TYPE CODE

	K4VS	O	125	DR	/	10	R	–	P	P	B	13	N00
01	02	03	04	05		06	07		08	09	10	11	12

HYDRAULIC FLUIDS

		40	71	80	125	180	200	250	355	370	500	
01	Mineral oil (HM) and HFD hydraulic fluid	●	●	●	●	●	●	●	●	●	●	
	HFA, HFB and HFC hydraulic fluids	●	●	●	●	●	●	●	●	●	●	E
	High-speed version	–	–	–	–	○	○	●	●	●	○	H

AXIAL PISTON UNIT

02	Swash-plate design, variable, nominal pressure p_N 350 [bar], maximum pressure p_{max} 400 [bar]	K4VS

OPERATING MODE

03	Pump, open circuit	O

SIZE

		40	71	80	125	180	200	250	355	370	500
04	Geometric displacement $q_{v,max}$ [mL/r]	40	71	80	125	180	200	250	355	370	500

CONTROL DEVICE

			40	71	80	125	180	200	250	355	370	500	
05	Manual control		●	●	●	●	●	●	●	●	●	○	MA
	Pressure control		●	●	●	●	●	●	●	●	●	●	DR
	Flow control		●	●	●	●	●	●	●	●	●	–	FR
	Power control		●	●	●	●	●	●	●	●	●	○	LR
	Hydraulic control	pilot-pressure related	○	○	○	●	●	●	●	●	●	●	HD
		control volume dependent	●	●	●	●	●	●	●	●	●	●	HM
		with proportional valve	●	●	●	●	●	●	●	●	●	○	HS4
	Electric control		●	●	●	●	●	●	●	●	●	●	EO2
		with pressure controller and flow controller	○	○	○	●	●	●	●	●	●	○	DFE1Z
	Two-point control		●	●	●	●	●	●	●	●	●	●	HFE

SERIES

06	Standard	10

DIRECTION OF ROTATION

07	View on drive shaft	clockwise	R
		counterclockwise	L

SEALING

08	[DIN ISO 1629] Fluoroelastomer (FKM) as shaft seals; Nitrile rubber (NBR) for others.	P
	[DIN ISO 1629] Fluoroelastomer (FKM), for operation with HFD hydraulic fluid	V

NOTE: ● available ○ upon request – unavailable preferred

	K4VS	O	125	DR	/	10	R	–	P	P	B	13	N00
01	02	03	04	05		06	07		08	09	10	11	12

DRIVE SHAFT

09	[DIN 6885] parallel keyed shaft	P
	[DIN 5480] splined shaft	Z

MOUNTING FLANGE

			40	71	80	125	180	200	250	355	370	500	
10	[ISO 3019-2] flange	4-hole	●	●	●	●	●	●	●	●	●	–	B
		8-hole	–	–	–	–	–	–	–	–	–	●	H

WORKING PORT

11	[SAE] working port **B** and suction port **S** offsets 90°; 2nd working port B_1 locates opposite to **B**; [DIN 13] metric fastening thread.	B_1 plugged with stud end, **B** opens as working port	13
		B plugged with flange plate, B_1 opens as working port	25

THROUGH-DRIVE

			40	71	80	125	180	200	250	355	370	500	
12	Single pump	without through-drive	●	●	●	●	●	●	●	●	●	●	N00
	2nd pump's flange	2nd pump's splined shaft											
	With non-pressure-resistant or pressure-resistant plugged cover, prepared for through-drive		●	●	●	●	●	●	●	●	●	●	K99
	[ISO 3019-1] 82-2	[SAE A] 5/8"-9T-16/32	●	●	●	●	●	●	●	●	●	●	K01
		[SAE A-B] 3/4"-11T-16/32	●	●	●	○	○	○	○	○	○	○	K52
	[ISO 3019-1] 101-2	[SAE B] 7/8"-13T-16/32	●	●	●	●	●	●	●	●	●	●	K68
		[SAE B-B] 1"-15T-16/32	●	●	●	●	●	●	●	●	●	●	K04
	[ISO 3019-1] 127-2	[SAE C] 1¼"-14T-12/24	–	●	●	●	●	●	●	●	●	●	K07
		[SAE C-C] 1½"-17T-12/24	–	–	–	●	●	●	●	●	●	●	K24
	[ISO 3019-1] 152-4	[SAE D] 1¾"-13T-8/16	–	–	–	–	●	●	●	●	●	●	K17
	[ISO 3019-2] 63-4	keyed shaft Φ25	●	●	●	○	○	○	○	○	○	○	K57
	[ISO 3019-2] 80-2	[SAE A-B] 3/4"-11T-16/32	○	●	●	○	○	○	○	○	○	○	KB2
	[ISO 3019-2] 100-2	[SAE B] 7/8"-13T-16/32	●	●	●	●	●	●	○	○	○	○	KB3
		[SAE B-B] 1"-15T-16/32	●	●	●	●	●	●	●	●	●	●	KB4
	[ISO 3019-2] 125-2	[SAE C] 1¼"-14T-12/24	–	●	●	●	●	●	●	●	●	●	KB5
		[SAE C-C] 1½"-17T-12/24	–	–	–	○	○	○	○	○	○	○	KB6
	[ISO 3019-2] 180-4	[SAE D] 1¾"-13T-8/16	–	–	–	–	●	●	●	●	●	●	KB7
	[ISO 3019-2] 125-4	[DIN 5480] W32X2X14X9g	●	●	●	●	●	●	●	●	●	●	K31
	[ISO 3019-2] 140-4	[DIN 5480] W40X2X18X9g	–	●	●	●	●	●	●	●	●	●	K33
	[ISO 3019-2] 160-4	[DIN 5480] W50X2X24X9g	–	–	–	●	●	●	●	●	●	●	K34
	[ISO 3019-2] 224-4	[DIN 5480] W60X2X28X9g	–	–	–	–	–	–	●	●	●	●	K35
		[DIN 5480] W70X3X22X9g	–	–	–	–	–	–	–	●	●	●	K77
	[ISO 3019-2] 315-8	[DIN 5480] W80X3X25X9g	–	–	–	–	–	–	–	–	–	●	K43

NOTE: ● available ○ upon request – unavailable preferred

01 HYDRAULIC FLUIDS

K4VSO pump is design for operation with [DIN 51524] HLP mineral oil. Selection of environmentally acceptable hydraulic fluids, or fire-resistant, water-free hydraulic fluids HFD, or fire-resistant, water-containing hydraulic fluids HFA/HFB/HFC is allowed but must be specified when ordering.

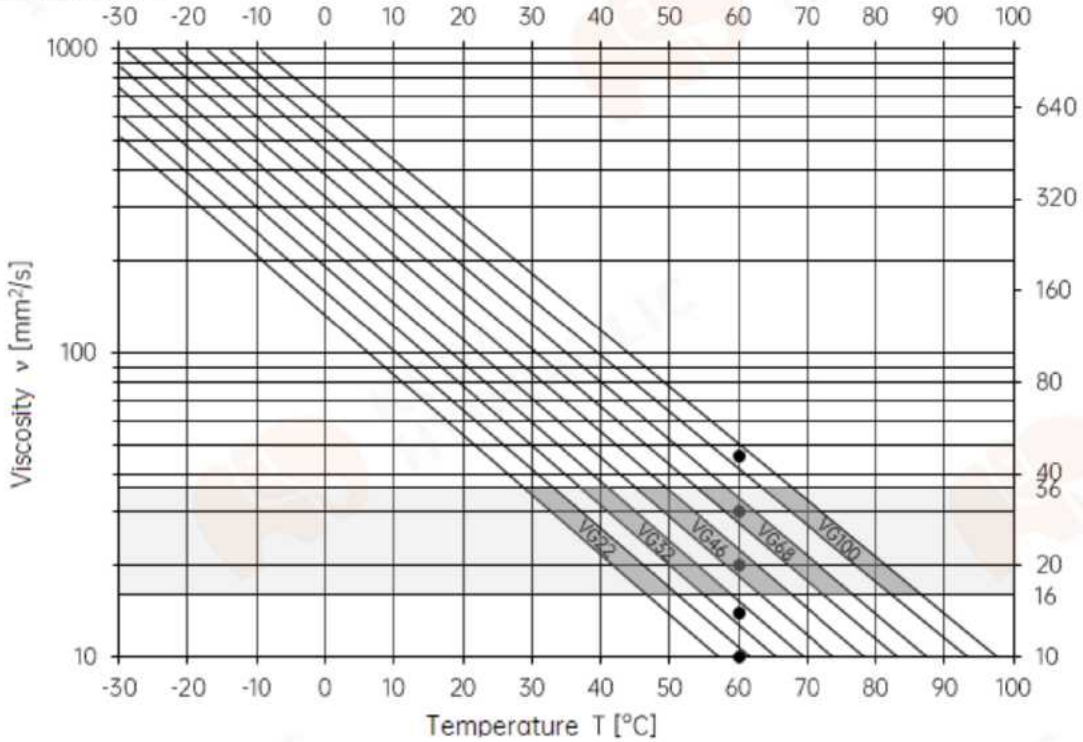
Please contact us if any technical parameter cannot be adhered to.

1. Viscosity and temperature of hydraulic fluids

Operation	Temperature	Viscosity	Remarks
Cold start	t_{min}=–25°C/–40 °C*	ν_{max}=1600 mm²/s	t<3 min, p≤50 bar, n≤1000 rpm
Warm-up		ν=400~1600 mm²/s	t≤15 min, p≤0.7 p_N, n≤0.5 n_{max}
Continuous	t_{max}=+110°C/+85 °C*	ν=10~400 mm²/s	at port T
Short-term	t_{max}=+110°C/+85 °C*	ν_{min}=7~10 mm²/s	t<3 min, p≤0.3 p_N, at port T

NOTE: * NBR as shaft seals, please contact us.

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 ν_{opt}=16~36 mm²/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 (90~115 °C) during short-term operation, cleanliness level of **19/17/14** is required.

4. Bearing flushing

Bearing flushing is required for a safe, continuous operation for the following operating conditions:
— Operation with borderline conditions for temperature and viscosity during operation with mineral oil;
— Application with special fluids (non-mineral fluids) due to limited lubricity and narrow operating temperature range;
— Recommended for lubricating the front bearing and the shaft sealing, with vertical installation and shaft upwards.

Bearing flushing is realized at port **U** in the area of front flange of the variable pump. The flushing fluid flows through the front bearing and discharges with the pump drain at the drain port **T**. Depending on individual sizes, the following flushing flows are recommended:

Size	40	71	80	125	180	200	250	355	370	500
	3	4	4	5	7	7	10	15	15	20

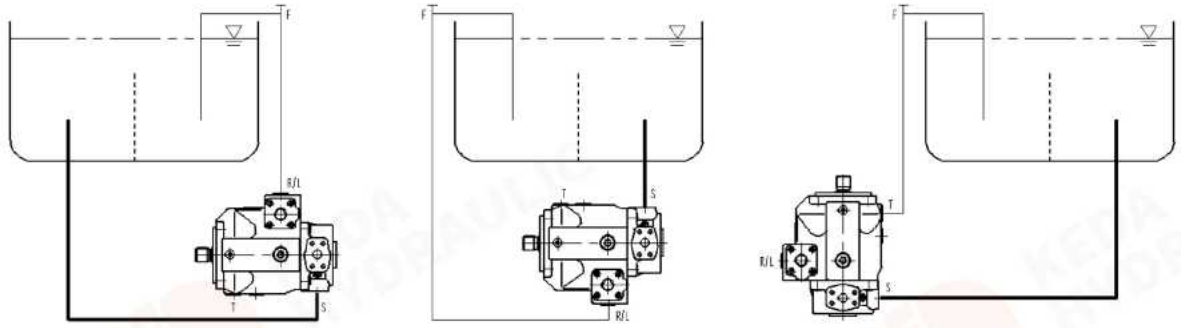
INSTALLATION INSTRUCTIONS

GENERAL

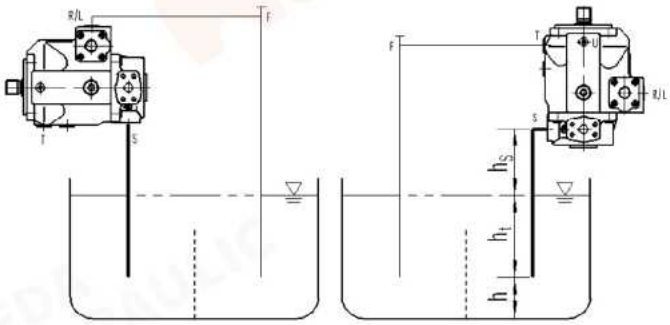
— The axial piston unit must be filled with hydraulic fluid and vented during commissioning and operation. This must also be observed during longer standstills, as the axial piston unit can empty itself via the hydraulic lines.
— Installation positions see the following examples **1~7**. We recommend installation position **1** and **2**.

