

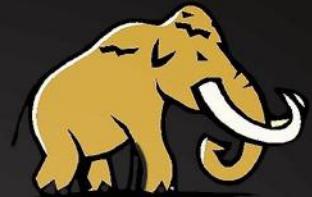
专业做液压-专注做精品

PROFESSIONAL ON HYDRAULIC-FOCUS ON HIGH QUALITY



Elephant Fluid Power Co.,Ltd
Add: Room 1403, Zhonghua Building, Lianmeng St,
Shijiazhuang City, Hebei, China
Landline: +86 (311)68123061
E-mail: elephant@sjzhjsm.com
Fax: +86 (10)-80115555- 568844
Postcode: 050000
Web: www.heavyequipmentmaintain.com

大象流体动力有限公司
公司地址:中国河北省石家庄市联盟路中化大厦1403
座机: +86 (311)68123061
邮箱: elephant@sjzhjsm.com
传真: +86 (10)-80115555- 568844
邮编: 050000
网址: www.heavyequipmentmaintain.com



Elephant Fluid Power

大象流体动力有限公司



About Us

Elephant Fluid Power is located in Shijiazhuang City, Hebei, China. It is a professional manufacturer and seller of high-end hydraulic components. The company has strong strength and advanced equipment.

Our company has excellent testing equipment, including imported stator and rotor high-precision grinding machines, double-sided grinding machines from South Korea AM, machining centers produced by Taiwan Youjia and other companies, and CNC vertical lathes. The company is people-oriented, has gathered a group of senior technical personnel, has a professional and professional R & D team, and continues to carry out product design and development. The company currently produces more than 20,000 sets of hydraulic pumps per year.

The hydraulic Piston pump brands manufactured and sold by the company are: Rexroth, Liebherr, Komatsu, Hitachi, Kawasaki, Carter, Linde, Hawe, Parker, Kubota, Toshiba, Sauer and other brands and models; and commonly used walking Motor and swing motor series.

Hydraulic piston pumps can be widely used in engineering machinery, agricultural machinery, road machinery, mining machinery, medical machinery, metallurgical machinery, ships, machine tools and many other fields. After years of research and development, the products manufactured by the company can replace imported original parts and are exported to many countries and regions around the world, which are fully recognized by customers.

The company adheres to the principle of product quality pursuing perfection, finished product prices tending to the lowest, and service quality ensuring customer satisfaction. We will serve you wholeheartedly with the tenet of "using the best products and providing users with the best service"!

关于我们

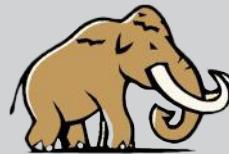
大象流体动力地处中国河北省石家庄市，是专业制造和销售高端液压元件的现代化企业，公司实力雄厚，设备先进。

我司检测设备优良，拥有进口定子和转子高精度磨床，韩国AM公司双面磨，台湾友佳等公司生产的加工中心及数控立式车床等。公司以人为本，汇聚了一批高级技术人才，拥有专业的专业的研发团队，不断进行产品的设计研发，公司目前年产液压泵2万多套。

公司制造、销售的液压柱塞泵品牌有：力士乐、利勃海尔、小松、日立、川崎、卡特、林德、哈威、派克、久保田、东芝、萨澳等多品牌多型号；以及常用的行走马达和回转马达系列。

液压柱塞泵可广泛应用于工程机械、农业机械、路面机械、矿山机械、医疗机械、冶金机械、船舶、机床等众多领域。公司经过多年的研究，制造出的产品可替代进口原装件，并出口到全球多个国家和地区，获得客户的充分认可。

公司秉承产品质量追求完美，成品价格趋于最低，服务质量确保用户满意的原则。我们将本着“用最好的产品，为用户提供最好的服务”为宗旨，竭诚为您服务！



Elephant Fluid Power

ELEPHANT FLUID POWER

TEL:+86(311)68123061

E-mail:elephant@sizhjsm.com

www.heaveyequipmentmaintain.com

FAX:+86(10)-80115555-568844

Series of swash plate axial
piston pump

EFP-A4VSO Series

sample

specifications: 40、71、125、180、250、
300、355、370、500ml/r

Nominal pressure: $P_N=35\text{MPa}$

Peak pressure: $P_{\max}=42\text{MPa}$

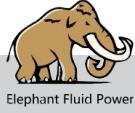


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NOTES

- For high efficiency work continuously, select hydraulic fluids according to application conditions. Almost all of the mineral oil is suitable for axial piston unit, which rest with water content, viscosity and temperature, as well as oxidation, anti-corrosion processing, material compatible, air and water separation etc.
- Sufficient & reliable filtration of the hydraulic fluid is necessary for prolonging the equipment service life. Hard particle in the fluid as standards below:
 - Grade 9 --- NAS1638
 - Grade 6 --- SAE
 - Grade 18/15 --- ISO/DIS4406If the fluid temperature is high, the min. cleanliness as standard below:
 - Grade 8 --- NAS1638
 - Grade 5 --- SAE
 - Grade 17/14 --- ISO/DIS4406
- In order to select the correct fluid, it is necessary to know the operating temperature in the tank (open circuit), in relation to the ambient temperature.
- Important: The leakage oil (case drain oil) temperature is influence by pressure and pump speed and is always higher than the tank temperature. However, at no point in the circuit may the temperature exceed 90° C.
In serious working ambient (extremely high or low temperature), if condition above is unavailable, contact Elephant Fluid Power before ordering.
- Pump fluid inlet pressure (absolute pressure) must be $\geq 0.08\text{MPa}$, fluid discharging pressure (max. pressure permitted in the case) is 0.4MPa (absolute pressure), pressure inside the case must be bigger or equal with exterior pressure on the bearing seal.
- Location: usually, the hydraulic pump, motor and case upper edge are lower than the lowest level in the tank. If the installation is higher than the fluid level, inform Elephant Fluid Power before ordering.
- Shaft coupler installation: sink the pump shaft coupler in the hot oil with temperature $\leq 90^\circ\text{C}$ about 40 minutes, assemble the shaft and the coupler and cool it with cooling water rapidly, fasten the screw at last. Never knock the principal axis in assembling; never hoist or transport the oil pump via the principal axis.
Refer to back cover and hoist photo for details.
- Technical information mentioned here is for reference only. Please contact Elephant Fluid Power if needed.



Specifications and features of EFP-A4VSO pump

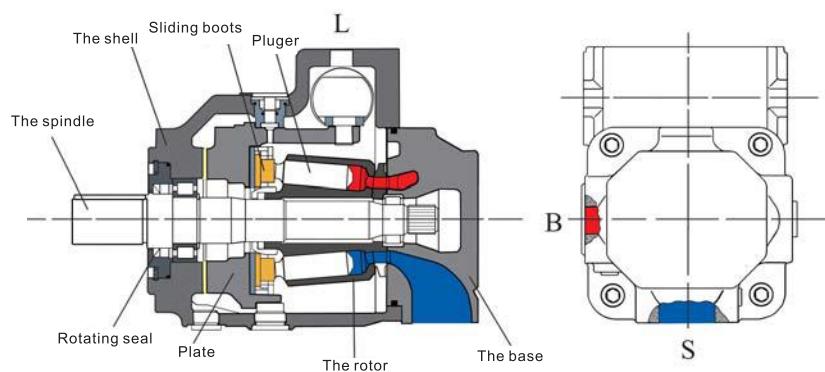


1. Specification

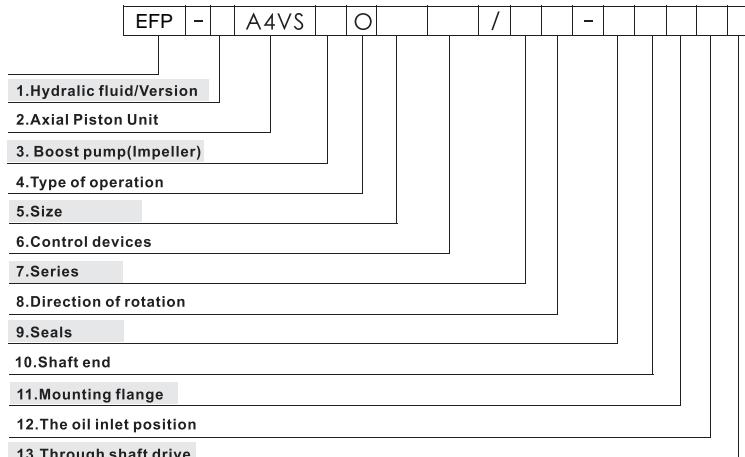
Series 1, 2 and 3; Nominal pressure 35MPa; Peak pressure 42 MPa.

2. Features

- ◆ The variable displacement axial piston pump type EFP-A4VSO in swashplate design is designed for open circuit hydrostatic drives.
- ◆ The flow is proportional to the input drive speed and displacement. By adjusting the swashplate it is possible to infinitely vary the flow.
- ◆ Good suction characteristics
- ◆ Permissible nominal operating pressure up to 350MPa
- ◆ Low noise level, long service life
- ◆ Drive shaft capable of absorbing axial and radial loads
- ◆ Modular design, good power/weight ratio
- ◆ Short control time
- ◆ Through drive and pump combinations possible
- ◆ Swash plate angle indicator
- ◆ Optional mounting position
- ◆ Operation on HF fluids under reduced operational parameters possible



Ordering code



✓=available Δ=in preparation ▲=not available

1. Hydraulic fluid/Version

Specification	40	71	125	180	250	300	355	370	500	
Mineral oil (no code)	✓	✓	✓	✓	✓	✓	✓	✓	✓	Δ
HF hydraulic fluid (special fluids for skydrol excluded)	✓	✓	✓	✓	✓	✓	✓	✓	✓	Δ E
High speed version	▲	▲	▲	✓	✓	✓	✓	✓	△	H

2. Axial piston unit

Swash plate design, variable, for industrial applications	A4VS
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3. Boost pump (Impeller)

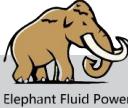
Specification	40	71	125	180	250	300	355	370	500	
	△	△	△	✓	✓	✓	✓	△	△	L

4. Type of operation

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

5. Size

Displince ment V _{gmax} (ml/r)	40	71	125	180	250	300	355	370	500	
	✓	✓	✓	✓	✓	✓	✓	✓	✓	△



Hydraulic fluid

1. Notes on the selection of hydraulic fluid

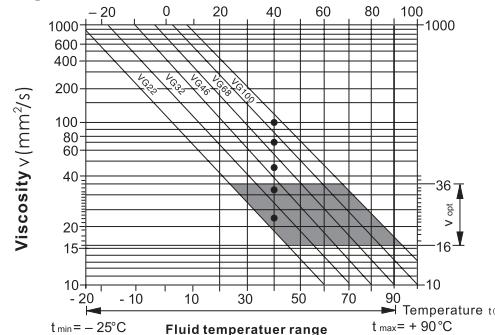
In order to select the correct fluid, it is necessary to know the operating temperature in the tank (open circuit), in relation to the ambient temperature.

The hydraulic fluid should be selected so that within the operating temperature range, the operating viscosity lies within the optimum range (v_{opt}), see shaded section in the selection diagram.

We recommend that the higher viscosity grade is selected in each case.

Example: At an ambient temperature of $X^{\circ}\text{C}$, the operating temperature in the tank is 60°C . Within the operating viscosity range (v_{opt} shaded area), this corresponds to viscosity range VG46 or VG 68. VG 68 should be selected.

2. Selection diagram



Important: The leakage oil (case drain oil) temperature is influenced by pressure and pump speed and is always higher than the tank temperature. However, at no point in the circuit may the temperature exceed 90°C .

3. Operating viscosity range

In order to obtain optimum efficiency and service life, we recommend that the operating viscosity (at operating temperature) be selected in the range

$$V_{opt} = \text{optimized viscosity } 16\text{--}36\text{mm}^2/\text{s} [\text{referred to tank temperature (open circuit)}]$$

4. Limit of viscosity range

For short periods at max. permissible leakage oil temperature 90°C .

$$V_{max}=10\text{mm}^2/\text{s}, \quad t_{min}=-25^{\circ}\text{C}, \quad t_{max}=+90^{\circ}\text{C}$$

For short periods on cold start : $V_{max}=1000\text{mm}^2/\text{s}$

5. Filtration of the hydraulic fluid (Axial piston unit)

In order to ensure correct functioning of the axial piston unit, a minimum cleanliness class of: 9 to NAS 1638 18/15 or ISO/DIS 4406.

6. Bearing flushing

For the following operating conditions bearing flushing is required for a safe, continuous operation:

- (1) Applications with special fluids (non-mineral oils), due to limited lubricity and narrow operating temperature range
- (2) Operation at critical conditions of temperature and viscosity with mineral oil
- (3) Flushing is recommended with vertical mounting (drive shaft facing upwards), in order to ensure lubrication of the front bearing and shaft seal.

Flushing is carried out via port "U", which is located in the front flange area of the variable displacement pump. The flushing oil flows through the front bearing and leaves the system together with the pump leakage oil at the drain port.

7. The following flows are recommended for flushing

Size	40	71	125	180	250	300	355	370	500
QoS L/min	3	4	5	7	10	13	15	15	20

For the given flushing flows there will be a pressure difference of approx. 2 bar (series 1 and 2) and approx. 3 bar (series 3) between port "U" (including screwed fitting) and the leakage chamber.

8. Notes regarding series 30

When using external bearing flushing the throttle screw at port U, must be turned in to the end stop.

