HA4VSO 系列轴向柱塞变量泵
Variable displacement Pump HA4VSO

规格 size 40.....500

10/22/30 系列 series

额定压力可达 35MPa Nominal pressure 35MPa

峰值压力可达 40MPa Peak pressure 40MPa

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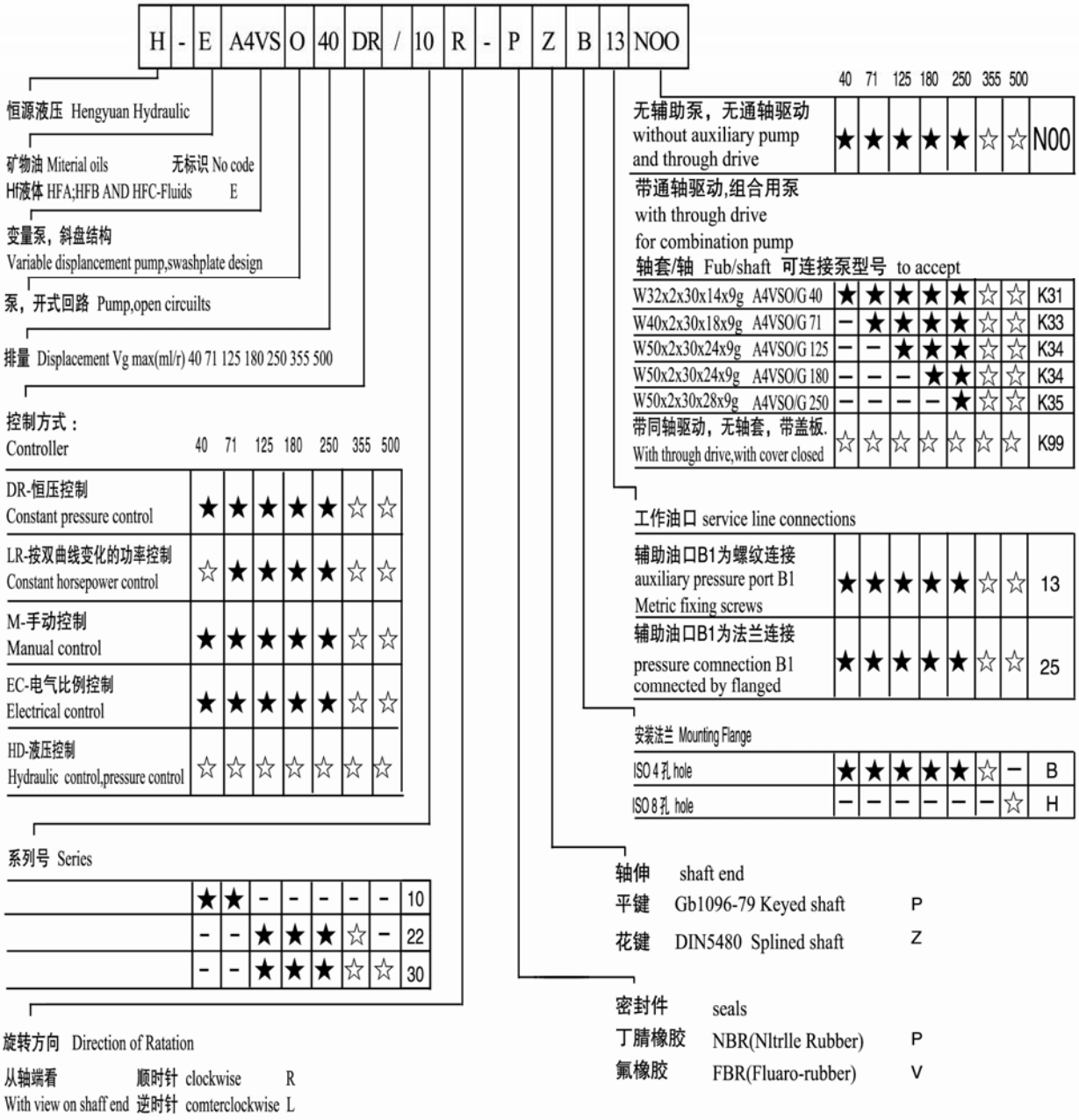
特 点 Features

1、斜盘轴向柱塞变量泵
Swash plate axial piston pump.
2、液压泵的流量正比于泵的转速和排量
Flow is proportional to the drive speed and to the displacement.
3、可通过调节斜盘角度来实现无极变量
Adjust the angle of swash plate to realize the stepless variable.
4、额定工作压力可达 35MPa
Nominal pressure reach to 35 MPa.
5、优良的吸入特性
Good suction characteristic.
6、选用长寿命，高精度轴承
Long service life. High-precision bearings.
7、具备结构设计紧凑，重量轻，低噪声特点
Have the structural design of compact, light weight, low noise characteristics.
8、静压平衡滑靴提高使用寿命
Hydrostatic balance Slipper, improve the life of pump.
9、控制响应灵敏
The sensitivity of control system.
10、带斜盘角度指示器
With swashplate angle indicator

一、型号说明 Type Code



● 订货示例

A4VS、40、DR、10、R、P、Z、B、13、NOO

A4VS 变量泵，规格 40，恒压控制，10 系列，顺时针旋转平键 P，安装法兰为 4 孔，辅助油口 B1 为螺纹连接，无辅助泵无通轴驱动

• Ordering Example:

A4VS、40、DR、10、R、P、Z、B、13、NOO

Axial piston variable displacement pump A4VS,size 40, with constant pressure control,series 10, clockwise rotation,Keyed shaft, auxiliary pressure port B1 Metric fixing series, without Auxiliary equipment.

二、油液选择 Fluid Choice

★为了保证无故障的高效工作，在设计系统期间应根据工况仔细选择液压系统的液压油，所有矿物油均在某种程度上适用于轴向柱塞泵，其使用取决于水基含量，粘度与温度的关系，并考虑氧化和腐蚀的保护，材料相容性，空气和水分离特性。

In order to ensure the selection of fluid trouble-free and high-performance work, In the systems design period, you shouldchoose the hydraulic fluid of the hydraulic system be based on conditions carefully. All the mineral oil are extent applicable to the axial piston unit, which application of the basic division of the above depends on the relationship of the water, temperature and viscosity, and consider axidation and corrosion, protection Material compatibility, air and water separation properties.

★为了保证设备有更长的使用寿命，必须进行良好可靠的过滤，油液中的颗粒污染不得超过以下等级：

等级 18/15-- 按 GB/T 14093-1993

等级 6------ 按 SAE

等级 18/15-- 按 ISO/DIS 4406

In order to ensure long service life of equipment, must be good and reliable filter.

Fluid pollution of particles should not exceed the following levels:

Grade 18/15--In accordance with GB/T 14093-1993

Grade 6------In accordance with GB/T SAE

Grade 18/15--In accordance with GB/T 4406

★在油液温度很高 [75℃≤t,t≤90℃] 时，最低清洁度为：

等级 17/14-- 按 GB/T 14093-1993

等级 5------ 按 SAE

等级 17/14-- 按 ISO/DIS 4406

Fluid in the high temperature [75℃≤t,t≤90℃]:

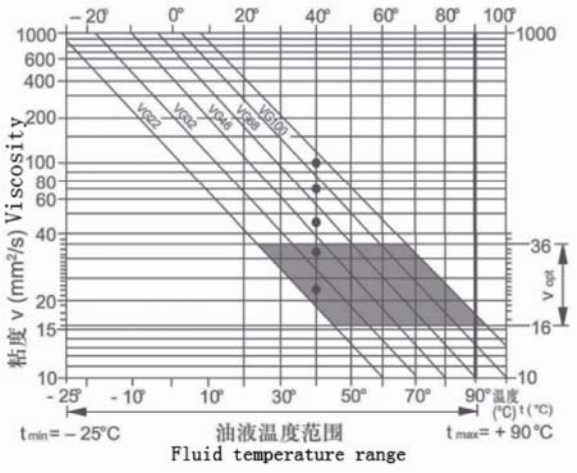
Grade 17/14--In accordance with GB/T 14093-1993

Grade 5------In accordance with GB/T SAE

Grade 17/14--In accordance with GB/T 4406

★为了正确的选择液压油，必须知道与环境温度有关的工作温度，要求温度不超过 90℃，推荐在工作温度下选择工作粘度 16~36mm²/s 的液压油。可参考如下图表选择液压油的粘度，在每种工况下均选用尽可能高的粘度等级。可参考以下图表：

In order to choose the correct hydraulic fluid, you must be aware of the ambient temperature related to the working temperature, the temperature requirements is no more than 90℃,working viscosity is 16~36mm²/s. Please refer to the following chart, choose the viscosity of the hydraulic fluid. Select the highest level of viscosity as possible in each working conditions.



三、规格计算 Specifications terms

输出流量： $Q=v_g.n.\eta_v/1000$ L/min

扭距： $M=1.59v_g.\triangle P/10\eta_{mh}$ N.m

功率： $P=M.n/9549=Q.\triangle P/60\eta t$ kW

注：v_g=排量 mL/r　　△P=压差 MPa　　n=转速 rpm

η_v=容积效率　　η_{mh}=机械效率　　ηt=总效率

The output flow: $Q=v_g.n.\eta_v/1000$ L/min

Torque: $M=1.59v_g.\triangle P/10\eta_{mh}$ N.m

Power: $P=M.n/9549=Q\triangle P/60\eta t$ kW

Note:v_g=displacement mL/r　　△P=pressure MPa　　n=speed rpm

η_v=volumetric efficiency　　η_{mh}=machanical hydraulic efficiency　　η_t=overall efficiency

四、技术参数 Technical Data

●液压泵工作压力范围 Scope of pump pressure

S 口 [进油口] 的绝对压力 $P_{s\,min}$=0.08MPa $P_{s\,max}$=3MPa

Port s[suction port] absolute pressure $P_{s\,min}$=0.08MPa $P_{s\,max}$=3MPa

B 口 [出油口] 的压力 额定压力 P=35MPa 峰值压力 P=40MPa

Port B[drain port] pressure Nominal pressure P=35MPa peck pressure P=40MPa

性能参数【以上数据未考虑机械效率和容积效率】

Performance parameters[these figures did not consider the efficiency of mechanical and volumetric efficiency]

规格 Size			40	71	125	180	250	355	500
排量 V_{gmax} Displacement		cm^3/r	40	71	125	180	250	355	500
最高转速$n_{max\,1}$) Max speed		rpm	2600	2200	1800	1800	1500	1500	1320
最大流量 Max. Output flow	当At $n=n_{max}$	L/min	104	156	225	324	375	532	660
	当At n=1500rpm	L/min	60	107	186	270	375	532	–
最大功率 Max.POWER (△P=35MPa)	当At $n=n_{max}$	kW	61	91	31	189	219	310	385
	当At n=1500rpm	kW	35	62	109	158	219	310	–
最大扭距 Max torquue △P=35MPa		Nm	223	395	696	1002	1391	1976	2783
扭距 Torque (△P=10MPa)		Nm	64	113	199	286	398	564	795
重量[近似值] Weight [approximately]		kg	40	54	87	103	186	206	318

注：1）只要在吸油Sth有0.1MPa的绝对压力则所示数据成立

Note:1) as long as at the oil–absorbing holes,the absolute pressure reach 0.1MPa,what have shown numerical set up

●注意事项

a. 在试运行时，泵体必须灌满油液，并且在工作时保持充满状态。

a.When tries the movement, the pump body must full filled fluid, and maintains the fills condition in the work time

b. 为了减轻噪声，所有连接管道推荐用柔性元件和油箱隔离。

b.To reduce the noise, all connection pipeline isolates with the flexible part and the fuel tank.

c. 泄漏管道需直接回到油箱，泄油压力（壳体内允许的最高压力）为 0.2MPa（绝对压力）。

c.The divulges pipeline need to return the fuel tank directly, releases pressure [top pressure which the oil pressure in shell permits] is 0.2MPa (absolute pressure)

d. 在垂直安装时，推荐进行轴承冲洗，保证前轴承和轴封有足够的润滑，可通过靠近变量泵前法兰的油口 U 来完成，冲洗油液流过前轴承，和泵的泄漏油一起从泄油口排出。U 口与泄漏油口 T 保持约 0.2MPa 压差。各种规格泵所需的冲洗油液流量见下表：

d.When vertical installs, we recommend carries on the bearing flushing, ensure that the front bearing and the axis seal have the enough lubrication. We can use approaching the variable displacement pump flange’s oil port U to complete, the flushing fluid flows through the front bearing, and discharge to fluid leak port with the leak fluid of pump together. Port U with leak fluid port T maintains approximately the 0.2MPa pressure Top.Size pumping station needs the flushing fluid flow sees the next table:

规格 Size	40	71	125	180	250	355	500
流量 Flow L/min	4	5	6	8	12	16	20

e. 当液压泵连续在额定压力或间断封值压力下运行，需采用辅助装置冷却油液，保证油液温度不超过规定范围。

e.When the hydraulic pump working under the nominal pressure or the intermittent peak pressure continuously, you must use the auxiliary unit to cool fluid for ensure that the fluid temperature does not surpass the prescribed limit.

五、液压泵执行标准 Implementation standard of the hydraulic pumps

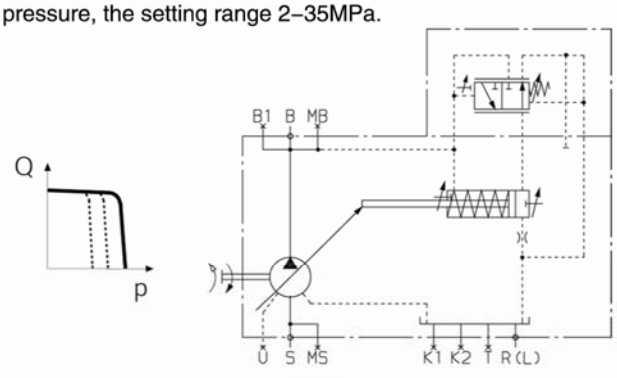
JB/T 7043–2006 hydraulic axial piston pump

六、控制部分 Control parts

●压力控制 DR/ 远程压力控制 DRG
Pressure Control/Remote pressure control DRG

原理：泵仅输出执行机构所需的油量，在设定压力范围内，压力补偿控制保证泵以最大流量输出。当系统不需要流量时，在保持设定压力的情况下溢流，压力值设定范围 2–35MPa。

Principles:In the setting range of pressure ,we use the pressure compensation control to guarantee the pump have the longest output volume. While maintaining the setting pressure,the maximum output capacity can be set up by the system pressure. When the system pressure surpass the pressure compensation setting. Or the system no longer need the flow of fluid,The pump overflow while maintaining the setting pressure, the setting range 2–35MPa.



●双曲线功率控制 LR2 Power control LR2 with hyperbolic characteristic

一、原理：双曲线功率控制，能在泵的转速不变时，保持泵的驱动功率为不变的设定值。

Principles: The hyperbolic power control maintains a constant preset drive power at the same input speed.

可选项 Optional：

压力控制 Pressure control（LR2D）

远程控制 Remotely controlled（LR2G）

流量控制 Flow control（LR2F，LR2S）

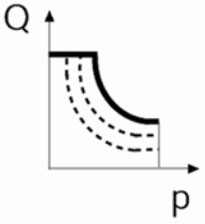
液压行程限制器（LR2H）Hydraulic stroke limiter

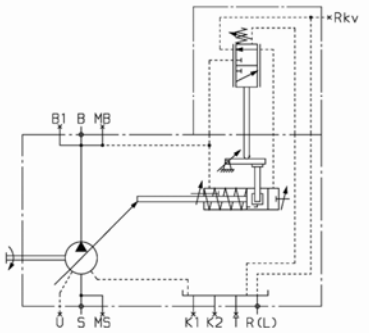
机械行程限制器（LR2M）Mechanical stroke limiter

液压两点控制（LR2Z）Hydraulic two-point control

用于帮助启动的电气卸荷阀（LR2Y）

with electric unloading valve for easy start





●带功率特性远程控制的功率控制 LR3
Power control LR3 with remote control of power characteristics

二、原理：双曲线功率控制保持预设的驱动功率恒定。功率特性曲线可远程调节。

This power control maintains a constant preset drive power, with remote control of the power characteristics.