Installation position	1	2	3	4	5	6	7
Filling	S+R/L	S+T	S+T+U	R/L+F	T+U+F	T+K_1/K_2	R/L+T+K_1/K_2
Air bleed	R/L+F	T+F	T+F	R/L+F	T+F	R/L	T+U

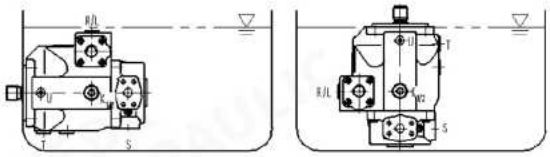
1) Below-reservoir installation, position 1~3 (standard)



2) Above-reservoir installation, position 4~5



3) Inside-reservoir installation, position 6~7



NOTICE

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

— Installation dimensions refer to position **5**.
— 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

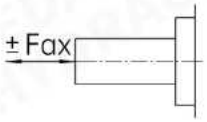
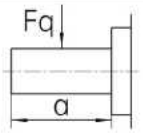
1. Working pressure range (when using hydraulic fluid based on mineral oils)

Pressure	K4VSO	Remarks
Suction $p_{S,\,abs}$	0.8~30 bar	Minimum pressure at suction port **S** (inlet) is required to prevent damage to the axial piston unit.
Nominal p_N	350 bar	At working port **B** (outlet) corresponds to the maximum design pressure.
Maximum p_{max}	400 bar	At working port **B** (outlet) corresponds to the maximum working pressure within a single operating period.
Minimum p_{min}	15 bar	Minimum pressure at the working port **B** (outlet) is required to prevent damage to the axial piston unit.
Case p_L	$p_{S,\,abs}$+1.2 bar ≤ 4 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

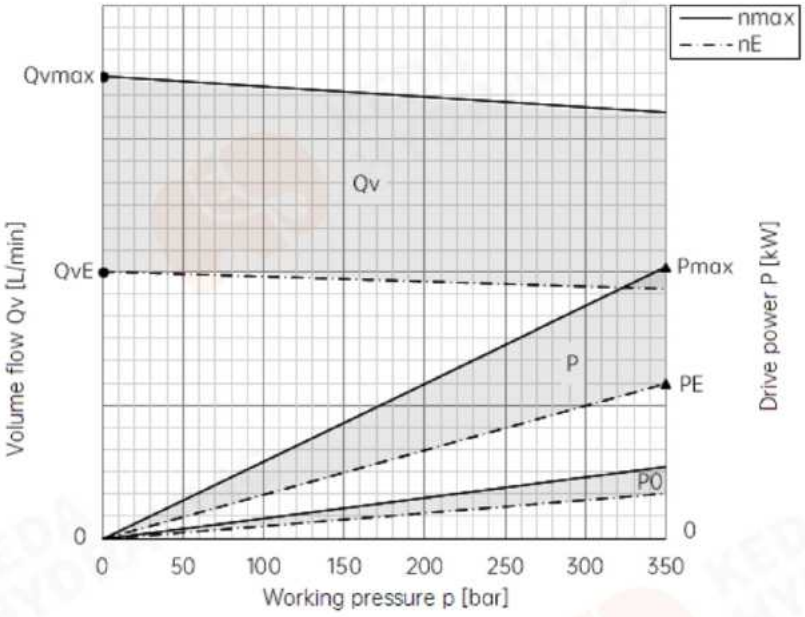
Parameter (in case) / Size				40	71	80	125	180	200	250(H)	355(H)	370	500(H)
Geom. displacement		$q_{V,\,max}$	mL/r	40	71	80	125	180	200	250	355	370	500
Rotational speed	$q_{V,\,max}$	n_{max}	rpm	2600	2200	2200	1800	1800	1700	1500 (1900)	1500 (1700)	1500	1320 (1500)
	q_V	$n_{max,\,all}$	rpm	3200	2700	2700	2200	2100	2000	1800 (2100)	1700 (1900)[4]	1700	1600 (1800)
Flow	n_{max}	$Q_{V,\,max}$	L/min	104	156	176	225	324	340	375 (475)	533 (604)	556	660 (750)
	n_E [1]	Q_{VE}	L/min	60	107	121	186	270	283	250	355	370	500
Power	n_{max} Δp_N [2]	P_{max}	kW	61	91	103	131	189	198	219 (277)	311 (352)	324	385 (437)
	n_E [1] Δp_N [2]	P_E	kW	35	62	70	109	158	166	150	213	222	300
Torque	Δp_N [2]	T_{max}	Nm	223	395	395	696	1002	1002	1391	1976	1976	2783
	Δp_E [3]	T	Nm	64	113	113	199	286	286	398	564	564	795
Input torque	*P shaft*	$T_{E,\,max}$	Nm	380	700	700	1392	1400	1400	2300	3557	3557	5200
	Z shaft	$T_{E,\,max}$	Nm	446	790	790	1392	2004	2004	2782	3952	3952	5566
Through-drive torque	*P shaft*	$T_{D,\,max}$	Nm	223	395	395	696	1002	1002	1391	1976	1976	2783
	Z shaft	$T_{D,\,max}$	Nm	223	395	395	696	1002	1002	1391	1976	1976	2783
Rotary stiffness of drive shaft	*P shaft*	c	kNm/rad	80	146	146	260	328	328	527	800	800	1145
	Z shaft	c	kNm/rad	77	146	146	263	332	332	543	770	770	1136
Rotary moment of inertia		J	kgm^2	0.0049	0.0121	0.0121	0.03	0.055	0.055	0.0959	0.19	0.19	0.3325
Angular acceleration		α	rad/s^2	17000	11000	11000	8000	6800	6800	4800	3600	3600	2800
Case volume		V	L	2	2.5	2.5	5	4	4	10	8	8	14
Weight	*single pump*	m	kg	39	53	53	88	102	102	184	207	207	320
Center of gravity to mounting flange		l_1	mm	120	140	140	170	180	180	210	220	220	230

NOTE: **(H)** parameters for high-speed version; **1)** n_E=1500 rpm for size 40~200 or n_E=1000 rpm for size 250~500; **2)** Δp_N=350 bar; **3)** Δp_E=100 bar; **4)** Up to 2000 rpm when equipped with charge pump.

Parameter \ Size	40	71	80	125	180	200	250(H)	355(H)	370	500(H)
 Axial force $F_{ax,\,max}$ N	600	800	800	1000	1400	1400	1800	2000	2000	2000
 *Radial force (at a/2)* $F_{q,\,max}$ N	1000	1200	1200	1600	2000	2000	2000	2200	2200	2500

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

◀ 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 explaination for K4VSO 125:

— When at maximum speed n_{max} = 1800 rpm, the corresponding maximum flow $Q_{V,max}$ = 225 L/min and maximum power P_{max} = 131 kW;

— When at nominal speed n_E

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	$\eta_t = \frac{Q_V \times p}{600 \times P_{Qv,\,max}} = \eta_V \times \eta_{mh}$	[%]
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]

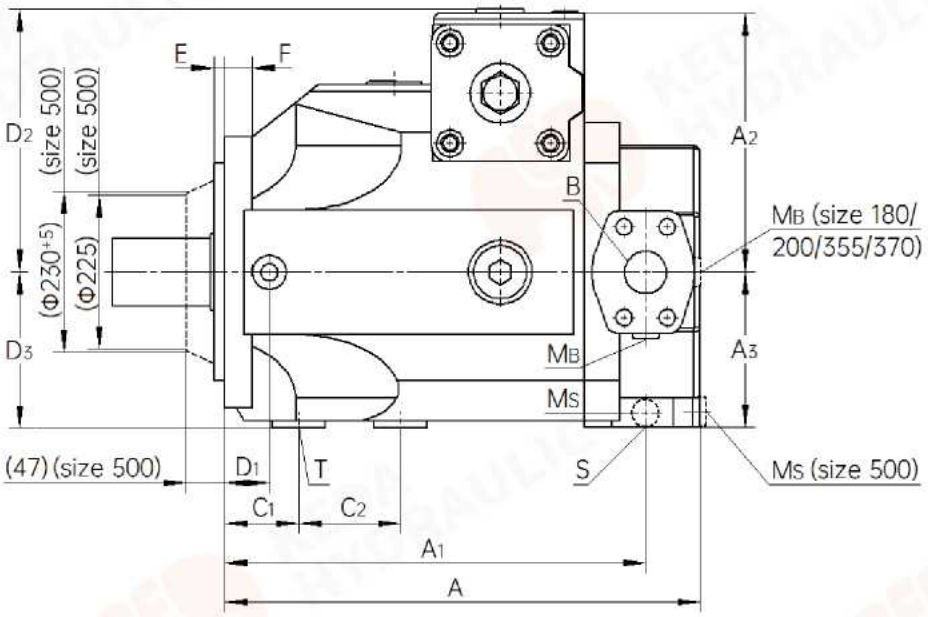
03 OPERATING MODE

K4VSO 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

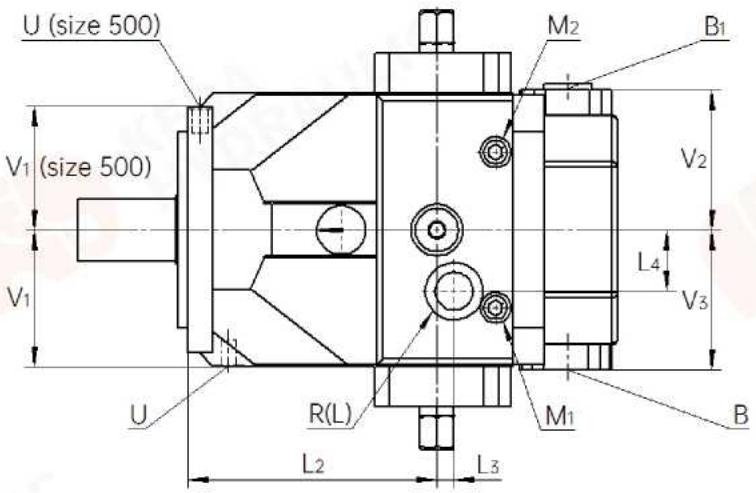
Following figures are about K4VSO pumps' dimensions of all sizes.

