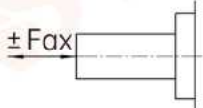
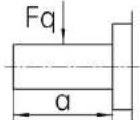
Pressure	K10VO	Remarks
Suction $p_{S, abs}$	0.8~10 ⁶⁾ 0.8~5 ⁴⁾ bar	Minimum pressure at suction port S (inlet) is required to prevent damage to the axial piston unit.
Nominal p_N	280 ⁶⁾ 250 ⁴⁾ bar	At working port B (outlet) corresponds to the maximum design pressure.
Maximum p_{max}	350 ⁶⁾ 315 ⁴⁾ bar	At working port B (outlet) corresponds to the maximum working pressure within a single operating period.
Minimum p_{min}	10 bar	Minimum pressure at the working port B (outlet) is required to prevent damage to the axial piston unit.
Case p_L	$p_{S, abs} + 0.5 \text{ bar} \leq 2 \text{ bar}$	Case pressures at drain port T must be greater than the ambient pressure at shaft seals. A drain line to the reservoir is required.

2. Other technical data (when using mineral-oil-based fluids at $v_{opt}=16\sim36 \text{ mm}^2/\text{s}$ and $\Delta p_{S, abs}=1 \text{ bar}$)

Size			10	18	28	45(H)	63	71(H)	72	85	100(H)	140(H)
Parameter (in case)												
Geom. displacement	$q_{V, \max}$	mL/r	10.5	18	28	45	63	71	72	85	100	140
Rotational speed	$q_{V, \max}$	$n_{\max}$ rpm	3600	3300	3000	2600 (3000)	2600	2200 (2550) ⁵⁾	2600	2500	2000 (2300) ⁴⁾⁵⁾	1800 (2050) 2200 ⁵⁾
	q_V	$n_{\max, \text{all}}$ rpm	4320	3900 3960 ⁴⁾	3600	3100 (3300) 3120 ⁴⁾	3140	2600 (2800) ⁵⁾	3140	3000	2400 (2500) ⁴⁾⁵⁾	2100 (2200)
Flow	$n_{\max}$	$Q_{V, \max}$ L/min	37	59	84	117(135)	163	156 (181) ⁵⁾	187	212	200 (230) ⁴⁾⁵⁾	252(287) 308 ⁵⁾
	$n_E^{1)}$	Q_{VE} L/min	15	27	42	68	95	107	108	128	150	210
Power	$n_{\max}$ $\Delta p_N^{2)}$	$P_{\max}$ kW	16	30 25 ⁴⁾	39 35 ⁴⁾	55(63) 49 ⁴⁾	68	73(85) ⁵⁾	77	89	93 96 ⁴⁾ (107) ⁵⁾	118(134) 144 ⁵⁾
	n_E $\Delta p_N^{2)}$	P_E kW	7	12.6 11 ⁴⁾	20 18 ⁴⁾	32 28 ⁴⁾	39	50	45	53	70 62 ⁴⁾	98
Torque	$\Delta p_N^{2)}$	$T_{\max}$ Nm	42	80 71 ⁴⁾	125 111 ⁴⁾	200 179 ⁴⁾	250	316	286	338	445 ⁶⁾ 398 ⁴⁾	623
	$\Delta p_E^{3)}$	T Nm	17	30 29 ⁴⁾	45	72	100	113	114	135	159	223
Input torque	$S \text{ shaft}$	$T_{E, \max}$ Nm	126	124	198	319	630	626	630	1157	1104 ⁶⁾ 1157 ⁴⁾	1620
	$R \text{ shaft}$	$T_{E, \max}$ Nm	–	160	250	400	650	644	650	1215	1215	–
	$U \text{ shaft}$	$T_{E, \max}$ Nm	60	59	105	188	306	300	306	628	595 ⁶⁾ 628 ⁴⁾	△
	$W \text{ shaft}$	$T_{E, \max}$ Nm	–	–	140	220	396	394	383	650	636 ⁶⁾ 650 ⁴⁾	△
	$P \text{ shaft}$	$T_{E, \max}$ Nm	90	88	137	200	–	–	–	–	857	–
Through-drive torque	$S \text{ shaft}$	$T_{D, \max}$ Nm	–	108	160	319	484	492	484	698	778 ⁶⁾ 698 ⁴⁾	1266
	$R \text{ shaft}$	$T_{D, \max}$ Nm	–	120	176	365	484	548	484	698	△	–
	$U \text{ shaft}$	$T_{D, \max}$ Nm	–	59	105	188	306	300	306	628	595 ⁶⁾ 628 ⁴⁾	△
	$W \text{ shaft}$	$T_{D, \max}$ Nm	–	–	140	220	396	394	383	650	636 ⁶⁾ 650 ⁴⁾	△

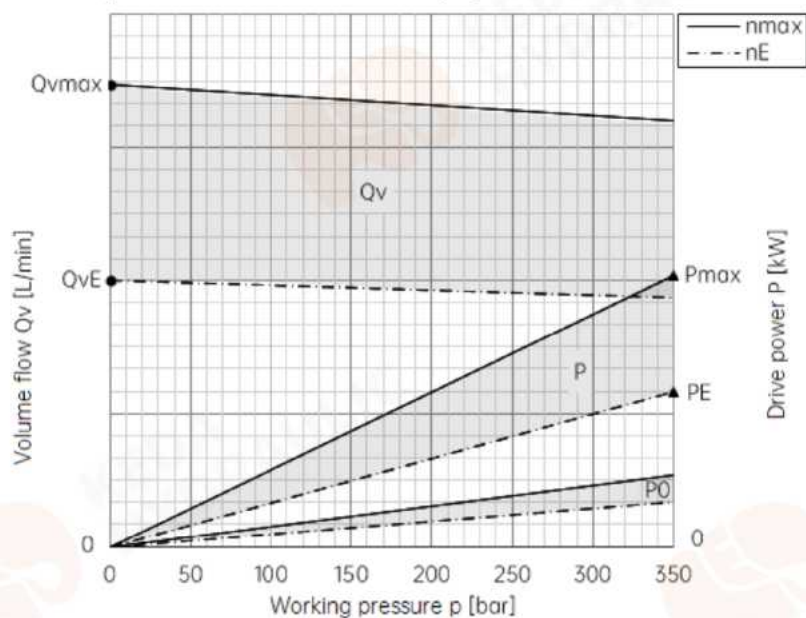
NOTE: – unavailable; △ pending; (H) parameters for high-speed version; 1) $n_E=1500 \text{ rpm}$; 2) $\Delta p_N=280 \text{ bar}$ (11 & 12 series) or 250 bar (13 series); 3) $\Delta p_E=100 \text{ bar}$; 4) 13 series; 5) 12 series; 6) 11 & 12 series.

Other unmentioned parameters of high-speed version or available structures are same as those of 11 series (default value).

Size				10	18	28	45(H)	63	71(H)	72	85	100(H)	140(H)
Parameter (in case)													
Rotary stiffness of drive shaft	<i>S shaft</i>	c	kNm/rad	9200	11087	22317	37500	65500	71884	65500	143000	121142 ⁶⁾ 143000 ⁴⁾	169537
	<i>R shaft</i>	c	kNm/rad	–	14850	26360	41025	69400	76545	69400	152900	152900	–
	<i>U shaft</i>	c	kNm/rad	6800	8090	16695	30077	49200	52779	49200	102900	91093 ⁶⁾ 102900 ⁴⁾	△
	<i>W shaft</i>	c	kNm/rad	–	–	19898	34463	54000	57460	54000	117900	101847 ⁶⁾ 117900 ⁴⁾	165594
	<i>P shaft</i>	c	kNm/rad	10700	13158	25656	41232	–	–	–	–	188406	–
Rotary moment of inertia	J	kgm ²		0.0006	0.00093	0.0017	0.0033	0.0056	0.0083	0.0056	0.012	0.0167 0.012 ⁴⁾	0.0242
Angular acceleration	α	rad/s ²		8000	6800	5500	4000	3300	2900	3300	2700	2400 ⁶⁾ 2700 ⁴⁾	2700 2000 ⁵⁾
Case volume	V	L		0.2	0.4 0.25 ⁴⁾	0.7 0.3 ⁴⁾	1 0.5 ⁴⁾	0.8	1.6	0.8	1	2.2 ⁶⁾ 1 ⁴⁾	3
Weight	<i>single pump</i>	m	kg	8	12 11.5 ⁴⁾	18 15 ⁴⁾	23.5 18 ⁴⁾	22	35.2 40.4 ⁵⁾	22	36	49.5 36 ⁴⁾ 56.4 ⁵⁾	60 70.5 ⁵⁾
	<i>tandem pump</i>	m	kg	–	14 13 ⁴⁾	19.3 18 ⁴⁾	25.1 24 ⁴⁾	28	38 43.3 ⁵⁾	28	45	55.4 45 ⁴⁾ 62.6 ⁵⁾	79.5 ⁵⁾
				Axial force $F_{ax, max}$ N									
				Radial force (at a/2) $F_{q, max}$ N									
				400	700	1000	1500	2000	2400	1500	3000	4000 ⁶⁾ 3000 ⁴⁾	4800
				250	350	1200	1500	1700	1900	1500	2000	2300 ⁶⁾ 2000 ⁴⁾	2800

NOTE: refer to last page.

3. Drive power and flow (when using hydraulic fluid ISO VG 46 according to DIN 51519, t=50 °C)



◀ Characteristic curve

4 spots in figure locate respectively at $Q_{v, max}/Q_{vE}/P_{max}/P_E$. These can be found in table above.

An example for explanation for K10VO 18:

- When at maximum speed $n_{max} = 3300$ rpm, the corresponding maximum flow $Q_{v, max} = 59$ L/min and maximum power $P_{max} = 30$ kW;
- When at equivalent speed $n_E = 1500$ rpm, the corresponding equivalent flow $Q_{vE} = 27$ L/min and equivalent power $P_E = 12.6$ kW.

4. Determination of characteristics

Operation above the maximum values or below the minimum values may result in loss of function, reduced service life or destruction of the axial piston unit. Check out all the permissible values by means of following calculation, etc.

Parameter	Formula	Unit
Geometric displacement per revolution	q_v	[mL/r]
Differential pressure	$\Delta p = p - p_{s, abs}$	[bar]
Rotational speed	n	[rpm]
Volumetric efficiency	$\eta_v = \frac{Q_v}{Q_{v, theor}}$	[%]
Hydraulic-mechanical efficiency	η_{mh}	[%]
Total efficiency	$\eta_t = \frac{Q_v \times p}{600 \times P_{Q_v, max}} = \eta_v \times \eta_{mh}$	[%]
Flow	$Q_v = \frac{q_v \times n \times \eta_v}{1000}$	[L/min]
Torque	$T = \frac{q_v \times \Delta p}{20 \pi \times \eta_{mh}}$	[Nm]
Power	$P = \frac{2\pi \times T \times n}{60000} = \frac{Q_v \times \Delta p}{600 \times \eta_t}$	[kW]

03 OPERATING MODE

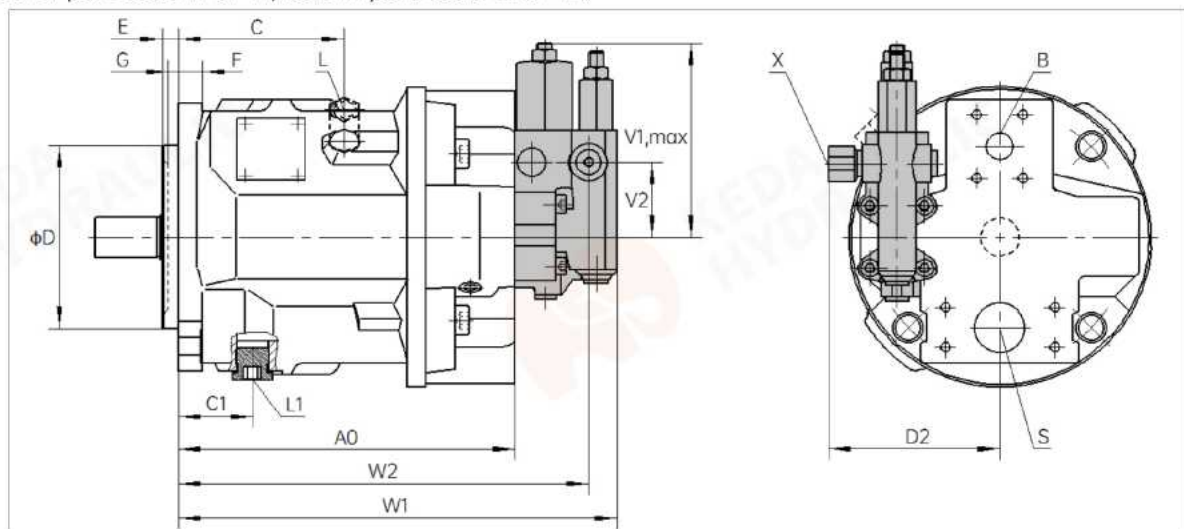
K10VO pump is designed to be used in open circuits. If pumps for close circuits are required, choose K4VSG or K4VG instead. Please contact us for special version or any supplementary information.