可选项 Optional：

压力控制 Pressure control（LR3D）

远程控制 Remotely controlled（LR3G）

流量控制 Flow control（LR3F，LR3S）

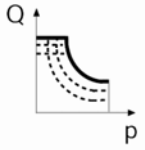
液压行程限制器（LR3H）Hydraulic stroke limiter

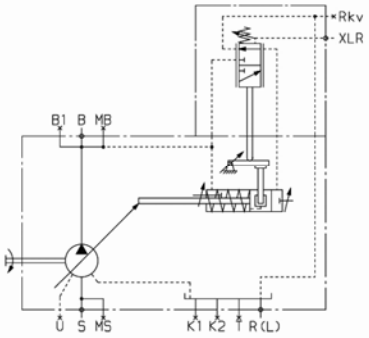
机械行程限制器（LR3M）Mechanical stroke limiter

液压两点控制（LR3Z）Hydraulic two-point control

用于帮助启动的电气卸荷阀（LR3Y）

with electric unloading valve for easy start





●与先导压力有关的液压控制 LR2N
Hydraulic control LR2N and LR3N pilot pressure dependent, initial position

三、原理：带功率越权控制。流量（排量）与 P pilot 中的先导压力成比例，附加的双曲线功率控制优先于先导压力信号，并保持预设的驱动功率恒定。

With overriding power control,The pump displacement is proportional to a pilot pressure signal in PSt.The additional hyperbolic power control overrides the pilot pressure signal and holds the preset drive power constant.

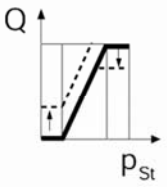
可选项 Optional：

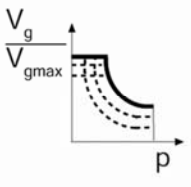
压力控制（LR2DN）Pressure control

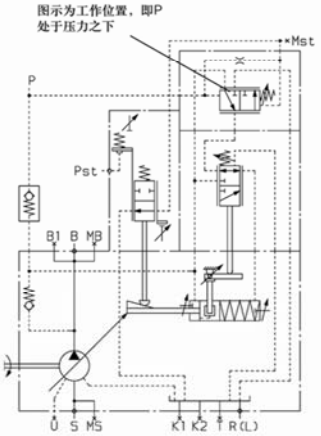
远程控制（LR2GN）Remotely controlled

功率特性可远程调节 Remote control of power characteristics

(LR3N,LR3DN,LR3GN)



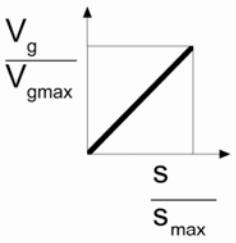


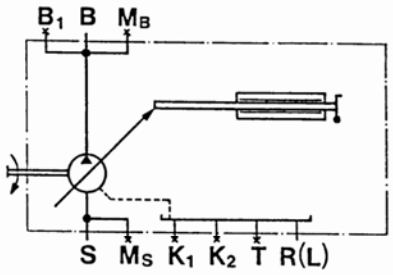


●手动控制 MA Manual control MA

原理：通过手轮进行排量的无极调节

Principles:Stepless adjustment of displacement by means of handwheel.

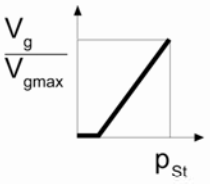


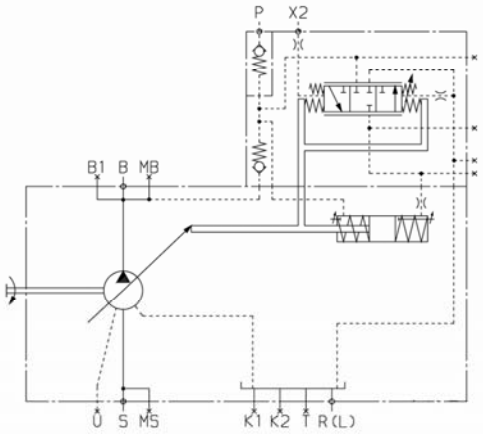


●液压控制 HD Hydraulic control HD

原理：根据先导压力，进行流量的无极调节，流量正比于先导控制压力。

Principles:Stepless control of displacement dependent on pilot pressure single. The Displacement is proportional to the pilot pressure.





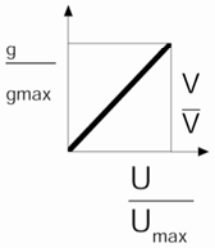
技术数据 Technical parameter

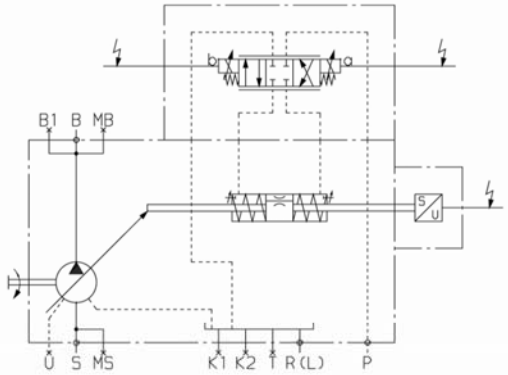
规格 Size		40	71	125	180	250	355	500
控制缸位移 Control cylinder’ s moving distance	mm	14.2	14.2	20.7	20.7	25.9	25.9	32.6
控制缸面积 Control cylinder area	cm^2	3.9	3.9	9	9	14.4	14.4	18.8
控制体积 Control volume	cm^3	5.5	5.5	18.7	18.7	37.3	37.3	61.4
最低控制压力 Min.control pressure	MPa	3	3	5	5	5	5	5
控制时间（20MPa 压力） Control time(20MPa pressure)	s	0.1	0.1	0.1	0.1	0.2	0.2	0.8

●液压流量控制 EO Hydraulic displacement control EO

原理：借助于带斜盘倾角电反馈的比例阀，进行排量的无极调节

Principles:The stepless displacement control is accomplished with a proportional valve with electrical feedback of swivel angle.





技术数据 Technical parameter

规格 Size		40	71	125	180	250	355	500
控制缸位移 Control cylinder' s moving distance	mm	14.2	17.3	20.7	20.7	25.9	25.9	32.8
控制缸面积 Control cylinder area	cm^2	8.1	12.6	18.1	16.1	28.3	28.3	38.2
控制体积 Control volume	cm^3	11.4	21.5	37.5	37.5	73.2	73.2	124.5
最低控制压力 Min.control pressure	MPa	10	10	10	12.5	12.5	12.5	15
最高控制压力 Max.control pressure	MPa	31.5	31.5	31.5	31.5	31.5	31.5	31.5
控制时间（20MPa 压力） Control time(20MPa pressure)	s	0.1	0.12	0.2	0.2	0.25	0.25	0.3

七、安装位置 Installation position

卧置 Horizontal installation

●液压泵安装在油箱内 The hydraulic pump installed within a tank

当油箱最低液面高于泵的上端部分，泄油口和 S 口可敞开，如下图所示：

If the minimum fluid level is level above the top of pump, case drain and part S are open,as diagram SO–11

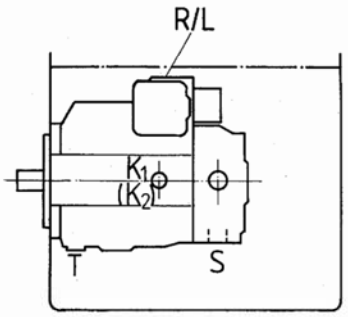


图 SO-11
Diagram SO-11

当油箱的最低液面低于泵的上端部分，泄油口以及 S 口须用管道连接，如下图所示：
If the minimum fluid level falls bellow the top of pump, case drain and part S must be piped,as diagram SO–12

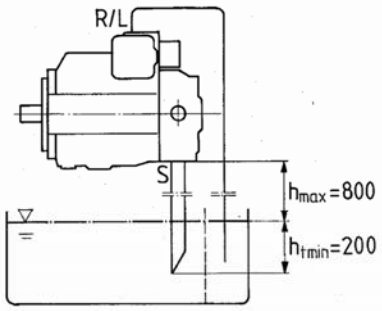


图 SO-12
Diagram SO-12

●液压泵安装在油箱外 The hydraulic pump installed outside a tank

若泵安装在油箱下面，则泄油口管和 S 口用管道连接，如下图所示：
If the pump installed below the tank, drain pipe and part S must be piped as diagram SO–13

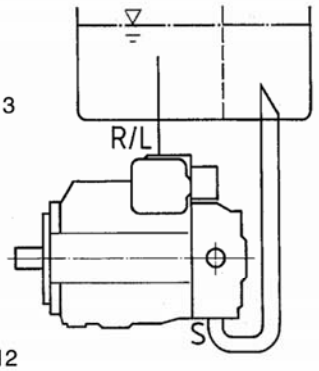


图 SO-13
Diagram SO-13

若泵安装在油箱上面，则泄油口管和 S 口用管道连接，参照图 SO–12
If the pump installed above the tank, drain pipe and part S must be piped as diagram SO–12

垂直安装 Vertical installation

●液压泵安装在油箱内

当泵的最低液面高于泵的前段法兰面时，泄油口 T 和 S 口，R/L 口可敞开，如图所示：
If the minimum fluid level is level with orabove the pump mounting flange,case drain Ports T,S and Port R/L are open ,as diagram SO–14

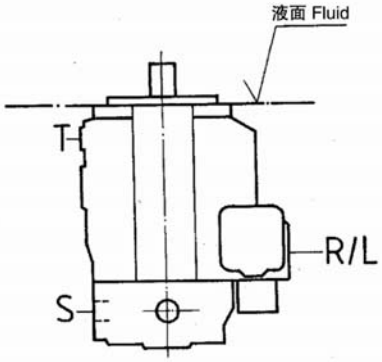


图 SO-14
Diagram SO-14

当泵的最低液面低于泵的前段法兰面时，泄油口 T，S 口以及 R/L 口需用管道连接，如图所示：
If the minimum fluid level falls below the pump mounting flange,case drain Ports T,S and Port R/L must be piped ,as diagram SO–15

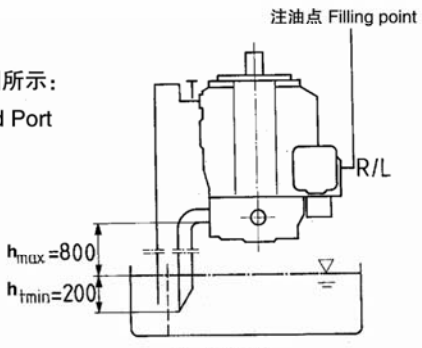
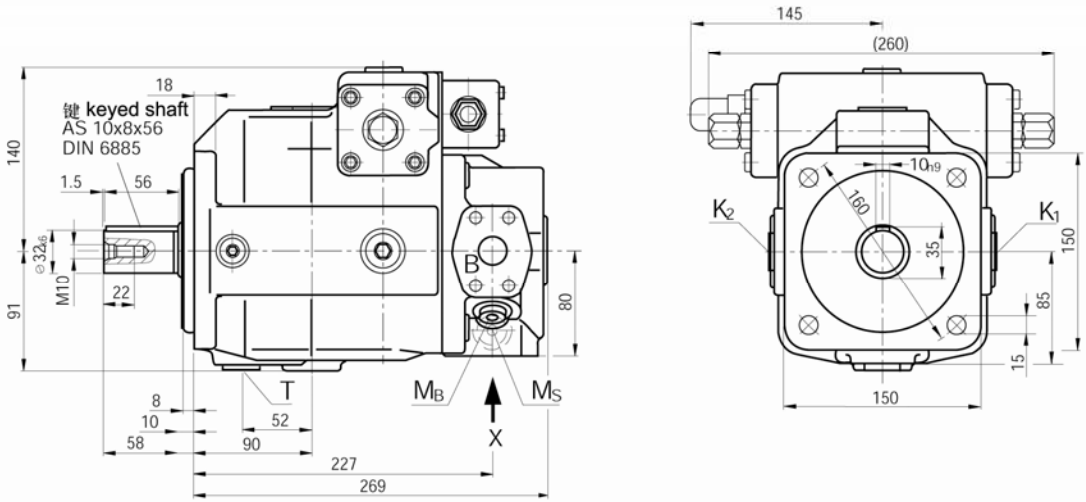
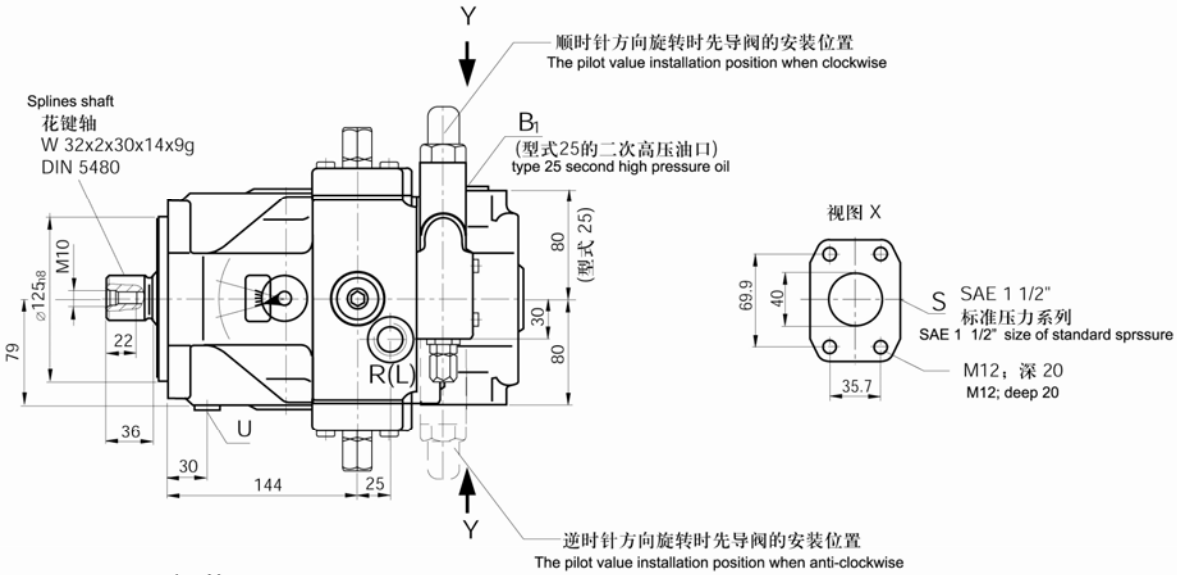


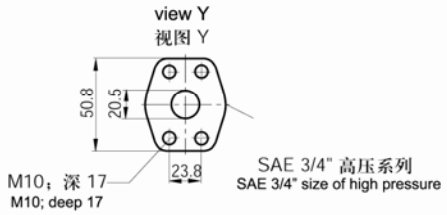
图 SO-15
Diagram SO-15

八、液压泵规格尺寸 Dimensions & Size of the hydraulic pump

●HA4VSO–40 泵外形联接尺寸 [图示：DR 变量机构]
Dimensions, Size HA4VSO–40(Diagram:DR Variable)