Fig. 1. RHSV (right hand side view)



Size / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
A	266	295	355	375	375	435	464	464	520
A_1	227	254	310	318	318	380	393	393	441
A_2	135	152	186	186	186	233	233	233	280
A_3	80	92.5	117.5	116	116	144	144	144	180
C_1	38	40	55	55	55	60	60	60	75
C_2	52	61	70	70	70	90	90	90	80
D_1	30	27	33	33	33	43	40	40	30
D_2	140	157	191	191	191	238	238	238	283
D_3	91	106	121	121	121	153	153	153	189
E	8	8	8	8	8	8	8	8	16
F	18	18	22	22	22	30	30	30	30
Suction S	1½"	2"	2½"	3"	3"	3"	4"	4"	5"
Working B	¾"	1"	1¼"	1¼"	1¼"	1½"	1½"	1½"	2"
Measure M_B/M_S	M14X1.5X12	M14X1.5X12	M14X1.5X12	M14X1.5X12	M14X1.5X12	M14X1.5X12	M14X1.5X12	M14X1.5X12	M18X1.5X12
Drain T	M22X1.5X14	M27X2X16	M33X2X18	M33X2X18	M33X2X18	M42X2X20	M42X2X20	M42X2X20	M48X2X22

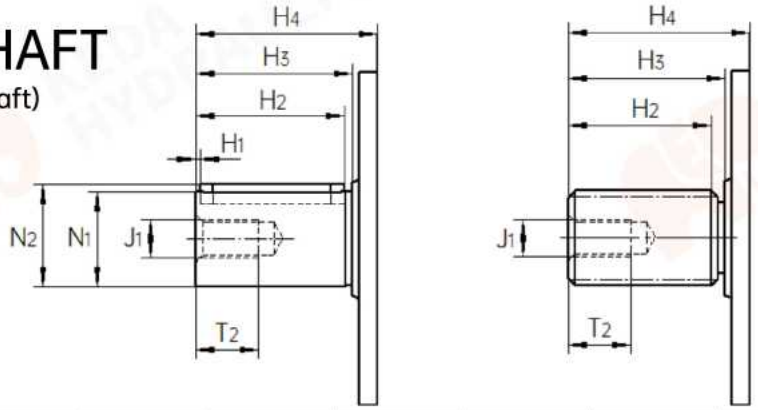
Fig. 2. PLAN



Size / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
L_2	144	166	203	203	203	248	248	248	279
L_3	25	27	14	14	14	17	17	17	50
L_4	30	34	50	50	50	55	55	55	50
V_1	79	92	112	112	112	144	144	144	189
V_2	80	92.5	112.5	120	120	144	148	148	158
V_3	80	92.5	112.5	120	120	144	148	148	158
Drain R(L)	M22X1.5X14	M27X2X16	M33X2X18	M33X2X18	M33X2X18	M42X2X20	M42X2X20	M42X2X20	M48X2X22
Flushing U	M14X1.5X12	M14X1.5X12	M14X1.5X12	M14X1.5X12	M14X1.5X12	M14X1.5X12	M18X1.5X12	M18X1.5X12	M18X1.5X12
Measure M_1/M_2	–	–	M14X1.5X12	M14X1.5X12	M14X1.5X12	M18X1.5X12	M18X1.5X12	M18X1.5X12	M18X1.5X12

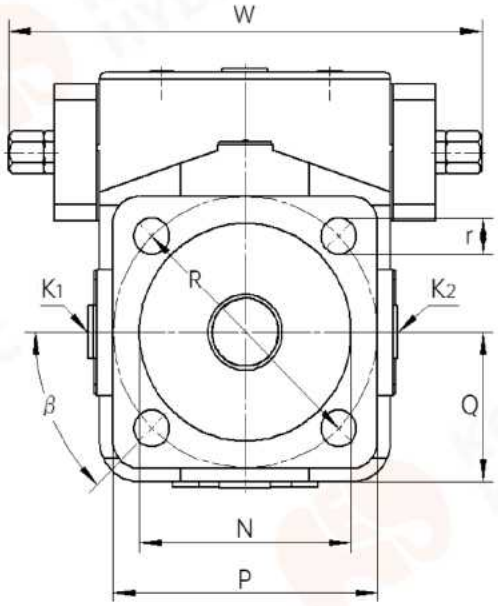
09 DRIVE SHAFT

(left: P shaft; right: Z shaft)



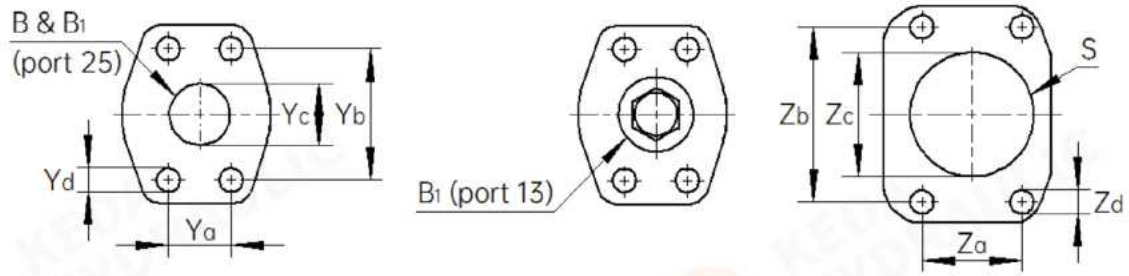
Size	K4VSO40		K4VSO71/80		K4VSO125		K4VSO180		K4VSO200		K4VSO250		K4VSO355		K4VSO370		K4VSO500	
Dimension	P	Z	P	Z	P	Z	P	Z	P	Z	P	Z	P	Z	P	Z	P	Z
H_1	1.5	–	1.5	–	1.5	–	1.5	–	1.5	–	3	–	4.5	–	4.5	–	3	–
H_2	57.5	28	69.5	37	81.5	45	81.5	45	81.5	45	103	59	104.5	69	104.5	69	128	76
H_3	58	36	70	45	82	54	82	54	82	54	105	70	105	82	105	82	130	90
H_4	68	46	80	55	92	64	92	64	92	64	115	80	115	92	115	92	180	140
T_2	22	22	28	28	36	36	36	36	36	36	42	42	42	42	42	42	42	42
J_1	M10	M10	M12	M12	M16	M16	M16	M16	M16	M16	M20	M20	M20	M20	M20	M20	M20	M20
N_1	$\Phi 32_{k6}$	–	$\Phi 40_{k6}$	–	$\Phi 50_{k6}$	–	$\Phi 50_{k6}$	–	$\Phi 50_{k6}$	–	$\Phi 60_{m6}$	–	$\Phi 70_{m6}$	–	$\Phi 70_{m6}$	–	$\Phi 80_{m6}$	–
N_2	35	–	43	–	53.5	–	53.5	–	53.5	–	64	–	74.5	–	74.5	–	85	–
Parallel key	A10X8X56		A12X8X68		A14X9X80		A14X9X80		A14X9X80		A18X11X100		A20X12X100		A20X12X100		A22X14X125	
Spline X9g	W32X2X14		W40X2X18		W50X2X24		W50X2X24		W50X2X24		W60X2X28		W70X3X22		W70X3X22		W80X3X25	

10 MOUNTING FLANGE



Size / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
β	45° (4-hole)	45° (4-hole)	45° (4-hole)	45° (4-hole)	45° (4-hole)	45° (4-hole)	45° (4-hole)	45° (4-hole)	22.5° (8-hole)
N	$\Phi125_{h8}$	$\Phi140_{h8}$	$\Phi160_{h8}$	$\Phi160_{h8}$	$\Phi160_{h8}$	$\Phi224_{h8}$	$\Phi224_{h8}$	$\Phi224_{h8}$	$\Phi315_{h8}$
P	□150	□170	□200	□200	□200	□265	□265	□265	□380
Q	85	97	114.5	114.5	114.5	145	144.5	144.5	190
R	Φ160	Φ180	Φ200	Φ200	Φ200	Φ280	Φ280	Φ280	Φ360
r	Φ15	Φ15	Φ20	Φ20	Φ20	Φ24	Φ24	Φ24	Φ24
W	260	298	354	354	354	424	424	424	510
Flushing K	M22X1.5X14	M27X2X16	M33X2X18	M33X2X18	M33X2X18	M42X2X20	M42X2X20	M42X2X20	M48X2X22

11 WORKING PORT



Size / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
Y_a	23.8	27.8	31.8	31.8	31.8	36.5	36.5	36.5	44.5
Y_b	50.8	57.2	66.7	66.7	66.7	79.4	79.4	79.4	96.8
Y_c	Φ20.5	Φ25	Φ31	Φ31	Φ31	Φ40	Φ40	Φ40	Φ50
Y_d	M10X17	M12X20	M14X19	M14X19	M14X19	M16X25	M16X25	M16X25	M20X24
B_1 (port 13)	M22X1.5X14	M27X2X16	M33X2X18	M33X2X18	M33X2X18	M42X2X20	M42X2X20	M42X2X20	Φ50
Z_a	35.7	42.9	50.8	61.9	61.9	61.9	77.8	77.8	92.1
Z_b	69.9	77.8	88.9	10.64	10.64	106.4	130.2	130.2	152.4
Z_c	Φ40	Φ50	Φ63	Φ75	Φ75	Φ75	Φ100	Φ100	Φ125
Z_d	M12X20	M12X20	M12X17	M16X24	M16X24	M16X24	M16X21	M16X21	M16X24

05 CONTROL DEVICE

K4VSO pumps can be equipped with various control devices, such as manual control MA, pressure control DR, flow control FR, power control LR, pilot-pressure related hydraulic control HD, control volume dependent hydraulic control HM, hydraulic control with proportional valve HS4, electric control EO2 and with pressure and flow controller DFE1Z, two-point control HFE and so forth.

1. MA – Manual control

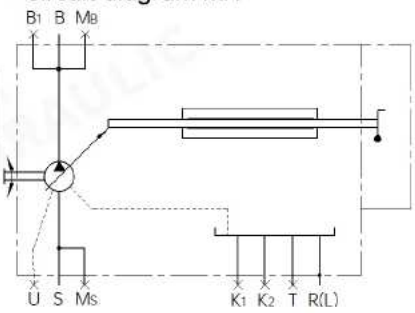
Infinite adjustment of displacement by means of a hand-wheel.

▼Availability for MA control of all sizes

Control \ Size	40	71	80	125	180	200	250	355	370	500
M A	●	●	●	●	●	●	●	●	●	○

NOTE: ● available; ○ upon request.

▼Circuit diagram MA



2. DR – Pressure control

The pressure controller **DR** limits the maximum pressure p_{max} at pump outlet within the control range 50~350 bar (default 350 bar) of variable pump. The variable pump only supplies as much hydraulic fluid as is required by the consumers. If the working pressure exceeds the pressure command value at pressure valve, the pump will regulate to smaller displacement to reduce the control differential. Initial position in depressurized state: $V_{g,\,max}$.

FR – Flow control

The flow controller **FR** adjusts the displacement of the pump to the volume required by the consumer. The flow of the pump is then dependent on cross section of the external metering orifice which is located between the pump and the consumer. The flow is nearly independent of the load pressure within the control range of the pump. Initial position in depressurized state: $V_{g,\,max}$. Possible setting ranges $V_{g,\,max}$ to 50% $V_{g,\,max}$.

D	Pressure
P	, for parallel operation
F	Flow
R	Controller
G	, remotely operated
1	

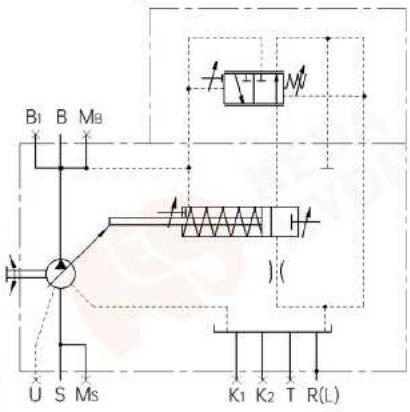
▼Availability for DR/FR control of all sizes

Control \ Size	40	71	80	125	180	200	250	355	370	500
D R	●	●	●	●	●	●	●	●	●	●
D R G	●	●	●	●	●	●	●	●	●	○
D P	●	●	●	●	●	●	●	●	●	○
D P F	–	–	–	●	●	●	●	●	●	–
F R	●	●	●	●	●	●	●	●	●	–
D F R	●	●	●	●	●	●	●	●	●	–
D F R 1	●	●	●	●	●	●	●	●	●	–

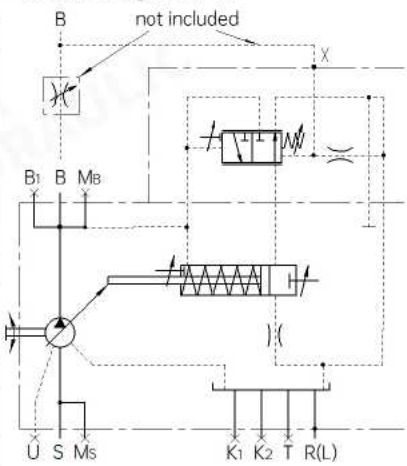
NOTE: ● available; ○ upon request; – unavailable.