Installation notes

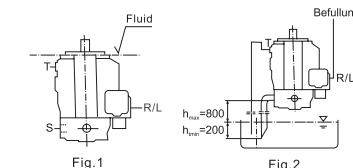
1. Vertical installation (shaft end pointing upwards)

With a vertical installation, bearing flushing is recommended to provide lubrication for the front bearing.

The following installation conditions are to be taken into account:

1.1 Installation in a tank

a) When the minimum fluid level is the same as or is above the pump flange area : ports "R/L", "T" and "S" are open (see fig. 1).



b) If the minimum fluid level is below the pump flange area : ports "R/L", "T" and possibly "S" have to be piped as shown in fig. 2. The conditions stated in point 1.2 apply.

1.2 Installation outside a tank

Before installation, fill the pump housing with the pump in a horizontal position. Port "T" to the tank, "R/L" are plugged. Filling possibilities in the installed condition: fill via "R" bleed via "T", afterwards plug port "R".

Conditions: A minimum pump inlet pressure (suction pressure) of 0.8 bar abs. must be observed. Avoid mounting the pump above the tank if low noise operation is required.

2. Horizontal installation

The highest situated of the ports "T", "K1", "K2" or "R/L" must be utilised for filling/bleeding and subsequently used as the drain connection.

2.1 Installation in a tank

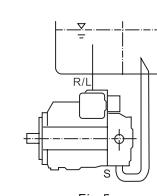
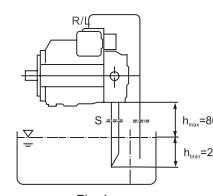
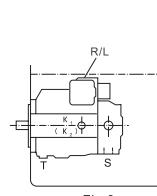
a) When the minimum fluid level is the same as or lies above the upper edge of the pump then: drain port and port "S" are open (see fig. 3)

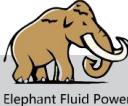
b) When the minimum fluid level lies under the pump upper edge then: drain port and possibly port "S" has to be piped, see fig. 4. Conditions as shown in point 1.2. Fill pump housing before commissioning.

2.2 Installation outside a tank

Fill the pump housing before commissioning.

- a) For installation above a tank see fig. 4. Conditions as shown in point 1.2.
- b) For installation under the tank, pipe drain port and port "S", see fig. 5.

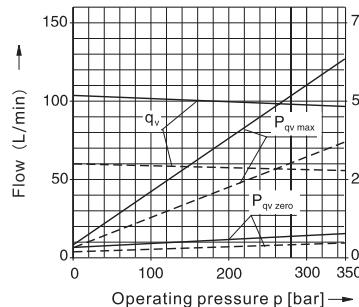


**Input power and flow****Input power and flow**(operating fluid: hydraulic oil ISO VG 46 DIN 51519, $t = 50^\circ\text{C}$)

$$\text{Overall efficiency: } \eta_t = \frac{q_v \cdot p}{P_{qv \max} \cdot 600}$$

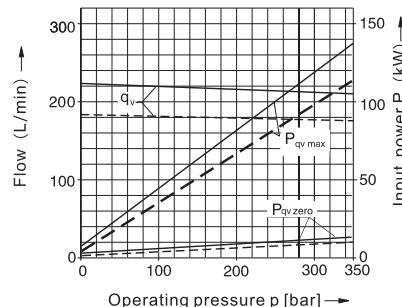
$$\text{Volumetric efficiency: } \eta_v = \frac{q_v}{q_{v\text{theor}}}$$

Nominal size 40



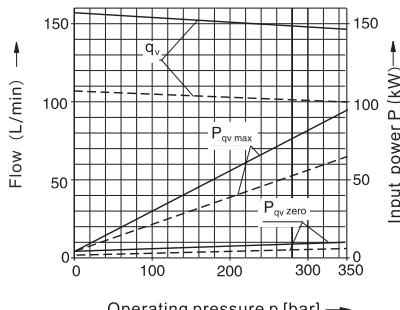
n=2600r/min
n=1800r/min
n=1500r/min

Nominal size 125



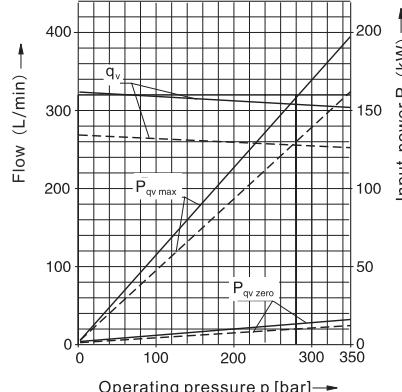
n=2600r/min
n=1800r/min
n=1500r/min

Nominal size 71



n=2200r/min
n=1800r/min
n=1500r/min

Nominal size 180



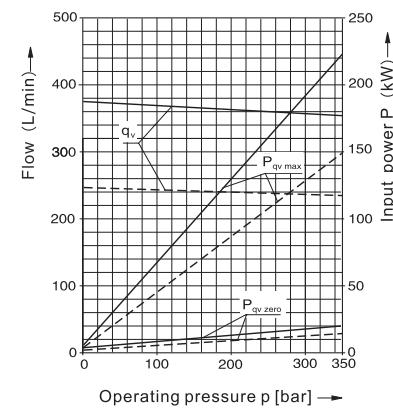
n=2200r/min
n=1800r/min
n=1500r/min

Input power and flow(operating fluid: hydraulic oil ISO VG 46 DIN 51519, $t = 50^\circ\text{C}$)

$$\text{Overall efficiency: } \eta_t = \frac{q_v \cdot p}{P_{qv \max} \cdot 600}$$

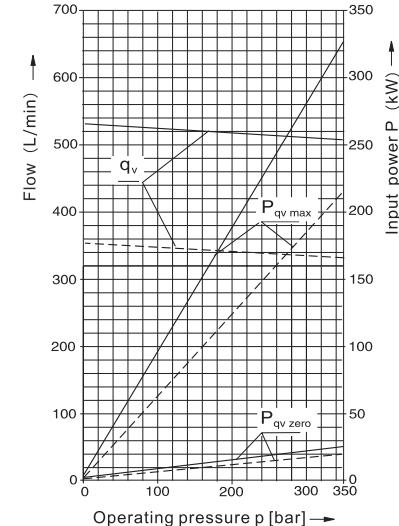
$$\text{Volumetric efficiency: } \eta_v = \frac{q_v}{q_{v\text{theor}}}$$

Nominal size 250



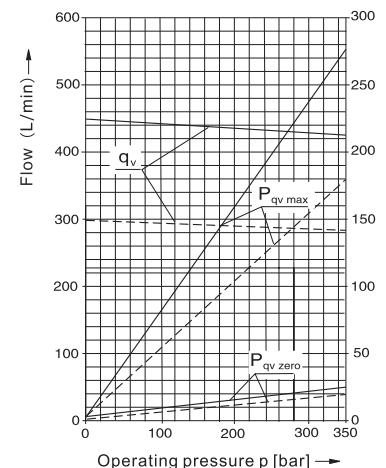
n=2600r/min
n=1800r/min
n=1500r/min

Nominal size 355

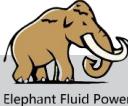


n=2600r/min
n=1800r/min
n=1500r/min

Nominal size 300



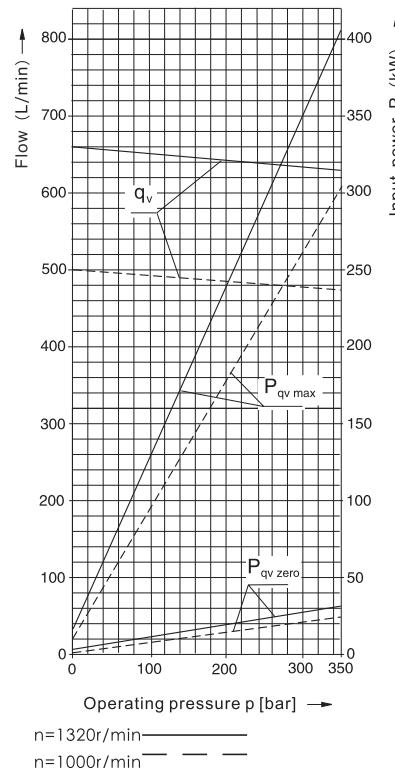
n=2600r/min
n=1800r/min
n=1500r/min

**Input power and flow**(operating fluid: hydraulic oil ISO VG 46 DIN 51519, $t = 50^\circ\text{C}$)

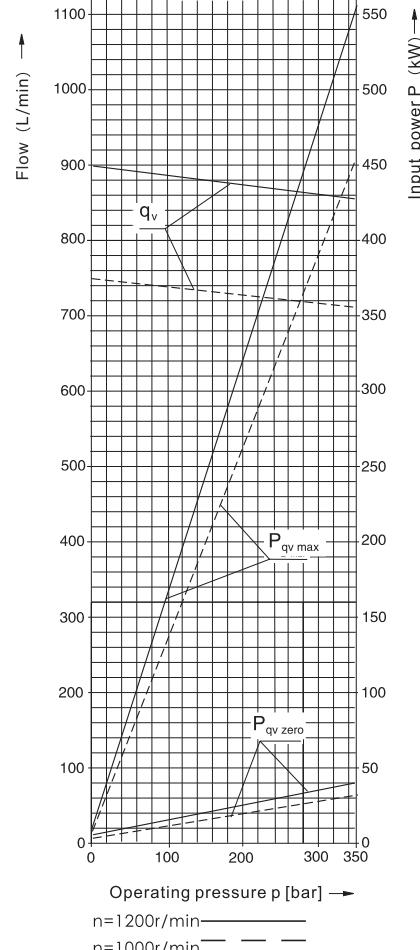
$$\text{Overall efficiency: } \eta_t = \frac{q_v \cdot p}{P_{qv \max} \cdot 600}$$

$$\text{Volumetric efficiency: } \eta_v = \frac{q_v}{q_{v\text{theor}}}$$

Nominal size 500



Nominal size 750

**Technical data (valid for operation with mineral oil)**

1. Operating pressure range - inlet side

Absolute pressure at port S (suction inlet)

 $P_{abs \min}$ ————— 0.8 bar
 $P_{abs \max}$ ————— 30 bar

2. Operating pressure range - outlet side

Pressure at port B

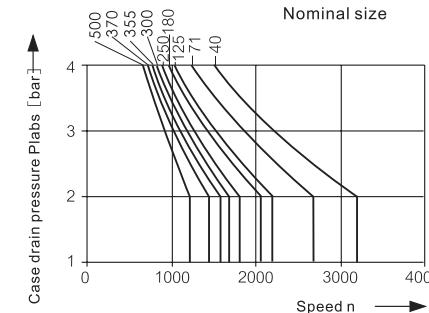
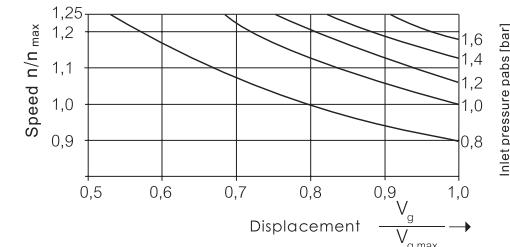
Nominal pressure P_n 35MPaPeak pressure P_{max} 42MPa

3. Flow direction: S to B.

Determination of inlet pressure p_{abs} at suction port S, or reduction of displacement when increasing drive speed, the inlet pressure is the static feed pressure or the minimum dynamic value of the boost pressure.

4. Case drain pressure

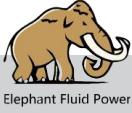
The permissible case drain pressure (housing pressure) is dependent on the drive speed (see diagram).

The case maximum drain pressure (pump housing pressure) P_{max} is 4bar. Under certain operating conditions a reduction in these values may be necessary.