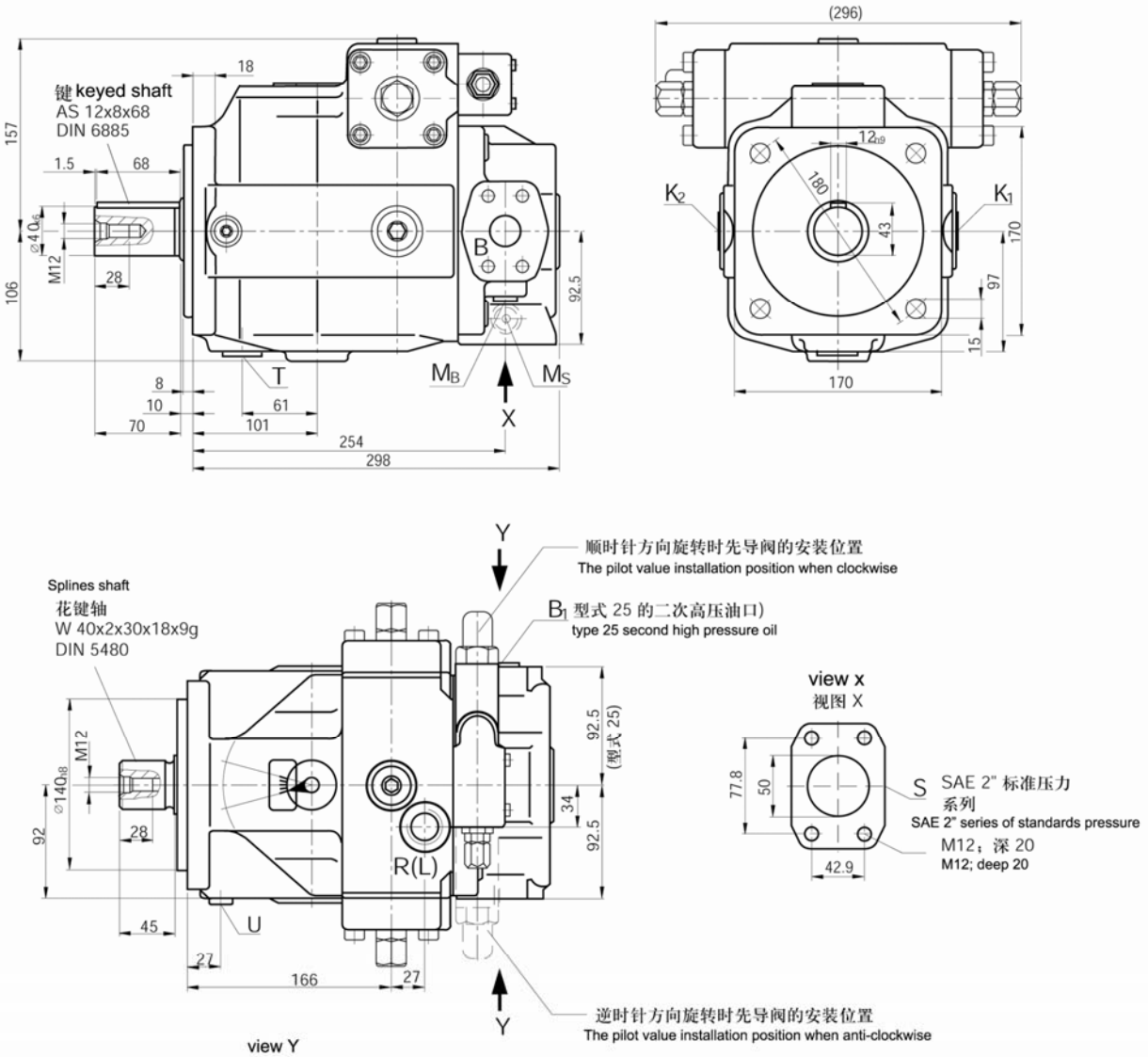






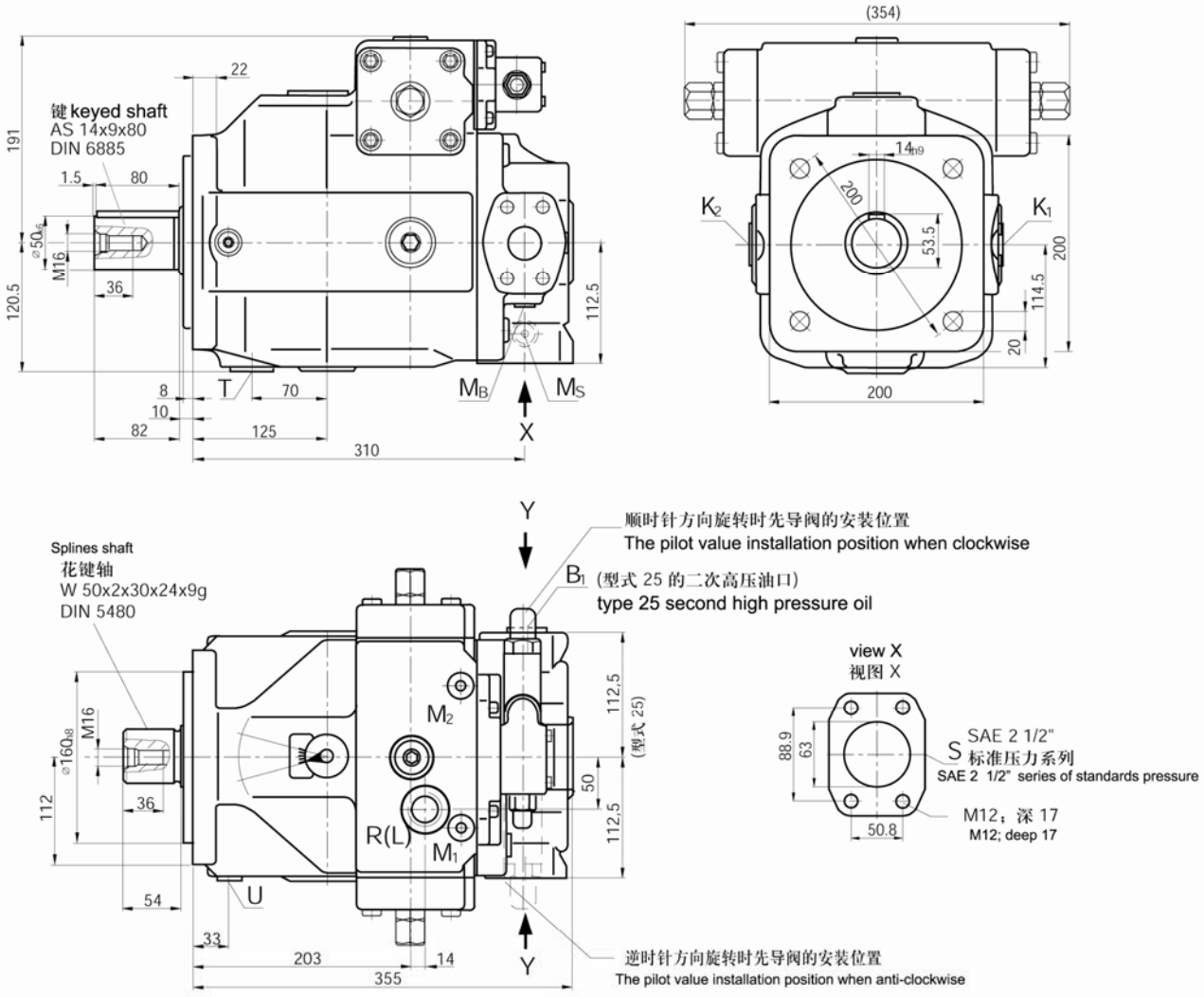
B	压力油口 pressure port	Φ20.5
B_1	辅助压力油口 auxiliary pressure port	M22X1.5，深16 M22x1.5,deep16
当工作油口为25型时，B1口为Y向视所示 when the working port is type 25;B1port corresponding viewed on Y direction		
S	吸油口 suction port	Φ40
T	泄油口 case drain port	M22X1.5，深16 M22X1.5,deep16
R(L)	注油口+通气口 fluid fill and air port	M22X1.5
M_b，M_s	测压点 test port	M14X1.5，深12 M14X1.5,deep12
K_1,K_2	洗油口 flushing port	M22X1.5，深14 M22X1.5,deep14
U	轴承冲洗油口 rearing flushibg port	M14X1.5，深12（堵） M14X1.5,deep12(plugged)

●HA4VSO–71 泵外形联接尺寸 [图示：DR 变量机构]
Dimensions, Size HA4VSO–71(Diagram:DR Variable)



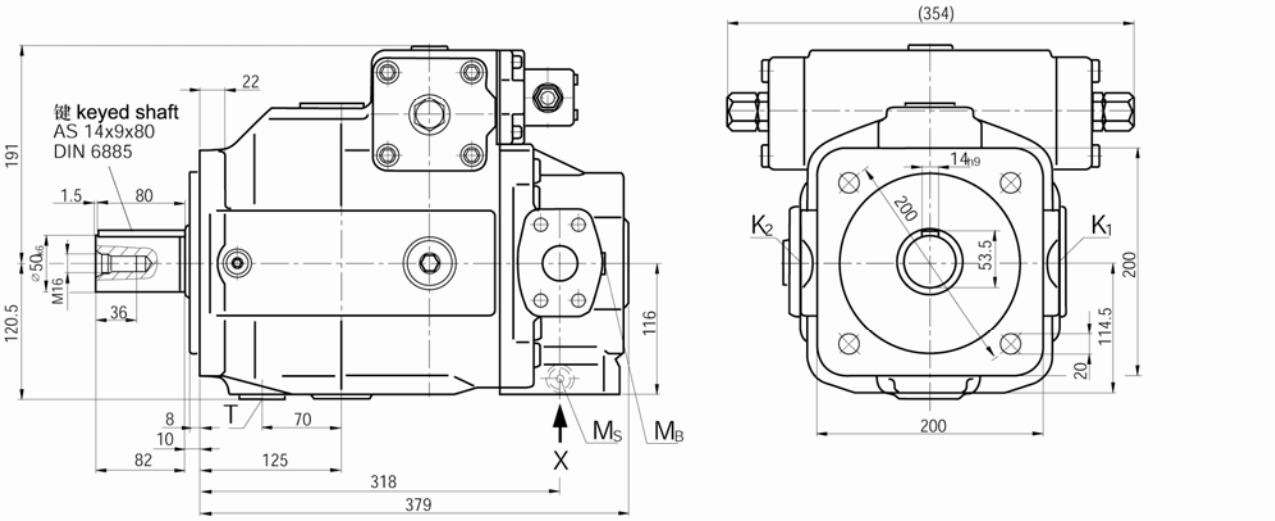
B	压力油口 pressure port	Φ25
B_1	辅助油口 auxiliary pressure port	M27X2，深16 M22X2,deep16
当工作油口为25型时，B1口为Y向视所示 when the working port is type 25;B1port corresponding viewed on Y direction		
S	吸油口 suction port	Φ50
T	泄油口 case drain port	M27X2，深16 M22X2,deep16
R(L)	注油口+通气口 fluid fill and air port	M27X2
M_b，M_s	测压点 test port	M14X1.5，深12 M14X1.5,deep12
K_1,K_2	洗油口 flushing port	M27X2，深16 M22X2,deep16
U	轴承冲洗油口 rearing flushibg port	M14X1.5，深12（堵） M14X1.5,deep12(plugged)

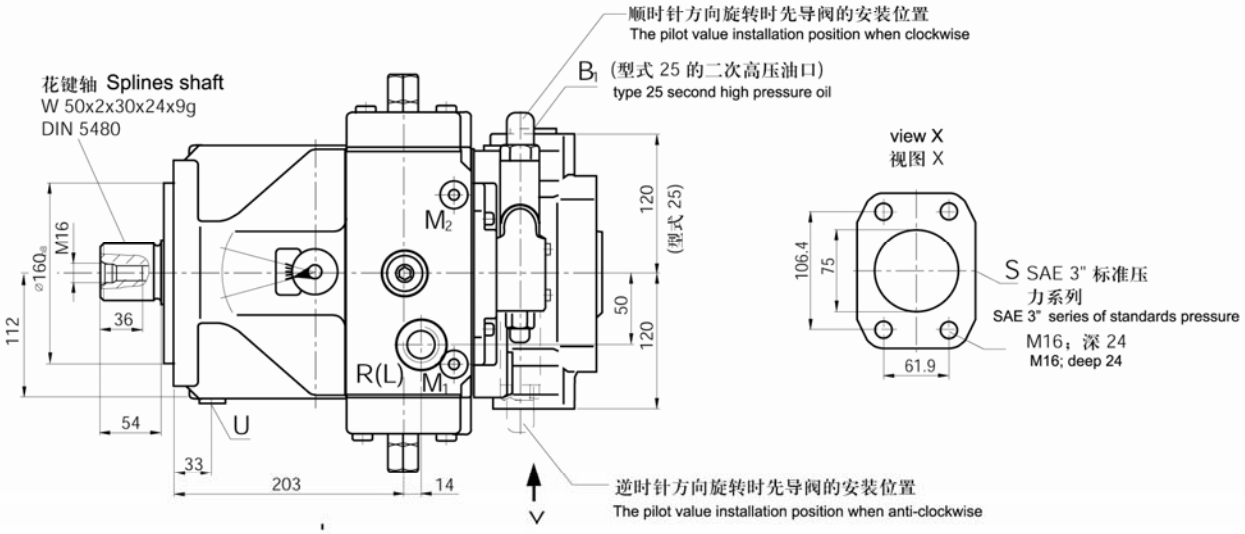
● HA4VSO–125 泵外形联接尺寸 [图示：DR 变量机构]
Dimensions, Size HA4VSO–125(Diagram:DR Variable)

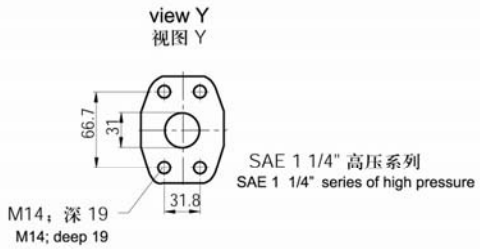


B	压力油口 pressure port	Φ31
B1	辅助压力油口 auxiliary pressure port	M33X2，深18 M33X2,deep18
当工作油口为25型时，B1口为Y向视所示 when the working port is type 25;B1port corresponding viewed on Y direction		
S	吸油口 suction port	Φ63
T	泄油口 case drain port	M33X2，深18 M33X2,deep18
R(L)	注油口+通气口 fluid fill and air port	M33X2
M_b，M_s	测压点 test port	M14X1.5，深12 M14X1.5,deep12
K1,K2	洗油口 flushing port	M33X2，深18 M33X2,deep18
U	轴承冲洗油口 rearing flushibg port	M14X1.5，深12（堵） M14X1.5,deep12(plugged)

●HA4VSO–180 泵外形联接尺寸 [图示：DR 变量机构]
Dimensions, Size HA4VSO–180(Diagram:DR Variable)