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

▼Circuit diagram DR



▼Circuit diagram FR

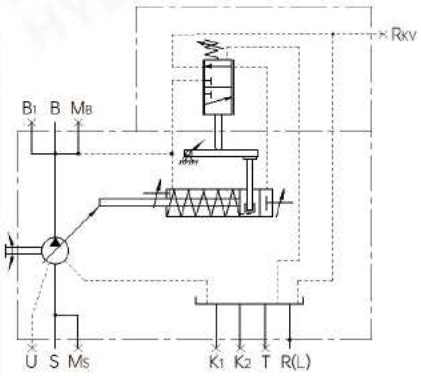


3. LR – Power control

The power controller **LR** adjusts the displacement of the pump according to working pressure, keeps specified drive power constant at same drive speed.

L R				Power controller
	2			
	3			
		D		, plus pressure control
		G		, plus remote pressure control
			F	, plus flow control
			H	, with hydraulic stroke limiter
			N	, with pilot-pressure related hydraulic stroke limiter
			Z	, with hydraulic two-point control
			Y	, with electric unloading valve as starting aid
			E	, plus electric proportional flow control
			S	, with a mounted load sensor

▼Circuit diagram LR



▼Availability for LR control of all sizes

Control \ Size	40	71	80	125	180	200	250	355	370	500
L R 2	●	●	●	●	●	●	●	●	●	○
L R 2 F	●	●	●	●	●	●	●	●	●	–
L R 2 H	●	●	●	●	●	●	●	●	●	○
L R 2 N	●	●	●	●	●	●	●	●	●	○
L R 2 Z	●	●	●	●	●	●	●	●	●	○
L R 2 Y	●	●	●	●	●	●	●	●	●	○
L R 2 S	●	●	●	●	●	●	●	●	●	–
L R 2 D	●	●	●	●	●	●	●	●	●	○
L R 2 D F	●	●	●	●	●	●	●	●	●	○
L R 2 D N	●	●	●	●	●	●	●	●	●	○
L R 2 D E	●	●	●	●	●	●	●	●	●	○
L R 2 G	●	●	●	●	●	●	●	●	●	○
L R 2 G F	●	●	●	●	●	●	●	●	●	○
L R 2 G N	●	●	●	●	●	●	●	●	●	○
L R 3	●	●	●	●	●	●	●	●	●	○

NOTE: ● available; ○ upon request; – unavailable; ■ preferred.

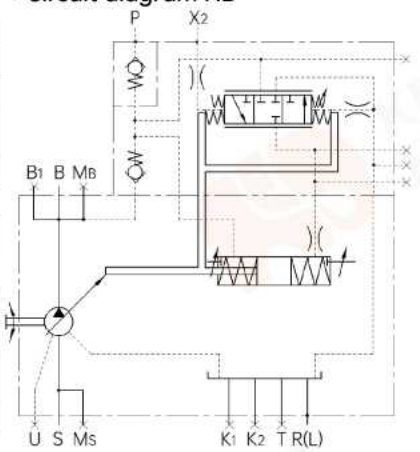
For example, **LR2DE** means "hyperbolic power control plus pressure control and electric proportional flow control".

4. HD – Pilot-pressure related hydraulic control

Infinite adjustment of displacement proportional to specified pilot-pressure.

H D			Pilot-pressure related hydraulic control
	1		, with 10~45 bar pilot-pressure
	2		, with 10~28 bar pilot-pressure
		D	
		T	, with electric controlled pilot-pressure

▼Circuit diagram HD



▼Availability for HD control of all sizes

Control \ Size	40	71	80	125	180	200	250	355	370	500
H D 1	○	○	○	●	●	●	●	●	●	●
H D 1 D	○	○	○	●	●	●	●	●	●	○
H D 1 T	○	○	○	●	●	●	●	●	●	○
H D 2	○	○	○	●	●	●	●	●	●	●

NOTE: ● available; ○ upon request.

For example, **HD1T** means "electric controlled pilot-pressure related hydraulic control, with 10~45 bar pilot-pressure".

5. HM – Control volume dependent hydraulic control

The pump displacement can be infinitely varied in relation to the control oil volume in ports X_1 and X_2. Can be applied in two-point circuit or servo control.

HS4 – Hydraulic control with proportional valve

Infinite adjustment of displacement by means of a proportional valve and electrical feedback of the swivel angle.

EO2 – Electric control

Infinite adjustment of displacement by means of a proportional valve and electrical feedback of the swivel angle. The control can be used as an electric displacement control.

H				Hydraulic controller
E O				
	M			, control volume dependent
	S			, with servo valve and proportional amplifier KD-SR7-1X*
		2		, minimum control pressure 50/100/125 bar
		4		, with proportional valve instead of servo valve, amplifier VT-VPCD-1X* for pressure and power control
			E	, without valve when delivered
			K	, with short circuit valve when delivered

NOTE: * not included, must be ordered separately.

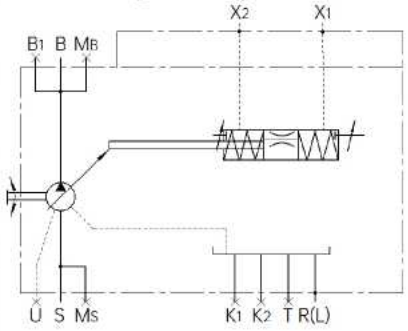
▼Availability for HM/HS4/EO2 control of all sizes

Control				Size 40	71	80	125	180	200	250	355	370	500
H	M	2		●	●	●	●	●	●	●	●	●	●
H	S	4		●	●	●	●	●	●	●	●	●	○
H	S	4	E	●	●	●	●	●	●	●	●	●	●
E O		2		●	●	●	●	●	●	●	●	●	●
E O		2	E	●	●	●	●	●	●	●	●	●	●
E O		2	K	●	●	●	●	●	●	●	●	●	●

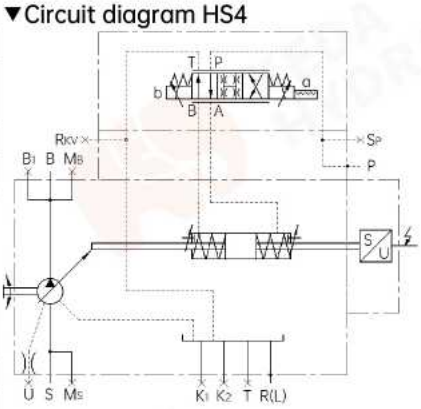
NOTE: ● available; ○ upon request.

For example, **HS4E** means "hydraulic control with proportional valve instead of servo valve, amplifier VT-VPCD-1X for pressure and power control, without valve when delivered"; **EO2K** means "electric control with proportional amplifier KD-5035M, minimum control pressure 50/100/125 bar, with short circuit valve when delivered.

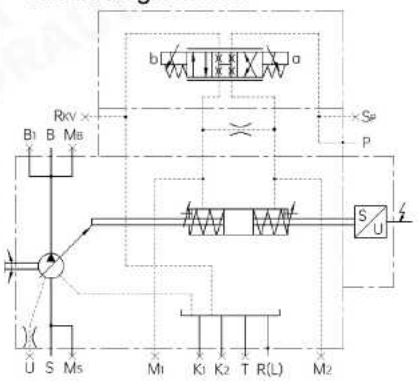
▼Circuit diagram HM



▼Circuit diagram HS4



▼Circuit diagram EO2



6. DFE1Z – Electric control with pressure and flow controller

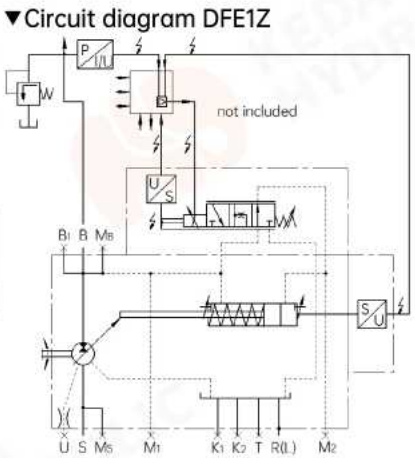
An electrically actuated proportional valve controls the power, pressure and swivel angle of the variable pump. Proportional valve's current determines the position of swash-plate between 0°~+15° and thus the flow of the pump. When the electric motor is switched off and actuator system is depressurized, the pump swivels to maximum displacement $V_{g,max}$ via spring force.

▼Availability for DFE1Z control of all sizes

Control		Size 40	71	80	125	180	200	250	355	370	500
D F E 1	Z	○	○	○	●	●	●	●	●	●	○

NOTE: ● available; ○ upon request.

▼Circuit diagram DFE1Z



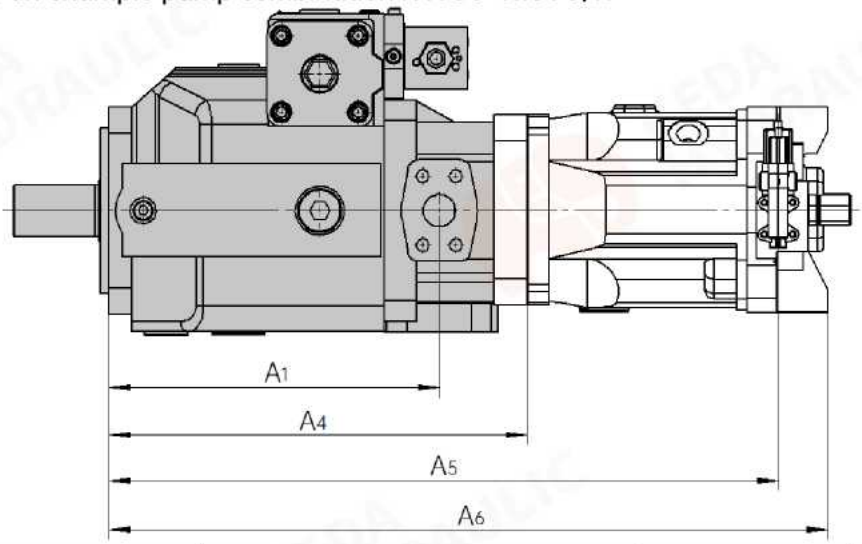
COMBINATION PUMP

K4VSO pump can be combined with K10VO, K4VSO or other type of pumps. A tandem pump with two pumps of equal size is permissible. Please specify the designations for the 1st and the 2nd pumps and join by a "+" when ordering. Order example:

K4VS O 250 DR / 20 R – P P B 13 K34 + K4VS O 180 DR / 20 R – P P B 13 N00

The first row of following table refers to the 1st pump (P). For informations about the through-drives (TD), see part 12.