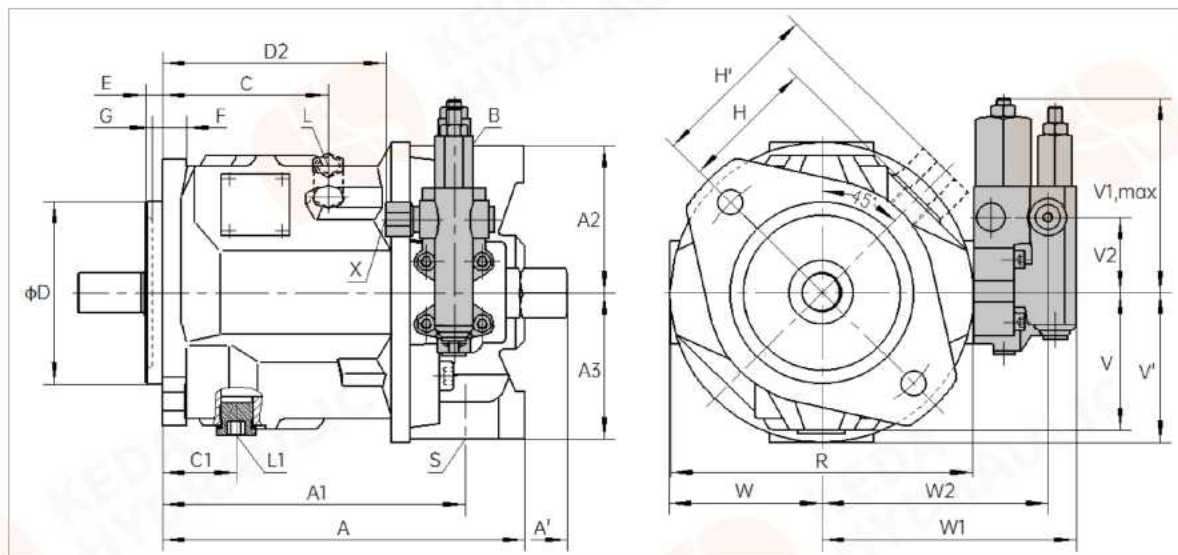
04 SIZE & DIMENSIONS

Following figures are about K10VO pumps' dimensions of all sizes, classified by their control devices. Other variants of control device are shown in gray or dash outlines, referred to notes. Fig. 1~4 for 11 & 12 series while Fig. 5~9 for 13 series. Missing dimensions in Fig. 2~4 or 6~9 referred to Fig. 1 or 5.

Pumps with direction of rotation R are demonstrated as examples. In case of a counterclockwise rotated pump L, the control device (shaded) and relevant parts should be in their horizontally symmetric place. In addition, the port plate rotates 180°. Other exceptions refer to notes.

Fig. 1. Dimensions, DR/11, DFR/11, DFR1/11, DRG/11, DR/12, DRF/12, DRS/12, DRSC/12, DRG/12 (above: port code 11 or 41; below: port code 12 or 42)





Size+Port		K10VO18		K10VO28		K10VO45		K10VO71		K10VO100		K10VO140 ¹⁾	
Control/Series		11	12	11	12	11	12	41/11	42/12	11	12	11	12
DR/11 DFR/11 DFR1/11 DRG/11 DR/12 DRF/12 DRS/12 DRSC/12 DRG/12	A	-	△	-	194	-	219	-	257	-	317 302	-	343
	A'	-	195	-	△	-	△	-	△	-	△	-	△
	A ₀	-	-	170	-	189	-	223	-	288 273	-	293	-
	A ₁	-	145	-	164	-	184	-	217	-	275 260	-	301
	A ₂	-	63	△	80	△	90	△	104	△	100	△	110
	A ₃	-	63	79	80	△	90	△	104	△	100	△	110
	C	-	83	90	90	96	96	115	115	175 149.5	175 149.5	173	199
	C ₁	-	43	40	40	45	45	53	53	95 80	95 80	78	104
	ΦD	-	Φ82.55	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ127	Φ127	Φ127	Φ127	Φ152.4	Φ127
	D ₂	-	108	95	118	103	133	113 92	161 183	121 100	229 234	118 107	270 ³⁾ 275
	E	-	6.3	9.5	9.5	9.5	9.5	12.7	12.7	12.7	12.7	12.7	12.7
	F	-	11.5	14	14	14	14	18	18	20	20	21 24	20
	G	-	-	6.3	6.3	6.3	6.3	6	6	6 5.7	6 5.7	6.4	6.4
	H	-	66	△	△	△	△	△ 98	△ 98	△ 114.5	△ 114.5	△ 127.5	△ 118.5
	H'	-	-	96	96	109	109	124	124	136	136	148.5	148.5
	V	-	64	79	74	88	80.5	△	92	△ 99	△ 99	△	108
	V'	-	69	-	△	-	△	-	△	- 103	△ 103	-	112
	V _{1,max}	-	110	113	110	110	110	110	110	110	110	126 108	126 99
	V ₂	-	40	43	40	40	40	40	40	40	40	26 38	26 ³⁾ 29
	W	-	76	-	83.5	-	93.5	-	107.5	-	118 119	-	131
	W ₁	-	126	226	136	245	146	279	160	344 329	165	379 ²⁾ 349	209 ³⁾ 180
	W ₂	-	109	209	119	228	129	262	143	327 312	148.5	353 ²⁾ 332	183 ³⁾ 163
	R	-	-	△	Φ164	△	Φ184	△	Φ210	△	210 236	△	210
	Suction S	1"		1 ¼"		1 ½"		2"		2 ½"		2 ½"	
	Working B	¾"		¾"		1"		1"		1 ¼"		1 ¼"	
	Drain L	M16X1.5X12		M18X1.5X12		M22X1.5X14		M22X1.5X14 7/8"-12T-14UNF-2B 1 1/16"-15T-12UNF-2B 1 1/16"-15T-12UNF-2B		M27X2X16 1 1/16"-15T-12UNF-2B 1 1/16"-15T-12UNF-2B		M27X2X16 1 1/16"-15T-12UNF-2B 1 1/16"-15T-12UNF-2B	
	Drain L ₁	M16X1.5X12		¾"-14T-16UNF-2B 7/8"-16T-14UNF-2B		7/8"-16T-14UNF-2B 1 1/16"-18T-12UNF-2B 1 1/16"-18T-12UNF-2B		7/8"-12T-14UNF-2B 1 1/16"-15T-12UNF-2B 1 1/16"-15T-12UNF-2B		7/8"-12T-14UNF-2B 1 1/16"-15T-12UNF-2B 1 1/16"-15T-12UNF-2B		7/8"-12T-14UNF-2B 1 1/16"-15T-12UNF-2B 1 1/16"-15T-12UNF-2B	
	Pilot X	M14X1.5X12		M14X1.5X12		M14X1.5X12		M14X1.5X12 7/16"-12T-20UNF-2B 7/16"-12T-20UNF-2B 7/16"-12T-20UNF-2B		M14X1.5X12 7/16"-12T-20UNF-2B 7/16"-12T-20UNF-2B 7/16"-12T-20UNF-2B		M14X1.5X12 7/16"-12T-20UNF-2B 7/16"-12T-20UNF-2B 7/16"-12T-20UNF-2B	

NOTE: - unavailable; △ pending. 1) Examples demonstrated for port code 11 with D flange & for port code 12 with C flange, missing parameters in similar way; 2) For DR/DRG: W₁=339, W₂=313; 3) For DR/DRG: port X to rear, D₂=292, V₂=56, W₁=170, W₂=144. Dimensions of 12 series behind "I" or in 2nd row. Unmentioned parameters same to those of 11 series (default value).

Fig. 2. Dimensions, DG/11, DG/12 (left: port code 11 or 41; right: port code 12 or 42)

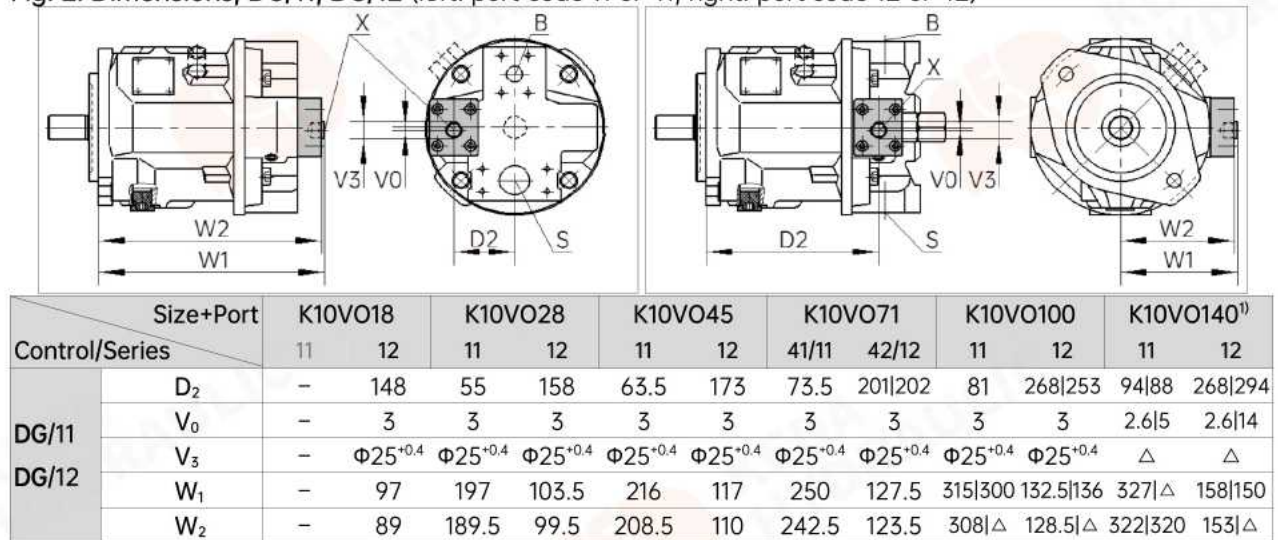


Fig. 3. Dimensions, ED/11, ER/11, ED/12, ER/12 (left: port code 11 or 41; right: port code 12 or 42)

