

HA10VSO/32 系列变量柱塞泵

Variable Displacement Pump HA10VSO/32

规格 Size 45~180 系列 series 32

额定压力 Nominal pressure 280bar

峰值压力 Peak pressure 350bar

斜盘式轴向柱塞泵 Swash plate design axial variable piston pump



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特点 Features

1、用于开式回路的斜盘式轴向柱塞泵。

Swash plate design axial variable piston pump used in open circuit.

2、流量正比于驱动转速和排量，并可通过调节斜盘倾角实现无级变量。

The flow is directly proportional to the drive rotate speed and the displacement, and can make stepless variable come true by dajusting the obliquity of the swash plate.

3、低噪音、高效率、高可靠性、长寿命。

Low noise level, high efficiency, high reliability and long service life.

4、优良的吸油性。

Excellent oil absorbency.

5、驱动能承受轴向和径向负载。

Axial and radial loading of drive shaft possible.

6、高度抗气蚀、吸气压力及壳体压力峰值突然下降。

Highly resistant against cavitation, sudden drop in suction pressure and housing pressure spikes.

7、可供通轴结构，用于多回路系统。

The drive option for multi-circuit system.

一、型号说明 Ordering Code

HA10VSO O 45 DR / 32 R - V P B 22U B2

泵型号: 变量泵; 斜盘式结构
Model: Variable pump; swashplate design

额定压力 280bar
Rated pressure 280bar
峰值压力 350bar
Peak pressure 350bar

运行模式: 泵, 开放式回路
Mode of operation: pump, circuit

规格排量: 45、71、100、140、180(ml/r)
Displacement 45、71、100、140、180(ml/r)

控制方式

Controller 45 71 100 140 180

两点直动式控制 Two point control directly controlled ● ● ○ ● ○ DG

压力控制 Pressure controlled ● ● ○ ● ○ DR

带液压流量控制 with flow control, hydraulic
X-T 开启 X-T open ● ● ○ ● ○ DRF
X-T 关闭 X-T closed ● ● ○ ● ○ DRS

带远程压力控制 with pressure control, remotely operated 液压 hydraulic ● ● ○ ● ○ DRG

功率控制 Power control 带压力切断 with pressure cut off
至 50 bar to 50 bar ● ● ○ ● ○ LASD

控制初始值 Control begin psi
自 51 至 90 bar from 51 to 90 bar ● ● ○ ● ○ LA6D
91 至 160 bar 91 to 160 bar ● ● ○ ● ○ LA7D
160 至 240 bar 160 to 240 bar ● ● ○ ● ○ LA8D
超过 240 bar over 240 bar ● ● ○ ● ○ LA9D

带压力切断 远程控制 with pressure cut off remotely operated ● ● ○ ● ○ LA.DG

带压力切断, 流量控制, X-T 关闭 with pressure cut off, flow control, X-T closed ● ● ○ ● ○ LA.DS

带单独流量控制 X-T 关闭 with separate flow control, X-T closed ● ● ○ ● ○ LA.S

产品系列: 32 系列
series: 32 series

R 顺时针 Clockwise
L 逆时针 Anti-clockwise

不带直接传动, 带直接传动轴, 不带轴耦合器, 不带适配器法兰, 带正确闭合的护盖 Without through drive, with through drive shaft, without shaft coupler, without adapter with cover properly closed	-	▲	▲	▲	-	99
不带直接传动, 带直接传动轴, 不带轴耦合器, 不带适配器法兰, 带正确闭合的护盖(适用于新项目) Without through drive, with through drive shaft, without shaft coupler, without adapter flange with cover properly closed (for new applications)	●	●	●	●	●	00