1. Dimensions of an example pump combination K4VSO+K10VO/11

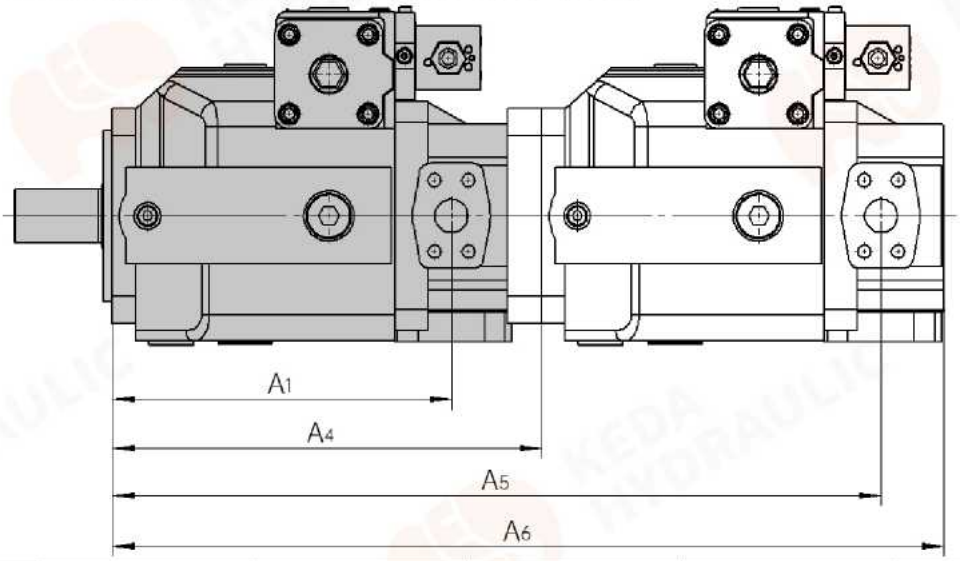


1st P / +2nd P	TD	K4VSO40				K4VSO71				K4VSO80				K4VSO125				K4VSO180			
		A1	A4	A5	A6	A1	A4	A5	A6	A1	A4	A5	A6	A1	A4	A5	A6	A1	A4	A5	A6
K10VO18	K52 KB2	227	263 △	408 △	458	254	315 291	460 436	486	254	315 291	460 436	486	310	△	△	564	318	△	△	588
K10VO28	K68 KB3	227	290	454	496	254	322 291	486 455	497	254	322 291	486 455	497	310	369	533	575	318	393	557	599
K10VO45	K04 KB4	227	290	474	514	254	322 316	506 500	540	254	322 316	506 500	540	310	369	553	593	318	393	577	617
K10VO71	K07 KB5	–	–	–	–	254	321	538	580	254	321	538	580	310	369	586	628	318	393	610	652
K10VO100	K24 KB6	–	–	–	–	–	–	–	–	–	–	–	–	310	369 △	644 △	698	318	393 △	668 △	722
K10VO140	K17 KB7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	318	406	681	744

1st P / +2nd P	TD	K4VSO200				K4VSO250				K4VSO355				K4VSO370				K4VSO500			
		A1	A4	A5	A6	A1	A4	A5	A6	A1	A4	A5	A6	A1	A4	A5	A6	A1	A4	A5	A6
K10VO18	K52 KB2	318	△	△	588	380	△	△	648	393	△	△	△	393	△	△	△	441	△	△	700
K10VO28	K68 KB3	318	393	557	599	380	453 △	617 △	659	393	482 △	646 △	△	393	482 △	646 △	△	441	505 △	669 △	711
K10VO45	K04 KB4	318	393	577	617	380	453	637	677	393	482	666	706	393	482	666	706	441	505	689	729
K10VO71	K07 KB5	318	393	610	652	380	453	670	712	393	482	699	741	393	482	699	741	441	△	△	764
K10VO100	K24 KB6	318	393 △	668 △	722	380	453 △	728 △	782	393	482 △	757 △	△	393	482 △	757 △	△	441	505 △	780 △	857
K10VO140	K17 KB7	318	406	681	744	380	453	728	791	393	482	757	820	393	482	757	820	441	505 530	780 805	868

NOTE: – unavailable; △ pending.

2. Dimensions of an example pump combination K4VSO+K4VSO



1st P / +2nd P	TD	K4VSO40				K4VSO71				K4VSO80				K4VSO125				K4VSO180			
		A1	A4	A5	A6	A1	A4	A5	A6	A1	A4	A5	A6	A1	A4	A5	A6	A1	A4	A5	A6
K4VSO40	K31	227	288	515	554	254	316	543	582	254	316	543	582	310	369	596	635	318	393	620	659
K4VSO71	K33	–	–	–	–	254	316	570	611	254	316	570	611	310	369	623	664	318	393	647	688
K4VSO80	K33	–	–	–	–	–	–	–	–	254	316	570	611	310	369	623	664	318	393	647	688
K4VSO125	K34	–	–	–	–	–	–	–	–	–	–	–	–	310	369	679	724	318	393	703	748
K4VSO180	K34	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	318	393	711	768
1st P / +2nd P	TD	K4VSO200				K4VSO250				K4VSO355				K4VSO370				K4VSO500			
		A1	A4	A5	A6	A1	A4	A5	A6	A1	A4	A5	A6	A1	A4	A5	A6	A1	A4	A5	A6
K4VSO40	K31	318	393	620	659	380	453	680	719	393	482	709	748	393	482	709	748	441	505	732	771
K4VSO71	K33	318	393	647	688	380	453	707	748	393	482	736	777	393	482	736	777	441	505	759	800
K4VSO80	K33	318	393	647	688	380	453	707	748	393	482	736	777	393	482	736	777	441	505	759	800
K4VSO125	K34	318	393	703	748	380	453	763	808	393	482	792	837	393	482	792	837	441	505	815	860
K4VSO180	K34	318	393	711	768	380	453	771	828	393	482	800	857	393	482	800	857	441	505	823	880
K4VSO200	K34	318	393	711	768	380	453	771	828	393	482	800	857	393	482	800	857	441	505	823	880
K4VSO250	K35	–	–	–	–	380	469	849	904	393	498	878	933	393	498	878	933	441	541	921	976
K4VSO355	K77	–	–	–	–	–	–	–	–	393	498	891	962	393	498	891	962	441	541	934	1005
K4VSO370	K77	–	–	–	–	–	–	–	–	–	–	–	–	393	498	891	962	441	541	934	1005
K4VSO500	K43	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	441	590	1031	1110

NOTE: – unavailable.

3. For dimensions of K4VSO+other type of pumps, such as a gear pump or radial piston pump, please contact us for further information before ordering.

12 THROUGH-DRIVE

K4VSO pump can be combined with K10VO, K4VSO or other type of 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.

1. Available through-drives for K4VSO+K10VO

1st P	K4VSO40			K4VSO71 / 80				K4VSO125					K4VSO180						K4VSO200					
TD +	18	28	45	18	28	45	71	18	28	45	71	100	18	28	45	71	100	140	18	28	45	71	100	140
K52	●	–	–	●	–	–	–	○	–	–	–	–	○	–	–	–	–	–	○	–	–	–	–	–
K68	–	●	–	–	●	–	–	–	●	–	–	–	–	●	–	–	–	–	–	●	–	–	–	–
K04	–	–	●	–	–	●	–	–	–	●	–	–	–	–	●	–	–	–	–	–	●	–	–	–
K07	–	–	–	–	–	–	●	–	–	–	●	–	–	–	–	●	–	–	–	–	–	●	–	–
K24	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	●	–	–	–	–	–	●	–
K17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●
KB2	○	–	–	●	–	–	–	○	–	–	–	–	○	–	–	–	–	–	○	–	–	–	–	–
KB3	–	●	–	–	●	–	–	–	●	–	–	–	–	●	–	–	–	–	–	●	–	–	–	–
KB4	–	–	●	–	–	●	–	–	–	●	–	–	–	–	●	–	–	–	–	–	●	–	–	–
KB5	–	–	–	–	–	–	●	–	–	–	●	–	–	–	–	●	–	–	–	–	–	●	–	–
KB6	–	–	–	–	–	–	–	–	–	–	–	○	–	–	–	–	○	–	–	–	–	–	○	–
KB7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●

NOTE: ● available; ○ upon request; – unavailable.

1st P	K4VSO250						K4VSO355						K4VSO370						K4VSO500					
TD +	18	28	45	71	100	140	18	28	45	71	100	140	18	28	45	71	100	140	18	28	45	71	100	140
K52	○	–	–	–	–	–	○	–	–	–	–	–	○	–	–	–	–	–	○	–	–	–	–	–
K68	–	●	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–	–
K04	–	–	●	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
K07	–	–	–	●	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–	–	–	●	–	–
K24	–	–	–	–	●	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–	–	–	●	–
K17	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–	–	–	●
KB2	○	–	–	–	–	–	○	–	–	–	–	–	○	–	–	–	–	–	○	–	–	–	–	–
KB3	–	○	–	–	–	–	–	○	–	–	–	–	–	○	–	–	–	–	–	○	–	–	–	–
KB4	–	–	●	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
KB5	–	–	–	●	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–	–	–	●	–	–
KB6	–	–	–	–	○	–	–	–	–	–	○	–	–	–	–	–	○	–	–	–	–	–	○	–
KB7	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–	–	–	●

NOTE: ● available; ○ upon request; – unavailable.

2. Available through-drives for K4VSO+K4VSO

1st P	40	71		K4VSO80			K4VSO125				K4VSO180					K4VSO200						K4VSO250						
TD +	40	40	71	40	71	80	40	71	80	125	40	71	80	125	180	40	71	80	125	180	200	40	71	80	125	180	200	250
K31	●	●	–	●	–	–	●	–	–	–	●	–	–	–	–	●	–	–	–	–	–	●	–	–	–	–	–	–
K33	–	–	●	–	●	●	–	●	●	–	–	●	●	–	–	–	●	●	–	–	–	–	●	●	–	–	–	–
K34	–	–	–	–	–	–	–	–	–	●	–	–	–	●	●	–	–	–	●	●	●	–	–	–	●	●	●	–
K35	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●

NOTE: ● available; – unavailable.

1st P / TD +	K4VSO355								K4VSO370									K4VSO500									
	40	71	80	125	180	200	250	355	40	71	80	125	180	200	250	355	370	40	71	80	125	180	200	250	355	370	500
K31	●	–	–	–	–	–	–	–	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	–	–	–	–
K33	–	●	●	–	–	–	–	–	–	●	●	–	–	–	–	–	–	–	●	●	–	–	–	–	–	–	–
K34	–	–	–	●	●	●	–	–	–	–	–	●	●	●	–	–	–	–	–	–	●	●	●	–	–	–	–
K35	–	–	–	–	–	–	●	–	–	–	–	–	–	–	●	–	–	–	–	–	–	–	–	●	–	–	–
K77	–	–	–	–	–	–	–	●	–	–	–	–	–	–	–	●	●	–	–	–	–	–	–	–	●	●	–
K43	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●

NOTE: ● available; – unavailable.

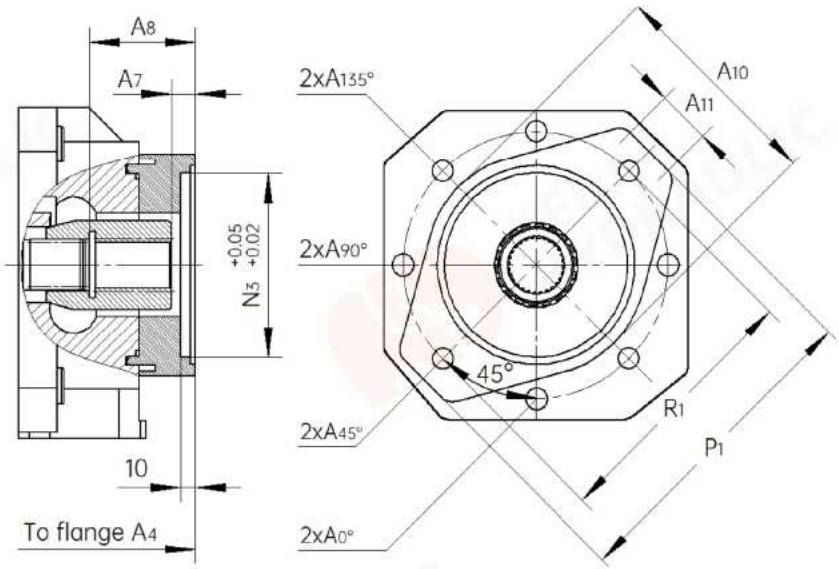
3. Available through-drives for K4VSO+other type of pumps

1st P / TD +	K4VSO40	K4VSO71	K4VSO80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
	other	other	other	other	other	other	other	other	other	other
K99	●	●	●	●	●	●	●	●	●	●
K01	●	●	●	●	●	●	●	●	●	●
K57	●	●	●	○	○	○	○	○	○	○

NOTE: ● available; ○ upon request.

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

4.