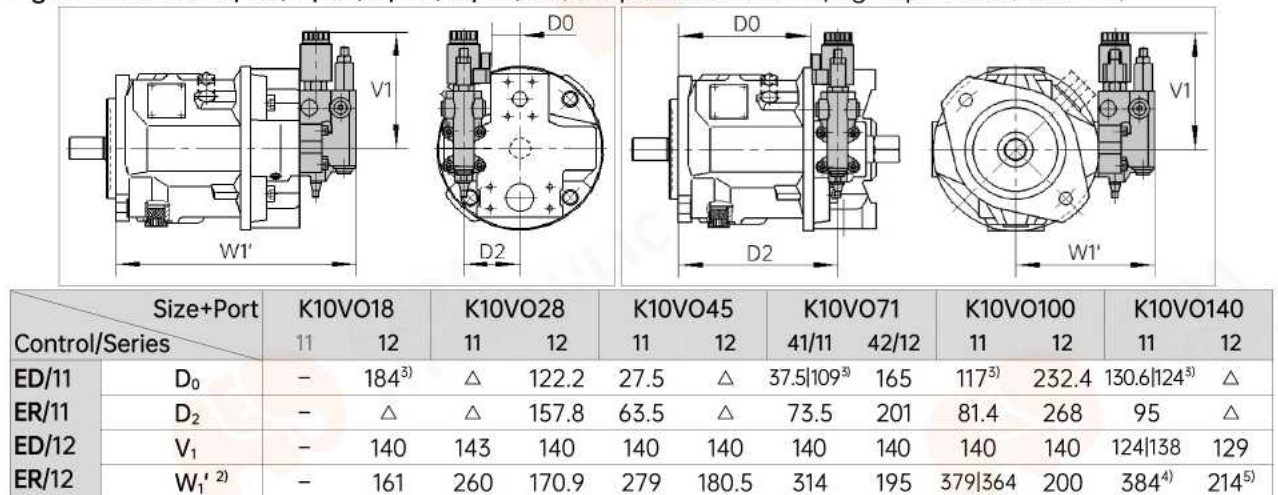
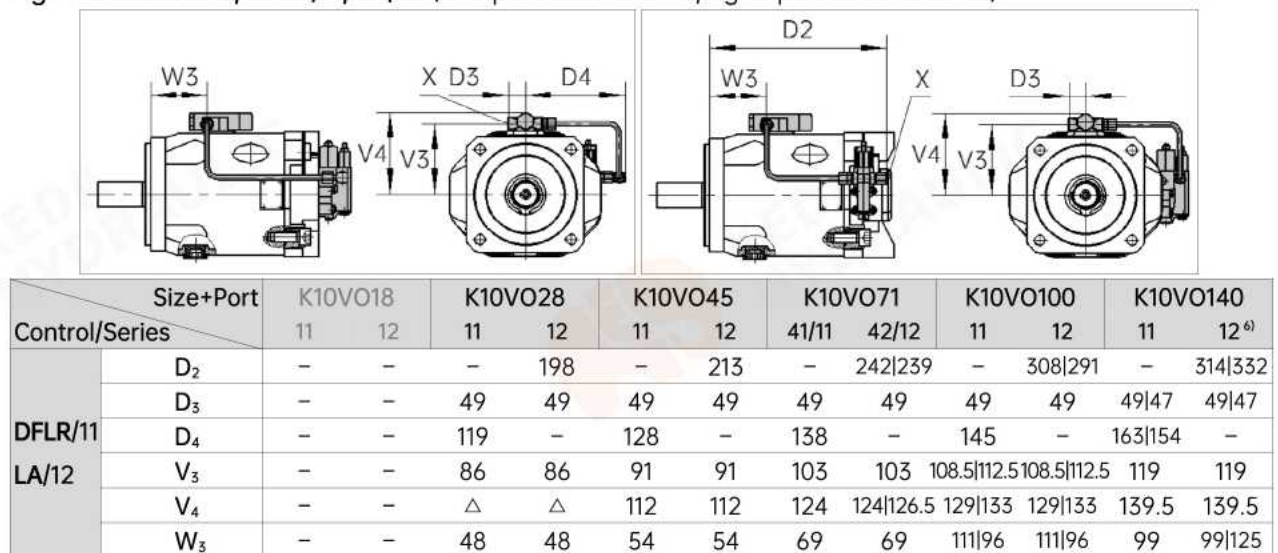
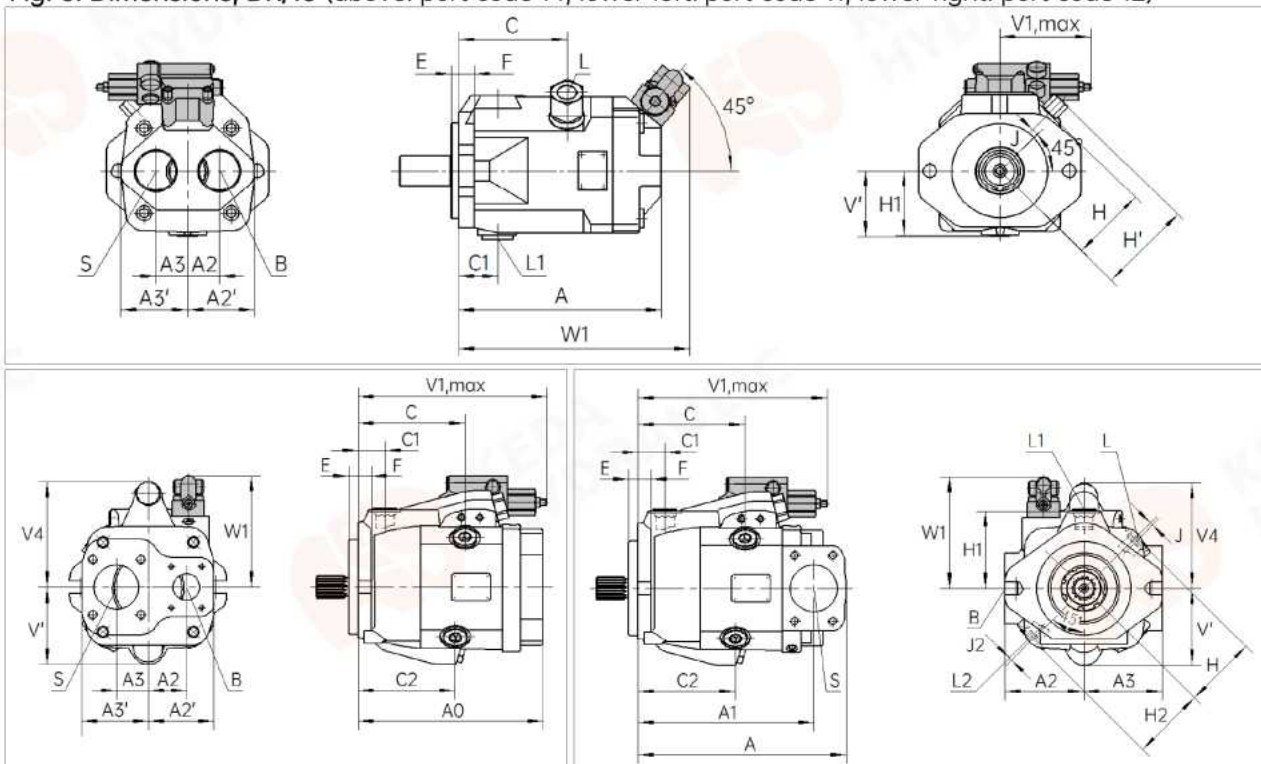


Fig. 4. Dimensions, DFLR/11, LA/12 (left: port code 11 or 41; right: port code 12 or 42)



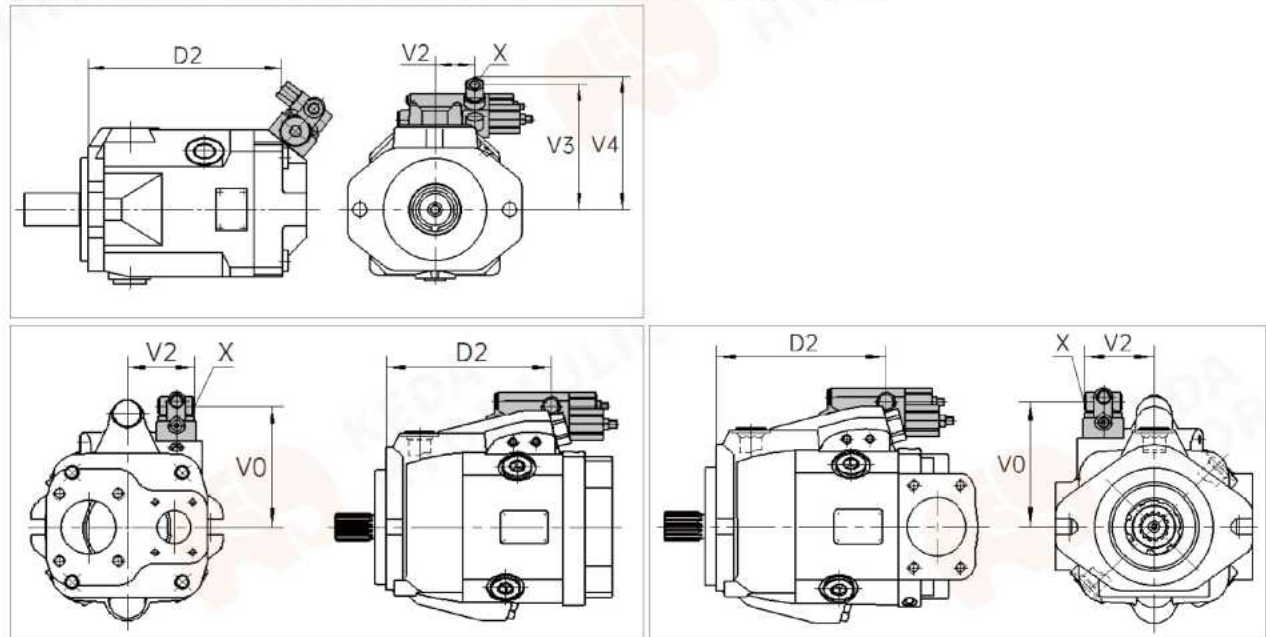
NOTE: – unavailable; Δ pending. 1) Extra high-pressure measuring port M_H M14X1.5X12 at a distance of 28 mm below port X; 2) W₁' for the width plus intermediate plate DBV (pressure relief valve) under ER control, otherwise W₁'=W₁; 3) Port X in opposite direction; 4) W₁=349 unlike others; 5) W₁=179 unlike others; 6) Port X at a distance of 56 mm above axis, i.e. V₂=56 (refer to Fig. 1. right).