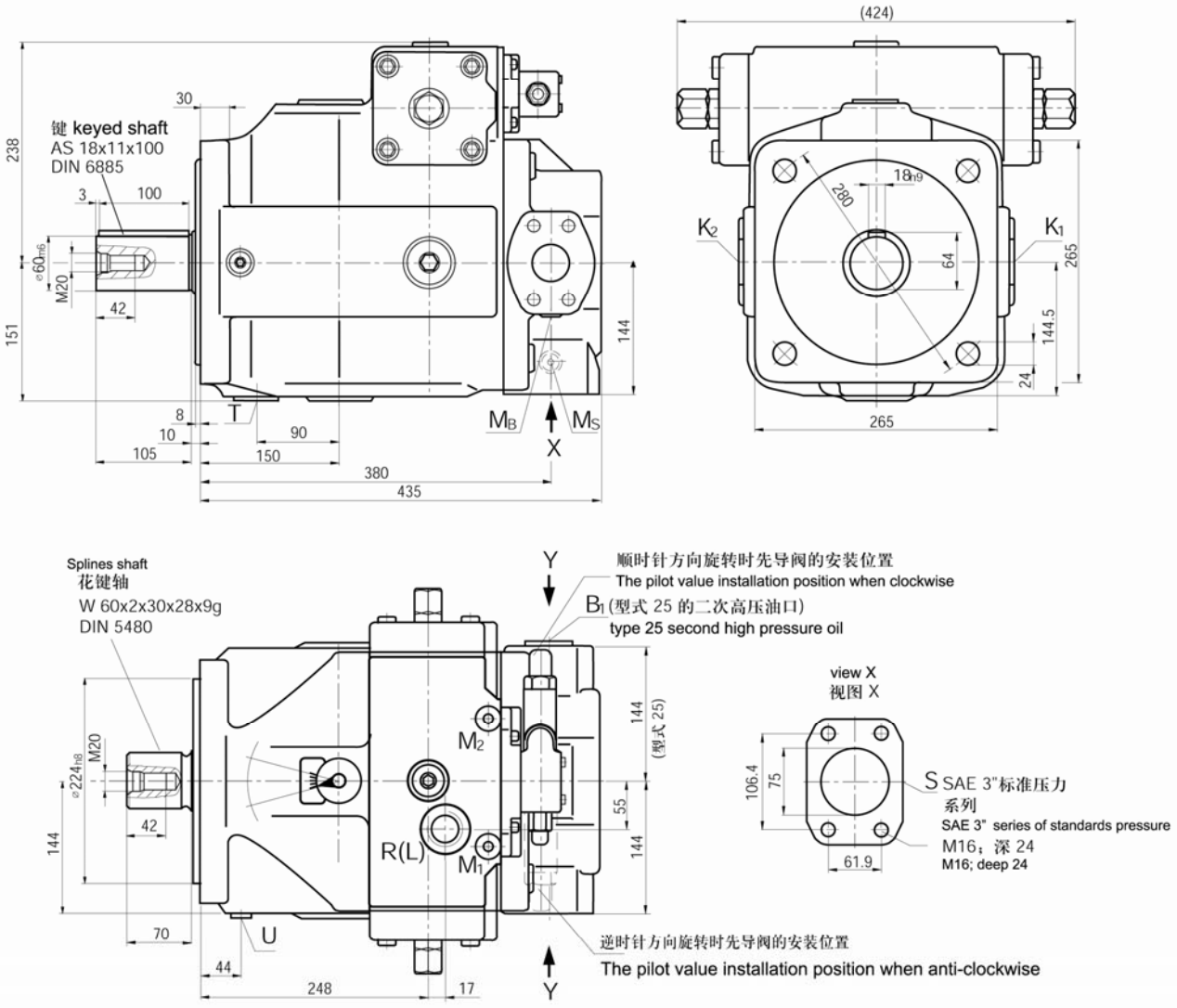






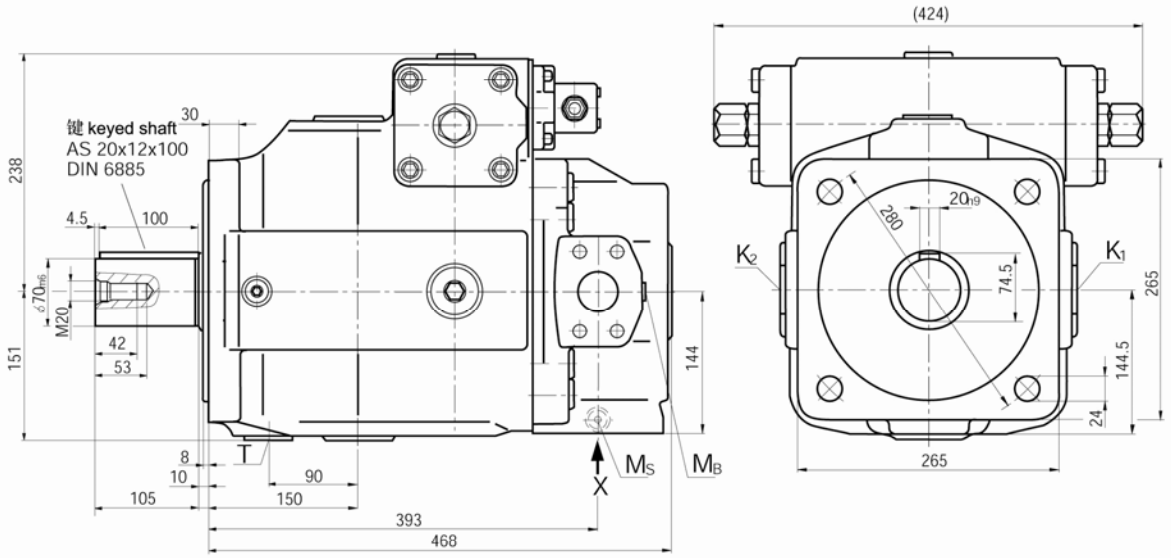
B	压力油口 pressure port	Φ31
当工作油口为25型时，B1口为Y向视所示 when the working port is type 25;B1port corresponding viewed on Y direction		
B1	辅助油口 auxiliary pressure port	M33X2，深18(堵) M33X2,deep18
S	吸油口 suction port	Φ75
T	泄油口 case drain port	M33X2，深18(堵) M33X2,deep18
R(L)	注油口+通气口 fluid fill and air port	M33X2
M_b，M_s	测压点 test port	M14X1.5，深12(堵) M14X1.5,deep12
K1,K2	洗油口 flushing port	M33X2，深18 M33X2,deep18
U	轴承冲洗油口 rearing flushibg port	M14X1.5，深12（堵） M14X1.5,deep12(plugged)

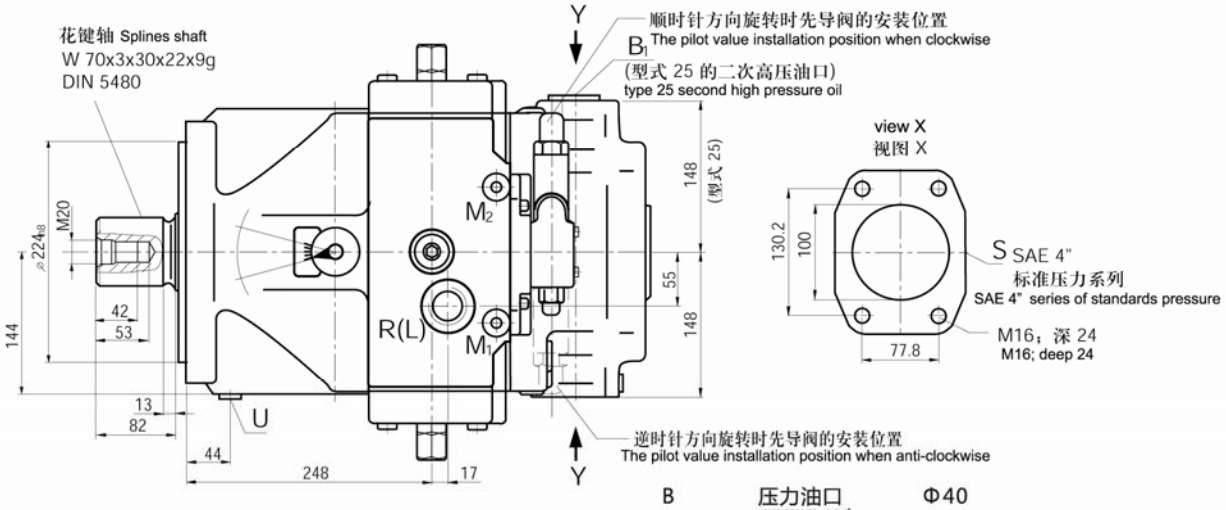
● HA4VSO–250 泵外形联接尺寸 [图示：DR 变量机构]
Dimensions, Size HA4VSO–250(Diagram:DR Variable)

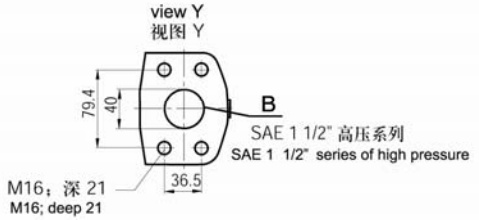


B	压力油口 pressure port	Φ40
B_1	辅助压力油口 auxiliary pressure port	M42X2，深18 M42X2,deep18
当工作油口为25型时，B1口为Y向视所示 when the working port is type 25;B1port corresponding viewed on Y direction		
S	吸油口 suction port	Φ75
T	泄油口 case drain port	M42X2，深18 M42X2,deep18
R(L)	注油口+通气口 fluid fill and air port	M42X2
M_b，M_s	测压点 test port	M14X1.5，深12 M14X1.5,deep12
K_1,K_2	洗油口 flushing port	M42X2，深18 M42X2,deep18
U	轴承冲洗油口 rearing flushibg port	M14X1.5，深12（堵） M14X1.5,deep12(plugged)

●HA4VSO–355 泵外形联接尺寸 [图示：DR 变量机构]
Dimensions, Size HA4VSO–355(Diagram:DR Variable)

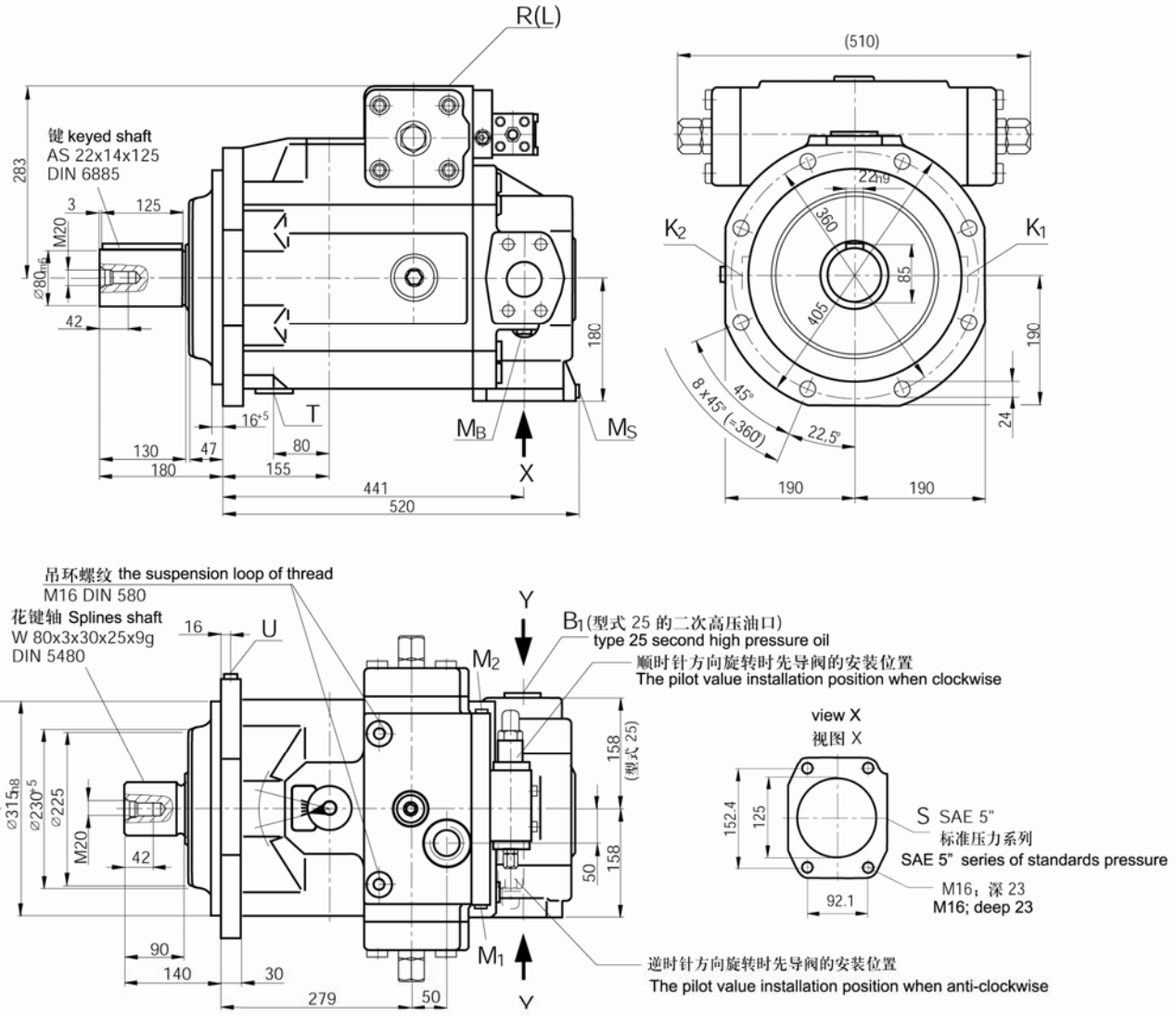






B	压力油口 pressure port	Φ40
当工作油口为25型时，B1口为Y向视所示 when the working port is type 25;B1port corresponding viewed on Y direction		
B_1	辅助油口 auxiliary pressure port	M42X2，深18 M42X2,deep18
S	吸油口 suction port	Φ100
T	泄油口 case drain port	M42X2，深18 M42X2,deep18
R(L)	注油口+通气口 fluid fill and air port	M42X2
M_b，M_s	测压点 test port	M14X1.5，深12 M14X1.5,deep12
K_1,K_2	洗油口 flushing port	M42X2，深18 M42X2,deep18
U	轴承冲洗油口 rearing flushibg port	M14X1.5，深12（堵） M14X1.5,deep12(plugged)

● HA4VSO-500 泵外形联接尺寸 [图示：DR 变量机构]
Dimensions, Size HA4VSO-500(Diagram:DR Variable



B	压力油口 pressure port	SAE2"
当工作油口为25型时，B1口为Y向视所示 when the working port is type 25;B1port corresponding viewed on Y direction		
B_1	辅助压力油口 auxiliary pressure port	M48X2，深22 M48X2,deep22
S	吸油口 suction port	SAE5"
T	泄油口 case drain port	M48X2，深22 M48X2,deep22
R(L)	注油口+通气口 fluid fill and air port	M48X2
M_b，M_s	测压点 test port	M18X2，深12 M18X2,deep12
K_1,K_2	洗油口 flushing port	M48X2，深22 M48X2,deep22
U	轴承冲洗油口 rearing flushibg port	M18X1.5，深12 M18X1.5,deep12

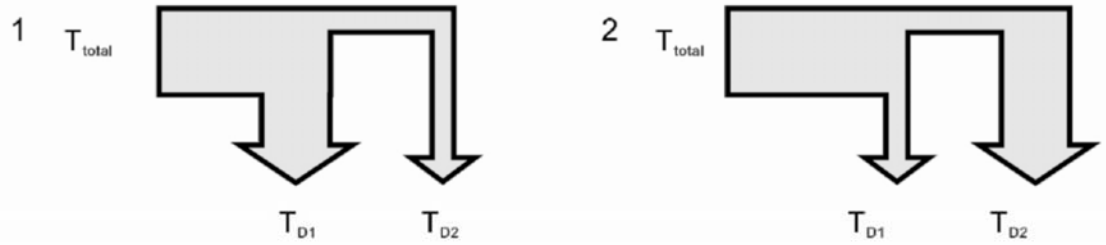
九、通轴驱动 Through drive

轴向柱塞泵 HA4VSO 可按订货型号提供通轴驱动
The axial piston unit HA4VSO can be equipped with a through drive, as shown in type code

我们建议最多只串接 3 台单泵。
We recommend, that no more than three pumps be coupled together
供货范围包括：Scope of supplied include are;
连轴器，固定螺钉，密封，以及适用的情况下提供变径法兰。
Shaft coupler, mounting screws, seals and adapter flange in applicable.

组合泵 Combination pumps
如需另外安装泵，可为用户提供独立的回路。
In dependent circuits are available for the user when further pumps are built on.
1、如组合泵由 2 台 HA4VSO 泵组成，并且需要在工厂安装，应引用两台泵的型号，用“+”连接。
If the combination consists of 2 pcs HA4VSO pumps,and if this must be factory mounted, the two individual type codes must be joined by a “+”.
订货示例 Ordering example: HA4VSO 125DR/22R–PPB13K33+HA4VSO 71DR/10R–PZB13NOO
2、如需在工厂安装齿轮泵或径向柱塞泵作为第 2 泵，请向我公司质询。
If a gear or a radial piston pump must be factory mounted as the second pump, please consult us.
使用相同规格的泵（如 125+125）与控制装置 HD.P、HD.T 和 HD.U 组成组合泵时，请向我公司质询。
If the combination consists of the same sizes pump (such as 125+125) and control device HD.P、HD.T、HD.U, please consults.