Code K01 (2nd pump gear pump F series 4~22; 2nd pump's flange ISO 3019-1 – 82-2)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55
	263	291	369	393	393	453	482	482	505
	10.3	10.3	16	16	16	16	16	16	10.3
	36.2	34.9	35.4	35.4	35.4	35.4	35.4	35.4	43
	–	–	M10	M10	M10	M10	M10	M10	–
	M10	–	M10	M10	M10	M10	M10	M10	M10
	M10	M10	M10	M10	M10	M10	M10	M10	M10
	95	95	95	95	95	95	95	95	95
	18	18	18	18	18	18	18	18	18
	106.5	106.5	106.5	106.5	106.5	106.5	106.5	106.5	106.5
	130	130	130	130	130	130	130	130	130
Hub X8H	N25X1.25X18	N30X1.25X22	N35X1.25X26	N35X1.25X26	N35X1.25X26	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	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

Code K52 (2nd pump K10VO18; 2nd pump's flange ISO 3019-1 – 82-2)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55	Φ82.55
A_4	263	315	△	△	△	△	△	△	△
A_7	10.5	10.5	△	△	△	△	△	△	△
A_8	44.3	40.5	△	△	△	△	△	△	△
$A_{45°}$	M10	M10	△	△	△	△	△	△	△
$A_{90°}$	M10	M10	M10	M10	M10	M10	M10	M10	M10
A_{10}	95	95	95	95	95	95	95	95	95
A_{11}	18	18	18	18	18	18	18	18	18
R_1	106.4	106.4	106.4	106.4	106.4	106.4	106.4	106.4	106.4
P_1	130	130	130	130	130	130	130	130	130
HubX8H	N25X1.25X18	N30X1.25X22	N35X1.25X26	N35X1.25X26	N35X1.25X26	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	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: △ pending.

Code KB2 (2nd pump K10VO18; 2nd pump's flange ISO 3019-2 – 80A2HW)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3	Φ80	Φ80	Φ80	Φ80	Φ80	Φ80	Φ80	Φ80	Φ80
A_4	△	291	△	△	△	△	△	△	△
A_7	△	21.5	△	△	△	△	△	△	△
A_8	△	40.5	△	△	△	△	△	△	△
$A_{45°}$	M10	M10	M10	M10	M10	M10	M10	M10	M10
A_{10}	100	100	100	100	100	100	100	100	100
A_{11}	18	18	18	18	18	18	18	18	18
R_1	109	109	109	109	109	109	109	109	109
P_1	133	133	133	133	133	133	133	133	133
HubX8H	N25X1.25X18	N30X1.25X22	N35X1.25X26	N35X1.25X26	N35X1.25X26	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	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: △ pending.

Code K68 (2nd pump K10VO28; 2nd pump's flange ISO 3019-1 – 101-2)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6
A_4	290	322	369	393	393	453	482	482	505
A_7	20.4	10.4	28	28	28	19.5	19.5	19.5	19.5
A_8	43.5	45.5	53	53	53	42.1	42.1	42.1	44.5
$A_{0°}$	–	–	M12	M12	M12	M12	M12	M12	M12
$A_{45°}$	M12	M12	M12	M12	M12	M12	M12	M12	M12
$A_{90°}$	M12	M12	M12	M12	M12	M12	M12	M12	M12
$A_{135°}$	–	–	M12	M12	M12	–	–	–	–
A_{10}	120	120	120	120	120	120	120	120	120
A_{11}	25	25	25	25	25	25	25	25	25
R_1	146	146	146	146	146	146	146	146	146
P_1	174	174	174	174	174	174	174	174	174
HubX8H	N25X1.25X18	N30X1.25X22	N35X1.25X26	N35X1.25X26	N35X1.25X26	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	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	⅞"–13T-16/32

NOTE: – unavailable.

Code KB3 (2nd pump K10VO28; 2nd pump's flange ISO 3019-2 – 100A2HW)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3	Φ100	Φ100	Φ100	Φ100	Φ100	Φ100	Φ100	Φ100	Φ100
A_4	290	291	369	393	393	△	△	△	△
A_7	20.3	20.4	20.5	20.5	20.5	△	△	△	△
A_8	43.3	43.4	45.4	45.4	45.4	△	△	△	△
$A_{45°}$	M12	M12	M12	M12	M12	M12	M12	M12	M12
A_{10}	125	125	125	125	125	125	125	125	125
A_{11}	20	20	20	20	20	20	20	20	20
R_1	140	140	140	140	140	140	140	140	140
P_1	168	168	168	168	168	168	168	168	168
HubX8H	N25X1.25X18	N30X1.25X22	N35X1.25X26	N35X1.25X26	N35X1.25X26	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	7/8"-13T-16/32	7/8"-13T-16/32	7/8"-13T-16/32	7/8"-13T-16/32	7/8"-13T-16/32	7/8"-13T-16/32	7/8"-13T-16/32	7/8"-13T-16/32	7/8"-13T-16/32

NOTE: △ pending.

Code K04 (2nd pump K10VSO45; 2nd pump's flange ISO 3019-1 – 101-2)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6	Φ101.6
A_4	290	322	369	393	393	453	482	482	505
A_7	10.4	10.3	18.9	18.9	18.9	18.9	18.9	18.9	10.3
A_8	48.3	46	48.3	48.3	48.3	48.3	48.3	48.3	39.2
$A_{45°}$	M12	M12	M12	M12	M12	M12	M12	M12	M12
$A_{90°}$	M12	M12	M12	M12	M12	M12	M12	M12	M12
$A_{135°}$	–	–	M12	M12	M12	–	–	–	–
A_{10}	120	120	120	120	120	120	120	120	120
A_{11}	25	25	25	25	25	25	25	25	25
R_1	146	146	146	146	146	146	146	146	146
P_1	174	174	174	174	174	174	174	174	174
HubX8H	N25X1.25X18	N30X1.25X22	N35X1.25X26	N35X1.25X26	N35X1.25X26	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	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	1"-15T-16/32	1"-15T-16/32

NOTE: – unavailable.

Code KB4 (2nd pump K10VO45; 2nd pump's flange ISO 3019-2 – 100A2HW)

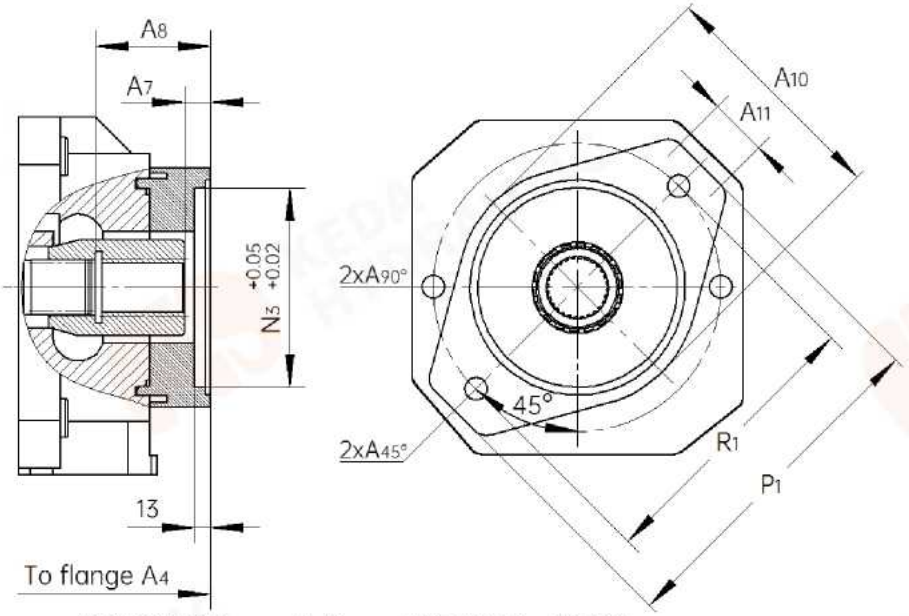
1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3	Φ100	Φ100	Φ100	Φ100	Φ100	Φ100	Φ100	Φ100	Φ100
A_4	290	316	369	393	393	453	482	482	505
A_7	20.8	20.8	18.9	18.9	18.9	20.9	20.9	20.9	20.4
A_8	48.3	48.3	48.4	48.4	48.4	50.4	50.4	50.4	49.3
$A_{45°}$	M12	M12	M12	M12	M12	M12	M12	M12	M12
A_{10}	125	125	125	125	125	125	125	125	125
A_{11}	20	20	20	20	20	20	20	20	20
R_1	140	140	140	140	140	140	140	140	140
P_1	168	168	168	168	168	168	168	168	168
HubX8H	N25X1.25X18	N30X1.25X22	N35X1.25X26	N35X1.25X26	N35X1.25X26	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	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	1"-15T-16/32	1"-15T-16/32

Code KB5 (2nd pump K10VO71; 2nd pump's flange ISO 3019-2 – 125A2HW)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3	–	Φ125	Φ125	Φ125	Φ125	Φ125	Φ125	Φ125	Φ125
A_4	–	321	369	393	393	453	482	482	△
A_7	–	23	20	20	20	20.9	20.9	20.9	△
A_8	–	61	58	58	58	58.8	58.8	58.8	△
$A_{45°}$	–	M16	M16	M16	M16	M16	M16	M16	M16
$A_{90°}$	–	–	M16	M16	M16	M16	M16	M16	–
A_{10}	–	150	150	150	150	150	150	150	150
A_{11}	–	24	24	24	24	24	24	24	24
R_1	–	180	180	180	180	180	180	180	180
P_1	–	216	216	216	216	216	216	216	216
HubX8H	–	N30X1.25X22	N35X1.25X26	N35X1.25X26	N35X1.25X26	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	–	1¼"-14T-12/24	1¼"-14T-12/24	1¼"-14T-12/24	1¼"-14T-12/24	1¼"-14T-12/24	1¼"-14T-12/24	1¼"-14T-12/24	1¼"-14T-12/24

NOTE: – unavailable; △ pending.

5.



Code K07 (2nd pump K10VO71; 2nd pump's flange ISO 3019-1 – 127-2)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3	–	Φ127	Φ127	Φ127	Φ127	Φ127	Φ127	Φ127	Φ127
A_4	–	321	369	393	393	453	482	482	505
A_7	–	10.4	20.9	20.9	20.9	20.9	20.9	20.9	11.3
A_8	–	58	58.8	58.8	58.8	58.8	58.8	58.8	51.5
$A_{45°}$	–	M16	M16	M16	M16	M16	M16	M16	M16
$A_{90°}$	–	–	M16	M16	M16	M16	M16	M16	–
A_{10}	–	148	148	148	148	148	148	148	148
A_{11}	–	31	31	31	31	31	31	31	31
R_1	–	181	181	181	181	181	181	181	181
P_1	–	213	213	213	213	213	213	213	213
HubX8H	–	N30X1.25X22	N35X1.25X26	N35X1.25X26	N35X1.25X26	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	–	1¼"-14T-12/24	1¼"-14T-12/24	1¼"-14T-12/24	1¼"-14T-12/24	1¼"-14T-12/24	1¼"-14T-12/24	1¼"-14T-12/24	1¼"-14T-12/24

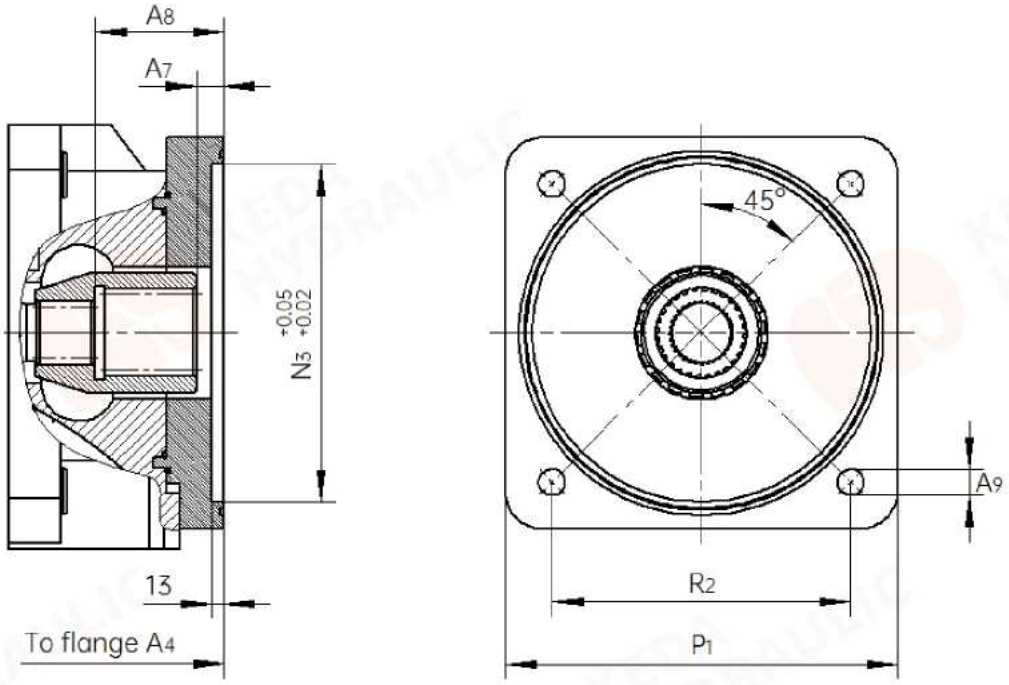
NOTE: – unavailable.