Fig. 5. Dimensions, DR/13 (above: port code 14; lower-left: port code 11; lower-right: port code 12)



Size+Port		K10VO10		K10VO18		K10VO28		K10VO45		K10VO63		K10VO72		K10VO85		K10VO100	
Control/Series		14	11 12	11 12	11 12	11 12	11 12	11 12	11 12	11 12	11 12	11 12	11 12	11 12	11 12	11 12	11 12
DR/13	A	148	- 170	- 170	- 170	- 170	- 170	- 170	- 170	- 170	- 170	- 170	- 170	- 170	- 170	- 170	- 170
	A ₀	-	156 -	170 -	170 -	189 -	189 -	208 -	208.2 -	208.2 -	208.2 -	245 -	245 -	245 -	245 -	245 -	245 -
	A ₁	-	- 143 -	160 -	160 -	178 -	178 -	201.5 -	201.5 -	201.5 -	201.5 -	235 -	235 -	235 -	235 -	235 -	235 -
	A ₂	28.6	33 56.5	33 66	33 66	38 90	38 90	46 72	46 72	46 72	46 72	45 85	45 85	45 85	45 85	45 85	45 85
	A ₃	28.6	32 56.5	33 66	33 66	38 90	38 90	33 72	33 72	33 72	33 72	50 95	50 95	50 95	50 95	50 95	50 95
	A ₂ '	51	- -	- -	- -	- -	- -	75 -	75 -	75 -	75 -	Δ -	Δ -	Δ -	Δ -	Δ -	Δ -
	A ₃ '	51	- -	- -	- -	- -	- -	75 -	75 -	75 -	75 -	Δ -	Δ -	Δ -	Δ -	Δ -	Δ -
	C	73	83	90	90	99	99	115.5	115.5	115.5	115.5	143	143	143	143	143	143
	C ₁	24	24.5	-	-	30	30	39	39	39	39	36	36	36	36	36	36
	C ₂	-	83	27	27	-	-	115.5	115.5	115.5	115.5	130	130	130	130	130	130
	E	6.4	7.8	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	12.7	12.7	12.7	12.7	12.7	12.7
	F	11	10	12	12	12	12	15	15	15	15	20	20	20	20	20	20
	H	56	61.5	69	69	78	78	79	79	79	79	95	95	95	95	95	95
	H'	79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	H ₁	53.5	72	-66	-66	77	77	89	89	89	89	101	101	101	101	101	101
	H ₂	-	61.5	-	-	-	-	77.5	77.5	77.5	77.5	95	95	95	95	95	95
	J	9	2.5	0	0	0	0	2.8	2.8	2.8	2.8	4	4	4	4	4	4
	J ₂	-	Δ	-	-	-	-	0	0	0	0	4	4	4	4	4	4
	V _{1, max}	110	183	209.5	209.5	220.5	220.5	220.5	220.5	220.5	220.5	251.5	251.5	251.5	251.5	251.5	251.5
	V'	56	63	73	73	68.5	68.5	88	88	88	88	102.5	102.5	102.5	102.5	102.5	102.5
	V ₄	Δ	Δ	Δ	Δ	Δ	Δ	111	111	111	111	126	126	126	126	126	126
	W ₁	180	122	123.5	123.5	131.5	131.5	140	140.4	140.4	140.4	150	150	150	150	150	150
	Suction S	M27X2X16	1 ¼"	1 ¼"	1 ¼"	1 ½"	1 ½"	2"	2"	2"	2"	2 ½"	2 ½"	2 ½"	2 ½"	2 ½"	2 ½"
	Working B	M27X2X16	¾"	¾"	¾"	1"	1"	1"	1"	1"	1"	1 ¼"	1 ¼"	1 ¼"	1 ¼"	1 ¼"	1 ¼"
	Drain L/L ₁ /L ₂	M16X1.5X12	¾"-12T-16UNF-2B				7/8"-13T-14UNF-2B				1 ½"-15T-12UNF-2B						
	Pilot X	7/16"-11.5T-20UNF-2B	7/16"-11.5T-20UNF-2A				7/16"-11.5T-20UNF-2A				7/16"-11.5T-20UNF-2A						

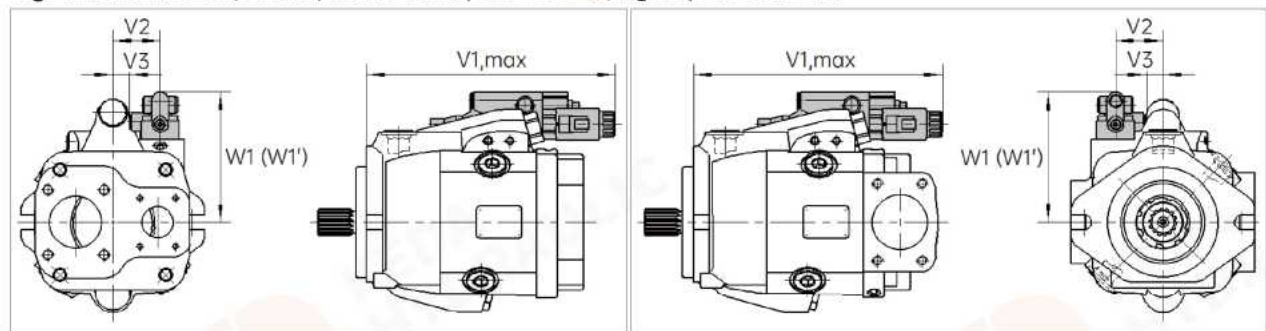
Fig. 6. Dimensions, DRG/13, DFR/13, DRF/13, DFR1/13, DRS/13, DRSC/13
(upper-left: port code 14; lower-left: port code 11; lower-right: port code 12)



Size+Port		K10VO10	K10VO18	K10VO28	K10VO45	K10VO63	K10VO72	K10VO85	K10VO100
Control/Series		14	11 12	11 12	11 12	11 12	11 12	11 12	11 12
DRG/13	D ₂	132	113	139.5	150.5	150.5	150.5	171.5	181.5
DFR/13	V ₀	–	106	107	115	121	124	133	139.5
DRF/13	V ₂	40	62	63	68	65	65	74	74
DFR1/13	V ₃	110	△	△	△	△	△	△	△
DRS/13	V ₄	118	△	△	△	△	△	△	△
DRSC/13	V ₄	118	△	△	△	△	△	△	△

NOTE: – unavailable; △ pending.

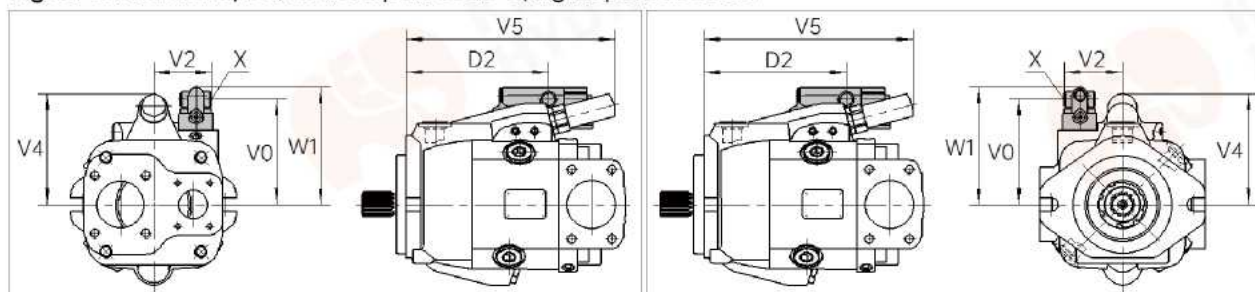
Fig. 7. Dimensions, ED/13, ER/13 (left: port code 11; right: port code 12)



Size+Port		K10VO10	K10VO18	K10VO28	K10VO45	K10VO63	K10VO72	K10VO85	K10VO100
Control/Series		14	11 12	11 12	11 12	11 12	11 12	11 12	11 12
ED/13 ER/13	V ₂	–	△	△	△	△	△	55	△
	V ₃	–	△	△	△	△	△	19.4	△
	V _{1,max}	–	214	240	250	251	250.5	271.4	251
	W ₁	–	122	130	132	137	140.5	156	156
	W ₁ ¹⁾	–	157	159	167	172	175.5	191	191

NOTE: – unavailable; △ pending. 1) W₁¹⁾ for the width plus intermediate plate DBV (pressure relief valve) under ER control.

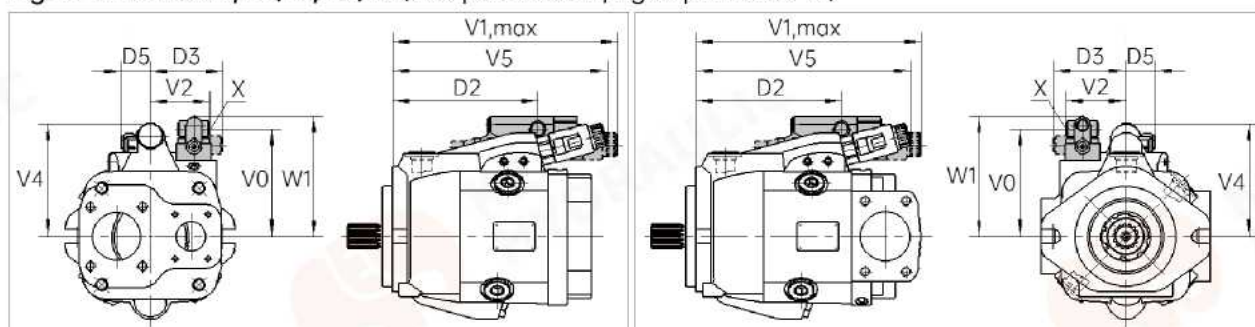
Fig. 8. Dimensions, LA/13 (left: port code 11; right: port code 12)



Size+Port		K10VO10	K10VO18	K10VO28	K10VO45	K10VO63	K10VO72	K10VO85	K10VO100
Control/Series		14	11 12	11 12	11 12	11 12	11 12	11 12	11 12
LA/13	D ₂	–	113	140	146	150	150	181.5	181.5
	V ₀	–	106	114	116.4	124	124	133.4	133.4
	V ₂	–	62	63	68	65	65	74	74
	V ₄	–	113	△	△	128	128	145	145
	V ₅	–	225	231	235	247	247	271	271
	W ₁	–	122	130	133	140	140	149.9	149.9

NOTE: – unavailable; △ pending.

Fig. 9. Dimensions, EP/13, EK/13 (left: port code 11; right: port code 12)

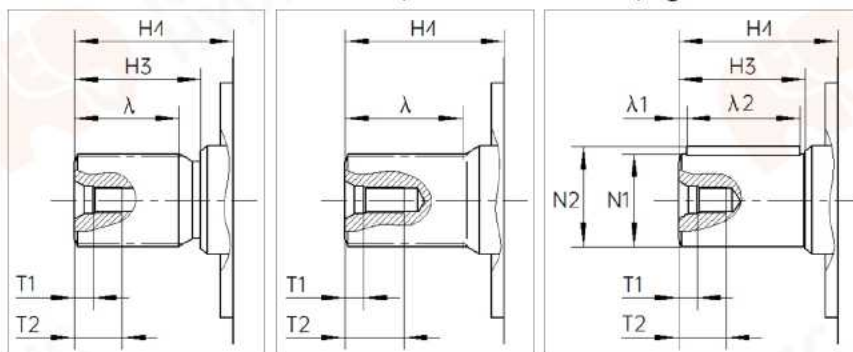


Size+Port		K10VO10	K10VO18	K10VO28	K10VO45	K10VO63	K10VO72	K10VO85	K10VO100
Control/Series		14	11 12	12 11	12 11	12 11	12 11	12 11	12 11
EP/13 EK/13	D ₂	–	113	140	146	151	151	181.5	181.5
	D ₃ ¹⁾	–	△	△	85	82	82	△	△
	D ₅	–	△	△	35	35.6	35.6	36	36
	V ₀	–	106	114	116	123.9	123.9	133	133
	V _{1,max} ¹⁾	–	220	240	246	250.5	250.5	281	281
	V ₂	–	62	63	68	64.8	64.8	74	74
	V ₄	–	110	117	119	125	125	142	142
	V ₅	–	218.5	224	228	241	241	267	267
	W ₁	–	122	130	133	140.4	140.4	150	150

NOTE: – unavailable; △ pending. 1) Only for EP1ED, EP2ED, EK1ED and EK2ED. V_{1,max} for other EP or EK control is pending.