5. Table of values

Size			40	71	125	180	250	300	355	370	500
Displacement	$V_{g \max}$	cm^3	40	71	125	180	250	300	355	370	500
Rotating speed	$n_{o \max}$	r/min	2600	2200	1800	1800	1500	1500	1500	1500	1320
Max. rotating speed	$n_{o \max \text{ zul.}}$	r/min	3200	2700	2200	2100	1800	1700	1700	1700	1600
Flow	$q_{v \max 1500 \text{ r/min}}$	L/min	60	107	186	270	375	450	532	555	750
Power	$P_{max 1500 \text{ r/min}}$	kW	35	62	109	158	219	262	311	324	437
Torque	T_{max}	Nm	64	113	199	286	398	478	564	588	795
Weight		kg	39	53	88	102	184	184	207	207	320
Max. axial force		N	600	800	1000	1400	1800	2000	2000	2000	2000
Max. radial force		N	1000	1200	1600	2000	2000	2200	2200	2200	2500

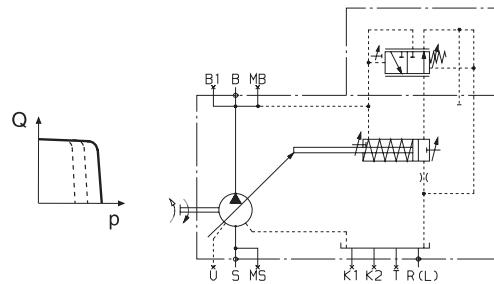
 $V_g < V_{g \max}$



Summary of controls

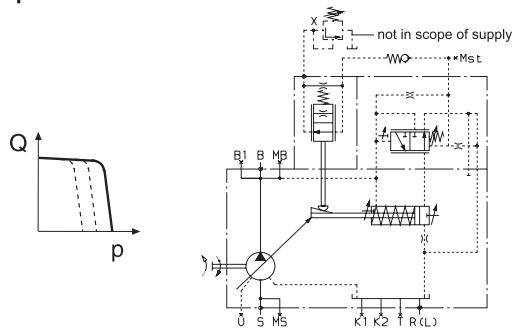
1. Pressure control DR

Regulates max. pressure in a hydraulic system
Setting range 2 – 35 MPa
Optional:
Remote control (DRG)



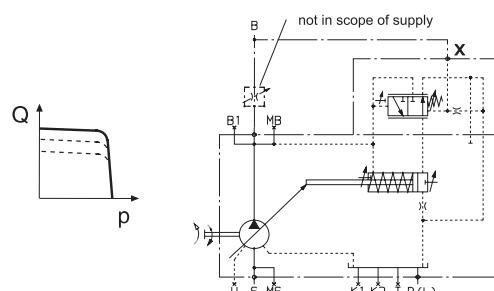
2. Pressure control for parallel operation DP

Suitable for pressure control with multiple axial piston pumps EFP-A4VSO parallel operation.
Optional:
Flow control (DPF)



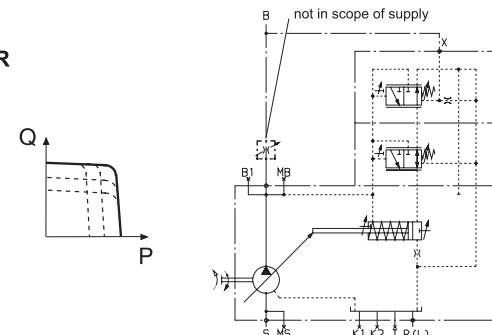
3. Flow control FR

Maintains a constant flow in a hydraulic system (flow)
Optional:
Remote pressure control (FRG),
Orifice in X port plugged (FR1, FRG1)



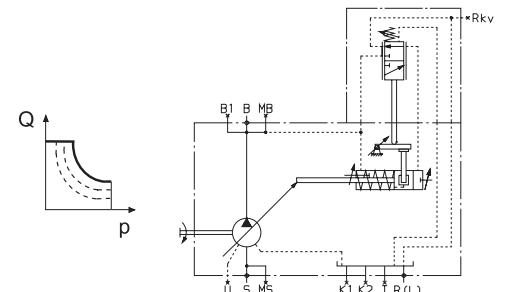
4. Pressure and flow control DFR

This control maintains a constant flow from the pump even under varying operating conditions (flow). Overriding this control is a mechanically adjustable pressure control.
Optional:
Orifice in X port plugged (DFR1)



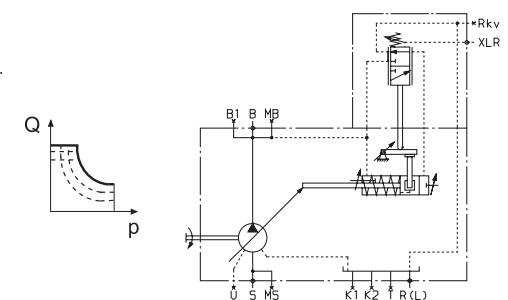
5. Power control LR2 with hyperbolic curve

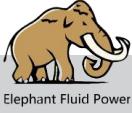
The hyperbolic power control maintains a constant preset drive power at the same input speed.
Optional:
Pressure control (LR2D);
Remote control (LR2G);
Flow control (LR2F, LR2S);
Hydraulic stroke limiter (LR2H);
Mechanical stroke limiter (LR2M);
Hydraulic two-point control (LR2Z);
With electrical unloading valve to assist during start-up (LR2Y).



6. Power control LR3 with remote control of the power characteristics

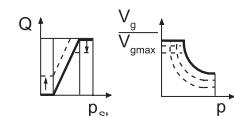
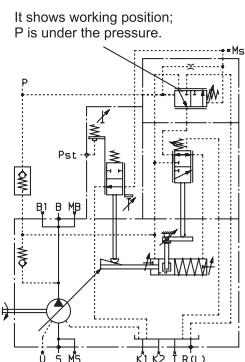
The hyperbolic power control maintains a constant preset drive power. The power characteristic curve is remotely adjustable.
Optional:
Pressure control (LR3D);
Remote control (LR3G);
Flow control (LR3F, LR3S);
Hydraulic stroke limiter (LR3H);
Mechanical stroke limiter (LR3M);
Hydraulic two-point control (LR3Z);
Electrical unloading valve to assist during start-up (LR3Y)



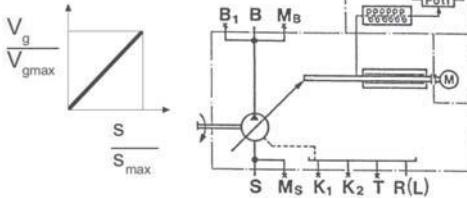
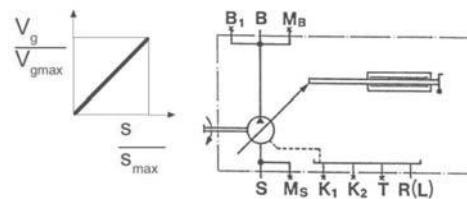
**7. Hydraulic control LR2N****pilot pressure dependent,initial position V_g _{min}**

With overriding power control.
The flow (displacement) is proportional to the pilot pressure in P_{st} . The additional hyperbolic power control overrides the pilot pressure signal and holds the preset drive power constant.

Optional:
Pressure control (LR2DN), remote control (LR2GN);
Power control characteristic, remotely adjustable (LR3N, LR3DN, LR3GN)

**8. Manual control MA**

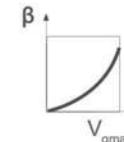
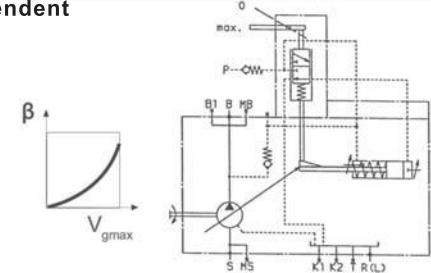
Stepless flow adjustment by means of a handwheel

**9. Electrical motor control EM**

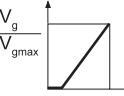
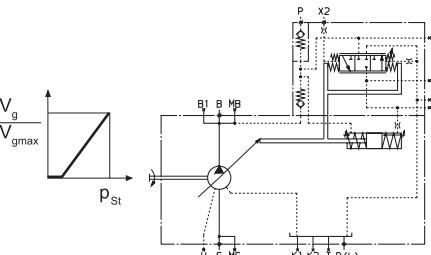
Stepless flow adjustment via an electric motor.
With a programmed sequence control, various intermediate displacements can be selected by means of built-on limit switches or a potentiometer.

10. Hydraulic control HW position dependent

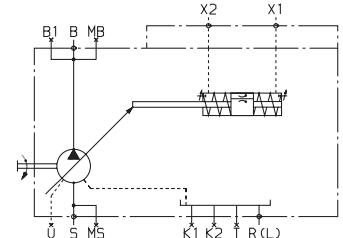
Stepless flow adjustment (displacement) to the sine, β , of the angular position of the pivot.
Optional:
With hyperbolic power control (HWP)

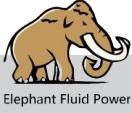
**11. Hydraulic control HD pilot pressure dependent**

Stepless flow adjustment of the pump (displacement) in relation to the pilot pressure.
The adjustment is proportional to the applied pilot pressure.
Optional:
Pilot pressure characteristic curves (HD1, HD2, HD3)
Pressure control (HD.B), remote control (HD.GB)
Power control (HD1P)
Electrical pilot pressure control (HD1T)

**12. Hydraulic flow control HM 1/2/3 pilot control flow dependent**

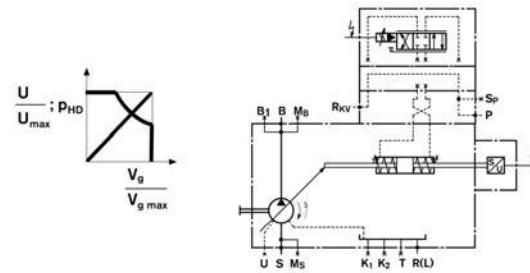
The pump flow (displacement) is infinitely adjustable in relation to the pilot oil flow at ports X1 and X2.
Application: – 2-point control
– basic control device for servo or proportional control



**13. Control system HS,HS4,with servo or proportional valve**

The stepless displacement control is accomplished by means of servo or proportional valve with electrical feedback of the swivel angle. The HS4P-control system is fitted with a built on pressure transducer so that it can be utilized for electrical pressure and power control.

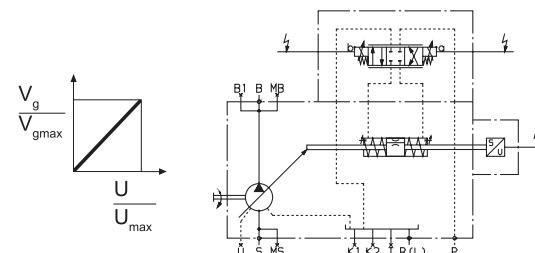
Optional:
Servo valve(HS);
Proportional valve(HS4);
Short circuit valve(HSK,HS4K,HS4KP);
Without valves(HSE,HS4E).
For oil-immersed use(HS4M)

**14. Hydraulic flow control EO1/2**

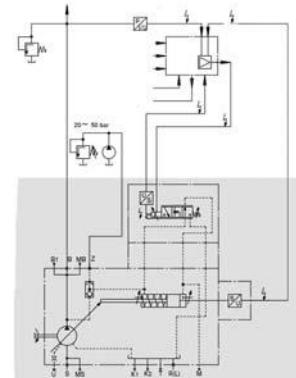
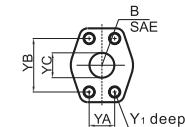
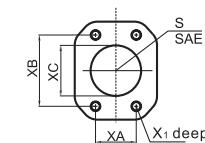
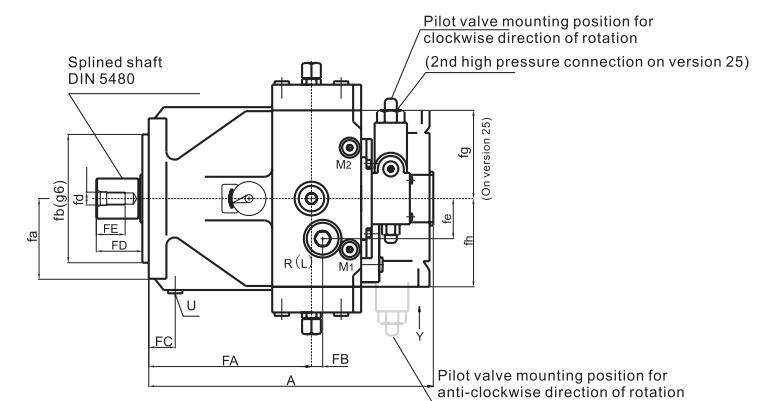
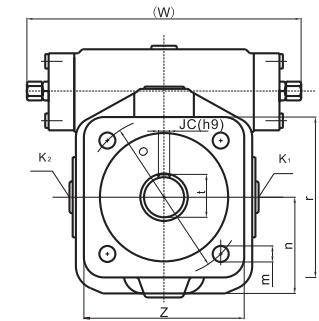
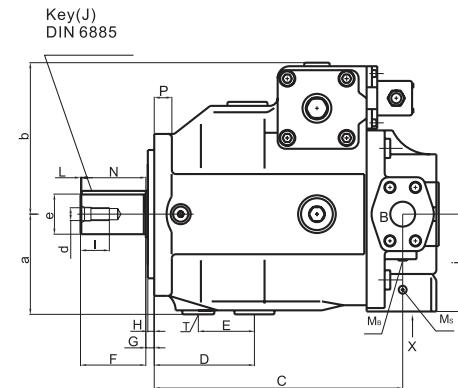
The stepless adjustment of the displacement is accomplished by means of a proportional valve with electrical feedback of the swivel angle.

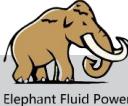
Electronically controlled
Optional:
Short circuit valve (EO1K, EO2K)
Without valves (EO1E, EO2E)

Oil of the variable pump
KD-A4VSO...DFE1Z is
accomplished

**15. Electro-hydraulic control system DFE1Z**

The power,pressure and swivel angle control of the variable pump EFP-A4VSO...DFE1Z is accomplished by means an electrically controlled proportional valve. A current signal to the proportional valve moves the control piston and determines via an integrated positional transducer the cradle's swivel angle and thus the pump flow. When the electric drive motor is switched off and the system is pressureless, the bias spring in the control chamber will swivel the pump to max.displacement($V_{g\max}$).