法兰 ISO 3019-2 Flange ISO 3019-2	直径 Diameter	花键轴耦合器 Coupler for splined shaft				
ISO 80,2 螺栓 3/4 in 11T 16/32 DP		● ● ○ ● ○	●	○	○	B2
ISO 100,2 螺栓 7/8 in 13T 16/32 DP		● ● ○ ● ○	●	○	○	B3
1 in 15T 16/32 DP		● ● ○ ● ○	●	○	○	B4
ISO 125,4 螺栓 1 in 15T 16/32 DP		● ● ○ ● ○	●	○	○	E1
ISO 160,4 螺栓 1 1/4 in 14T 12/24 DP		- ● ○ ● ○	○	○	○	B8
ISO 180,4 螺栓 1 1/2 in 17T 12/24 DP		- - ○ ● ○	○	○	○	B9
1 3/4 in 13T 8/16 DP		- - - ● ○	○	○	○	B7
法兰 ISO 3019-1 ²⁾ Flange ISO 3019-1 ²⁾						
82-2 (A) 5/8 in 9T 16/32 DP		● ● ○ ● ○	●	○	○	01
3/4 in 11T 16/32 DP		● ● ○ ● ○	●	○	○	52
101-2(B) 7/8 in 13T 16/32 DP		● ● ○ ● ○	●	○	○	68
1 in 15T 16/32 DP		● ● ○ ● ○	●	○	○	04
127-4(C) 1 in 15T 16/32 DP		● ● ○ ● ○	●	○	○	E2
1 1/4 in 14T 12/24 DP		- ● ○ ● ○	○	○	○	15
127-2(C) 1 1/4 in 14T 12/24 DP		- - ○ ● ○	○	○	○	24
1 1/2 in 17T 12/24 DP		- - ○ ● ○	○	○	○	96
127-4(C) 1 1/2 in 17T 12/24 DP		- - - ● ○	○	○	○	17

工作管路油口 Ports for service lines

顶部和底部的对侧 SAE 法兰, 公制固定螺孔 带通用通轴驱动 SAE-flange on top and at the bottom, opposite sides, UFN fixing thread, with universal through drive	●	●	○	●	○	22U
顶部和底部的对侧 SAE 法兰, 英制固定螺孔 带通用通轴驱动 SAE-flange on top and at the bottom, opposite sides, Inch fixing thread, with universal through drive	●	●	○	●	○	72U

安装法兰 Mounting flange

ISO 3019-2, 4 螺栓 bolt

传动轴 Drive shaft

符合 DIN 6885 标准的平键轴, 不适用于直接传动
Parallel shaft with key to ISO 3019-1 (SAE J744), not for through drive

花键轴 ANSI B92.1a 标准轴 Splined shaft standard shaft	●	●	○	●	○	P
类似于轴“S”, 但适合更高的输入扭矩 similar to shaft “S” however for higher input torque	●	●	-	-	-	R

FKM (氟橡胶) Fluoro-rubber	●	●	○	●	○	V
NBR (丁腈橡胶) Perbunan	●	●	○	●	○	P

●= 可供货 available
○= 根据要求供货 on request

-- 不可供货 not available
▲= 不适用于新项目 not for new applications

二、油液 Hydraulic fluid

•适用于矿物油。

The HA10VSO variable displacement pump is suitable for use with mineral oil.

•工作粘度范围 Operating viscosity range

为了得到最佳的效率和寿命，我们推荐把油液的工作粘度（在相应的工作温度下）选择在以下范围内：

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

V_{opt} = 最佳工作粘度 opt. operating viscosity

16...36 mm²/s

与油箱温度（开式油路）相关。

Referred to the reservoir temperature (open circuit).

•粘度范围的限制 Viscosity limits

V_{min} = 10 mm²/s 短时间在 90℃ 油温的最大泄漏情况下最大粘度
 short term at a max. permissible drain of 90℃ .