09 DRIVE SHAFT

(left: S/U shaft; middle: R/W shaft; right: P shaft)

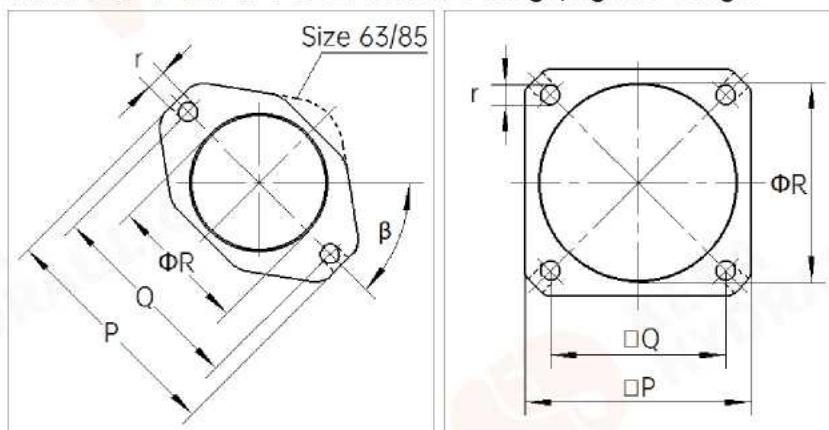


Size+Shaft	K10VO10			K10VO18				K10VO28		
Dimension	S shaft	U shaft	P shaft	S shaft ¹⁾	R shaft	U shaft	P shaft	S shaft	R shaft	
H ₃	30	23.8	28 ^{+0.2}	30	—	23.8	28 ^{+0.3}	33.1	—	
H ₄	38	31.8	36	38	38	31.8	36	41	41	
λ	22	15.8	—	21 22 ²⁾	21	15.8	—	25.1	25	
λ ₁	—	—	2	—	—	—	2	—	—	
λ ₂	—	—	25	—	—	—	25	—	—	
N ₁	—	—	18 ^{+0.008 -0.003}	—	—	—	18 ^{+0.009 -0.004}	—	—	
N ₂	—	—	20.5 ^{-0.2}	—	—	—	20.5 ^{-0.2}	—	—	
T ₁	5	△	△	5 △ ²⁾	5	△	△	5	5	
T ₂	14	△	△	14 △ ²⁾	14	△	△	16	16	
Spline X9g	¾"-11T-16/32 ⅝"-9T-16/32		—	¾"-11T-16/32 ¼"-11T-16/32 ⅝"-9T-16/32		—	⅝"-13T-16/32 ⅝"-13T-16/32			
Parallel key	—	—	A6X6X25	—	—	—	A6X6X25	—	—	
Center hole	¼"-20UNC-2B	R3.15X6.7	R3.15X6.7	¼"-20UNC-2B	¼"-20UNC-2B	R3.15X6.7	R3.15X6.7	¼"-20UNC-2B	¼"-20UNC-2B	
Size+Shaft	K10VO28			K10VO45					K10VO63	
Dimension	U shaft	W shaft	P shaft	S shaft	R shaft	U shaft	W shaft	P shaft	S shaft	R shaft
H ₃	30	—	△	38	—	33.1	—	△	47.5	—
H ₄	38	38	△	45.9	45.9	41	41	△	55.4	55.4
λ	22	21	—	30	29.5	25.1	25	—	39.5	40
λ ₁	—	—	△	—	—	—	—	△	—	—
λ ₂	—	—	△	—	—	—	—	△	—	—
N ₁	—	—	△	—	—	—	—	△	—	—
N ₂	—	—	△	—	—	—	—	△	—	—
T ₁	5	5	△	5	5	5	5	△	6	6
T ₂	14	14	△	16	16	16	16	△	19	19
Spline X9g	¾"-11T-16/32DP		—	1"-15T-16/32DP		⅝"-13T-16/32DP		—	1¼"-14T-12/24DP	
Parallel key	—		△	—		—		△	—	
Center hole	¼"-20UNC-2B		△	¼"-20UNC-2B		¼"-20UNC-2B		△	⅝"-18UNC-2B	
Size+Shaft	K10VO63		K10VO71				K10VO72			
Dimension	U shaft	W shaft	S shaft	R shaft	U shaft	W shaft	S shaft	R shaft	U shaft	W shaft
H ₃	38	—	47.5	—	38	—	47.5	—	38	—
H ₄	45.9	45.9	55.4	55.4	45.9	45.9	55.4	55.4	45.9	45.9
λ	30	29	39.5	38	30	30	39.5	40	30	29
T ₁	5	5	5 6 ³⁾	5 6 ³⁾	5	5	6	6	5	5
T ₂	16	16	19	19	16	16	19	19	16	16
Spline X9g	1"-15T-16/32DP		1¼"-14T-12/24DP		1"-15T-16/32DP		1¼"-14T-12/24DP		1"-15T-16/32DP	
Center hole	¼"-20UNC-2B		⅝"-18UNC-2B		¼"-20UNC-2B		⅝"-18UNC-2B		¼"-20UNC-2B	

NOTE: — unavailable; △ pending. 1) Center hole on S shaft of K10VO 18 (13 series) is R3.15X6.7; 2) 13 series; 3) 12 series.

Size+Shaft Dimension	K10VO85				K10VO100					140 ¹⁾
	S shaft	R shaft	U shaft	W shaft	S shaft	R shaft	U shaft	W shaft	P shaft	S shaft
H ₃	54	—	47.5	—	54	—	47.5	—	△	67
H ₄	61.9	61.9	55.4	55.4	61.9	△ 61.9 ²⁾	55.4	55.4	△	75
λ	43.5	42	35	33	43.5	△ 42 ²⁾	35	35 33 ²⁾	—	53
λ ₁	—	—	—	—	—	—	—	—	△	—
λ ₂	—	—	—	—	—	—	—	—	△	—
N ₁	—	—	—	—	—	—	—	—	△	—
N ₂	—	—	—	—	—	—	—	—	△	—
T ₁	9.5	9.5	6	6	5 9.5 ²⁾	△ 9.5 ²⁾	5 6 ²⁾	5 6 ²⁾	△	5
T ₂	28	28	19	19	28	△ 28 ²⁾	19	19	△	32
Spline X9g	1½"-17T-12/24DP		1¼"-14T-12/24DP		1½"-17T-12/24DP		1¼"-14T-12/24DP		—	1¼"-13T-8/16
Parallel key	—		—		—		—		△	—
Center hole	7/16-14UNC-2B		5/16-18UNC-2B		7/16-14UNC-2B		5/16-18UNC-2B		△	½-13UNC-2B

10 MOUNTING FLANGE (left: A/C flange; right: D flange)



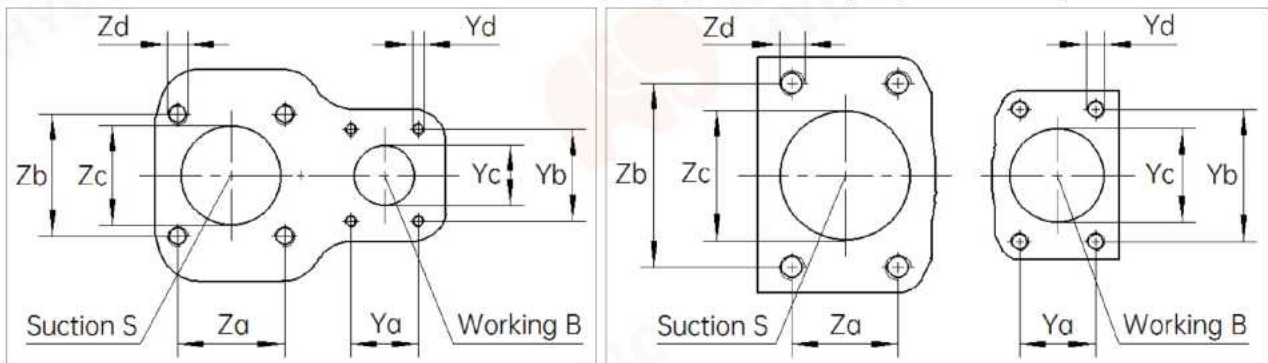
Size+Flange Dimension	K10VO10		K10VO18	K10VO28	K10VO45	K10VO63		K10VO71	
	A flange	C flange	C flange	C flange	C flange	C flange	D flange	C flange	D flange
β	0°	0°	45° 0° ²⁾	45° 0° ²⁾	45° 0° ²⁾	0°	—	45°	—
P	134	134	136	172	172	172	□146	210	□146
Q	109	106.4	106.4	146	146	146	□114.5	181	□114.5
R	Φ80 ^{-0.046}	Φ82.55 ^{-0.054}	Φ82.55 ^{-0.054}	Φ101.6 ^{-0.054}	Φ101.6 ^{-0.054}	Φ101.6 ^{-0.054}	Φ127 ^{-0.063}	Φ127 ^{-0.063}	Φ127 ^{-0.063}
r ³⁾	Φ11	Φ11	11	Φ14 14.3 ²⁾	Φ14 14.3 ²⁾	14.3	14	Φ18	Φ14.3

Size+Flange Dimension	K10VO72		K10VO85		K10VO100			K10VO140	
	C flange	D flange	C flange	D flange	C flange	D flange	D flange ²⁾	C flange	D flange
β	0°	—	0°	—	0°	—	—	0°	—
P	172	□146	210	□146	210X152	□200	□146	210X152	□200
Q	146	□114.5	181	□114.5	181	□161.6	□114.5	181	□161.6
R	Φ101.6 ^{-0.054}	Φ127 ^{-0.063}	Φ127 ^{-0.063}	Φ127 ^{-0.063}	Φ127 ^{-0.063}	Φ152.4 ^{-0.063}	Φ127 ^{-0.063}	Φ127 ^{-0.063}	Φ152.4 ^{-0.063}
r ³⁾	14.3	14	17.5	14.3	17.5 Φ17.5 ³⁾	Φ20.6	14.3	17.5	Φ20.6

NOTE: — unavailable; △ pending. 1) Dimensions of K10VO140 with U/W shaft are pending; 2) 13 series; 3) r without Φ note for slots.

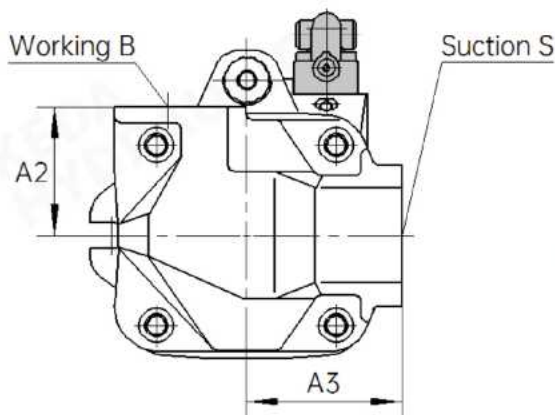
11 WORKING PORT

(left: 11/41 port; right: 12/42/13 port; unlisted: 14 port¹⁾)



Size+Port	K10VO18		K10VO28		K10VO45		K10VO63		K10VO71
Dimension	11 port	12 port ²⁾	11 port	12 port	11 port ³⁾	12/13 port	11 port	12 port	11/41 port
Y _a	22.2	22.2	22.2	22.2	26.2	26.2	26.2	26.2	52.4
Y _b	47.6	47.6	47.6	47.6	52.4	52.4	52.4	52.4	26.2
Y _c	Φ20	Φ20	Φ20	Φ20	Φ25	Φ25	Φ25	Φ25	Φ25
Y _d	M10X1.5X17	M10X1.5X17	M10X1.5X17	M10X1.5X17	M10X1.5X17	M10X1.5X17	M10X1.5X17	M10X1.5X17	M10X1.5X17
Z _a	30.2	26.2	30.2	30.2	35.7	35.7	42.9	42.9	42.9
Z _b	58.7	52.4	58.7	58.7	69.9	69.9	77.8	77.8	77.8
Z _c	Φ32	Φ25	Φ32	Φ32	Φ40 Φ38 ⁴⁾	Φ40 Φ38 ⁴⁾	Φ50	Φ50	Φ50
Z _d	M10X1.5X17	M10X1.5X17	M10X1.5X17	M10X1.5X17	M12X1.75X20	M12X1.75X20	M12X1.75X20	M12X1.75X20	M12X1.75X20
Size+Port	K10VO71		K10VO72		K10VO85		K10VO100		K10VO140
Dimension	12/42 port	11 port	12 port	11 port	12 port	11 port	12 port	11 port	12 port
Y _a	52.4	26.2	26.2	31.8	31.8	31.8	31.8	31.8	31.8
Y _b	26.2	52.4	52.4	66.7	66.7	66.7	66.7	66.7	66.7
Y _c	Φ25	Φ25	Φ25	Φ32	Φ32	Φ32	Φ32	Φ32	Φ32
Y _d	M10X1.5X17	M10X1.5X17	M10X1.5X17	M14X2X19	M14X2X19	M14X2X19	M14X2X19	M14X2X19	M14X2X19
Z _a	42.9	42.9	42.9	50.8	50.8	50.8	50.8	50.8	50.8
Z _b	77.8	77.8	77.8	88.9	88.9	88.9	88.9	88.9	88.9
Z _c	Φ50	Φ50	Φ50	Φ60	Φ63	Φ60	Φ60	Φ63	Φ63
Z _d	M12X1.75X20	M12X1.75X20	M12X1.75X20	M12X1.75X17	M12X1.75X17	M12X1.75X17	M12X1.75X17	M12X1.75X17	M12X1.75X17

Addition: Distribution and dimensions¹⁾ of 13 port



NOTE: 1) Refer to "04 SIZE & DIMENSIONS" Fig. 5. and corresponding table; 2) For 13 series: dimensions same as 11 port; 3) For 13 series: patterns of fastening thread rotate 30° clockwise, around suction port S and working port B respectively; 4) 13 series.