**Dimensions**



1.Table of unit dimensions nominal size

Size	A	C	D	E	F	G	H	I	J (key)	L	N	O	P	W	JC	Z
40	269	227	90	52	58	10	8	22	10X8X56	1.5	56	160	18	258	10	150
71	298	254	101	61	70	10	8	22	12X8X68	1.5	68	180	19	296	12	170
125	355	310	125	70	82	10	8	36	14X9X80	1.5	80	200	22	358	14	200
180	379	318	125	70	82	10	8	36	14X9X80	1.5	80	200	22	358	14	200
250	435	380	150	90	105	10	8	42	18X11X100	2	100	280	30	427	18	265
300	468	393	150	90	105	10	8	42	20X12X100	4	100	280	30	427	20	265
355	468	393	150	90	105	10	8	42	20X12X100	4	100	280	30	427	20	265
370	468	393	150	90	105	10	8	42	20X12X100	4	100	280	30	427	20	265
500	520	441	155	80	130	47	16	42	22X14X125	3.5	125	450	32	510	22	380

2.Table of unit dimensions nominal size

Size	a	b	d	e	j	m	n	r	t	fa	fb	fd	fe	fg.fh		
40	91	140	M10	Ø32k6	82.5	15	85	150	35	79	Ø125	M10	*30(40)	80		
71	106	157	M12	Ø40k6	92.5	15	97	170	43	92	Ø140	M12	46	92.5		
125	120.5	191	M16	Ø50k6	117.5	20	114.5	200	53.5	112	Ø160	M16	50	112.5		
180	120.5	191	M16	Ø50k6	117.5	20	114.5	200	53.5	112	Ø160	M16	50	112.5		
250	151	238	M20	Ø60m5	144	26	114.5	265	64	144	Ø224	M20	55	144		
300	151	238	M20	Ø70m6	144	26	114.5	265	74.5	144	Ø224	M20	55	148		
355	151	238	M20	Ø70m6	144	26	114.5	265	74.5	144	Ø224	M20	55	148		
370	151	238	M20	Ø70m6	144	26	114.5	265	74.5	144	Ø224	M20	55	148		
500	190	283	M20	Ø80m6	200	26	190	380	85	189	Ø315	M20	50	182		

3.Table of unit dimensions nominal size

Size	FA	FB	FC	FD	FE
40	144	25(0)*	25	36	22
71	166	0	27	45	41
125	203	14	33	54	36
180	203	14	33	54	36
250	246	17	40	70	42
300	246	17	40	82	42
355	246	17	40	82	42
370	246	17	40	82	42
500	279	50	16	90	42

Notes: * Data in brackets correspond to LR2

4.Table of unit dimensions nominal size

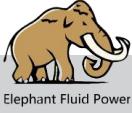
Size	XA	XB	XC	X1	Suction port	YA	YB	YC	Y1	B Pressure port
40	35.7	68.9	40	M12X28	1 1/2"	23.8	50.8	20.5	M10×20	3/4"
71	42.9	77.8	50	M12X28	2"	27.8	57.2	25	M12X28	1"
125	50.8	88.9	63	M12X28	2 1/2"	31.8	66.7	31	M14X28	1 1/4"
180	61.9	106.4	75	M16X30	3"	31.8	66.7	31	M14X26	1 1/4"
250	61.9	106.4	75	M16X30	3"	36.5	79.4	40	M16X30	1 1/2"
300	77.8	130.2	100	M16X30	4"	36.5	79.4	40	M16X30	1 1/2"
355	77.8	130.2	100	M16X30	4"	36.5	79.4	40	M16X30	1 1/2"
370	77.8	130.2	100	M16X30	4"	36.5	79.4	40	M16X30	1 1/2"
500	92.1	152.4	125	M16X30	5"	44.5	96.8	50	M20X25	2"

5.Table of unit dimensions nominal size

Size	Flushing port K ₁ ,K ₂	Oil drain T	M _p ,M _s Test points	Oil filling + air bleed	Flushing port U (plug)	M1.M2 Test points
40	M22X1.5(D)14	M22X1.5(D)14	M14X1.5(D)12	M22X1.5	M14X1.5(D)12	—
71	M27X2(D)16	M27X2(D)16	M14X1.5(D)12	M27X2	M14X1.5(D)12	M14X1.5
125	M33X2(D)18	M33X2(D)18	M14X1.5(D)12	M33X2	M14X1.5(D)12	M14X1.5
180	M33X2(D)18	M33X2(D)18	M14X1.5(D)12	M33X2	M14X1.5(D)12	M14X1.5
250	M42X2(D)20	M42X2(D)20	M14X1.5(D)12	M42X2	M14X1.5(D)12	M18X1.5
300	M42X2(D)20	M42X2(D)20	M14X1.5(D)12	M42X2	M18X1.5(D)12	M18X1.5
355	M42X2(D)20	M42X2(D)20	M14X1.5(D)12	M42X2	M18X1.5(D)12	M18X1.5
370	M42X2(D)20	M42X2(D)20	M14X1.5(D)12	M42X2	M18X1.5(D)12	M18X1.5
500	M48X2(D)22	M48X2(D)22	M18X1.5(D)22	M48X2	M18X1.5(D)12	M18X1.5



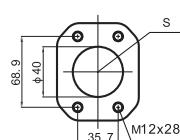
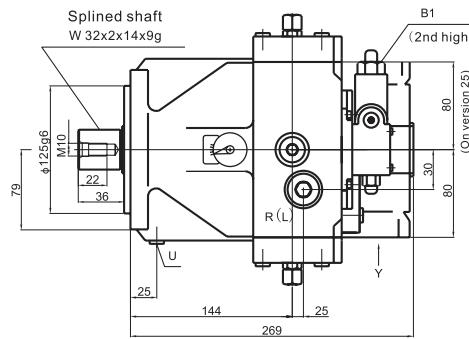
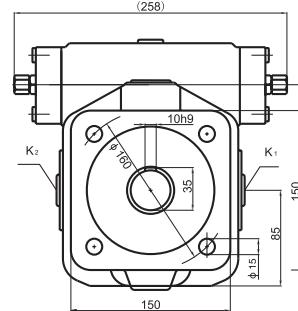
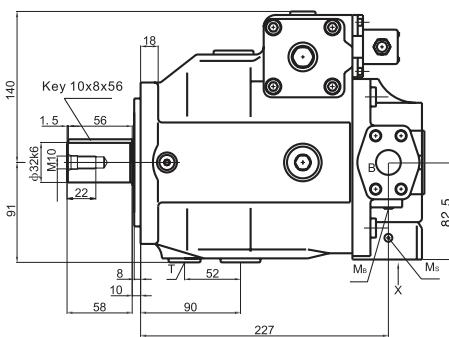
Series of swash plate axial piston pump



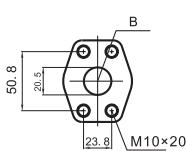
EFP-A4VSO40 installation dimensions

Unit dimensions nominal size 40, series 1

(Example:pressure control; for exact dimensions of the control devices see separate data sheets)



View X



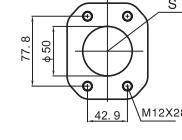
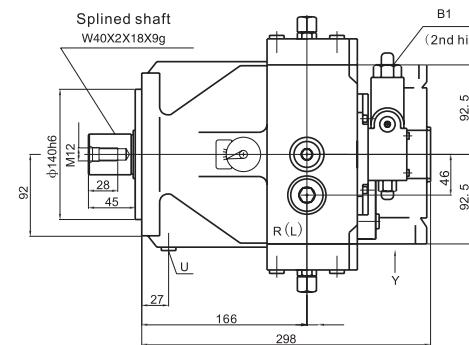
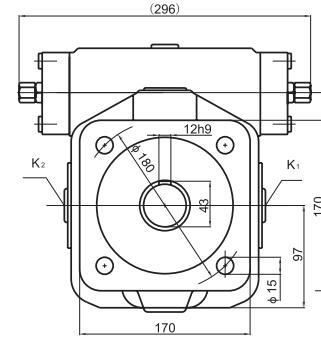
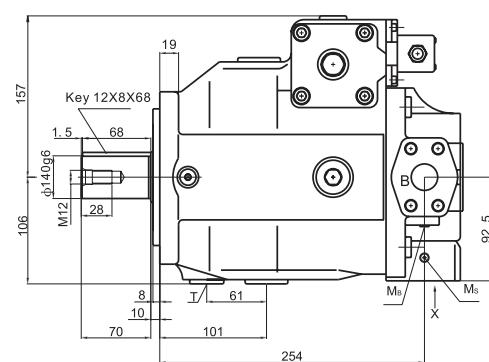
View Y

B	Pressure port	SAE 3/4" (high pressure range)
B1	Auxiliary port	M22x1.5; deep 14 (plugged)
S	Suction port	SAE 1 1/2" (standard series)
K ₁ ,K ₂	Flushing ports	M22x1.5;deep 14(plugged)
T	Oil drain	M22x1.5;deep 14(plugged)
M _b ,M _s	Test points	M14x1.5;deep 12(plugged)
R(L)	Oil filling + air bleed	M22x1.5
U	Flushing port	M14x1.5 ;deep 12(plugged)

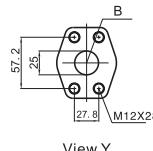
EFP-A4VSO71 installation dimensions

Unit dimensions nominal size 71, series 1

(Example:pressure control; for exact dimensions of the control devices see separate data sheets)

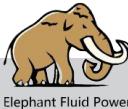


View X



View Y

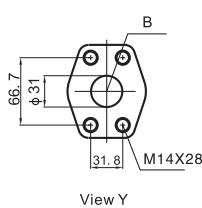
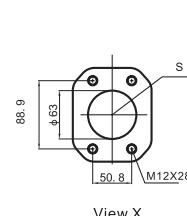
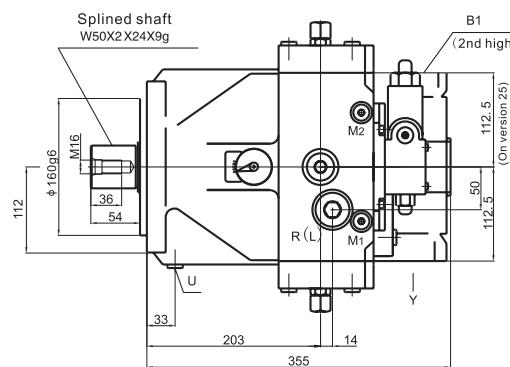
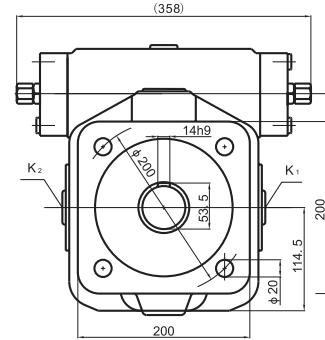
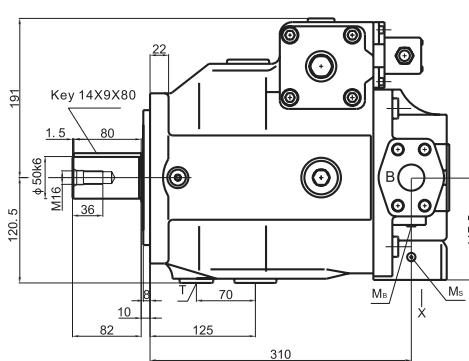
B	Pressure port	SAE 1" (high pressure range)
B1	Auxiliary port	M27x2; deep 16 (plugged)
S	Suction port	SAE 2"(standard series)
K ₁ ,K ₂	Flushing ports	M27x2; deep 16(plugged)
T	Oil drain	M27x2; deep 16(plugged)
M _b ,M _s	Test points	M14x1.5; deep 12(plugged)
R(L)	Oil filling + air bleed	M27x2
U	Flushing port	M14x1.5; deep 12(plugged)



EFP-A4VSO125 installation dimensions

Unit dimensions nominal size 125, series 2 and 3

(Example:pressure control; for exact dimensions of the control devices see separate data sheets)

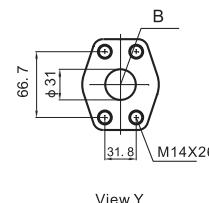
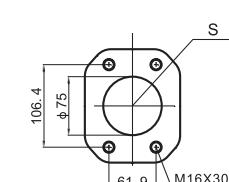
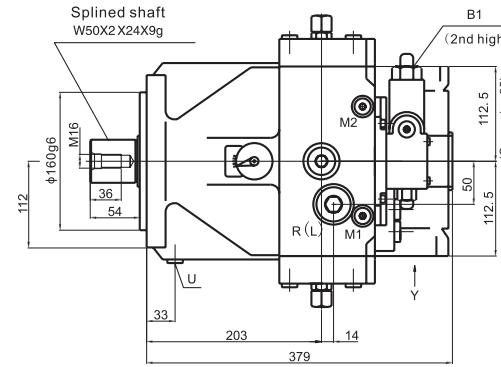
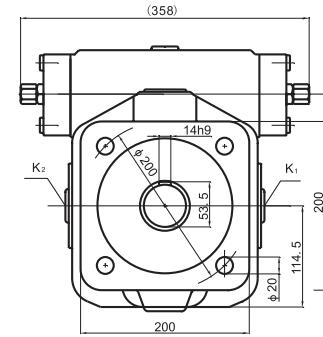
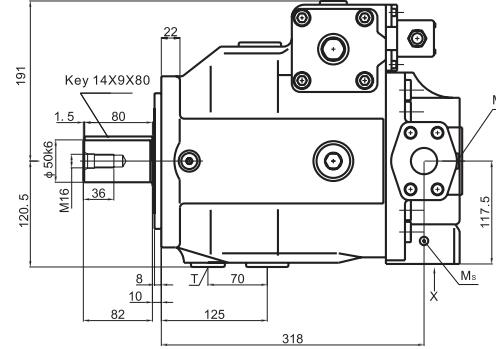


B	Pressure port	SAE 1 1/4" (high pressure range)
B1	Auxiliary port	M33x2; deep 18(plugged)
S	Suction port	SAE 2 1/2" (standard series)
K ₁ , K ₂	Flushing ports	M33x2; deep 18(plugged)
T	Oil drain	M33x2; deep 18(plugged)
M _b , M _s	Test points	M14x1.5; deep 12(plugged)
R(L)	Oil filling + air bleed	M33x2
U	Flushing port	M14x1.5 ; deep 12(plugged)
M ₁ , M ₂	Test points for adjustment pressure	M14x1.5 (plugged)