Code K24 (2nd pump K10VO100; 2nd pump's flange ISO 3019-1 – 127-2)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3	–	–	Φ127	Φ127	Φ127	Φ127	Φ127	Φ127	Φ127
A_4	–	–	369	393	393	453	482	482	505
A_7	–	–	10.4	10.4	10.4	12.4	12.4	12.4	10.3
A_8	–	–	60.4	60.4	60.4	62.4	62.4	62.4	66.9
$A_{45°}$	–	–	M16	M16	M16	M16	M16	M16	–
$A_{90°}$	–	–	M16	M16	M16	M16	M16	M16	M16
A_{10}	–	–	148	148	148	148	148	148	148
A_{11}	–	–	31	31	31	31	31	31	31
R_1	–	–	181	181	181	181	181	181	181
P_1	–	–	213	213	213	213	213	213	213
HubX8H	–	–	N35X1.25X26	N35X1.25X26	N35X1.25X26	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	–	–	1½"–17T-12/24	1½"–17T-12/24	1½"–17T-12/24	1½"–17T-12/24	1½"–17T-12/24	1½"–17T-12/24	1½"–17T-12/24

NOTE: – unavailable.

6.

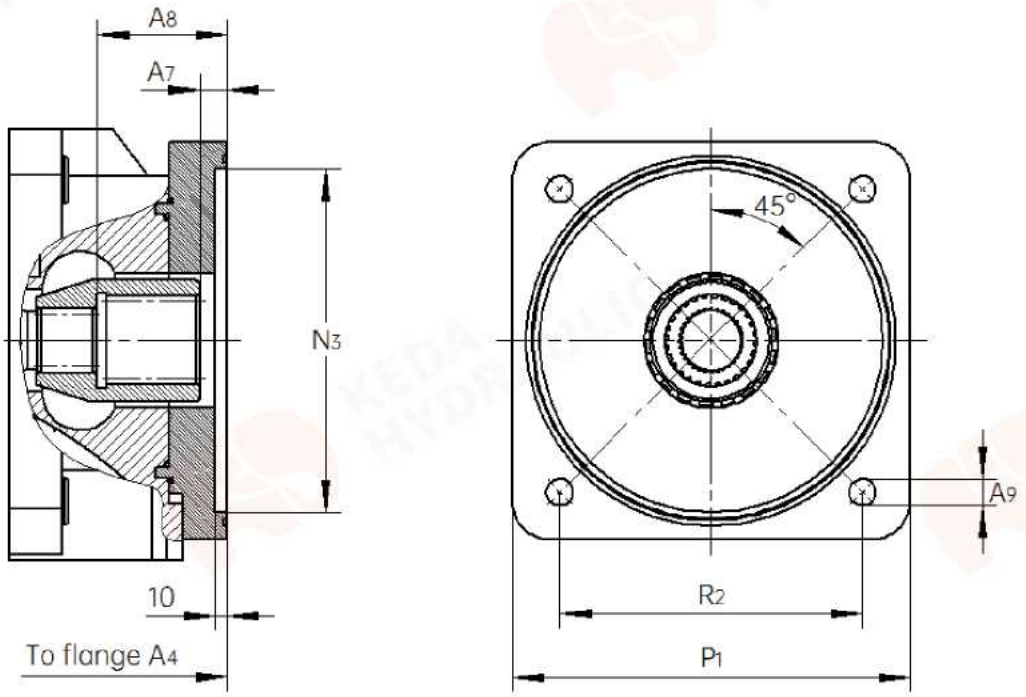


Code K17 (2nd pump K10VO140; 2nd pump's flange ISO 3019-1 – 152-4)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3	–	–	–	Φ152.4	Φ152.4	Φ152.4	Φ152.4	Φ152.4	Φ152.4
A_4	–	–	–	406	406	453	482	482	505
A_7	–	–	–	10.4	10.4	10.6	10.6	10.6	10.4
A_8	–	–	–	72.4	72.4	72.6	72.6	72.6	70
A_9	–	–	–	M16	M16	M16	M16	M16	M16
R_2	–	–	–	161.6	161.6	161.6	161.6	161.6	161.6
P_1	–	–	–	199.6	199.6	199.6	199.6	199.6	199.6
HubX8H	–	–	–	N35X1.25X26	N35X1.25X26	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	–	–	–	1¾"–13T-8/16	1¾"–13T-8/16	1¾"–13T-8/16	1¾"–13T-8/16	1¾"–13T-8/16	1¾"–13T-8/16

NOTE: – unavailable.

7.



Code KB7 (2nd pump K10VO140; 2nd pump's flange ISO 3019-2 – 180B4HW)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3 $^{+0.07}_{+0.02}$	–	–	–	Φ180	Φ180	Φ180	Φ180	Φ180	Φ180
A_4	–	–	–	406	406	453	482	482	505
A_7	–	–	–	10.6	10.6	10.6	10.6	10.6	10.4
A_8	–	–	–	72.6	72.6	74.6	74.6	74.6	74
A_9	–	–	–	M16	M16	M16	M16	M16	M16
R_2	–	–	–	158.4	158.4	158.4	158.4	158.4	158.4
P_1	–	–	–	212	212	212	212	212	212
HubX8H	–	–	–	N35X1.25X26	N35X1.25X26	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	–	–	–	1¾"–13T-8/16	1¾"–13T-8/16	1¾"–13T-8/16	1¾"–13T-8/16	1¾"–13T-8/16	1¾"–13T-8/16

NOTE: – unavailable.

Code K31 (2nd pump K4VSO40; 2nd pump's flange ISO 3019-2 – 125B4HW)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3 $^{+0.07}_{+0.02}$	Φ125	Φ125	Φ125	Φ125	Φ125	Φ125	Φ125	Φ125	Φ125
A_4	288	316	369	393	393	453	482	482	505
A_7	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
A_8	52.5	46.1	48.1	48.1	48.1	50.5	50.5	50.5	51
A_9	M12	M12	M12	M12	M12	M12	M12	M12	M12
R_2	113.2	113.2	113.2	113.2	113.2	113.2	113.2	113.2	113.2
P_1	150	150	150	150	150	150	150	150	150
HubX8H	N25X1.25X18	N30X1.25X22	N35X1.25X26	N35X1.25X26	N35X1.25X26	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	N32X2X14	N32X2X14	N32X2X14	N32X2X14	N32X2X14	N32X2X14	N32X2X14	N32X2X14	N32X2X14

Code K33 (2nd pump K4VSO71/80; 2nd pump's flange ISO 3019-2 – 140B4HW)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3 $^{+0.07}_{+0.02}$	–	Φ140	Φ140	Φ140	Φ140	Φ140	Φ140	Φ140	Φ140
A_4	–	316	369	393	393	453	482	482	505
A_7	–	11.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
A_8	–	54.3	56.3	56.3	56.3	61.4	60.5	60.5	69.5
A_9	–	M12	M12	M12	M12	M12	M12	M12	M12
R_2	–	127.3	127.3	127.3	127.3	127.3	127.3	127.3	127.3
P_1	–	170	170	170	170	170	170	170	170
HubX8H	–	N30X1.25X22	N35X1.25X26	N35X1.25X26	N35X1.25X26	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	–	N40X2X18	N40X2X18	N40X2X18	N40X2X18	N40X2X18	N40X2X18	N40X2X18	N40X2X18

NOTE: – unavailable.

Code K34 (2nd pump K4VSO125/180/200; 2nd pump's flange ISO 3019-2 – 160B4HW)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3 $^{+0.07}_{+0.02}$	–	–	Φ160	Φ160	Φ160	Φ160	Φ160	Φ160	Φ160
A_4	–	–	369	393	393	453	482	482	505
A_7	–	–	12.5	12.5	12.5	12.5	12.5	12.5	13.5
A_8	–	–	64.1	64.1	64.1	66.5	66.5	66.5	68
A_9	–	–	M16	M16	M16	M16	M16	M16	M16
R_2	–	–	141.4	141.4	141.4	141.4	141.4	141.4	141.4
P_1	–	–	190	190	190	190	190	190	190
HubX8H	–	–	N35X1.25X26	N35X1.25X26	N35X1.25X26	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	–	–	N50X2X24	N50X2X24	N50X2X24	N50X2X24	N50X2X24	N50X2X24	N50X2X24

NOTE: – unavailable.

Code K35 (2nd pump K4VSO250; 2nd pump's flange ISO 3019-2 – 224B4HW)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3 $^{+0.10}_{+0.03}$	–	–	–	–	–	Φ224	Φ224	Φ224	Φ224
A_4	–	–	–	–	–	469	498	498	541
A_7	–	–	–	–	–	12.5	12.5	12.5	12.5
A_8	–	–	–	–	–	87.5	87.5	87.5	86.5
A_9	–	–	–	–	–	M20	M20	M20	M20
R_2	–	–	–	–	–	198	198	198	198
P_1	–	–	–	–	–	266	266	266	266
HubX8H	–	–	–	–	–	N42X1.25X32	N42X1.25X32	N42X1.25X32	N55X1.25X42
	–	–	–	–	–	N60X2X28	N60X2X28	N60X2X28	N60X2X28

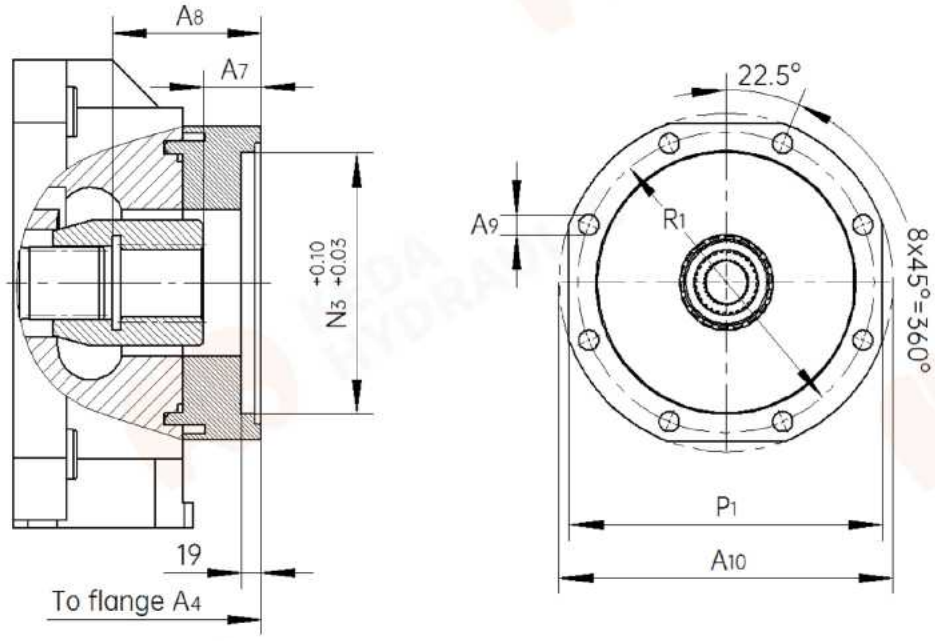
NOTE: – unavailable.