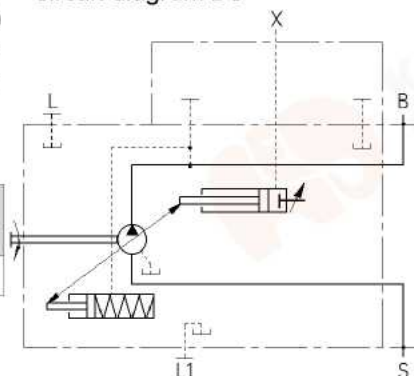
05 CONTROL DEVICE

K10VO pumps can be equipped with various control devices, like direct operated two-point control DG, pressure control DR, pressure/flow/power control DFLR, electrohydraulic pressure control ED/ER, power control LA, electric proportional control with/without pressure cut-off EP/EK and so forth.

1. DG – Direct operated two-point control

The variable pump can be set to a minimum swivel angle by connecting an external switching pressure to port X. A minimum control pressure of $p_{St} \geq 50$ bar is required, which depends directly on the actual working pressure p at port B. This will supply control fluid directly to the stroking piston and switch pump displacement between $V_{g, max}$ and $V_{g, min}$.

▼ Circuit diagram DG



▼ Availability for DG control of all sizes

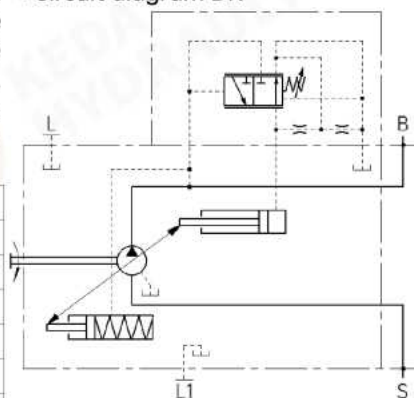
Control \ Size	10	18	28	45	63	71	72	85	100	140
D G	–	● ¹⁾	● ¹⁾	● ¹⁾	–	●	–	–	● ¹⁾³⁾	●

NOTE: ● available; – unavailable. 1) 11 series; 3) 12 series.

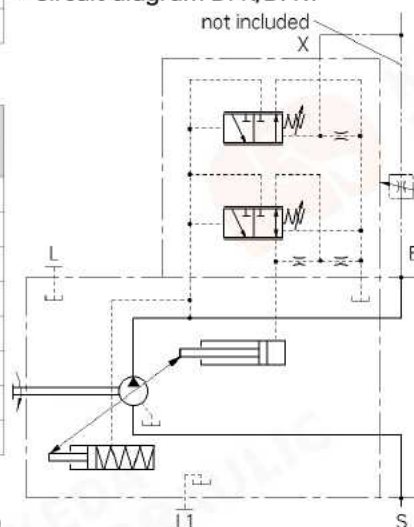
2. DFLR – Pressure/Flow/Power control

The pressure controller DR limits the maximum pressure p_{max} at pump outlet within the control range 50~280 bar (default 280 bar) of variable pump. If the working pressure exceeds the pressure command value at pressure valve, the pump will regulate to smaller displacement to reduce the control differential. The flow controller FR adjusts the displacement of the pump to the volume required by the consumer. Flow control is possible below the power control curve. Initial position in depressurized state: $V_{g, max}$.

▼ Circuit diagram DR



▼ Circuit diagram DFR/DFR1



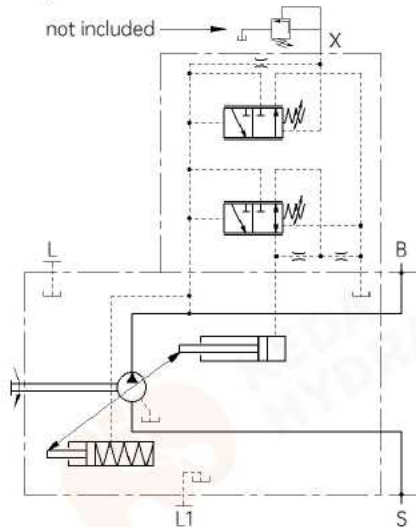
D					Pressure
F					Flow
L					Power
R					Controller
G					, remotely operated
F					, with hydraulic flow control
1					
S					
SC					

▼ Availability for DFLR control of all sizes

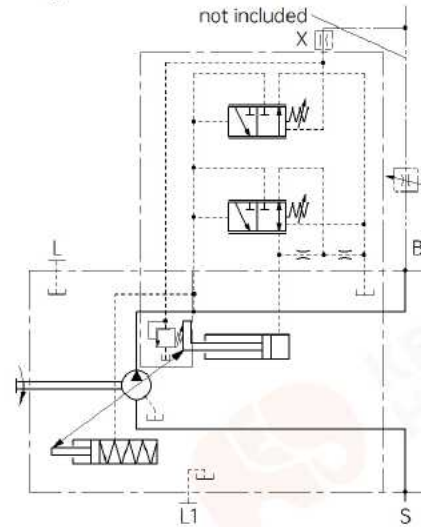
Control \ Size	10	18	28	45	63	71	72	85	100	140
D R	●	●	●	●	○	●	○	●	●	●
D F R	●	● ¹⁾	● ¹⁾	● ¹⁾	–	● ¹⁾	○	–	● ¹⁾	● ¹⁾
D R F	–	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾
D F R 1	●	● ¹⁾	● ¹⁾	● ¹⁾	–	● ¹⁾	–	–	● ¹⁾	● ¹⁾
D R S	–	○ ²⁾	○ ²⁾	○ ²⁾	○	● ³⁾	○	●	● ²⁾³⁾	● ³⁾
D R SC	●	○ ²⁾	○ ²⁾	○ ²⁾	○	–	○	●	○ ²⁾	–
D R G	●	●	●	●	○	●	○	●	●	●
D F L R	–	–	● ¹⁾	● ¹⁾	–	● ¹⁾	–	–	● ¹⁾	● ¹⁾

For example, DFR1 means "pressure and flow control, with port X plugged and disconnected to reservoir".

▼ Circuit diagram DRG



▼Circuit diagram DFLR



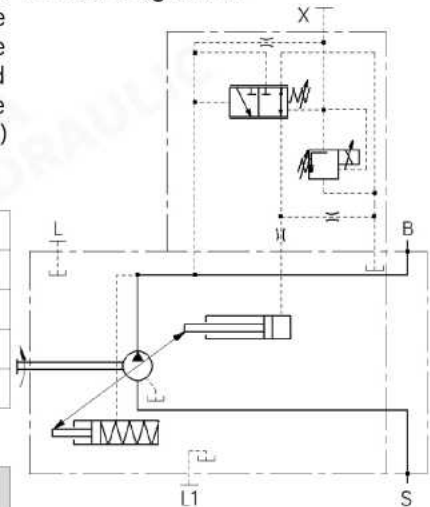
3. ED/ER – Electrohydraulic pressure control

The ED/ER valve can be set to a certain control pressure by specified variable solenoid current. According to changes to actuator, i.e. in load pressure, the swivel angle and the flow increase or decrease until pressure reaches the specified setting value again. The pump only delivers as much hydraulic fluid as the consumers can take. If the solenoid current drops towards zero, the pressure will be limited to $p_{\max}=280^{[1]}|250^{[2]}$ bar (for ED) or $p_{\min}=14^{[3]}$ bar (for ER) by an adjustable hydraulic pressure cut-off.

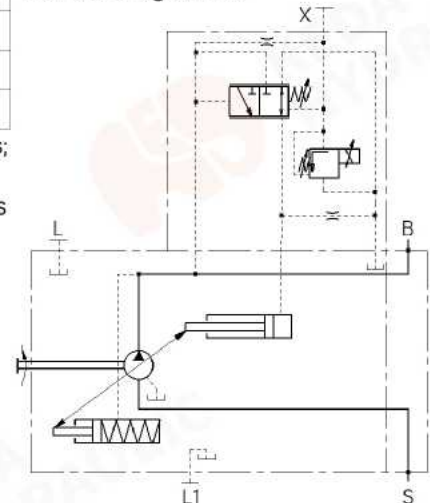
The ED control was optimized for the application in a fan drive system.

E			Electric controller with proportional solenoid
	D		, plus negative pressure cut-off
	R		, plus positive pressure cut-off
		71	, solenoid current $U=12\text{ V}$
		72	, solenoid current $U=24\text{ V}$

▼ Circuit diagram ED



▼ Circuit diagram ER



▼ Availability for ED/ER control of all sizes

Control \ Size			Availability for 2, 25% control of all sizes									
			10	18	28	45	63	71	72	85	100	140
E	D	71	–	●	●	●	○	●	○	●	●	●
E	D	72	–	●	●	●	○	●	○	●	●	●
E	R	71	–	●	●	●	○	●	○	●	●	●
E	R	72	–	●	●	●	○	●	○	●	●	●

NOTE: ● available; ○ upon request; – unavailable. 1) 11/12 series; 2) 13 series; 3) Default, other setting value upon request.

For example, ED71 means "electric control with proportional solenoid, plus negative pressure cut-off, solenoid current $U=12\text{ V}$ ".

12 THROUGH-DRIVE

K10VO pump can be combined with K10VO pumps. Hub for splined shaft, mounting bolts, O-rings and mounting plates (when available) are in the scope of delivery.

The first rows of following tables refer to the 1st pumps, while the second rows after "+" refer to the 2nd pumps and their drive shafts.