EFP-A4VSO180 installation dimensions

Unit dimensions nominal size 180, series 2 and 3

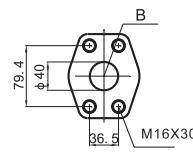
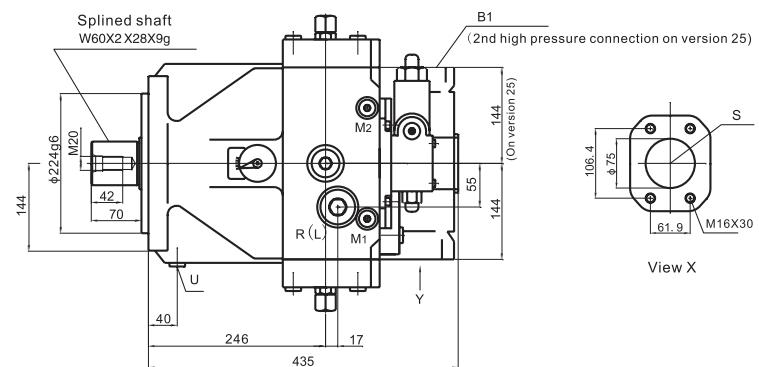
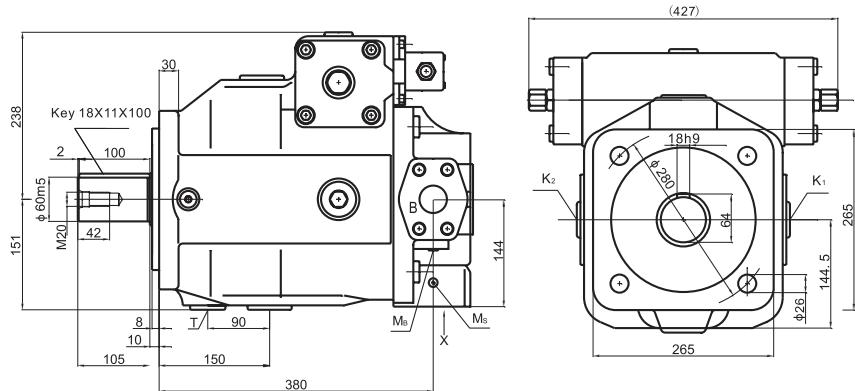
(Example:pressure control; for exact dimensions of the control devices see separate data sheets)



B	Pressure port	SAE 1 1/4" (high pressure range)
B1	Auxiliary port	M33x2; deep 18(plugged)
S	Suction port	SAE 3" (standard series)
K ₁ , K ₂	Flushing ports	M33x2; deep 16(plugged)
T	Oil drain	M33x2; deep 16(plugged)
M _b , M _s	Test points	M14x1.5; deep 12(plugged)
R(L)	Oil filling + air bleed	M33x2
U	Flushing port	M14x1.5; deep 12(plugged)
M ₁ , M ₂	Test points for adjustment pressure	M14x1.5 (plugged)

**EFP-A4VSO250 installation dimensions****Unit dimensions nominal size 250, series 3**

(Example: pressure control; for exact dimensions of the control devices see separate data sheets)

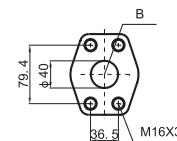
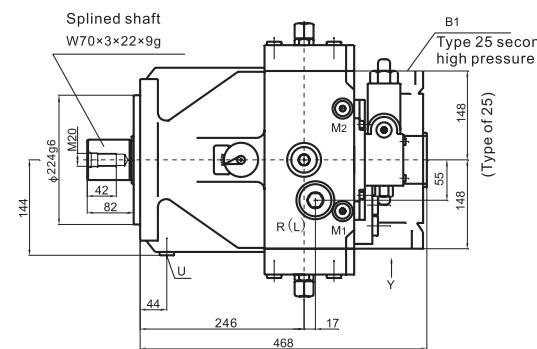
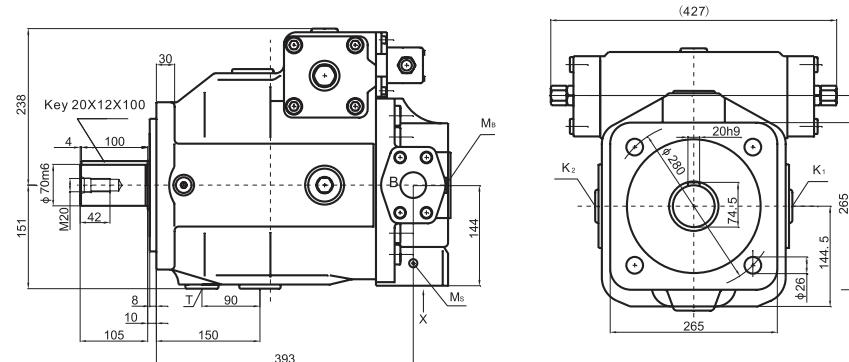


B	Pressure port	SAE 1 1/2" (high pressure range)
B1	Auxiliary port	M42x2; deep 20(plugged)
S	Suction port	SAE 3" (standard series)
K1, K2	Flushing ports	M42x2; deep 20(plugged)
T	Oil drain	M42x2; deep 20(plugged)
Mb, Ms	Test points	M14x1.5; deep 12(plugged)
R(L)	Oil filling + air bleed	M42x2
U	Flushing port	M14x1.5; deep 12(plugged)
M1, M2	Test points for adjustment pressure	M18x1.5 (plugged)

View Y

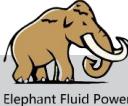
EFP-A4VSO300/355/370 installation dimensions**Unit dimensions nominal size 300/355/370, series 2 and 3**

(Example: pressure control; for exact dimensions of the control devices see separate data sheets)



View Y

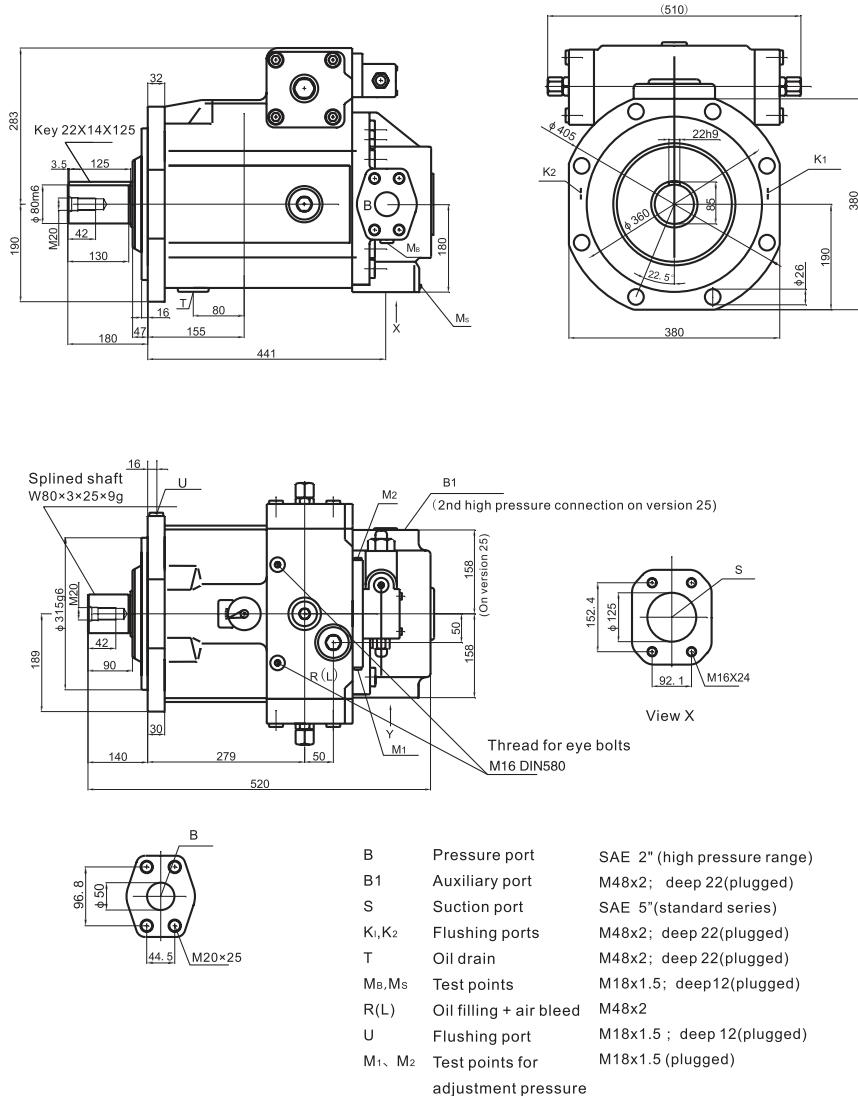
B	Pressure port	SAE 1 1/2" (high pressure range)
B1	Auxiliary port	M42x2; deep 20(plugged)
S	Suction port	SAE 4" (standard series)
K1, K2	Flushing ports	M42x2; deep 20(plugged)
T	Oil drain	M42x2; deep 20(plugged)
MB, MS	Test points	M14x1.5; deep 12(plugged)
R(L)	Oil filling + air bleed	M42x2
U	Flushing port	M18x1.5 ; deep 12(plugged)
M1, M2	Test points for adjustment pressure	M18x1.5 (plugged)



EFP-A4VSO500 installation dimensions

Unit dimensions nominal size 500, series 3

(Example: pressure control; for exact dimensions of the control devices see separate data sheets)



Through drive

The axial piston unit EFP-A4VSO can be supplied with a through drive, as shown in the ordering details on page 5.

We recommend that only up to a maximum of three individual pumps be coupled in tandem.

The scope of supply are:

Coupling, fixing screws, seals and, where applicable, an adaptor flange.

Combination pumps

For pump installation, independent circuit is available.

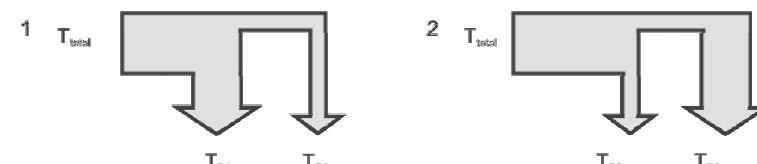
1. If the combination consists of 2 EFP-A4VSO pumps and if this is to be factory fitted, both pump codes should be quoted, joined by "+".

Ordering example:
EFP-A4VSO125DR/30R-PPB13K33+ EFP-A4VSO71DR/10R-PZB13N00

2. If a gear or radial piston pump is to be fitted in the factory as the 2nd pump, please consult us.

When projecting a combination pump using the same size pumps (e.g. 125 + 125) together with a control device HD.P, HD.T, and HD.U please consult us.

Permissible through drive torque

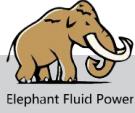


Splined shaft

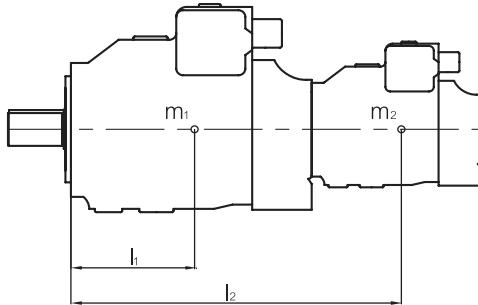
Nominal size			40	71	125	180	250	300	355	370	500
Pump 1 +Pump 2	$T_{\text{total max.}}$	Nm	446	790	1392	2004	2782	3338	3952	4116	5566
1	Permissible through drive torque	$T_{D1 \text{ max.}}$	Nm	223	395	696	1002	1391	1669	1976	2058
	drive torque	$T_{D2 \text{ max.}}$	Nm	223	395	696	1002	1391	1669	1976	2058
2	Permissible through drive torque	$T_{D1 \text{ max.}}$	Nm	223	395	696	1002	1391	1669	1976	2058
	drive torque	$T_{D2 \text{ max.}}$	Nm	223	395	696	1002	1391	1669	1976	2058

Keyed shaft

Nominal size			40	71	125	180	250	300	355	370	500
Pump 1 +Pump 2	$T_{\text{total max.}}$	Nm	380	700	1392	1400	2300	3006	3557	3707	5200
1	Permissible through drive torque	$T_{D1 \text{ max.}}$	Nm	223	395	696	1002	1391	1670	1976	2060
	drive torque	$T_{D2 \text{ max.}}$	Nm	157	305	696	398	909	1336	1581	1647
2	Permissible through drive torque	$T_{D1 \text{ max.}}$	Nm	157	305	696	398	909	1336	1581	1647
	drive torque	$T_{D2 \text{ max.}}$	Nm	223	395	696	1002	1391	1670	1976	2060



Permissible mass moment of inertia



m_1, m_2 [kg] Weight of pump
 l_1, l_2 [mm] Distance center of gravity

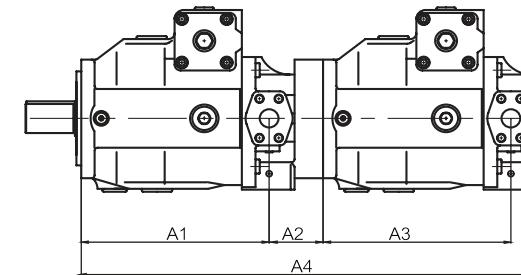
$$T_p = m_1 \cdot l_1 \cdot \frac{1}{102} + m_2 \cdot l_2 \cdot \frac{1}{102} [\text{Nm}]$$