V_{max} = 1000 mm²/s 短时间冷启动时 short term on cold start

•温度范围 Temperature range (see selection diagram): t = -25 ~ 90℃

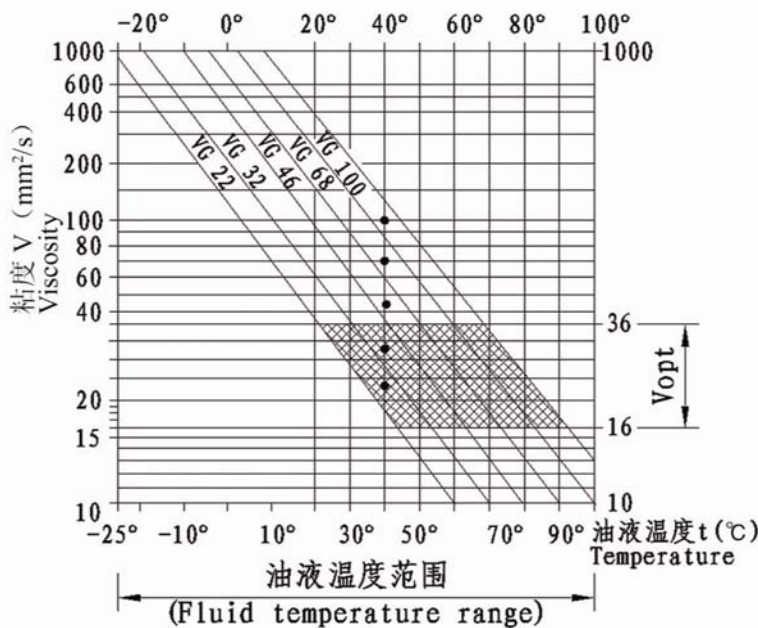
•选用油液的注意事项 Notes on the selection of the hydraulic fluid.

为了正确地选用液压油，必须知道油箱中油液工作温度（开式回路）和环境温度的关系。In order to select the correct fluid, it is necessary to know the operating temperature in the tank (open loop) in relation to the ambient temperature. 根据选用图表，应确保在油液的工作温度范围内，油液的粘度在最佳粘度范围（ V_{opt} 在阴影范围），并建议在同时可选用的不同等级中尽可能选较高粘度等级。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 of the selection diagram). We recommend that the higher viscosity range should be chosen in each case.

•油液的过滤 Filtration

滤油越精细，工作液体的清洁度越好，则泵的寿命越长。为了保证柱塞泵元件的正常功能，油液的清洁度至少为：NAS 1638.9 级别，ISO/DIS4406 的 18/15 级。

The finer the filtration the better the cleanliness of the pressure fluid and the longer the life of the axial piston unit. To ensure the functioning of the axial piston unit a minimum cleanliness level of: 9 to NAS 1638 18/15 to ISO/DIS 4406 is necessary.



三、主要参数 Parameter

进油口工作压力范围

Operating pressure range - inlet

进油口 (S 口) 的绝对压力
Absolute pressure at port S

$P_{abs \min}$ 45-100 -----0.8 bar
 $P_{abs \min}$ 140-180 ----- 1 bar
 $P_{abs \max}$ -----10 bar

出油口工作压力范围

Operating pressure range - outlet

出油口 (B 口) 压力 Pressure at port B

公称压力 Nominal pressure P_N -----280 bar

峰值压力 Peak pressure P_{max} -----350 bar

间隙工作压力 (占 10% 循环周期) -----315 bar

Applications with intermittent operating pressures up to 315 bar at 10% duty are permitted.

壳体泄油压力 Case drain pressure

泄油口 (L, L₁) 最大允许压力: 最高可比进油口压力高 0.5bar, 但不得高于 2bar 的绝对压力。

Maximum permissible pressure of leakage fluid (at port L, L₁): Maximum 0,5 bar higher than the inlet pressure at port S, but no higher than 2 bar absolute pressure.

规格 Sizes			45	71	100	140	180	
排量 Displacement	$V_g \max$ cm ³		45	71	100	140	180	
最高转速 Max speed	n_{max} rpm		1800	1800	1800	1800	1800	
最大流量 Max. flow	在 in n_{max}	q_v	L/min	81	128	180	252	324
	在 in 1500 r/min			67.5	106.7	150	210	270
最大功率 ($\Delta p=280bar$) Max. power	在 in n_{max}	P_{max}	Kw	38	58.7	70	118	151
	在 in 1500 r/min			31	50	70	98	125
最大扭矩 ($\Delta p=280bar$) Max. torque	在 in $V_g \max$	T_{max}	Nm	200	317	446	624	802
重量 Weight	m		Kg	30	47	69	73	78