Code K77 (2nd pump K4VSO355/370; 2nd pump's flange ISO 3019-2 – 224B4HW)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3 $^{+0.10}_{+0.03}$	–	–	–	–	–	–	Φ224	Φ224	Φ224
A_4	–	–	–	–	–	–	498	498	541
A_7	–	–	–	–	–	–	12.5	12.5	12.5
A_8	–	–	–	–	–	–	87.5	87.5	88.5
A_9	–	–	–	–	–	–	M20	M20	M20
R_2	–	–	–	–	–	–	198	198	198
P_1	–	–	–	–	–	–	266	266	266
HubX8H	–	–	–	–	–	–	N42X1.25X32	N42X1.25X32	N55X1.25X42
	–	–	–	–	–	–	N70X3X22	N70X3X22	N70X3X22

NOTE: – unavailable.

8.

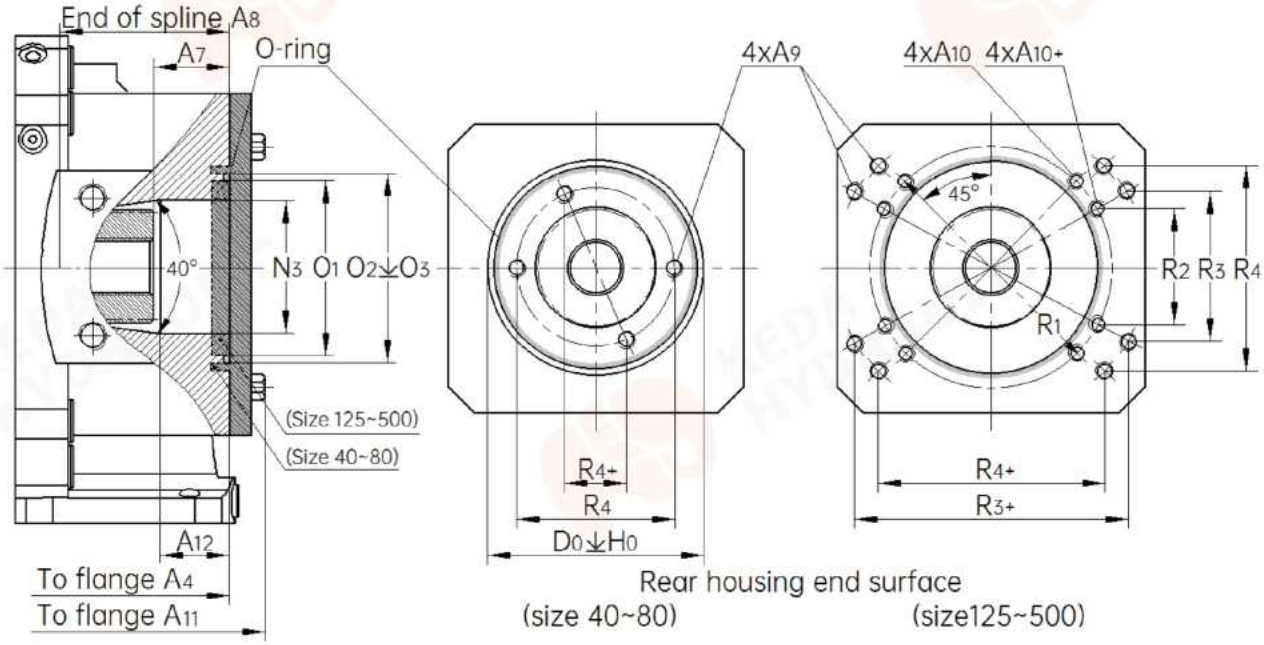


Code K43 (2nd pump K4VSO500; 2nd pump's flange ISO 3019-2 – 315D8HW)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3	–	–	–	–	–	–	–	–	Φ315
A_4	–	–	–	–	–	–	–	–	590
A_7	–	–	–	–	–	–	–	–	53.5
A_8	–	–	–	–	–	–	–	–	125.4
A_9	–	–	–	–	–	–	–	–	M20
A_{10}	–	–	–	–	–	–	–	–	425
R_1	–	–	–	–	–	–	–	–	360
P_1	–	–	–	–	–	–	–	–	380
HubX8H	–	–	–	–	–	–	–	–	N55X1.25X42
	–	–	–	–	–	–	–	–	N80X3X25

NOTE: – unavailable.

9.

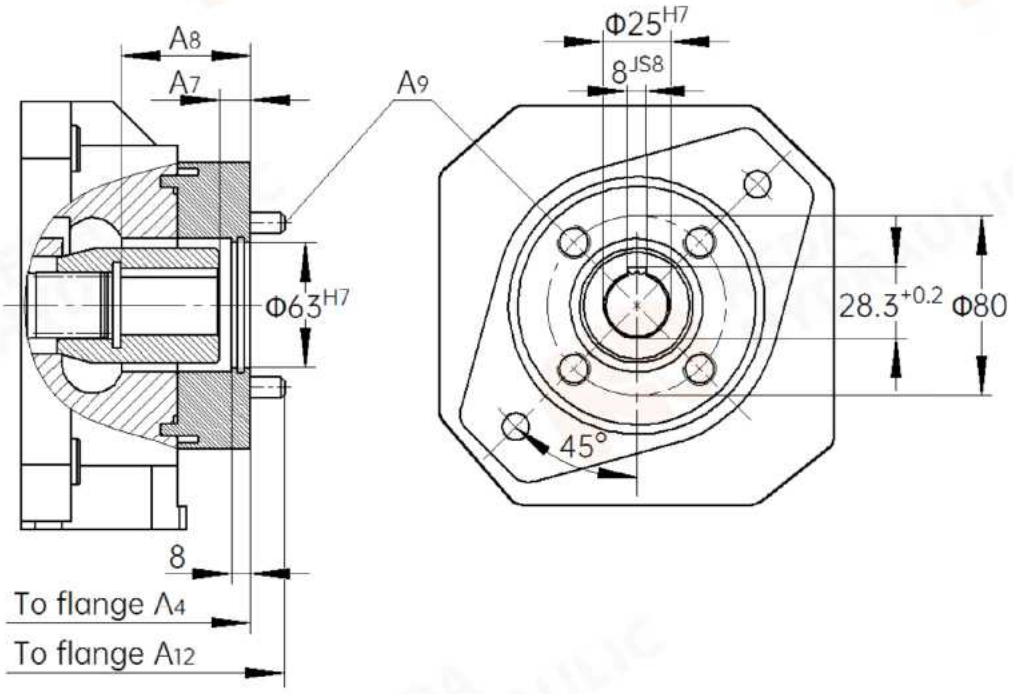


Code K99 (with non-pressure-resistant or pressure-resistant plugged cover, prepared for through-drive)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
N_3	Φ52	Φ63	Φ70	Φ70	Φ70	Φ87	Φ87	Φ87	Φ115
D_0	Φ118	Φ130	–	–	–	–	–	–	–
H_0	9	9	9	9	9	9	9	9	11 (chamfer C1)
A_4	263	291	347	371	371	431	460	460	505
A_7	51.3±1	48±1	49.7±1	49.7±1	49.7±1	61.4±1	61.4±1	61.4±1	73
A_8	65.3	64	71.7	74.7	74.7	91.9	95.4	95.4	114
A_{11}	280	310	368	392	392	455	487	487	527
A_{12}	44	38	46	46	46	64	64	64	75
R_1	–	–	Φ94	Φ94	Φ94	Φ126	Φ126	Φ126	Φ200
A_{10}	–	–	M14X15	M14X15	M14X15	M20X22	M20X22	M20X22	M16X24
R_2	–	–	–	–	–	–	–	–	94±0.4
A_{10+}	–	–	–	–	–	–	–	–	M16X30
R_3	–	–	–	–	–	116.3±0.3	116.3±0.3	116.3±0.3	120±0.4
R_{3+}	–	–	–	–	–	172.4±0.3	172.4±0.3	172.4±0.3	224±0.4
R_4	74±0.4	90±0.3	158.4±0.3	158.4±0.3	158.4±0.3	172.4±0.3	172.4±0.3	172.4±0.3	200±0.4
R_{4+}	0	30.8±0.3	△	△	△	116.3±0.3	116.3±0.3	116.3±0.3	144±0.4
A_9	M12X25	M12x25	M12x18	M12x18	M12x18	M10x15	M10x15	M10x15	M20x24
O_1	$Φ97.6_{-0.4}$	$Φ106.4_{-0.4}$	$Φ118^{H7}$	$Φ118^{H7}$	$Φ118^{H7}$	$Φ160^{H7}$	$Φ160^{H7}$	$Φ160^{H7}$	$Φ160\ ^{+0.7}_{+0.2}$
O_2	$Φ105_{g6}$	$Φ116_{g6}$	$Φ121^{+0.1}$	$Φ121^{+0.1}$	$Φ121^{+0.1}$	$Φ163^{+0.1}$	$Φ163^{+0.1}$	$Φ163^{+0.1}$	$Φ169^{+0.4}$
O_3	$2.3^{+0.1}$	$2.7^{+0.1}$	$2.8^{+0.2}$	$2.8^{+0.2}$	$2.8^{+0.2}$	$2.8^{+0.2}$	$2.8^{+0.2}$	$2.8^{+0.2}$	2.3
O-ring	99X3	110.72X3.53	118X2	118X2	118X2	160X2	160X2	160X2	165X3
Keyed shaft X9g	W25X1.25X18	W30X1.25X22	W35X1.25X26	W35X1.25X26	W35X1.25X26	W42X1.25X32	W42X1.25X32	W42X1.25X32	W55X1.25X42

NOTE: – unavailable; △ pending.

10.



Code K57 (2nd pump radial piston pump R4; 2nd pump's flange ISO 3019-2 – 63B4HW)

1st P / Dimension	K4VSO40	K4VSO71/80	K4VSO125	K4VSO180	K4VSO200	K4VSO250	K4VSO355	K4VSO370	K4VSO500
A_4	288	319	△	△	△	△	△	△	△
A_7	11	10.9	△	△	△	△	△	△	△
A_8	67	52.9	△	△	△	△	△	△	△
A_9	M8	M8	M8	M8	M8	M8	M8	M8	M8
A_{12}	297	328	△	△	△	△	△	△	△
HubX8H	N25X1.25X18 keyed s. Φ25	N30X1.25X22 keyed s. Φ25	N35X1.25X26 keyed s. Φ25	N35X1.25X26 keyed s. Φ25	N35X1.25X26 keyed s. Φ25	N42X1.25X32 keyed s. Φ25	N42X1.25X32 keyed s. Φ25	N42X1.25X32 keyed s. Φ25	N55X1.25X42 keyed s. Φ25

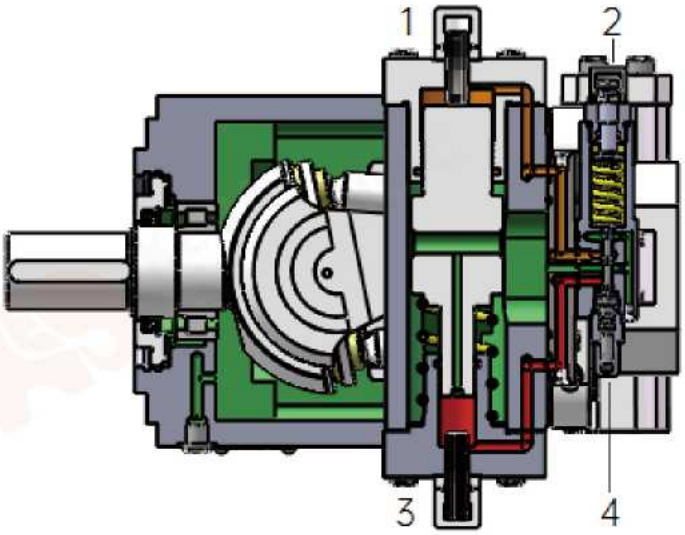
NOTE: △ pending.

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