Nominal size		40	71	125	180	250	300	355	370	500
Permissible moment of inertia	$T_{m \text{ zul.}}$	Nm	1800	2000	4200	4200	9300	9300	9300	15600
Perm. moment of inertia with dynamic mass acceleration $10g=98.1\text{m/sec}^2$	$T_{m \text{ zul.}}$	Nm	180	200	420	420	930	930	930	1560
Weight (DR)	m	kg	39	53	88	102	184	207	207	320
Distance center of gravity	l_1	mm	120	140	170	180	210	220	220	230



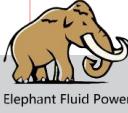
Unit dimensions of combination pumps

EFP-A4VSO + EFP-A4VSO



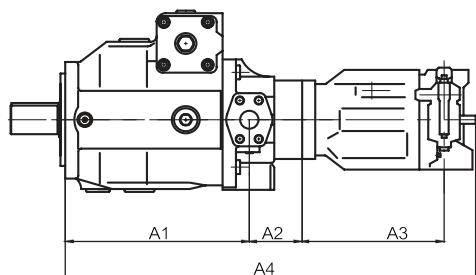
Main pump	A4VSO 40				A4VSO 71				A4VSO 125				A4VSO 180				A4VSO 250			
	A ₁	A ₂	A ₃	A ₄	A ₁	A ₂	A ₃	A ₄	A ₁	A ₂	A ₃	A ₄	A ₁	A ₂	A ₃	A ₄	A ₁	A ₂	A ₃	A ₄
A4VSO 40	227	61	227	557	254	62	227	585	310	37	227	616	318	53	227	640	380	51	227	700
A4VSO 71	—	—	—	—	254	62	254	614	310	63	254	671	318	79	254	695	380	51	254	729
A4VSO 125	—	—	—	—	—	—	—	—	310	69	310	734	318	85	310	758	380	89	310	824
A4VSO 180	—	—	—	—	—	—	—	—	—	—	—	—	318	85	318	782	380	89	318	848
A4VSO 250	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	380	89	380	908	

Main pump	A4VSO 300				A4VSO 355				A4VSO 370				A4VSO 500			
	A ₁	A ₂	A ₃	A ₄	A ₁	A ₂	A ₃	A ₄	A ₁	A ₂	A ₃	A ₄	A ₁	A ₂	A ₃	A ₄
A4VSO 40	393	67	227	729	393	67	227	729	393	67	227	729	441	64	227	774
A4VSO 71	393	67	254	758	393	67	254	758	393	67	254	758	441	64	254	803
A4VSO 125	393	105	310	853	393	105	310	853	393	105	310	853	441	64	310	860
A4VSO 180	393	105	318	877	393	105	318	877	393	105	318	877	441	64	318	884
A4VSO 250	393	105	380	937	393	105	380	937	393	105	380	937	441	100	380	980
A4VSO 355	393	105	393	966	393	105	393	966	393	105	393	966	441	100	393	1009
A4VSO 500	—	—	—	—	—	—	—	—	—	—	—	—	441	149	441	1110



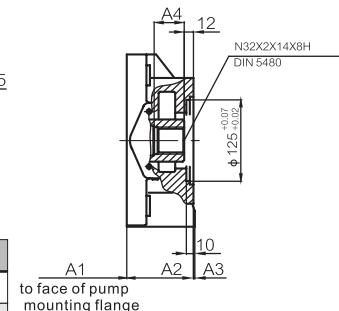
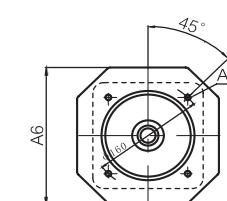
Unit dimensions of combination pumps

EFP-A4VSO + EFP-A10VSO



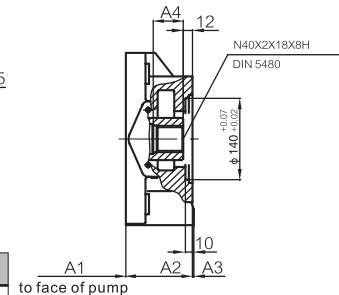
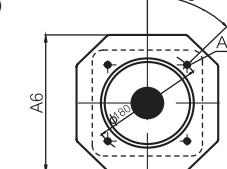
Dimensions through drive

ISO 125,4-hole;
for mounting a
EFP-A4vSO/G 40 (splined shaft)
Ordering code K31

to face of pump
mounting flange

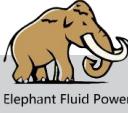
Size Main pump	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	Spline shaft DIN 5480/SAE
40	189	99	—	58	M12X24	—	N25x1.25x18x8H /N32x2x14x8H
71	216	100	—	55	M12X24	—	N30x1.25x22x8H /N32x2x14x8H
125	265	82	8	37	M12X18	150	N35x1.25x26x8H /N32x2x14x8H
180	265	106	—	37	M12X18	160	N35x1.25x26x8H /N32x2x14x8H
250	327	104	2	48	M12X18	200	N42x1.25x32x8H /N32x2x14x8H
300	327	133	—	48	M12X18	220	N42x1.25x32x8H /N32x2x14x8H
355	327	133	—	48	M12X18	220	N42x1.25x32x8H /N32x2x14x8H
370	327	133	—	48	M12X18	220	N42x1.25x32x8H /N32x2x14x8H
500	365	140	14	60	M12X18	240	N55x1.25x42x8H /N32x2x14x8H

ISO 140, 4-hole;
for mounting a
EFP-A4VSO/G 71 (splined shaft)
Ordering code K33

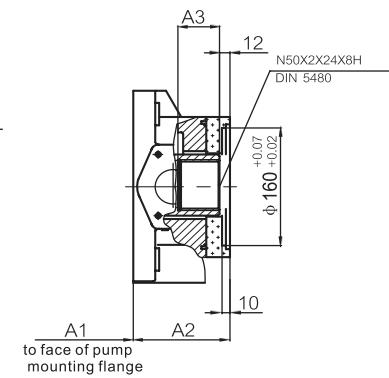
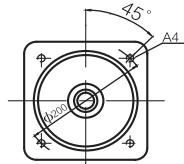
to face of pump
mounting flange

Size Main pump	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	Spline shaft DIN 5480/SAE
71	216	100	—	44	M12X24	—	N30x1.25x22x8H /N40x2x18x8H
125	265	108	—	45	M12X25	—	N35x1.25x26x8H /N40x2x18x8H
180	265	132	—	45	M12X18	—	N35x1.25x26x8H /N40x2x18x8H
250	327	104	2	48	M12X18	200	N42x1.25x32x8H /N40x2x18x8H
300	327	133	—	48	M12X18	220	N42x1.25x32x8H /N40x2x18x8H
355	327	133	—	48	M12X18	220	N42x1.25x32x8H /N40x2x18x8H
370	327	133	—	48	M12X18	220	N42x1.25x32x8H /N40x2x18x8H
500	365	140	15	60	M12X18	240	N55x1.25x42x8H /N40x2x18x8H

* as required

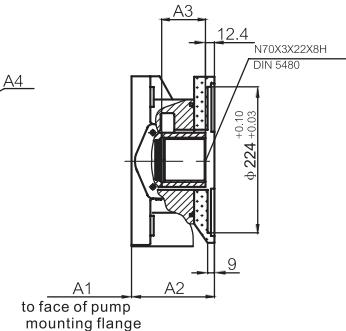
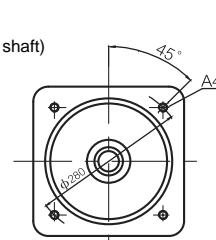


ISO 160, 4-hole;
for mounting a
EFP-A4VSO/G 125 or 180 (splined shaft)
Ordering code K34



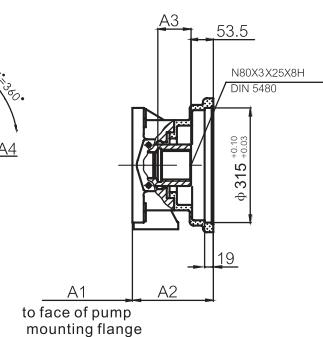
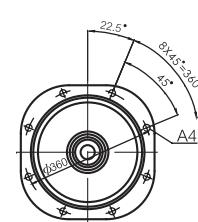
Size Main pump	A ₁	A ₂	A ₃	A ₄	Spline shaft DIN 5480/SAE
125	265	114	58	M16X31	N35x1.25x26x8H /N50x2x24x8H
180	265	138	53	M16X32	N35x1.25x26x8H /N50x2x24x8H
250	327	142	60	M16X 32	N42x1.25x32x8H /N50x2x24x8H
300	327	171	60	M16X 32	N42x1.25x32x8H /N50x2x24x8H
355	327	171	60	M16X 32	N42x1.25x32x8H /N50x2x24x8H
370	327	171	60	M16X 32	N42x1.25x32x8H /N50x2x24x8H
500	365	140	60	M16X 24	N55x1.25x42x8H /N50x2x24x8H

ISO 224, 4-hole;
for mounting a
EFP-A4VSO/G 355 (splined shaft)
Ordering code K77

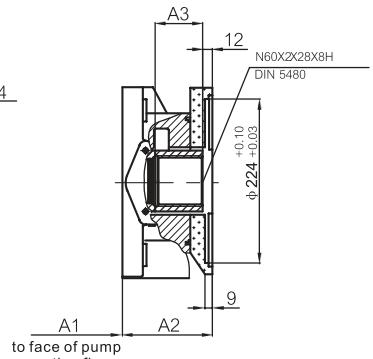
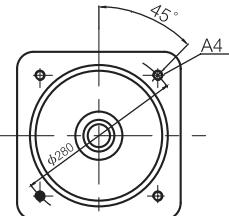


Size Main pump	A ₁	A ₂	A ₃	A ₄	Spline shaft DIN 5480/SAE
355	327	171	82	M20X24	N42x1.25x32x8H /N70x3x22x8H
370	327	171	82	M20X24	N42x1.25x32x8H /N70x3x22x8H
500	365	176	76	M20X24	N55x1.25x42x8H /N70x3x22x8H

ISO 315, 8-hole;
for mounting a
EFP-A4VSO/G 500 (splined shaft)
Ordering code K43

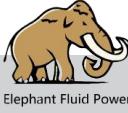


ISO 224, 4-hole;
for mounting a
EFP-A4VSO/G 250 (splined shaft)
Ordering code K35

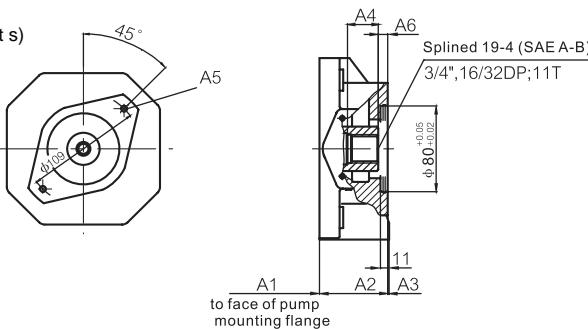


Size Main pump	A ₁	A ₂	A ₃	A ₄	Spline shaft DIN 5480/SAE
250	327	142	75	M20X 37	N42x1.25x32x8H /N60x2x28x8H
300	327	171	75	M20X36	N42x1.25x32x8H /N60x2x28x8H
355	327	171	75	M20X36	N42x1.25x32x8H /N60x2x28x8H
370	327	171	75	M20X36	N42x1.25x32x8H /N60x2x28x8H
500	365	176	74	M20X 36	N55x1.25x42x8H /N60x2x28x8H

Size Main pump	A ₁	A ₂	A ₃	A ₄	Spline shaft DIN 5480/SAE
500	365	225	91	M20X26	N55x1.25x42x8H /N80x3x25x8H

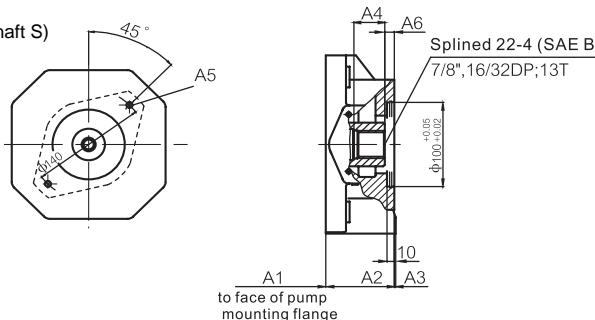


ISO 80, 2-hole;
for mounting a
EFP-A10VSO 18 (splined shaft S)
Ordering code KB2



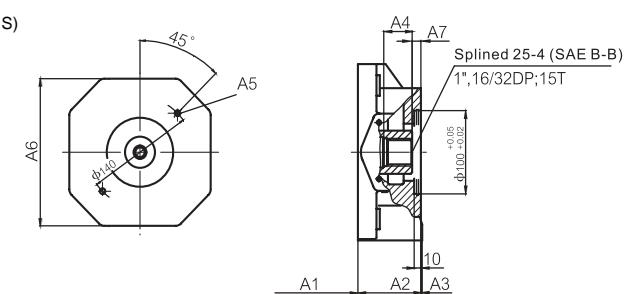
Size Main pump	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	Spline shaft DIN 5480/SAE
125	265	82	11.5	19.1	M10X18	21.4	N35x1.25x26x8H /3/4", 16/32DP; 11T
180	265	106	11.5	19.1	M10X18	21.4	N35x1.25x26x8H /3/4", 16/32DP; 11T
250	327	104	11.5	19.1	M10X18	21.4	N42x1.25x32x8H /3/4", 16/32DP; 11T