参数关系: Parameter relations

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

$$\text{驱动转矩 Drive Torque } T = \frac{1.59 \cdot V_g \cdot \Delta p}{100 \cdot \eta_{mh}} = \frac{V_g \cdot \Delta p}{20 \cdot \pi \cdot \eta_{mh}} \quad [Nm]$$

$$\text{驱动功率 Drive Power } P = \frac{T \cdot n}{9549} = \frac{2 \pi \cdot T \cdot n}{60000} = \frac{q_v \cdot \Delta p}{600 \cdot \eta_t} \quad [kw]$$

V_g = 每转几何排量 [cm³] Geometry displacement each rotate

Δp = 压差 [bar] Pressure drop/differential

n = 转速 [rpm] Rotary speed

η_v = 容积效率 Cubage's efficiency

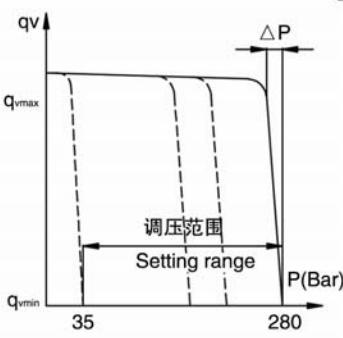
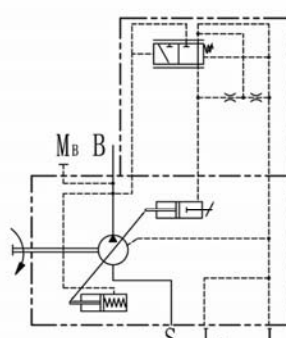
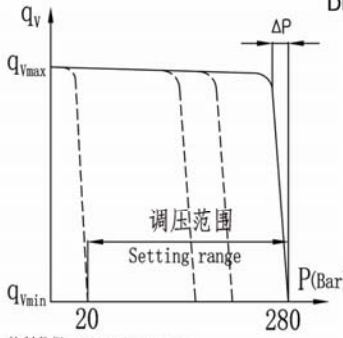
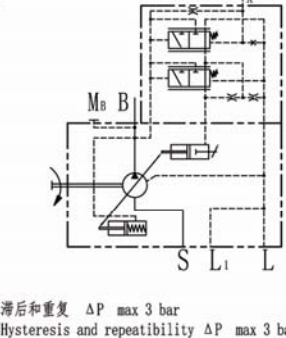
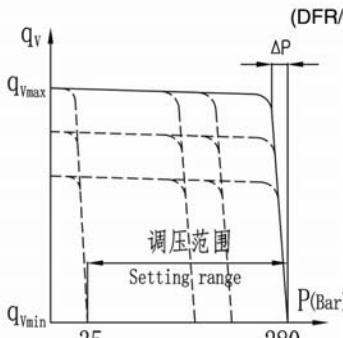
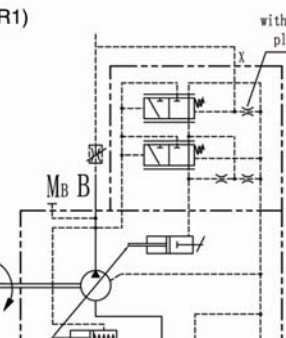
η_{mh} = 机械 - 液压效率 Mechanical-Hydraulic efficiency