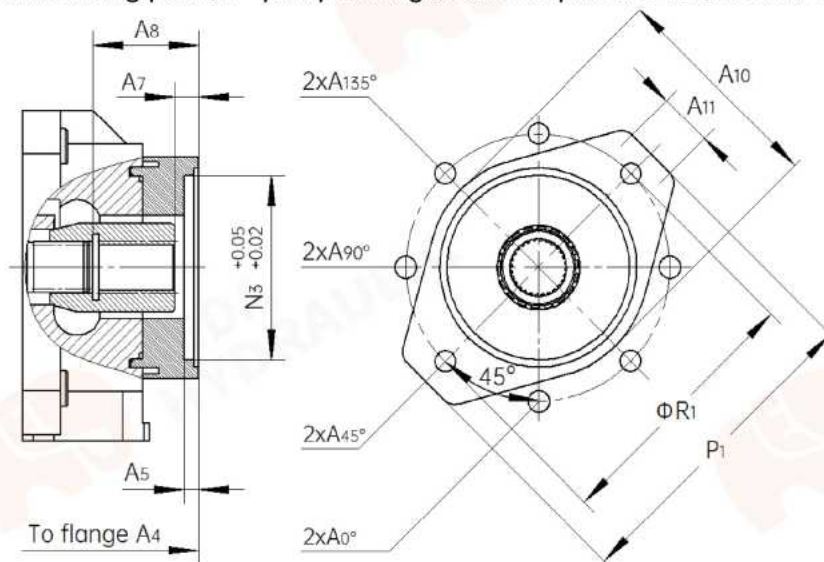
		K10VO18					K10VO28							K10VO45										
TD	+	10S	10U	18S	18R	18U	10S	10U	18S	18R	18U	28S	28R	10S	10U	18S	18R	18U	28S	28R	45S	45R	45U	
K01		-	●	-	-	●	-	●	-	-	●	-	-	-	●	-	-	●	-	-	-	-	-	
K52		●	-	●	●	-	●	-	●	●	-	-	-	●	-	●	●	-	-	-	-	-	-	
K68		-	-	-	-	-	-	-	-	-	-	●	●	-	-	-	-	-	●	●	-	-	●	
K04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	●	-	
		45	K10VO63												K10VO71									
TD	+	45W	10S	10U	18S	18R	18U	28S	28R	45S	45R	45U	45W	63S	63R	63U	63W	10S	10U	18S	18R	18U	28S	
K01		-	-	○	-	-	○	-	-	-	-	-	-	-	-	-	-	-	●	-	-	●	-	
K52		-	○	-	○	○	-	-	-	-	-	-	-	-	-	-	-	●	-	●	●	-	-	
K68		●	-	-	-	-	-	○	○	-	-	○	○	-	-	-	-	-	-	-	-	-	●	
K04		-	-	-	-	-	-	-	-	○	○	-	-	-	-	○	○	-	-	-	-	-	-	
K15		-	-	-	-	-	-	-	-	-	-	-	-	○	○	-	-	-	-	-	-	-	-	
		K10VO71											K10VO72											
TD	+	28R	45S	45R	45U	45W	63S	63R	63U	63W	71S	71R	10S	10U	18S	18R	18U	28S	28R	45S	45R	45U	45W	
K01		-	-	-	-	-	-	-	-	-	-	-	-	○	-	-	○	-	-	-	-	-	-	
K52		-	-	-	-	-	-	-	-	-	-	-	○	-	○	○	-	-	-	-	-	-	-	
K68		●	-	-	●	●	-	-	-	-	-	-	-	-	-	-	-	○	○	-	-	○	○	
K04		-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	-	○	○	-	-	
K07		-	-	-	-	-	-	-	-	-	●	●	-	-	-	-	-	-	-	-	-	-	-	
K15		-	-	-	-	-	○ ¹⁾	○ ¹⁾	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		K10VO72					K10VO85																	
TD	+	63S	63R	63U	63W	10S	10U	18S	18R	28S	28R	45S	45R	45U	45W	63S	63R	63U	63W	71S	71R	85S	85U	
K01		-	-	-	-	-	●	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K52		-	-	-	-	●	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K68		-	-	-	-	-	-	-	-	●	●	-	-	●	●	-	-	-	-	-	-	-	-	
K04		-	-	○	○	-	-	-	-	-	-	●	●	-	-	-	●	●	-	-	-	-	-	
K07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	●	-	●	
K24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	-	
K15		○	○	-	-	-	-	-	-	-	-	-	-	-	-	●	●	-	-	-	-	-	-	
K16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	-	
		K10VO100																						
TD	+	10S	10U	18S	18R	18U	28S	28R	45S	45R	45U	45W	63S	63R	63U	63W	71S	71R	85S	85U	85W	100S	100U	
K01		-	●	-	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K52		●	-	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K68		-	-	-	-	-	●	●	-	-	●	●	-	-	-	-	-	-	-	-	-	-	-	
K04		-	-	-	-	-	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	
K07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	●	-	●	●	-	●	●	
K24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	-	-	-	●	-	
K15		-	-	-	-	-	-	-	-	-	-	-	● ¹⁾	● ¹⁾	-	-	-	-	-	-	-	-	-	

NOTE: ● available; ○ upon request; - unavailable. 1) Only for 1st pump in 12 series.

		K10VO140																						
TD	+	10S	10U	18S	18U	28S	28R	45S	45R	45U	45W	63S	63R	63U	63W	71S	71R	85S	85U	85W	100S	100U	140S	
K01		-	●	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K52		●	-	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K68		-	-	-	-	●	●	-	-	●	●	-	-	-	-	-	-	-	-	-	-	-	-	
K04		-	-	-	-	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	
K07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	●	-	●	●	-	●	-	
K24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	-	-	●	-	-	
K15		-	-	-	-	-	-	-	-	-	-	● ¹⁾	● ¹⁾	-	-	-	-	-	-	-	-	-	-	
K17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	

NOTE: ● available; ○ upon request; - unavailable. 1) Only for 1st pump in 12 series.

▼ Dimensions of mounting plate/2nd pump's flange/hub for splined shaft/... of all size



Code K01 (2nd pump K10VO10U/18U; 2nd pump's flange ISO 3019-1 - 82-2)

1 st pump Dimension	K10VO18	K10VO28	K10VO45	K10VO63	K10VO71	K10VO72	K10VO85	K10VO100	K10VO140
N ₃	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55
A ₄	182	204	229	255	267	255	302	338	350
A ₅	10	10	10	10	10	10	10	10	10
A ₇	10	10	10.7	8.7	11.8	9.5	8.7	10.5	10.8
A ₈	43.3	33.7	53.4	58.2	61.3	59	67.2	65	77.3
A _{0°}	M10X1.5X14.5	M10X1.5X16	M10X1.5X16	-	M10X1.5X20	-	-	M10X1.5X16	M10X1.5X16
A _{45°}	M10X1.5X14.5	M10X1.5X16	M10X1.5X16	M10X1.5X16	M10X1.5X20	M10X1.5X16	M10X1.5X20	M10X1.5X16	M10X1.5X16
A _{90°}	M10X1.5X14.5	M10X1.5X16	M10X1.5X16	M10X1.5X16	M10X1.5X20	M10X1.5X16	M10X1.5X20	M10X1.5X16	M10X1.5X16
A _{135°}	-	-	-	M10X1.5X16	-	M10X1.5X16	M10X1.5X20	-	-
A ₁₀	95	95	95	95	95	95	95	95	95
A ₁₁	18	18	18	18	18	18	18	18	18
R ₁	Φ106.5	Φ106.5	Φ106.5	Φ106.5	Φ106.5	Φ106.5	Φ106.5	Φ106.5	Φ106.5
P ₁	130	130	130	130	130	130	130	130	130
HubX8H	△	△	△	△	△	△	△	△	△
	5/8"-9T-16/32	5/8"-9T-16/32	5/8"-9T-16/32	5/8"-9T-16/32	5/8"-9T-16/32	5/8"-9T-16/32	5/8"-9T-16/32	5/8"-9T-16/32	5/8"-9T-16/32

NOTE: - unavailable; △ pending.

Code K52 (2nd pump K10VO10S/18S/18R; 2nd pump's flange ISO 3019-1 – 82-2)

1 st pump Dimension	K10VO18	K10VO28	K10VO45	K10VO63	K10VO71	K10VO72	K10VO85	K10VO100	K10VO140
N ₃	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55
A ₄	182	204	229	255	267	255	302	338	350
A ₅	10	10	10	10	10	10	10	10	10
A ₇	18.8	18.8	18.9	18.4	21.3	18.9	21.5	19	18.9
A ₈	38.7	38.7	38.7	39.4	41.4	39.4	42.5	38.9	38.6
A _{0°}	M10X1.5X14.5	M10X1.5X16	M10X1.5X16	–	M10X1.5X20	–	–	M10X1.5X16	M10X1.5X16
A _{45°}	M10X1.5X14.5	M10X1.5X16	M10X1.5X16	M10X1.5X16	M10X1.5X20	M10X1.5X16	M10X1.5X20	M10X1.5X16	M10X1.5X16
A _{90°}	M10X1.5X14.5	M10X1.5X16	M10X1.5X16	M10X1.5X16	M10X1.5X20	M10X1.5X16	M10X1.5X20	M10X1.5X16	M10X1.5X16
A _{135°}	–	–	–	M10X1.5X16	–	M10X1.5X16	M10X1.5X20	–	–
A ₁₀	95	95	95	95	95	95	95	95	95
A ₁₁	18	18	18	18	18	18	18	18	18
R ₁	Φ106.5	Φ106.5	Φ106.5	Φ106.5	Φ106.5	Φ106.5	Φ106.5	Φ106.5	Φ106.5
P ₁	130	130	130	130	130	130	130	130	130
HubX8H	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
	¾"-11T-16/32	¾"-11T-16/32	¾"-11T-16/32	¾"-11T-16/32	¾"-11T-16/32	¾"-11T-16/32	¾"-11T-16/32	¾"-11T-16/32	¾"-11T-16/32

NOTE: – unavailable; Δ pending.

Code K68 (2nd pump K10VO28S/28R/45U/45W; 2nd pump's flange ISO 3019-1 – 101-2)

1 st pump Dimension	K10VO18	K10VO28	K10VO45	K10VO63	K10VO71	K10VO72	K10VO85	K10VO100	K10VO140
N ₃	–	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6
A ₄	–	204	229	255	267	255	302	338	350
A ₅	–	10	10	10	10	10	10	10	10
A ₇	–	17.8	17.9	17.4	20.3	17.9	20.5	18	17.8
A ₈	–	41.7	41.7	42.4	44.1	42.4	45.5	41.9	41.6
A _{0°}	–	–	M12X1.75X18	–	M12X1.75X20	–	–	M12X1.75X20	M12X1.75X20
A _{45°}	–	M12X1.75	M12X1.75X18	M12X1.75X18	M12X1.75X20	M12X1.75X18	M12X1.75X20	M12X1.75X20	M12X1.75X20
A _{90°}	–	–	M12X1.75X18	M12X1.75X18	M12X1.75X20	M12X1.75X18	M12X1.75X20	M12X1.75X20	M12X1.75X20
A _{135°}	–	–	–	M12X1.75X18	–	M12X1.75X18	M12X1.75X20	–	–
A ₁₀	–	120	120	120	120	120	120	120	120
A ₁₁	–	25	25	25	25	25	25	25	25
R ₁	–	Φ146	Φ146	Φ146	Φ146	Φ146	Φ146	Φ146	Φ146
P ₁	–	174	174	174	174	174	174	174	174
HubX8H	–	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
	–	⅞"-13T-16/32	⅞"-13T-16/32	⅞"-13T-16/32	⅞"-13T-16/32	⅞"-13T-16/32	⅞"-13T-16/32	⅞"-13T-16/32	⅞"-13T-16/32

NOTE: – unavailable; Δ pending.

Code K04 (2nd pump K10VSO45S/45R/63U/63W; 2nd pump's flange ISO 3019-1 – 101-2)

1 st pump Dimension	K10VO18	K10VO28	K10VO45	K10VO63	K10VO71	K10VO72	K10VO85	K10VO100	K10VO140
N ₃	–	–	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6
A ₄	–	–	229	255	267	255	302	338	350
A ₅	–	–	10	10	10	10	10	10	10
A ₇	–	–	18.4	17.9	20.8	18.4	20.7	18.2	18.3
A ₈	–	–	46.7	47.4	49.1	47.4	50.2	46.6	45.9

NOTE: – unavailable.