● 允许通轴驱动扭矩 Permissible input and through drive torques



● 花键轴 Splined shaft

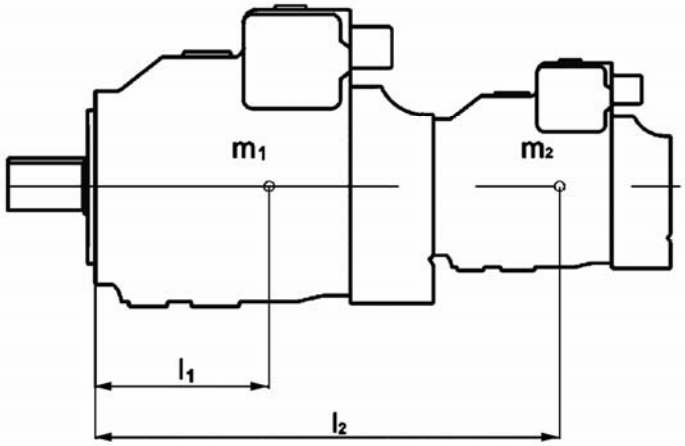
公称规格 size				40	71	125	180	250	300	355	370	500
泵 1+ 泵 2 pump1+pump2		$T_{total\ max}$	Nm	446	790	1392	2004	2782	3338	3952	4116	5566
1	允许通轴 perm through 驱动扭矩 drive torque	$T_{D1\ max}$	Nm	223	395	696	1002	1391	1669	1976	2058	2783
		$T_{D2\ max}$	Nm	223	395	696	1002	1391	1669	1976	2058	2783
2	允许通轴 perm through 驱动扭矩 drive torque	$T_{D1\ max}$	Nm	223	395	696	1002	1391	1669	1976	2058	2783
		$T_{D2\ max}$	Nm	223	395	696	1002	1391	1669	1976	2058	2783

● 带键轴 Keyed shaft

公称规格 size				40	71	125	180	250	300	355	370	500
泵 1+ 泵 2 pump1+pump2	$T_{total\ max}$	Nm	446	790	1392	1004	2300	3006	3557	3707	5200
1	允许通轴 perm through	$T_{D1\ max}$	Nm	223	395	696	1002	1391	1670	1976	2060	2783
	驱动扭矩 drive torque	$T_{D2\ max}$	Nm	157	305	696	398	909	1336	1851	1647	2417
2	允许通轴 perm through	$T_{D1\ max}$	Nm	157	305	696	398	909	1336	1851	1647	2417
	驱动扭矩 drive torque	$T_{D2\ max}$	Nm	223	395	696	1002	1391	1670	1976	2060	2783

● 与主泵安装法兰有关的允许惯性矩

Permissible mass moment of inertia referred to the mounting flange of the main pump.



m_1, m_2[kg]泵重量 Weight of pump

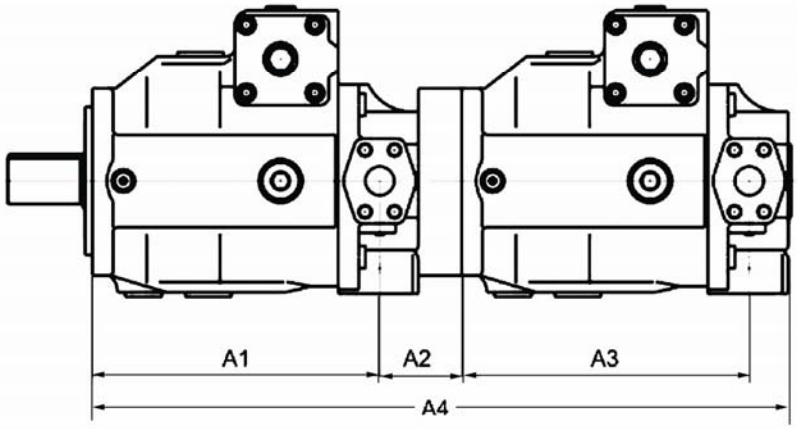
l_1, l_2[mm]中心到重心的距离 Distance center of gravity

$$Tm=m1 \cdot l1 \cdot \frac{1}{102}+m2 \cdot l2 \cdot \frac{1}{102}\ [Nm]$$

公称规格 size			40	71	125	180	250	300	355	370	500
允许惯性矩 perm mass moment of inertia	T	Nm	1800	2000	4200	4200	9300	9300	9300	9300	15600
动态质量加速度为 10g=98.1m/sec² 时的允许惯性矩 Per mass moment at dynam acceleration of log=98.1m/sec²	T	Nm	180	200	420	420	930	930	930	930	1560
重量（DR）weight	Ⅲ	kg	39	53	88	102	184	207	207	207	320
中心到重心的距离 distance center of gravity	Ⅱ	mm	120	140	170	180	210	220	220	220	230

十、组合泵元件尺寸 Dimensions combination pumps

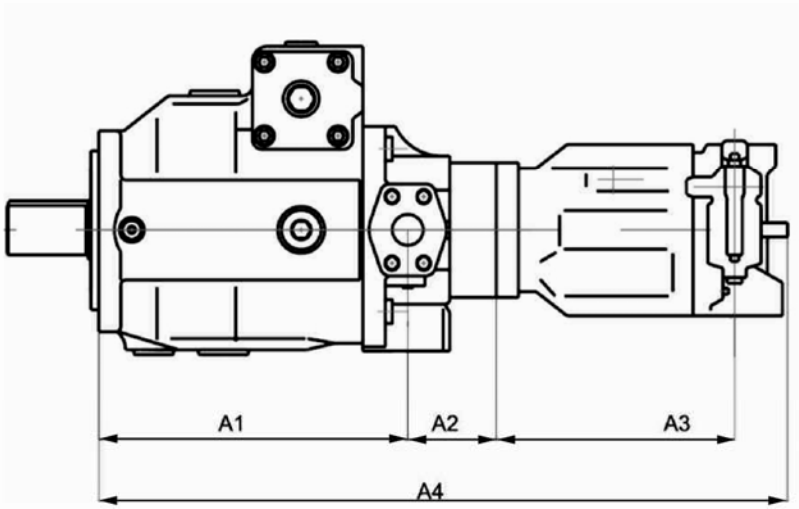
HA4VSO + HA4VSO



第2泵 2.pump \ main pump 主泵	HA4VSO 40				HA4VSO 71				HA4VSO 125				HA4VSO 180				HA4VSO 250			
	A1	A2	A3	A4	A1	A2	A3	A4	A1	A2	A3	A4	A1	A2	A3	A4	A1	A2	A3	A4
HA4VSO 40	227	61	227	557	254	62	227	585	310	37	227	616	318	53	227	640	380	51	227	700
HA4VSO 71	–	–	–	–	254	62	254	614	310	63	254	671	318	79	254	695	380	51	254	729
HA4VSO 125	–	–	–	–	–	–	–	–	310	69	310	734	318	85	310	758	380	89	310	824
HA4VSO 180	–	–	–	–	–	–	–	–	–	–	–	–	318	85	318	782	380	89	318	848
HA4VSO 250	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	380	89	380	908

第2泵 2.pump \ main pump 主泵	HA4VSO 300				HA4VSO 355				HA4VSO 370				HA4VSO 500			
	A1	A2	A3	A4	A1	A2	A3	A4	A1	A2	A3	A4	A1	A2	A3	A4
HA4VSO 40	393	67	227	729	393	67	227	729	393	67	227	729	441	64	227	774
HA4VSO 71	393	67	254	758	393	67	254	758	393	67	254	758	441	64	254	803
HA4VSO 125	393	105	310	853	393	105	310	853	393	105	310	853	441	64	310	860
HA4VSO 180	393	105	318	877	393	105	318	877	393	105	318	877	441	64	318	884
HA4VSO 250	393	105	380	937	393	105	380	937	393	105	380	937	441	100	380	980
HA4VSO 355	393	105	393	966	393	105	393	966	393	105	393	966	441	100	393	1009
HA4VSO 500	–	–	–	–	–	–	–	–	–	–	–	–	441	149	441	1110

HA4VSO + HA10VSO



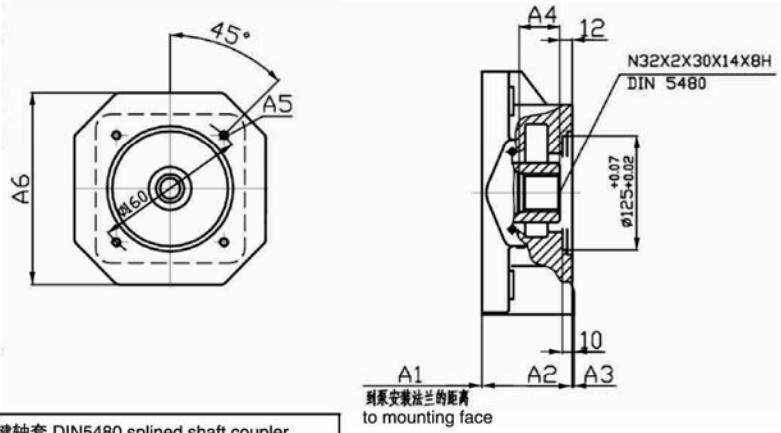
main pump 主泵 / 第 2 泵 2.pump	HA4VSO 40				HA4VSO 71				HA4VSO 125				HA4VSO 180				HA4VSO 250			
	A1	A2	A3	A4	A1	A2	A3	A4	A1	A2	A3	A4	A1	A2	A3	A4	A1	A2	A3	A4
HA4VSO 18	227	36	145	458	254	37	145	486	254	37	145	542	318	53	145	566	380	51	145	626
HA4VSO 28	227	63	164	496	254	37	164	497	254	37	164	553	318	53	164	577	380	51	164	637
HA4VSO 45	227	63	184	514	254	57	184	535	254	57	184	591	318	73	184	615	380	51	184	655
HA4VSO 71	–	–	–	–	254	67	218	578	254	68	217	635	318	84	217	659	380	69	217	706
HA4VSO100	–	–	–	–	–	–	–	–	–	74.5	275	710.5	318	90.5	275	734.5	380	77	275	783
HA4VSO140	–	–	–	–	–	–	–	–	–	–	–	–	318	*	275	*	380	89	275	806

main pump 主泵 / 第 2 泵 2.pump	HA4VSO 300				HA4VSO 355				HA4VSO 370				HA4VSO 500			
	A1	A2	A3	A4	A1	A2	A3	A4	A1	A2	A3	A4	A1	A2	A3	A4
HA4VSO 18	393	67	145	655	393	67	145	655	393	67	145	655	441	64	145	700
HA4VSO 28	393	67	164	666	393	67	164	666	393	67	164	666	441	64	164	711
HA4VSO 45	393	67	184	684	393	67	184	684	393	67	184	684	441	64	184	729
HA4VSO 71	393	85	217	735	393	85	217	735	393	85	217	735	441	64	217	762
HA4VSO100	393	93	275	812	393	93	275	812	393	93	275	812	441	90	275	857
HA4VSO140	393	105	275	835	393	105	275	835	393	105	275	835	441	89	275	867

* 按要求
* as required

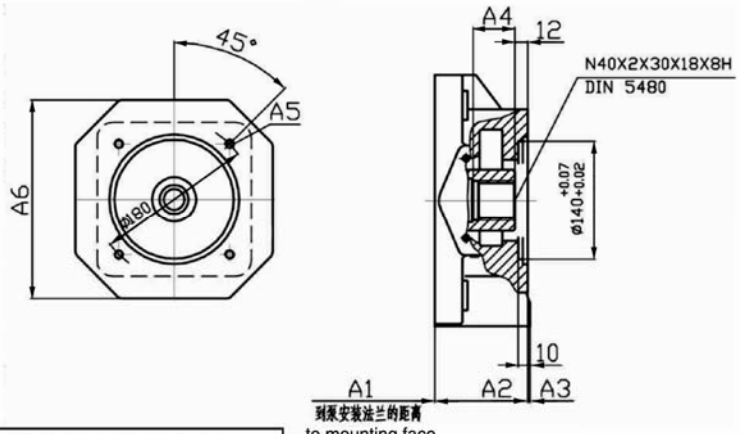
十一、通轴驱动尺寸 Dimensions through drives

ISO 125.4 孔；
用于安装 HA4VSO/H/G 40（花键轴）
订货型号 K33 SO 125.4–bolt；
For mounting an HA4VSO/H/G 40 splined shaft Ordering code K33



主泵规格 size	A_1	A_2	A_3	A_4	A_5	A_6	花键轴套 DIN5480 splined shaft coupler
40	189	99	–	58	M12X24	–	N25X1.25X30X18X8H/N32X2X30X14X8H
71	216	100	–	55	M12X24	–	N30X1.25X30X22X8H/N32X2X30X14X8H
125	265	82	8	37	M12X18	150	N35X1.25X30X26X8H/N32X2X30X14X8H
180	265	106	–	37	M12X18	160	N35X1.25X30X26X8H/N32X2X30X14X8H
250	327	104	2	48	M12X18	200	N42X1.25X30X32X8H/N32X2X30X14X8H
300	327	133	–	48	M12X18	220	N42X1.25X30X32X8H/N32X2X30X14X8H
355	327	133	–	48	M12X18	220	N42X1.25X30X32X8H/N32X2X30X14X8H
370	327	133	–	48	M12X18	220	N42X1.25X30X32X8H/N32X2X30X14X8H
500	365	140	14	60	M12X18	240	N55X1.25X30X42X8H/N32X2X30X14X8H

ISO 140.4 孔；用于安装 HA4VSO/H/G 71（花键轴）
订货型号 K33 SO 140.4–bolt；
For mounting an HA4VSO/H/G 71 splined shaft Ordering code K33

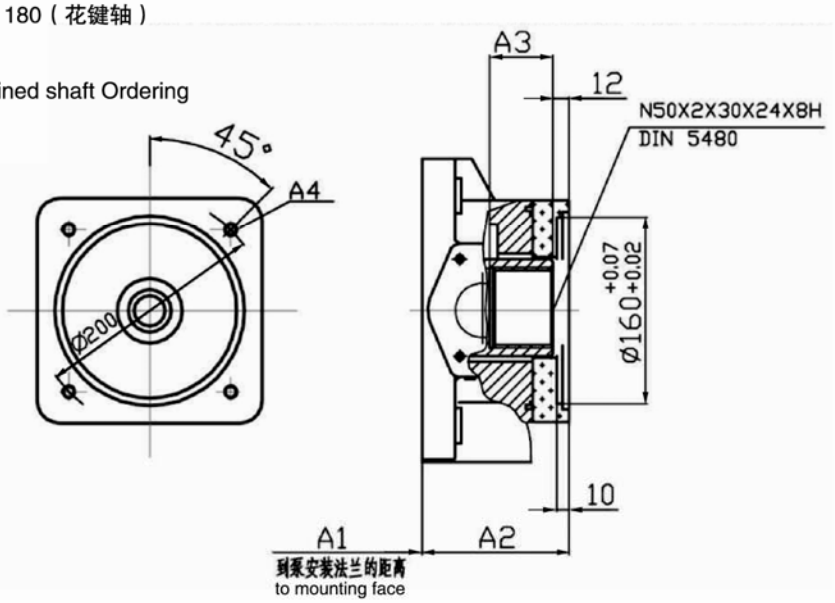


主泵规格 size	A_1	A_2	A_3	A_4	A_5	A_6	花键轴套 DIN5480 splined shaft coupler
71	216	100	–	44	M12X24	–	N30X1.25X30X22X8H/N40X2X30X18X8H
125	265	108	–	45	M12X24	–	N35X1.25X30X26X8H/N40X2X30X18X8H
180	265	132	–	45	M12X18	–	N35X1.25X30X26X8H/N40X2X30X18X8H
250	327	104	2	48	M12X18	200	N42X1.25X30X32X8H/N40X2X30X18X8H
300	327	133	–	48	M12X18	220	N42X1.25X30X32X8H/N40X2X30X18X8H
355	327	133	–	48	M12X18	220	N42X1.25X30X32X8H/N40X2X30X18X8H
370	327	133	–	48	M12X18	220	N42X1.25X30X32X8H/N40X2X30X18X8H
500	365	140	15	60	M12X18	240	N55X1.25X30X42X8H/N40X2X30X18X8H