ISO 100, 2-hole;
for mounting a
EFP-A10VSO 28 (splined shaft S)
Ordering code KB3



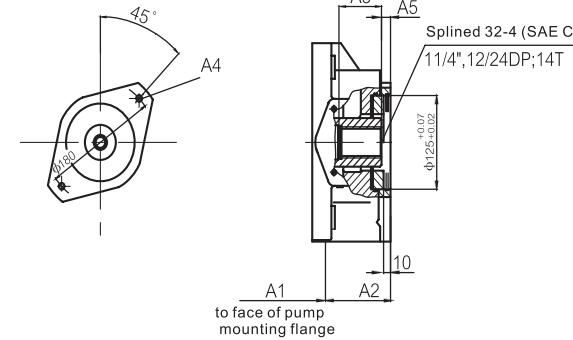
Size Main pump	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	Spline shaft DIN 5480/SAE
40	189	101	—	37	M12X26	20.3	N25x1.25x18x8H /7/8", 16/32DP; 13T
71	216	102	—	34	M12X26	20.3	N30x1.25x22x8H /7/8", 16/32DP; 13T
125	265	84	—	26	M12X22	20.3	N35x1.25x26x8H /7/8", 16/32DP; 13T
180	265	108	—	26	M12X22	20.3	N35x1.25x26x8H /7/8", 16/32DP; 13T
250	327	106	—	27	M12X20	20.3	N42x1.25x32x8H /7/8", 16/32DP; 13T
300	327	135	—	27	M12X20	20.3	N42x1.25x32x8H /7/8", 16/32DP; 13T
355	327	135	—	27	M12X20	20.3	N42x1.25x32x8H /7/8", 16/32DP; 13T
370	327	135	—	39	M12X20	20.3	N42x1.25x32x8H /7/8", 16/32DP; 13T

ISO 100, 2-hole;
for mounting a
EFP-A10VSO 45 (splined shaft S)
Ordering code KB4

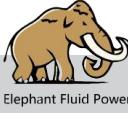


Size Main pump	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	Spline shaft DIN 5480/SAE
125	265	82	8	36	M12X22	150	20.9	N35x1.25x26x8H /1", 16/32DP; 15T
180	265	106	—	36	M12X22	160	20.9	N35x1.25x26x8H /1", 16/32DP; 15T
250	327	104	3	27.5	M12X18	200	20.9	N42x1.25x32x8H /1", 16/32DP; 15T
300	327	104	3	27.5	M12X18	220	20.9	N42x1.25x32x8H /1", 16/32DP; 15T

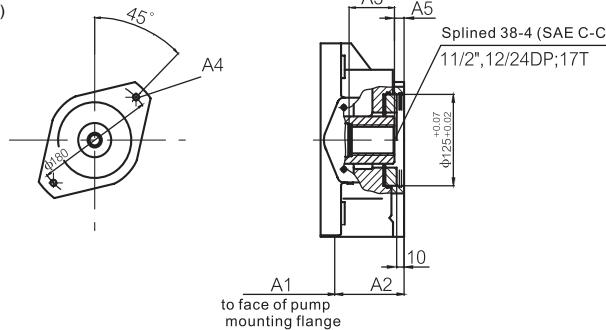
ISO 125, 2-hole;
for mounting a
EFP-A10VSO 71 (splined shaft S)
Ordering code KB5



Size Main pump	A ₁	A ₂	A ₃	A ₄	A ₅	Spline shaft DIN 5480/SAE
125	265	113	38.1	M16X24	23.7	N35x1.25x26x8H /1 1/4", 12/24DP; 14T
180	265	137	38.1	M16X24	23.7	N35x1.25x26x8H /1 1/4", 12/24DP; 14T
250	327	141	42	M16X24	23.7	N42x1.25x32x8H /1 1/4", 12/24DP; 14T
300	327	170	42	M16X24	23.7	N42x1.25x32x8H /1 1/4", 12/24DP; 14T

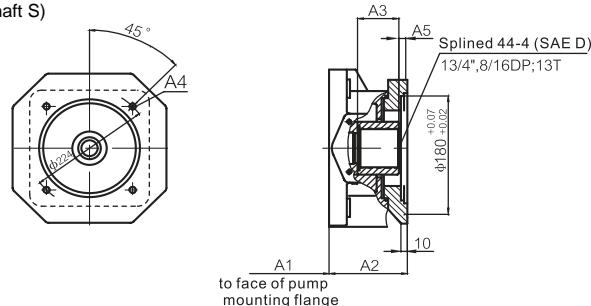


ISO 125, 2-hole;
for mounting a
EFP-A10VSO 100(splined shaft S)
Ordering code KB6



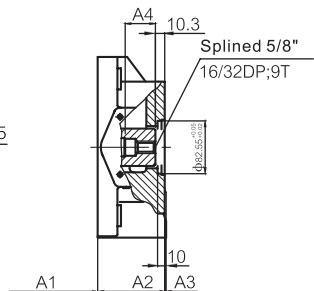
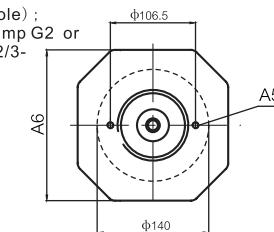
Size Main pump	A ₁	A ₂	A ₃	A ₄	A ₅	Spline shaft DIN 5480/SAE
125	265	114	58	M16X26	23.7	N35x1.25x26x8H /1 1/2", 12/24DP; 17T
180	265	138	58	M16X26	23.7	N35x1.25x26x8H /1 1/2", 12/24DP; 17T
250	327	142	62	M16X26	23.7	N42x1.25x32x8H /1 1/2", 12/24DP; 17T
300	327	171	62	M16X26	23.7	N42x1.25x32x8H /1 1/2", 12/24DP; 17T

ISO 180, 4-hole;
for mounting a
EFP-A10vSO 140 (splined shaft S)
Ordering code KB7



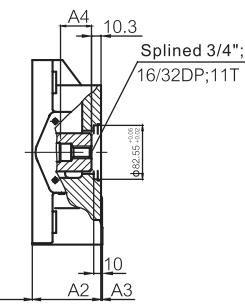
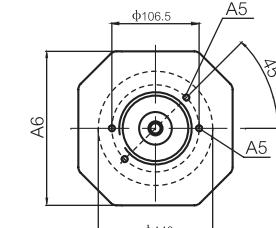
Size Main pump	A ₁	A ₂	A ₃	A ₄	A ₅	Spline shaft DIN 5480/SAE
250	327	142	82	M16X32	10.8	N42x1.25x32x8H /1 3/4", 8/16DP; 13T
300	327	171	82	M16X32	10.8	N42x1.25x32x8H /1 3/4", 8/16DP; 13T
355	327	171	82	M16X32	10.8	N42x1.25x32x8H /1 3/4", 8/16DP; 13T

Flange SAE 82-2 (SAE A, 2-hole) ;
for mounting an external gear pump G2 or
an internal gear pump 1 PF2GC2/3-
1X/XXXXR07MU2
Ordering code K01



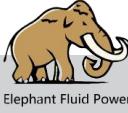
Size Main pump	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	Spline shaft DIN 5480/SAE
40	189	74	—	40	M10X15	130	N25x1.25x18x8H /5/8" 16/32DP; 9T
71	216	75	2	37	M10X15	140	N30x1.25x22x8H /5/8" 16/32DP; 9T
125	265	82	8	39	M10X20	150	N35x1.25x26x8H /5/8" 16/32DP; 9T
180	265	106	—	28	M10X15	—	N42x1.25x32x8H /5/8" 16/32DP; 9T
250	327	104	3	50	M10X15	200	N42x1.25x32x8H /5/8" 16/32DP; 9T
300	327	133	—	50	M10X15	220	N42x1.25x32x8H /5/8" 16/32DP; 9T
355	327	133	—	50	M10X15	220	N42x1.25x32x8H /5/8" 16/32DP; 9T
370	327	133	—	50	M10X15	220	N42x1.25x32x8H /5/8" 16/32DP; 9T
500	365	140	12	62	M10X15	—	N55x1.25x42x8H /5/8" 16/32DP; 9T

Flange SAE 82-2 (SAE A,2-hole) ;
for mounting a
EFP-A10VSO 18 shaft S
Ordering code K52



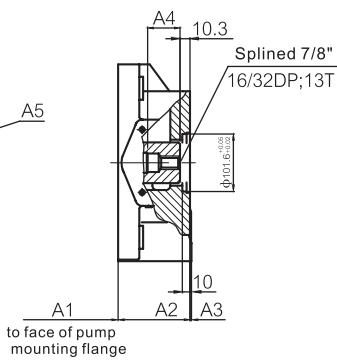
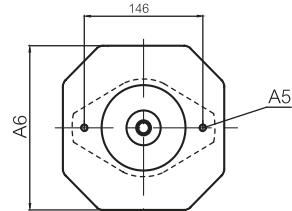
Size Main pump	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	Spline shaft DIN 5480/SAE
40	189	74	—	40	M10X15	130	N25x1.25x18x8H /3/4" 16/32DP; 11T
71	216	75	2	37	M10X15	140	N30x1.25x22x8H /3/4" 16/32DP; 11T
125	265	82	8	39	M10X20	150	N35x1.25x26x8H /3/4" 16/32DP; 11T
180	265	106	—	28	M10X15	200	N35x1.25x26x8H /3/4" 16/32DP; 11T
250	327	104	3	50	M10X15	—	N42x1.25x32x8H /3/4" 16/32DP; 11T
300	327	133	—	50	M10X15	220	N42x1.25x32x8H /3/4" 16/32DP; 11T
355	327	133	—	50	M10X15	220	N42x1.25x32x8H /3/4" 16/32DP; 11T
370	327	133	—	50	M10X15	220	N42x1.25x32x8H /3/4" 16/32DP; 11T
500	365	140	12	62	M10X15	—	N55x1.25x42x8H /3/4" 16/32DP; 11T

to face of pump
mounting flange



ELEPHANT FLUID POWER

Flange SAE 101-2 (SAE B, 2-hole) :
for mounting an external gear pump G3
Ordering code K02



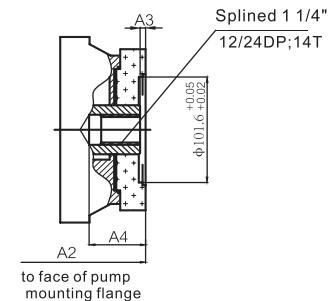
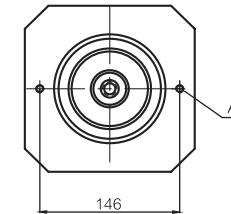
Size Main pump	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	Spline shaft DIN 5480/SAE
40	189	101	—	64	M12X26	—	N25x1.25x18x8H /7/8" 16/32DP;13T
71	216	106	—	64	M12X30	—	N30x1.25x22x8H /7/8" 16/32DP;13T
125	265	82	8	39	M12X15	150	N35x1.25x26x8H /7/8" 16/32DP;13T
180	265	106	—	39	M12X15	160	N35x1.25x26x8H /7/8" 16/32DP;13T
250	327	104	3	50	M12X18	200	N42x1.25x32x8H /7/8" 16/32DP;13T
300	327	133	—	50	M12X18	220	N42x1.25x32x8H /7/8" 16/32DP;13T
355	327	133	—	50	M12X18	220	N42x1.25x32x8H /7/8" 16/32DP;13T
370	327	133	—	50	M12X18	220	N42x1.25x32x8H /7/8" 16/32DP;13T
500	365	140	—	62	M12X18	240	N55x1.25x42x8H /7/8" 16/32DP;13T

TEL:+86(311)68123061
www.heavymaintain.com

FAX:+86(10)-80115555-568844
E-mail:elephant@sjzhjsm.com

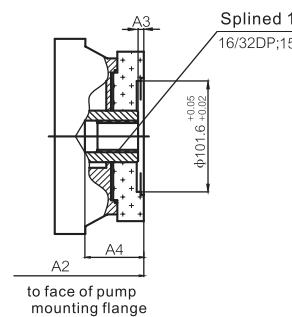
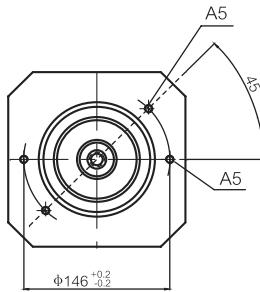
EFP-A4VSO

Flange SAE 101-2 (SAE B, 2-hole)
for mounting an internal gear pump
1PF2GC5-1X/0XXXR07MU2,
Ordering code K06



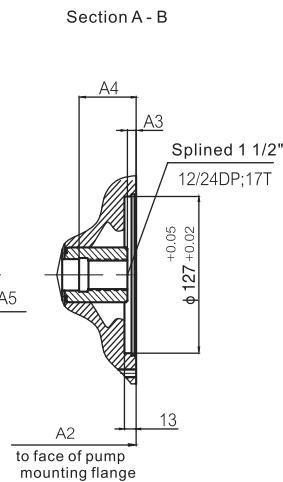
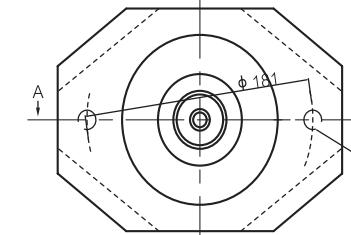
Size Main pump	A ₂	A ₃	A ₄	A ₅	Spline shaft DIN 5480/SAE
71	321	10.5	59.5	M12X18	N30x1.25x22x8H /1 1/4" 12/24DP;14T
125	378	9	57	M12X18	N35x1.25x26x8H /1 1/4" 12/24DP;14T
180	402	10.4	57	M12X18	N35x1.25x26x8H /1 1/4" 12/24DP;14T
250	436	10.4	60	M12X18	N42x1.25x32x8H /1 1/4" 12/24DP;14T