1 st pump Dimension	K10VO18	K10VO28	K10VO45	K10VO63	K10VO71	K10VO72	K10VO85	K10VO100	K10VO140
A _{0°}	–	–	M12X1.75X18	–	M12X1.75X20	–	–	M12X1.75X20	M12X1.75X20
A _{45°}	–	–	M12X1.75X18	M12X1.75X18	M12X1.75X20	M12X1.75X18	M12X1.75X20	M12X1.75X20	M12X1.75X20
A _{90°}	–	–	M12X1.75X18	M12X1.75X18	M12X1.75X20	M12X1.75X18	M12X1.75X20	M12X1.75X20	M12X1.75X20
A _{135°}	–	–	–	M12X1.75X18	–	M12X1.75X18	M12X1.75X20	–	–
A ₁₀	–	–	120	120	120	120	120	120	120
A ₁₁	–	–	25	25	25	25	25	25	25
R ₁	–	–	Φ146	Φ146	Φ146	Φ146	Φ146	Φ146	Φ146
P ₁	–	–	174	174	174	174	174	174	174
HubX8H	–	–	Δ	Δ	Δ	Δ	Δ	Δ	Δ
	–	–	1"-15T-16/32	1"-15T-16/32	1"-15T-16/32	1"-15T-16/32	1"-15T-16/32	1"-15T-16/32	1"-15T-16/32

NOTE: – unavailable; Δ pending.

Code K07 (2nd pump K10VO71S/71R/85U/85W/100U; 2nd pump's flange ISO 3019-1 – 127-2)

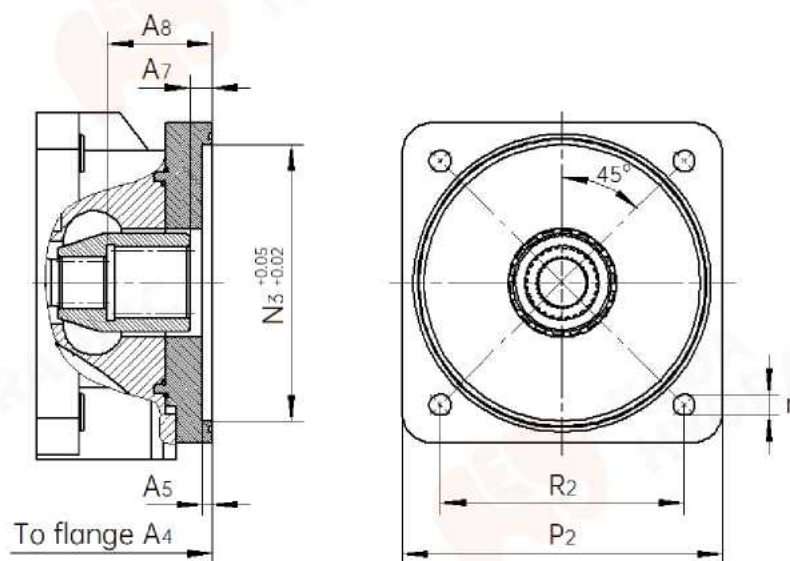
1 st pump Dimension	K10VO18	K10VO28	K10VO45	K10VO63	K10VO71	K10VO72	K10VO85	K10VO100	K10VO140
N ₃	–	–	–	–	Φ127	–	Φ127	Φ127	Φ127
A ₄	–	–	–	–	267	–	301.5	338	350
A ₅	–	–	–	–	13	–	13	13	13
A ₇	–	–	–	–	21.8	–	22	19.5	19.3
A ₈	–	–	–	–	58.6	–	60	56.4	56.1
A _{45°}	–	–	–	–	–	–	M12X1.75	M16X2 ¹⁾	M16X2X24
A _{90°}	–	–	–	–	M16X2	–	M12X1.75	M16X2 ¹⁾	M16X2X24
A ₁₀	–	–	–	–	148	–	148	148	148
A ₁₁	–	–	–	–	31	–	31	31	31
R ₁	–	–	–	–	Φ181	–	Φ181	Φ181	Φ181
P ₁	–	–	–	–	213	–	213	213	213
HubX8H	–	–	–	–	Δ	–	Δ	Δ	Δ
	–	–	–	–	1¼"-14T-12/24	–	1¼"-14T-12/24	1¼"-14T-12/24	1¼"-14T-12/24

NOTE: – unavailable; Δ pending. 1) For 13 series: fastening thread M12X1.75.

Code K24 (2nd pump K10VO85S/100S; 2nd pump's flange ISO 3019-1 – 127-2)

1 st pump Dimension	K10VO18	K10VO28	K10VO45	K10VO63	K10VO71	K10VO72	K10VO85	K10VO100	K10VO140
N ₃	–	–	–	–	–	–	Φ127	Φ127	Φ127
A ₄	–	–	–	–	–	–	302	338	350
A ₅	–	–	–	–	–	–	13	13	13
A ₇	–	–	–	–	–	–	12.8	10.5	10.8 ²⁾
A ₈	–	–	–	–	–	–	67.2	65	75 ²⁾
A _{45°}	–	–	–	–	–	–	M16X2X24	M16X2X24	M16X2X24
A _{90°}	–	–	–	–	–	–	M16X2X24	M16X2X24	M16X2X24
A _{135°}	–	–	–	–	–	–	M16X2X24	– M16X2X24 ³⁾	–
A ₁₀	–	–	–	–	–	–	148	148	148
A ₁₁	–	–	–	–	–	–	31	31	31
R ₁	–	–	–	–	–	–	Φ181	Φ181	Φ181
P ₁	–	–	–	–	–	–	213	213	213
HubX8H	–	–	–	–	–	–	Δ	Δ	Δ
	–	–	–	–	–	–	1½"-17T-12/24	1½"-17T-12/24	1½"-17T-12/24

NOTE: – unavailable; Δ pending. 2) If block in hub: A₇=10.3, A₈=69.1; 3) 13 series.



Code K15 (2nd pump K10VO63S/63R; 2nd pump's flange ISO 3019-1 – 127-4)

1 st pump Dimension	K10VO18	K10VO28	K10VO45	K10VO63	K10VO71	K10VO72	K10VO85	K10VO100	K10VO140
N ₃	–	–	–	Φ127	△	Φ127	Φ127	Φ127	Φ127
A ₄	–	–	–	255	△	255	301.5	338	350
A ₅	–	–	–	13	△	13	13	13	13
A ₇	–	–	–	17.9	△	8	22	17.9	17.9
A ₈	–	–	–	55.9	△	59	60	56.5	56.5
r	–	–	–	M12X1.75X16	△	M12X1.75X16	M12X1.75	M12X1.75X22	M12X1.75X22
R ₂	–	–	–	□114.5	△	□114.5	□114.5	□114.5	□114.5
P ₂	–	–	–	△	△	△	△	△	△
HubX8H	–	–	–	△	△	△	△	△	△
	–	–	–	1¼"-14T-12/24	△	1¼"-14T-12/24	1¼"-14T-12/24	1¼"-14T-12/24	1¼"-14T-12/24

NOTE: – unavailable; △ pending.

Code K16 (2nd pump K10VO85S; 2nd pump's flange ISO 3019-1 – 127-4)

1 st pump Dimension	K10VO18	K10VO28	K10VO45	K10VO63	K10VO71	K10VO72	K10VO85	K10VO100	K10VO140
N ₃	–	–	–	–	–	–	Φ127	–	–
A ₄	–	–	–	–	–	–	301.5	–	–
A ₅	–	–	–	–	–	–	13.4	–	–
A ₇	–	–	–	–	–	–	12.8	–	–
A ₈	–	–	–	–	–	–	67.2	–	–
r	–	–	–	–	–	–	M12X1.75	–	–
R ₂	–	–	–	–	–	–	□114.5	–	–
P ₂	–	–	–	–	–	–	△	–	–
HubX8H	–	–	–	–	–	–	△	–	–
	–	–	–	–	–	–	1½"-17T-12/24	–	–

NOTE: – unavailable; △ pending.

Code K17 (2nd pump K10VO140S; 2nd pump's flange ISO 3019-1 – 152-4)

1 st pump Dimension	K10VO18	K10VO28	K10VO45	K10VO63	K10VO71	K10VO72	K10VO85	K10VO100	K10VO140
N ₃	–	–	–	–	–	–	–	–	Φ152.4 ^{+0.05} _{+0.02}
A ₄	–	–	–	–	–	–	–	–	350
A ₅	–	–	–	–	–	–	–	–	13
A ₇	–	–	–	–	–	–	–	–	11
A ₈	–	–	–	–	–	–	–	–	77.3
r	–	–	–	–	–	–	–	–	M16X2
R ₂	–	–	–	–	–	–	–	–	□161.6
P ₂	–	–	–	–	–	–	–	–	△
HubX8H	–	–	–	–	–	–	–	–	△
	–	–	–	–	–	–	–	–	1¼"-13T-8/16

NOTE: – unavailable; △ pending.

COMBINATION PUMP

K10VO pump can be combined with K10VO pumps. A tandem pump with two pumps of equal size is permissible. Please specify the designations for 1st and 2nd pumps and join by a "+" when ordering. Order example:

K10V O 71 DFR / 11 R – V S C 12 K04 + K10V O 45 DFR / 11 R – V S C 12 N00

13 CONNECTOR FOR SOLENOID

Deutsch-molded 2-pin connector without bidirectional suppressor diode DT04-2P-EP04, as well as its mating connector DT06-2S-EP04, are not included in the scope of delivery but can be supplied upon request.

The connectors offer 2 types of protection: IP67 according to DIN EN 60529 and IP69K according to DIN 40050-9.

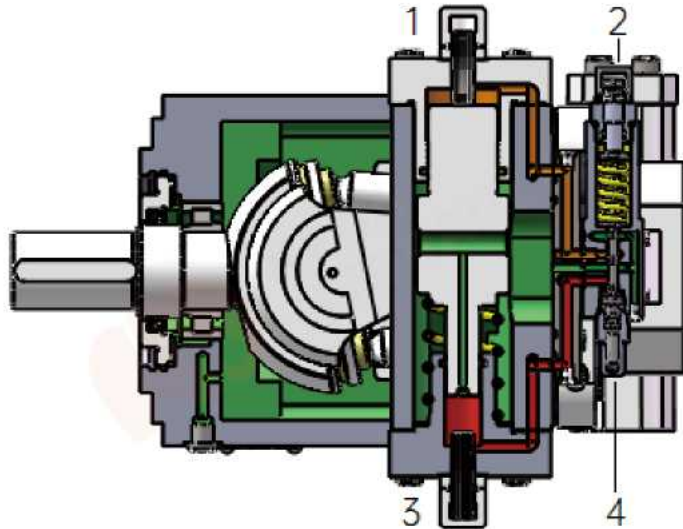
SERVICE

Guangdong KEDA Hydraulic Technology Co., LTD. is a recognized premier provider of hydraulic parts and service in southern China. We are committed to develop high pressure axial piston pumps & motors, lay out hydraulic power units and come up with system solutions. Our team of qualified experts and skilled technicians can help you to get customized solutions for actual applications as well as reliable, affordable, competitive & innovative hydraulic products. Further requirements like maintenance or reformation of equipment/system are also welcome. Please feel free to contact us!



COMMISSIONING

Cap nut	Remarks
1	To adjust the maximum displacement.
2	For DR control: adjust working pressure For DRG control: adjust control pressure (20bar)
3	To adjust the minimum displacement. (CAUTION: Default setting! Don't move!)
4	To adjust the response time.



COUPLING ASSEMBLY

1. Install the specified coupling half onto the drive shaft of the axial piston unit following instructions.
2. Clamp the coupling hub onto the drive shaft or ensure a permanent lubrication of the drive shaft. This prevents the formation of frictional corrosion and the associated wear.
3. Transport the axial piston unit to the installation location and remove dirt and contaminants there.
4. Install the coupling on the drive shaft of the machine/system in accordance with the specifications. Fix the axial piston unit (may not be bolted down until the coupling has been correctly installed).
5. Do not install the coupling hub onto the drive shaft of the axial piston unit by striking it.

TRANSPORTATION



▲ via lifting strap



▲ via hooks



▲ via forklift