ISO 160.4 孔；用于安装 HA4VSO/H/G 125 或 180（花键轴）

订货型号 K34ISO 160.4–bolt；

For mounting an HA4VSO/H/G 125 or 180 splined shaft Ordering code K34

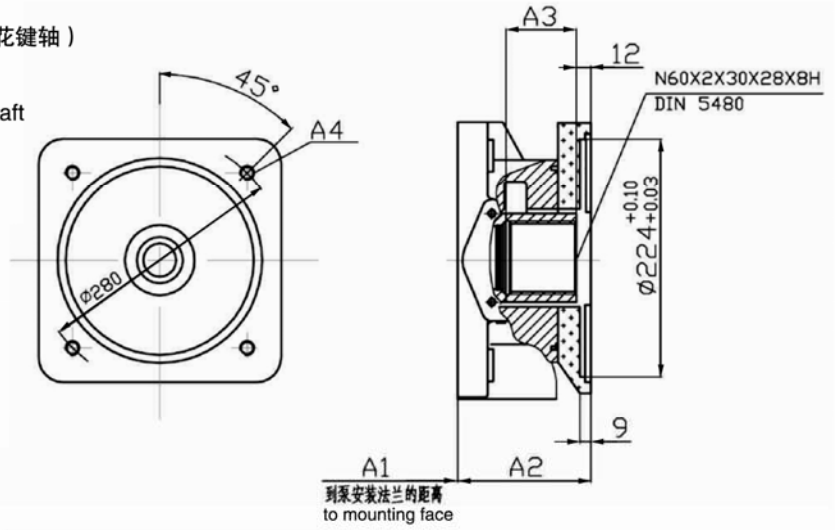


主泵规格 size	A_1	A_2	A_3	A_4	花键轴套 DIN5480 splined shaft coupler
125	265	114	58	M16X31	N35X1.25X30X26X8H/N50X2X30X24X8H
180	265	138	53	M16X32	N35X1.25X30X26X8H/N50X2X30X24X8H
250	327	142	60	M16X32	N42X1.25X30X32X8H/N50X2X30X24X8H
300	327	171	60	M16X32	N42X1.25X30X32X8H/N50X2X30X24X8H
355	327	171	60	M16X32	N42X1.25X30X32X8H/N50X2X30X24X8H
370	327	171	60	M16X32	N42X1.25X30X32X8H/N50X2X30X24X8H
500	365	140	60	M16X24	N55X1.25X30X42X8H/N50X2X30X24X8H

ISO 224.4 孔；用于安装 HA4VSO/H/G 250（花键轴）

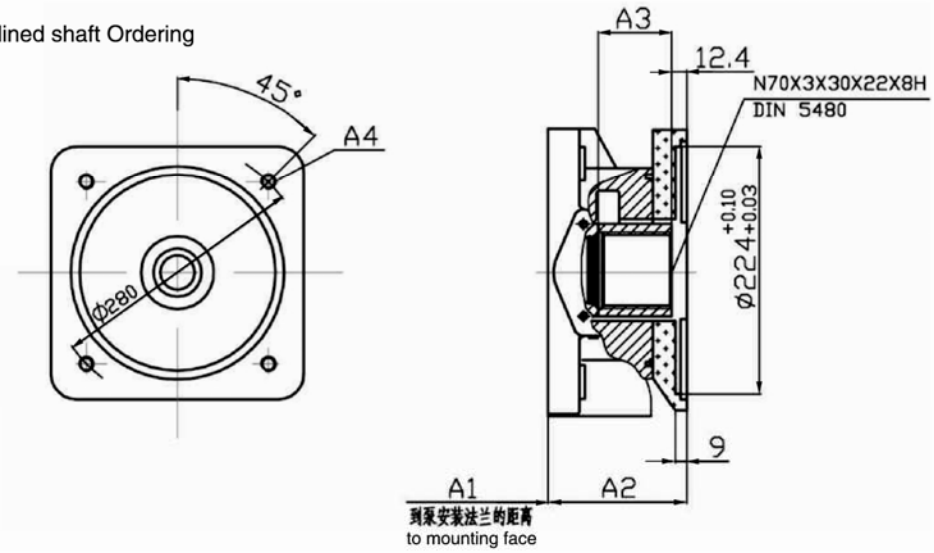
订货型号 K35ISO 224.4–bolt；

For mounting an HA4VSO/H/G 250 splined shaft Ordering code K35



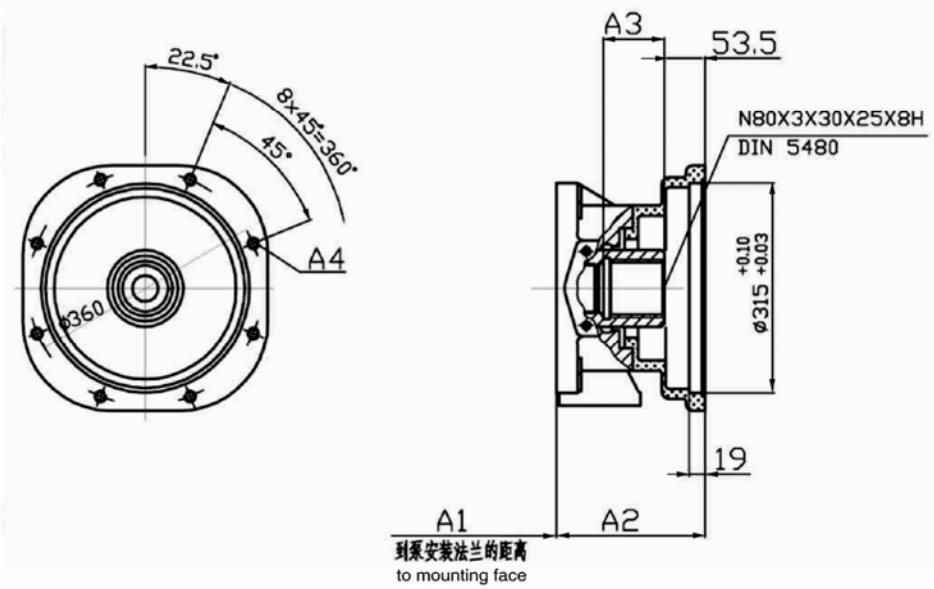
主泵规格 size	A_1	A_2	A_3	A_4	花键轴套 DIN5480 splined shaft coupler
250	327	142	75	M20X37	N42X1.25X30X32X8H/N60X2X30X28X8H
300	327	171	75	M20X36	N42X1.25X30X32X8H/N60X2X30X28X8H
355	327	171	75	M20X36	N42X1.25X30X32X8H/N60X2X30X28X8H
370	327	171	75	M20X36	N42X1.25X30X32X8H/N60X2X30X28X8H
500	365	140	74	M20X36	N55X1.25X30X42X8H/N60X2X30X28X8H

ISO 224.4 孔；用于安装 HA4VSO/G 355（花键轴）
订货型号 K77 ISO 224.4–bolt；
For mounting an HA4VSO/G 355 splined shaft Ordering code K77



主泵规格 size	A_1	A_2	A_3	A_4	花键轴套 DIN5480 splined shaft coupler
355	327	171	82	M20X24	N42X1.25X30X32X8H/N70X3X30X22X8H
370	327	171	82	M20X24	N42X1.25X30X32X8H/N70X3X30X22X8H
500	365	176	76	M20X24	N42X1.25X30X32X8H/N70X3X30X22X8H

ISO 315.8 孔；用于安装 HA4VSO/G 500（花键轴）
订货型号 K43 ISO 315.8–bolt；
For mounting an HA4VSO/G 500 splined shaft
Ordering code K43

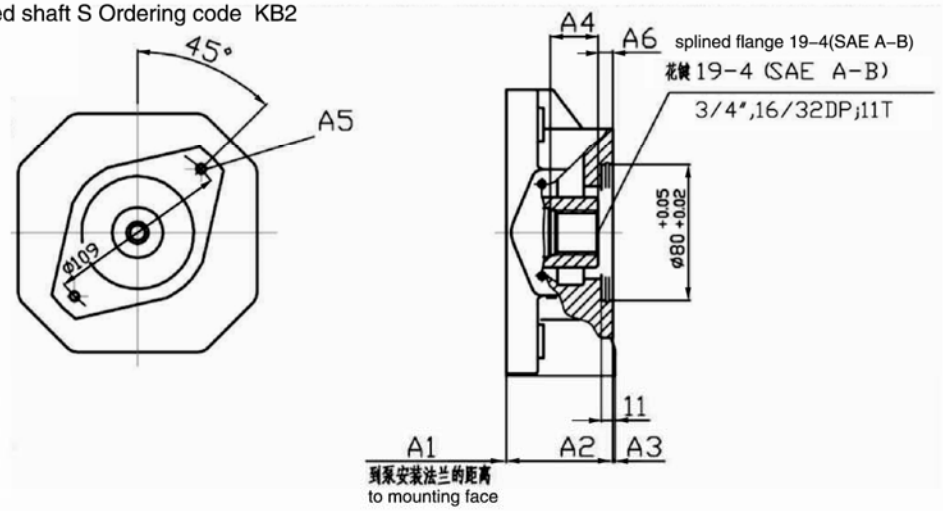


主泵规格 size	A_1	A_2	A_3	A_4	花键轴套 DIN5480 splined shaft coupler
500	365	225	91	M20X26	N55X1.25X30X42X8H/N80X3X30X25X8H

ISO 80.2 孔；用于安装 HA10VSO 18（花键轴 S）

订货型号 KB2 ISO 80.2–bolt；

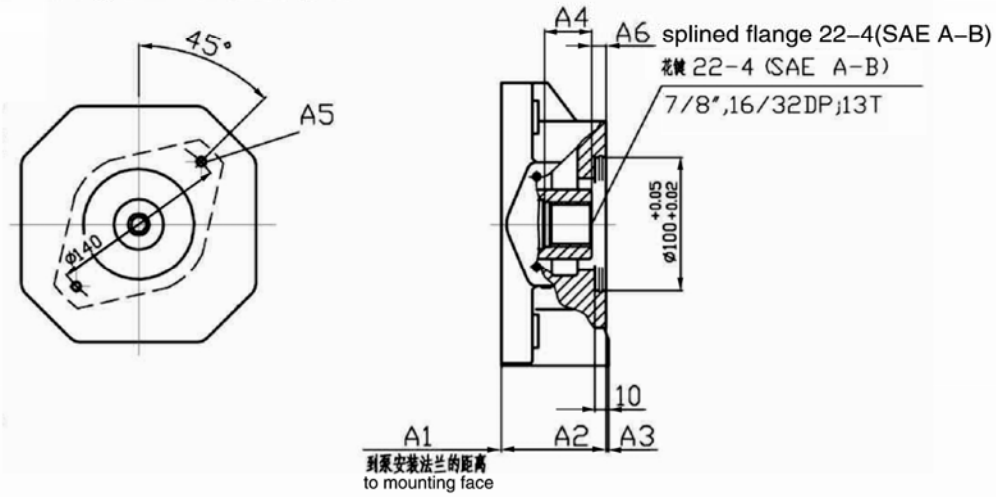
For mounting an HA10VSO 18 splined shaft S Ordering code KB2



主泵规格 size	A_1	A_2	A_3	A_4	A_5	A_6	花键轴套 DIN5480/SAE splined shaft coupler
125	265	82	11.5	19.1	M20X24	21.4	N35X1.25X30X26X8H/3/4" ,16/32DP:11T
180	265	106	11.5	19.1	M20X24	21.4	N35X1.25X30X26X8H/3/4" ,16/32DP:11T
250	327	104	11.5	19.1	M20X24	21.4	N42X1.25X30X32X8H/3/4" ,16/32DP:11T

ISO 100.2 孔；用于安装 HA10VSO 28（花键轴 S）

订货型号 KB3 ISO 100.2–bolt；For mounting an HA10VSO 28 splined shaft S Ordering code KB3

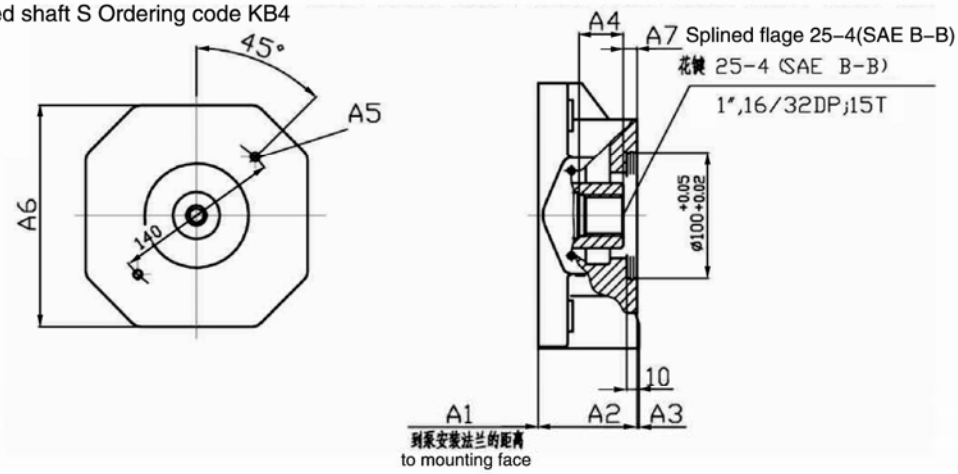


主泵规格 size	A_1	A_2	A_3	A_4	A_5	A_6	花键轴套 DIN5480/SAE splined shaft coupler
40	189	101	_	37	M12X26	20.3	N25X1.25X30X18X8H/7/8" ,16/32DP:13T
71	216	102	_	34	M12X26	20.3	N30X1.25X30X22X8H/7/8" ,16/32DP:13T
125	265	84	_	26	M12X22	20.3	N35X1.25X30X26X8H/7/8" ,16/32DP:13T
180	265	108	_	26	M12X22	20.3	N35X1.25X30X26X8H/7/8" ,16/32DP:13T
250	327	106	_	27	M12X20	20.3	N42X1.25X30X32X8H/7/8" ,16/32DP:13T
300	327	135	_	27	M12X20	20.3	N42X1.25X30X32X8H/7/8" ,16/32DP:13T
355	327	135	_	27	M12X20	20.3	N42X1.25X30X32X8H/7/8" ,16/32DP:13T
370	327	135	_	39	M12X20	20.3	N42X1.25X30X32X8H/7/8" ,16/32DP:13T