Flange SAE 101-2 (SAE B, 2-hole)
for mounting a EFP-A10VO 45 shaft S or a
gear pump 1PF2GC4-1X/0XXXR07MU2 ,
Ordering code K04

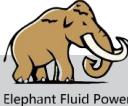


Size Main pump	A ₂	A ₃	A ₄	A ₅	Spline shaft DIN 5480/SAE
125	347	9	48.4	M12X15	N35x1.25x26x8H /1" 16/32DP;15T
180	371	9	48.4	M12X18	N35x1.25x26x8H /1" 16/32DP;15T
250	431	10.4	61	M12X18	N42x1.25x32x8H /1" 16/32DP;15T
300	460	10.4	52.4	M12X18	N42x1.25x32x8H /1" 16/32DP;15T
355	460	10.4	52.4	M12X18	N42x1.25x32x8H /1" 16/32DP;15T

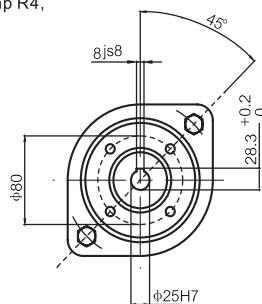
Flange SAE 127-2 (SAE C,2-hole)
for mounting a EFP-A10VO 100 shaft S or an
internal gear pump 1PF2GC6-1X/XXXXR07MU2
Ordering code K24



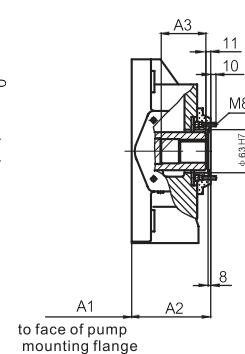
Size Main pump	A ₂	A ₃	A ₄	A ₅	Spline shaft DIN 5480/SAE
125	377	9	74	M16X 24	N35x1.25x26x8H /1 1/2" 12/24DP;17T
180	401	10	72	M16X 24	N35x1.25x26x8H /1 1/2" 12/24DP;17T
250	451	10.5	76	M16X 20	N42x1.25x32x8H /1 1/2" 12/24DP;17T



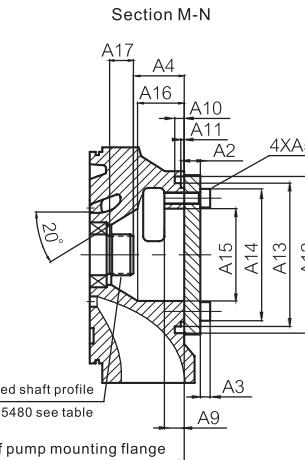
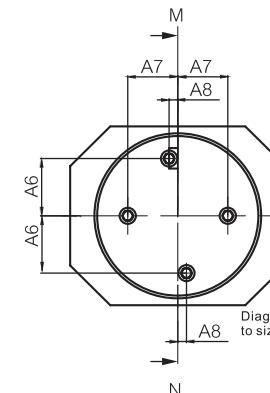
\varnothing 63 metric, 4-hole;
for mounting a radial piston pump R4,
Ordering code K57



Section A - B



With through drive shaft, without hub or adapter flange, closed with cover plate
Ordering code K99
Nominal size 40~370



Size Main pump	A ₁	A ₂	A ₃	Spline shaft DIN 5480
40	189	100	61	N25x1.25x18x8H keyed shaft Ø25
71	216	103	56	N30x1.25x22x8H keyed shaft Ø25
125	265	110	62	N35x1.25x26x8H keyed shaft Ø25
180	265	134	62	N35x1.25x26x8H keyed shaft Ø25
250	327	132	78	N42x1.25x32x8H keyed shaft Ø25

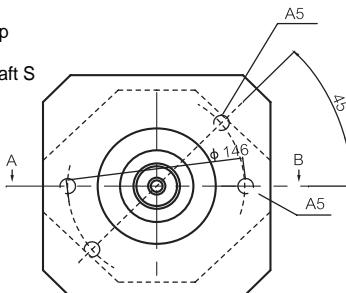
*with EFP-A4VSO 40 and 71 LR.D,L.R.S,
LR.G only a R4-3 piston pump

Flange SAE 101-2 (SAE B,2-hole) ;

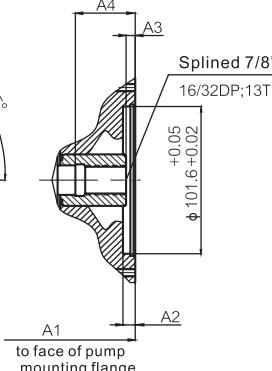
for mounting an external gear pump

G4 or a EFP-A10VO 28 splined shaft S

Ordering code K68



Section A - B

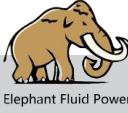


Size Main pump	A ₁	A ₂	A ₃	A ₄	A ₅	Spline shaft DIN 5480/SAE
40	290	10.3	10	47	M12X26	N25x1.25x18x8H /7/8" 16/32DP;13T
71	322	10.3	10	62	M12X26	N30x1.25x22x8H /7/8" 16/32DP;13T
125	355	10	9	49	M12X15	N35x1.25x26x8H /7/8" 16/32DP;13T
180	371	10.3	10	49	M12X18	N35x1.25x26x8H /7/8" 16/32DP;13T
250	431	11	10	47	M12X26	N42x1.25x32x8H /7/8" 16/32DP;13T
300	462	10.3	10	47	M12X26	N42x1.25x32x8H /7/8" 16/32DP;13T
355	462	10.3	10	47	M12X26	N42x1.25x32x8H /7/8" 16/32DP;13T
500	505	10.3	10	78	M12X26	N55x1.25x42x8H /7/8" 16/32DP;13T

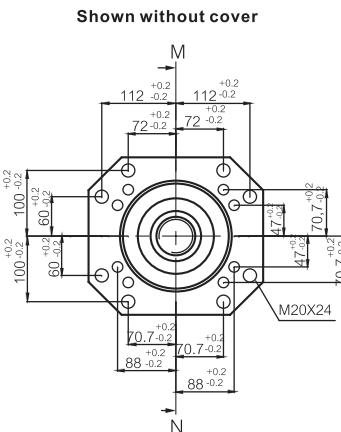
Size Main pump	Splined shaft profile DIN 5480
40	W25 x 1.25 x 18 x 9g
71	W30 x 1.25 x 22 x 9g
125	W35 x 1.25 x 26 x 9g
180	W35 x 1.25 x 26 x 9g
250	W42 x 1.25 x 32 x 9g
300	W42 x 1.25 x 32 x 9g
355	W42 x 1.25 x 32 x 9g
370	W42 x 1.25 x 32 x 9g

Size Main pump	O-ring(not included within the scope of supply)
40	99x3.78 SHA
71	PRP 245 7509
125	119x3.78 SHA
180	119x3.78 SHA
250	162x3.78 SHA
300	162x3.78 SHA
355	162x3.78 SHA
370	162x3.78 SHA

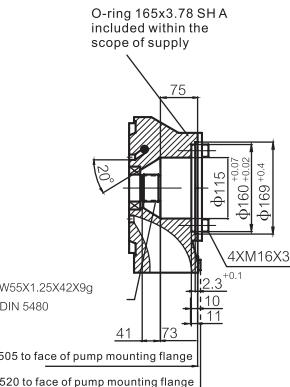
Size Main pump	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₉	A ₁₀	A ₁₁	A ₁₂	A ₁₃	A ₁₄	A ₁₅	A ₁₆	A ₁₇
40	263	10	7.5	51.3 ₊ 1	M12x25	37 ₊ 0.2	37 ₊ 0.2	0	18	9	2.3 ₊ 0.1	Ø118	Ø105 _(gb)	Ø97.6 _{-0.4}	Ø52	44	14
71	291	10	7.5	48 _{±1}	M12x25	42.3	45 _{±0.15}	15.4 _{±0.15}	18	9	2.7 _{±0.1}	Ø130	Ø116 _(gb)	Ø106.4 _{-0.4}	Ø63	38	16
125	347	12	8.5	49.7 _{±1}	M14x30	47 _{±0.15}	47 _{±0.15}	0	18	8.5	2.3 _{±0.1}	Ø137	Ø124 _(gb)	Ø116 _{-0.4}	Ø70	46	22
180	371	12	8.5	49.7 _{±1}	M14x30	47 _{±0.15}	47 _{±0.15}	0	18	8.5	2.3 _{±0.1}	Ø137	Ø124 _(gb)	Ø116 _{-0.4}	Ø70	46	25
250	431	15	12	61.4 _{±1}	M20x40	63 _{±0.15}	63 _{±0.15}	0	26	9	2.3 _{±0.1}	Ø180	Ø165 _(gb)	Ø157 _{-0.4}	Ø88	64	30.5
300	460	15	12	61.4 _{±1}	M20x40	63 _{±0.15}	63 _{±0.15}	0	26	9	2.3 _{±0.1}	Ø180	Ø165 _(gb)	Ø157 _{-0.4}	Ø88	64	34
355	460	15	12	61.4 _{±1}	M20x40	63 _{±0.15}	63 _{±0.15}	0	26	9	2.3 _{±0.1}	Ø180	Ø165 _(gb)	Ø157 _{-0.4}	Ø88	64	34
370	460	15	12	61.4 _{±1}	M20x40	63 _{±0.15}	63 _{±0.15}	0	26	9	2.3 _{±0.1}	Ø180	Ø165 _(gb)	Ø157 _{-0.4}	Ø88	64	34



With through drive shaft, without hub or adapter flange, closed with cover plate
 Ordering code K99
 Nominal size 500



Section M - N



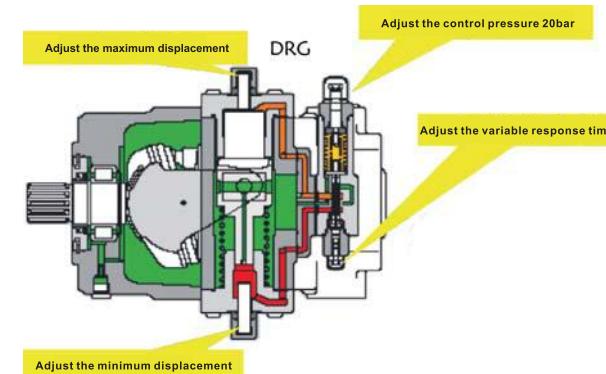
Type list (short delivery times), in case of an order please state type and part no.

Type
EFP-A4VSO4ODFR/10X-PPB13N00
EFP-A4VSO40DR/10X-PPB13N00
EFP-A4VSO40DRG/10X-PPB13N00
EFP-A4VSO40LR2/10R-PPB13N00
EFP-A4VSO40LR2G/10R-PPB13N00

EFP-A4VSO71DFR/10X-PPB13N00
EFP-A4VSO71DR/10X-PPB13N00
EFP-A4VSO71DRG/10X-PPB13N00
EFP-A4VSO71LR2/10R-PPB13N00
EFP-A4VSO71LR2G/10R-PPB13N00

EFP-A4VSO125DFR/30R-PPB13N00
EFP-A4VSO125DR/30R-PPB13N00
EFP-A4VSO125DR/30R-VPB13N00
EFP-A4VSO125LR2/30R-PPB13N00
EFP-A4VSO125LR2G/30R-PPB13N00
EFP-A4VSO125LR2N/30R-PPB13N00

EFP pump adjustment



Determination of displacement

$$\text{Flow } q_v = \frac{V_g \cdot n \cdot \eta_v}{1000} \quad [\text{L/min}]$$

$$\text{Drive torque } T = \frac{1,59 \cdot V_g \cdot \Delta P}{100 \cdot \eta_{mh}} \quad [\text{Nm}]$$

$$\text{Drive power } P = \frac{2 \pi \cdot T \cdot n}{60000} = \frac{T \cdot n}{9549} = \frac{q_v \cdot \Delta P}{600 \cdot \eta_t} \quad [\text{kW}]$$

V_g = (Displacement) [cm³]

ΔP = (Pressure differential) [bar]

n = (Speed) [r/min]

η_v = (Volumetric efficiency)

η_{mh} = (Mechanical/hydraulic efficiency)

η_t = (Overall efficiency) ($\eta_t = \eta_v \cdot \eta_{mh}$)

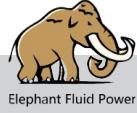
After-sale service & stock

Supply quality spare parts (imported & domestic) for EFP-A4VSO pump, hydraulic pump

maintenance, test;

Hydraulic machine, upgrading for hydraulic system and used equipment, constant displacement pump upgrading for variable pump EFP-A4VSO, energy saving upgrading.





EFP-A4VSO pump coupling assembling and hoist



Important!
How to install the coupling on pump shaft?

Shaft coupler installation: sink the pump shaft coupler in the hot oil with temperature <90 °C about 40 minutes, assemble the shaft and the coupler and cool it with cooling water rapidly, fasten the screw and cushion rubber at last. Never knock the principal axis in assembling.



3 correct installation methods of EFP-A4VSO pump
Never hoist or transport the oil pump via the principal axis; never knock the principal axis in assembling.



1.Hoist the pump via the ends of the bolts



2.Hoist via cross holes of flange by double-hook



3.Lift the end cover by the forklift