ISO 100.2 孔；用于安装 HA10VSO 45（花键轴 S）

订货型号 KB4 ISO 100.2–bolt；

For mounting an HA10VSO 45 splined shaft S Ordering code KB4

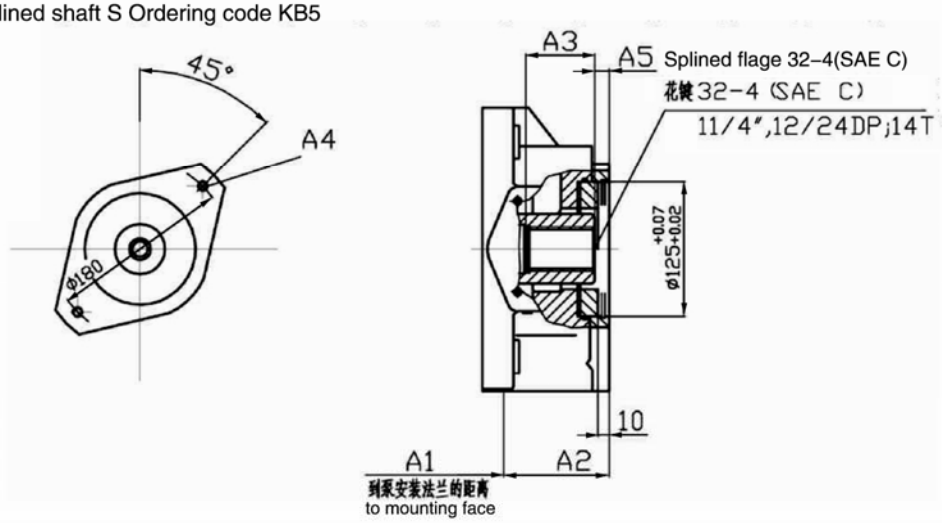


主泵规格 size	A_1	A_2	A_3	A_4	A_5	A_6	花键轴套 DIN5480/SAE splined shaft coupler
125	265	82	8	36	M12X22	150	N35X1.25X30X26X8H/1",16/32DP:15T
180	265	106	–	36	M12X22	160	N35X1.25X30X26X8H/1",16/32DP:15T
250	327	104	3	27.5	M12X18	200	N42X1.25X30X32X8H/1",16/32DP:15T
300	327	104	3	27.5	M12X18	200	N42X1.25X30X32X8H/1",16/32DP:15T

ISO 125.2 孔；用于安装 HA10VSO 71（花键轴 S）

订货型号 KB5 ISO 125.2–bolt；

For mounting an HA10VSO 71 splined shaft S Ordering code KB5

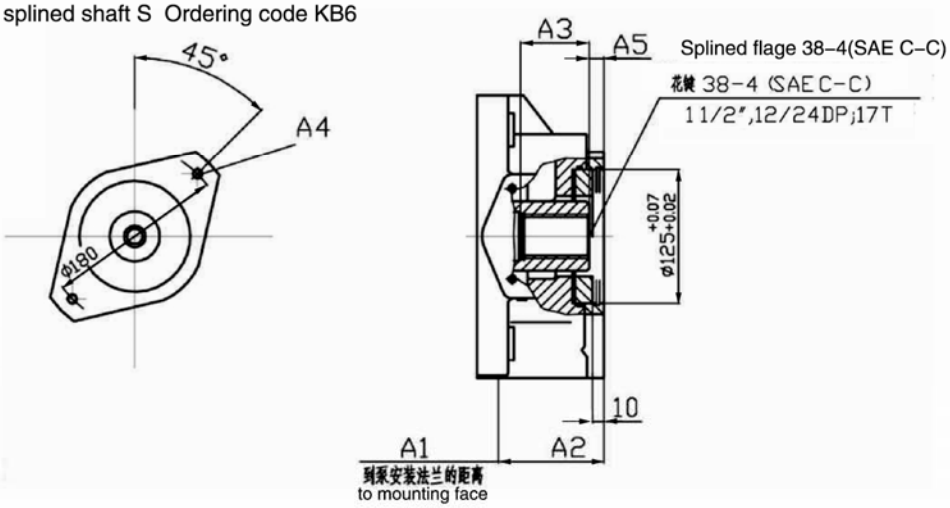


主泵规格 size	A_1	A_2	A_3	A_4	A_5	花键轴套 DIN5480/SAE splined shaft coupler
125	265	113	38.1	M16X24	23.7	N35X1.25X30X26X8H/1 1/4",12/24DP:14T
180	265	137	38.1	M16X24	23.7	N35X1.25X30X26X8H/1 1/4",12/24DP:14T
250	327	141	42	M16X24	23.7	N42X1.25X30X32X8H/1 1/4",12/24DP:14T
300	327	170	42	M16X24	23.7	N35X1.25X30X26X8H/1 1/4",12/24DP:14T

ISO 125.2 孔；用于安装 HA10VSO 100（花键轴 S）

订货型号 KB6 ISO 125.2–bolt；

For mounting an HA10VSO 100 splined shaft S Ordering code KB6

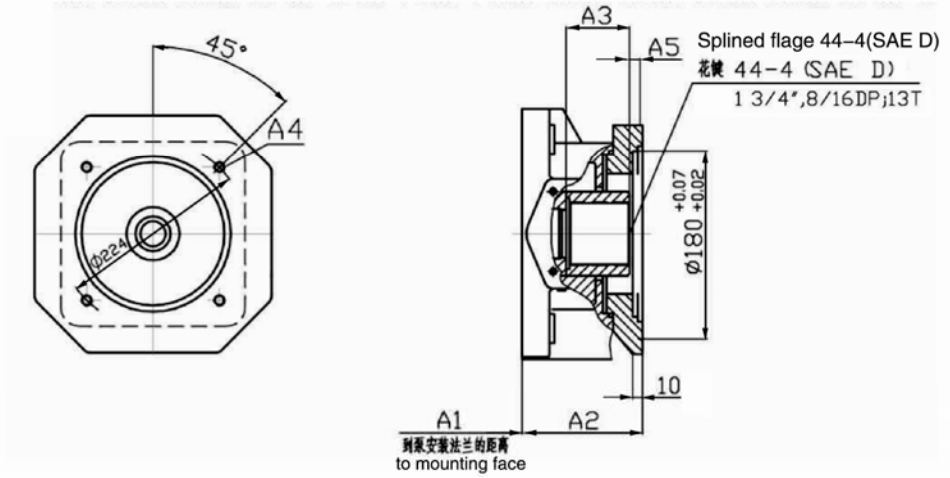


主泵规格 size	A_1	A_2	A_3	A_4	A_5	花键轴套 DIN5480/SAE splined shaft coupler
125	265	114	58	M16X26	23.7	N35X1.25X30X26X8H/1 1/2" ,12/24DP:17T
180	265	138	58	M16X26	23.7	N35X1.25X30X26X8H/1 1/2" ,12/24DP:17T
250	327	142	62	M16X26	23.7	N42X1.25X30X32X8H/1 1/2" ,12/24DP:17T
300	327	171	62	M16X26	23.7	N42X1.25X30X32X8H/1 1/2" ,12/24DP:17T

ISO 180.4 孔；用于安装 HA10VSO 140（花键轴 S）

订货型号 KB7 ISO 180.4–bolt；

For mounting an HA10VSO 140 splined shaft S Ordering code KB7

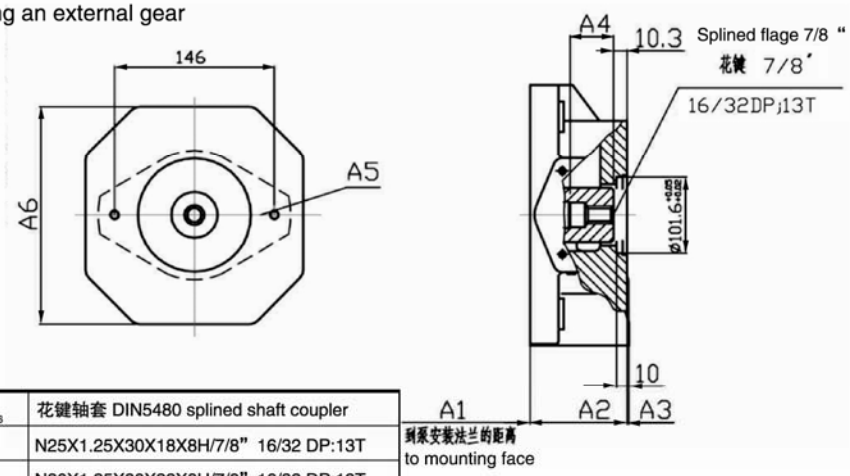


主泵规格 size	A_1	A_2	A_3	A_4	A_5	花键轴套 DIN5480/SAE splined shaft coupler
250	327	142	82	M16X32	10.8	N42X1.25X30X32X8H/1 3/4" ,8/16DP:13T
300	327	171	82	M16X32	10.8	N42X1.25X30X32X8H/1 1/2" ,12/24DP:13T
355	327	171	82	M16X32	10.8	N42X1.25X30X32X8H/1 1/2" ,12/24DP:13T

法兰 SAE101–2（SAE B,2 孔）用于安装外啮合齿轮泵 G3

订货型号 K02

Flange SAE101–2(SAE B,2–bolt)For mounting an external gear Pump G3 Ordering code K52

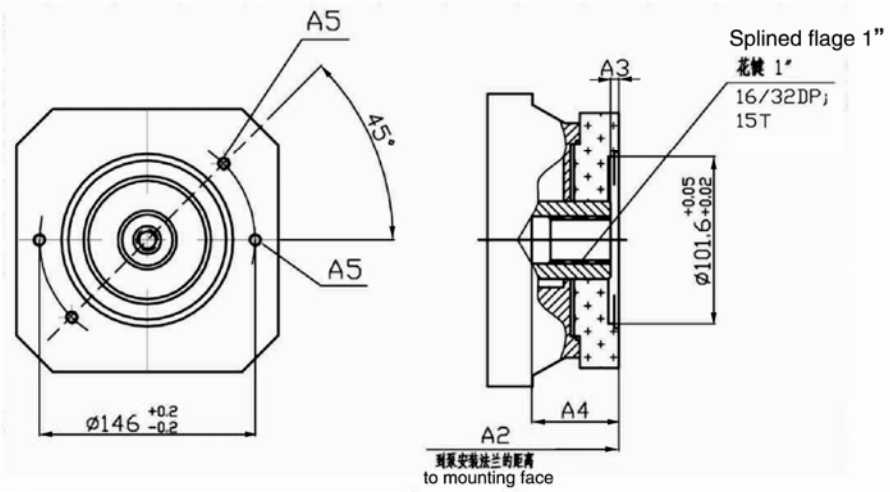


主泵规格 size	A_1	A_2	A_3	A_4	A_5	A_6	花键轴套 DIN5480 splined shaft coupler
40	189	101	–	64	M12X26	–	N25X1.25X30X18X8H/7/8" 16/32 DP:13T
71	216	106	–	64	M12X30	–	N30X1.25X30X22X8H/7/8" 16/32 DP:13T
125	265	82	8	39	M12X15	150	N35X1.25X30X26X8H/7/8" 16/32 DP:13T
180	265	106	–	39	M12X15	160	N35X1.25X30X26X8H/7/8" 16/32 DP:13T
250	327	104	3	50	M12X18	200	N42X1.25X30X32X8H/7/8" 16/32 DP:13T
300	327	133	–	50	M12X18	220	N42X1.25X30X32X8H/7/8" 16/32 DP:13T
355	327	133	–	50	M12X18	220	N42X1.25X30X32X8H/7/8" 16/32 DP:13T
370	327	133	–	50	M12X18	220	N42X1.25X30X32X8H/7/8" 16/32 DP:13T
500	365	140	–	62	M12X18	240	N55X1.25X30X42X8H/7/8" 16/32 DP:13T

法法兰 SAE101–2（SAE B,2 孔）用于安装 HA10VSO 45 轴 S 或齿轮泵 1PF2GC4–1X/0XXXR07MU2

订货型号 K01

Flange SAE101–2(SAE B,2–bolt)For mounting an HA10VSO 45 splined shaft S or gear pump 1PF2GC4–1X/0XXXR07MU2 Ordering code K01



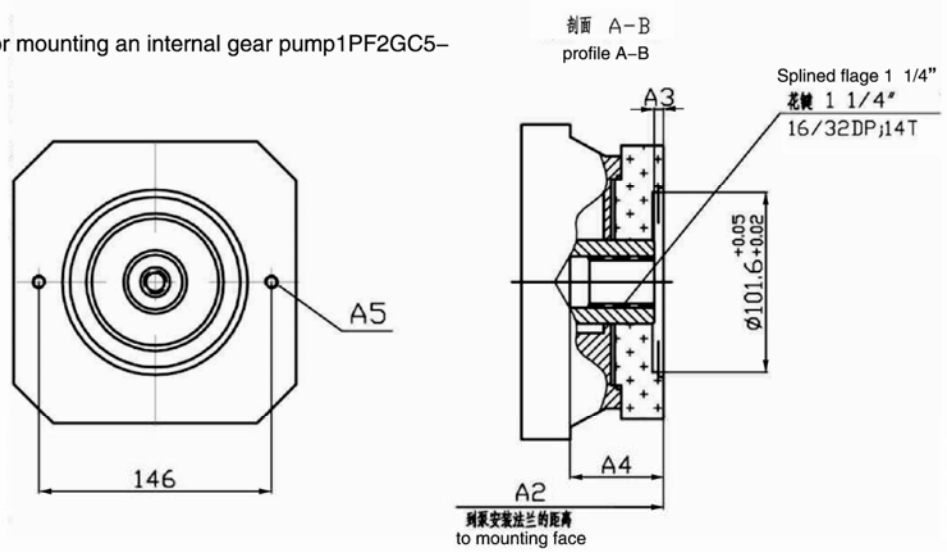
主泵规格 size	A_1	A_2	A_3	A_4	花键轴套 DIN5480 splined shaft coupler
125	347	9	48.4	M12X15	N35X1.25X30X26X8H/1" ,16/32DP:15T
180	371	9	48.4	M12X18	N35X1.25X30X26X8H/1" ,16/32DP:15T
250	431	10.4	61	M12X18	N42X1.25X30X32X8H/1" ,16/32DP:15T
300	460	10.4	52.4	M12X18	N42X1.25X30X32X8H/1" ,16/32DP:15T
355	460	10.4	52.4	M12X18	N42X1.25X30X32X8H/1" ,16/32DP:15T

法兰 SAE101-2（SAE B,2 孔）用于安装内啮合齿轮泵 1PF2GC5-1X/0XXXR07MU2

订货型号 K06

Flange SAE101-2(SAE B,2-bolt)For mounting an internal gear pump1PF2GC5-1X/0XXXR07MU2

Ordering code K01



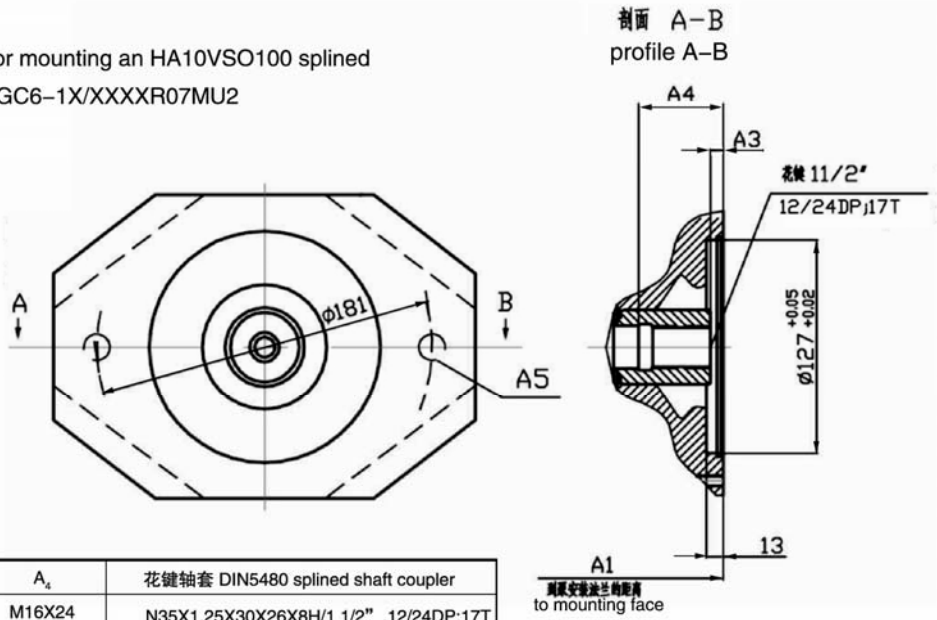
主泵规格 size	A_1	A_2	A_3	A_4	花键轴套 DIN5480 splined shaft coupler
71	321	10.5	59.5	M12X18	N30X1.25X30X22X8H/1 1/4”,12/24DP:14T
125	378	9	57	M12X18	N35X1.25X30X26X8H/1 1/4”,12/24DP:14T
180	402	10.4	57	M12X18	N35X1.25X30X26X8H/1 1/4”,12/24DP:14T
250	436	10.4	57	M12X18	N42X1.25X30X32X8H/1 1/4”,12/24DP:14T

法兰 SAE127-2（SAE C,2 孔）用于安装 HA10VSO100 轴 S 或内啮合齿轮泵 1PF2GC6-1X/XXXXR07MU2

订货型号 K24

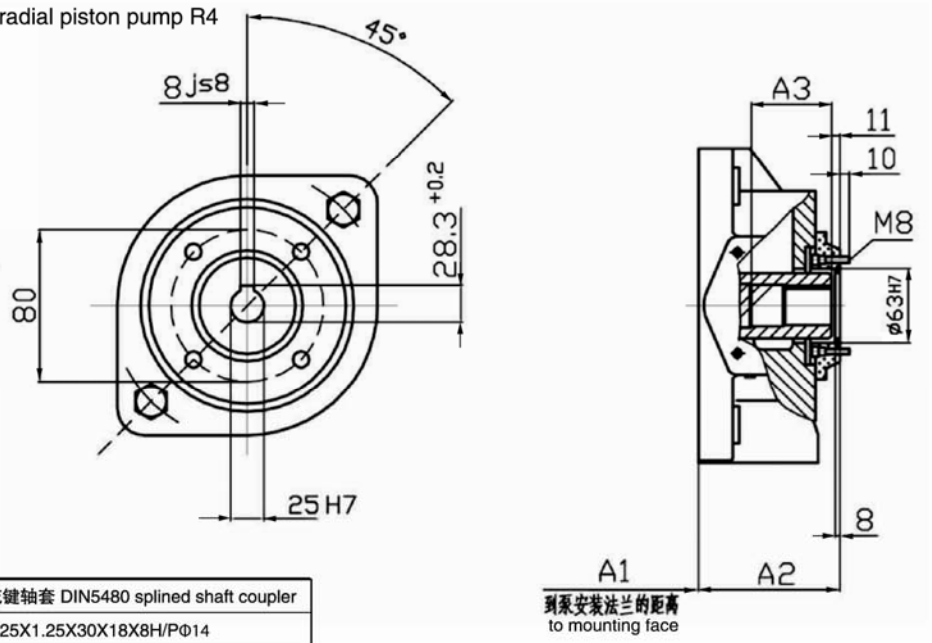
Flange SAE127-2(SAE C,2-bolt)For mounting an HA10VSO100 splined shaft S or internal gear pump 1PF2GC6-1X/XXXXR07MU2

Ordering code K24



主泵规格 size	A_1	A_2	A_3	A_4	花键轴套 DIN5480 splined shaft coupler
125	347	9	74	M16X24	N35X1.25X30X26X8H/1 1/2”,12/24DP:17T
180	371	9	72	M16X24	N35X1.25X30X26X8H/1 1/2”,12/24DP:17T
250	451	10.5	76	M16X20	N42X1.25X30X32X8H/1 1/2”,12/24DP:17T

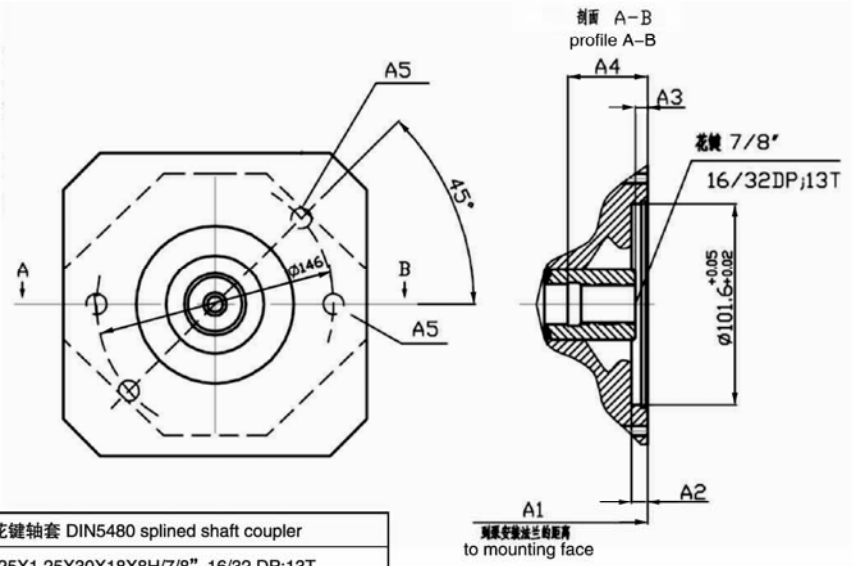
Φ63 公制度，4 孔；用于安装径向柱塞泵 R4
订货型号 K57
Dia.metric 63,4–bolt For mounting an radial piston pump R4
Ordering code K57



主泵规格 size	A_1	A_2	A_3	花键轴套 DIN5480 splined shaft coupler
40	189	100	61	N25X1.25X30X18X8H/PΦ14
71	216	103	56	N30X1.25X30X22X8H/PΦ14
125	265	110	62	N35X1.25X30X26X8H/PΦ14
180	265	134	62	N35X1.25X30X26X8H/PΦ14
250	327	132	78	N42X1.25X30X30X8H/PΦ14

对于 HA4VSO 40 和 71 LR.D LR.S LR.G, 只能安装一台 R4–3 柱塞泵。
For HA4VSO 40 and 71 LR.D LR.S LR.G mounting 1 PC R4–3 piston pump only

法兰 SAE101–2（SAE B,2 孔）用于安装外啮合齿轮泵 G4 或 HA10VSO 28 花键轴 S
订货型号 K68
Flange SAE101–2(SAE B,2–bolt)For mounting an external gear Pump G4 or an HA10VSO 28 splined shaft S
Ordering code K68



主泵规格 size	A_1	A_2	A_3	A_4	A_5	花键轴套 DIN5480 splined shaft coupler
40	290	10.3	10	47	M12X26	N25X1.25X30X18X8H/7/8" 16/32 DP:13T
71	322	10.3	10	62	M12X26	N30X1.25X30X22X8H/7/8" 16/32 DP:13T
125	355	10	9	59	M12X15	N35X1.25X30X26X8H/7/8" 16/32 DP:13T
180	371	10.3	10	59	M12X18	N35X1.25X30X26X8H/7/8" 16/32 DP:13T
250	431	11	10	47	M12X26	N42X1.25X30X32X8H/7/8" 16/32 DP:13T
300	462	10.3	10	47	M12X26	N42X1.25X30X32X8H/7/8" 16/32 DP:13T
355	462	10.3	10	47	M12X26	N42X1.25X30X32X8H/7/8" 16/32 DP:13T
500	505	10.3	10	78	M12X26	N55X1.25X30X42X8H/7/8" 16/32 DP:13T

带通轴驱动轴，无轴套或变径法兰，以盖板堵住

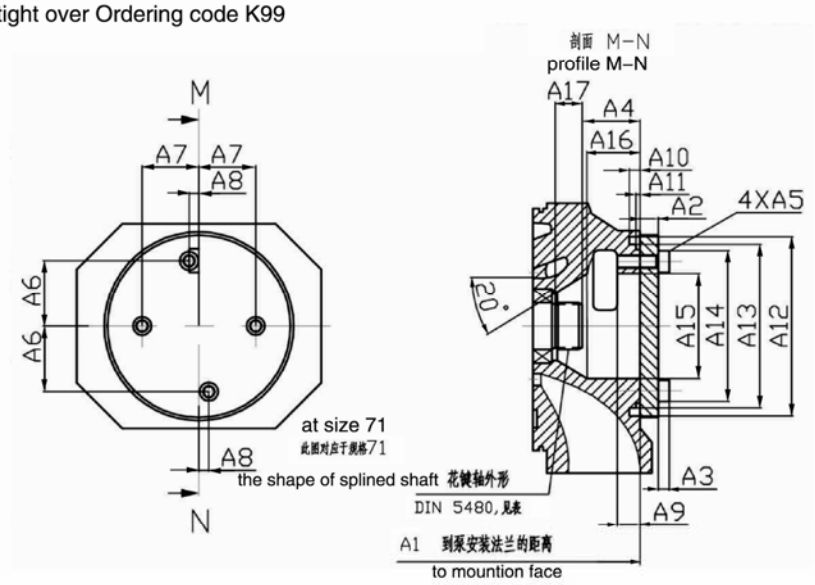
订货型号 K99

公称规格 40–370

With through drive shaft ,without shaft coupler, without adapter flange ,

closed with pressure tight over Ordering code K99

Size 40–370



主泵规格 size	花键轴侧面 DIN5480 splined profilo
40	W25X1.25X30X18X9g
71	W30X1.25X30X22X9g
125	W35X1.25X30X26X9g
180	W35X1.25X30X26X9g
250	W42X1.25X30X32X9g
300	W42X1.25X30X32X9g
355	W42X1.25X30X32X9g
370	W42X1.25X30X32X9g

主泵规格 size	花键轴侧面 DIN5480 splined profilo
40	99X3.78 SHA
71	PRP 245 7509
125	119X3.18 SHA
180	119X3.18 SHA
250	162X3.18 SHA
300	162X3.18 SHA
355	162X3.18 SHA
370	162X3.18 SHA

主泵规格 size	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	$53.1_{\pm 1}$	M12X25	$37_{\pm 0.2}$	$37_{\pm 0.2}$	0	18	9	$2.3_{\pm 0.1}$	Φ118	$\Phi 105_{g6}$	$\Phi 97.6_{-0.4}$	Φ52	44	14
71	291	10	7.5	$48_{\pm 1}$	M12X25	42.3	$37_{\pm 0.15}$	$15.4_{\pm 0.16}$	18	9	$2.7_{\pm 0.1}$	Φ130	$\Phi 106_{g6}$	$\Phi 106.4_{-0.4}$	Φ53	38	16
125	347	12	8.5	$49.7_{\pm 1}$	M14X30	$47_{\pm 0.16}$	$47_{\pm 0.16}$	0	18	8.5	$2.3_{\pm 0.1}$	Φ137	$\Phi 124_{g6}$	$\Phi 116_{-0.4}$	Φ70	46	22
180	371	12	8.5	$49.7_{\pm 1}$	M14X30	$47_{\pm 0.16}$	$47_{\pm 0.16}$	0	18	8.5	$2.3_{\pm 0.1}$	Φ137	$\Phi 124_{g6}$	$\Phi 116_{-0.4}$	Φ70	46	25
250	431	15	12	$61.4_{\pm 1}$	M20X40	$63_{\pm 0.16}$	$63_{\pm 0.16}$	0	26	9	$2.3_{\pm 0.1}$	Φ180	$\Phi 165_{g6}$	$\Phi 157_{-0.4}$	Φ88	64	30.5
300	450	15	12	$61.4_{\pm 1}$	M20X40	$63_{\pm 0.16}$	$63_{\pm 0.16}$	0	26	9	$2.3_{\pm 0.1}$	Φ180	$\Phi 165_{g6}$	$\Phi 157_{-0.4}$	Φ88	64	34
355	460	15	12	$61.4_{\pm 1}$	M20X40	$63_{\pm 0.16}$	$63_{\pm 0.16}$	0	26	9	$2.3_{\pm 0.1}$	Φ180	$\Phi 165_{g6}$	$\Phi 157_{-0.4}$	Φ88	64	34
370	460	15	12	$61.4_{\pm 1}$	M20X40	$63_{\pm 0.16}$	$63_{\pm 0.16}$	0	26	9	$2.3_{\pm 0.1}$	Φ180	$\Phi 165_{g6}$	$\Phi 157_{-0.4}$	Φ88	64	34

带通轴驱动轴，无轴套或变径法兰，以盖板堵住。

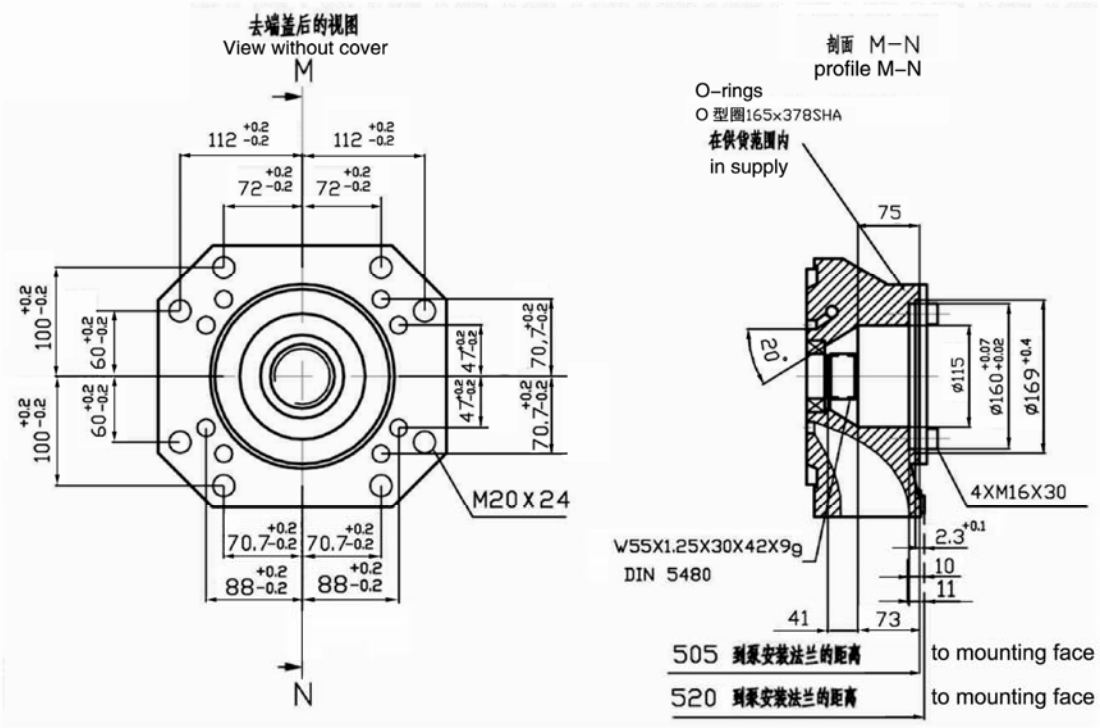
订货型号 K99

公称规格 500

With through drive shaft, without shaft coupler, without adapter flange, closed with pressure tight cover.

Ordering code K99

Size 500



型 号 size
HA4VSO40DFR/10X–PPB13N00
HA4VSO40DR/10X–PPB13N00
HA4VSO40DRG/10X–PPB13N00
HA4VSO40LR2/10R–PPB13N00
HA4VSO40LR2G/10R–PPB13N00

HA4VSO71DFR/10X–PPB13N00
HA4VSO71DR/10X–PPB13N00
HA4VSO71DRG/10X–PPB13N00
HA4VSO71LR2/10R–PPB13N00
HA4VSO71LR2G/10R–PPB13N00

HA4VSO125DFR/22R–PPB13N00
HA4VSO125DR/22R–PPB13N00
HA4VSO125DR/22R–VPB13N00
HA4VSO125LR2/22R–PPB13N00
HA4VSO125LR2G/22R–PPB13N00
HA4VSO125LR2N/22R–PPB13N00

型 号 size
HA4VSO180DFR/22R–PPB13N00
HA4VSO180DR/22R–PPB13N00
HA4VSO180DRG/22R–PPB13N00
HA4VSO180LR2/22R–PPB13N00
HA4VSO180LR2G/22R–PPB13N00
HA4VSO180LR2N/22R–PPB13N00

HA4VSO250DFR/30R–PPB13N00
HA4VSO250DR/30R–PPB13N00
HA4VSO250DRG/30R–PPB13N00
HA4VSO250LR2/30R–PPB13N00
HA4VSO250LR2G/30R–PPB13N00
HA4VSO250LR2N/30R–PPB13N00