η_t = 总效率 ($\eta_t = \eta_v \times \eta_{mh}$) Overall efficiency

四、安装注意事项 Installation Notes

参见 31 系列 P26
viewed on 31 series P26

五、控制方式 Controller-1

变量特性曲线 (Static characteristic)	液压原理 (Circuit drawing)
<p style="text-align: center;">DR</p>  <p>控制数据 Controller data 控制液压油最大消耗量约 3L/min Control fluid consumption max. approx. 3L/min</p>	 <p>滞后和重复 ΔP max 3 bar Hysteresis and repeatability ΔP max 3 bar</p> <p>恒压控制: 在控制范围内使液压系统中压力维持恒压, 泵仅提供系统所需流量, 压力可无级设定。 The pressure controller serves to maintain a constant pressure in a hydraulic system within the control range of the pump. The amount of hydraulic fluid required by the system. Pressure may be steplessly set at the control valve.</p>
<p style="text-align: center;">DRG</p>  <p>控制数据 Controller data 控制液压油最大消耗量约 4.5L/min Control fluid consumption max. approx. 4.5L/min</p>	 <p>滞后和重复 ΔP max 3 bar Hysteresis and repeatability ΔP max 3 bar DRG 控制阀芯的标准压差设定为20 bar The differential pressure at the DRG-control spool is set as standard to 20 bar</p> <p>远程恒压控制: 恒压的功能与装置与 DR 相同。溢流阀接在 X 口作远程控制控制; 溢流阀不在 DRG 控制的供货范围内。 Function and equipment as for DR. A pressure relief valve can be connected to port X for remote control applications; this is not included in the items supplied with the DRG control.</p>
<p style="text-align: center;">DRF/DRS (DFR/DFR1)</p>  <p>控制数据 Controller data 控制液压油最大消耗量DRF约3-4.5L/min DRS约3L/min Control fluid consumption DRF max. approx. 3-4.5L/min Control fluid consumption DRS max. approx. 3L/min</p>	 <p>压差 ΔP 标准设定: 14 bar Differential pressure ΔP standard setting: 14 bar</p> <p>压力 / 流量控制: 除了恒压的功能外, 借助于负载 (如一节流孔) 的压差可改变泵的流量。泵仅供执行机构所需流量。对 DFR1, 图示节流孔堵死。 Function and equipment as for in addition to the pressure control function, the pump flow may be varied by means of a differential pressure over an orifice or valvespool, installed in the service line. The pump flow is equal to the actual required flow by the actuator. The DFR1-valve has no connection between X and the tank.</p>

控制方式 Controller-2

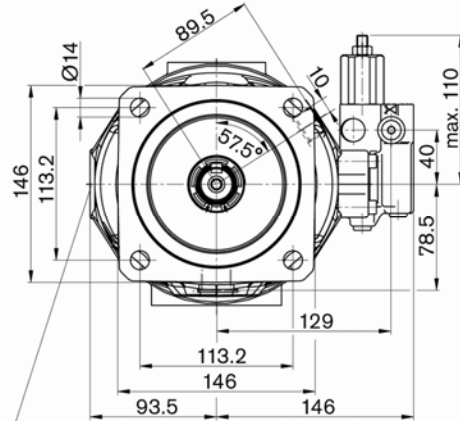
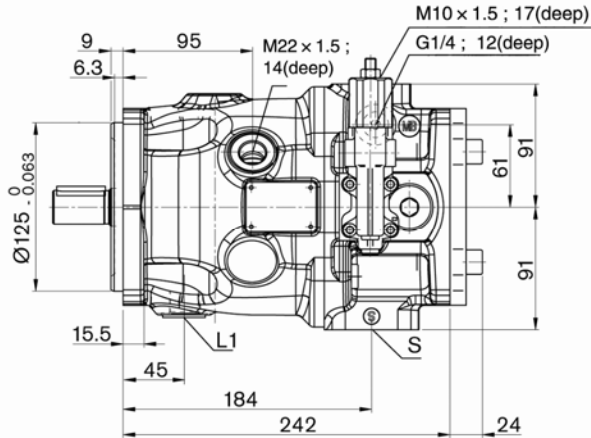
变量特性曲线 (Static characteristic)	液压原理 (Circuit drawing)																																																		
<p>静态曲线和扭矩特性 Static curves and torque characteristic 工作压力 Operating pressure</p> <p>扭矩 Torque T(Nm)</p>	<p>LAXD</p>	<p>压力/功率控制 带压力切断功能 Power control with pressure cut off</p>																																																	
<p>控制数据 Controller data: 控制液压力最大消耗量 5.5L/min Control fluid consumption max. about 5.5L/min</p>	<p>LAXDG</p> <p>不包括在供货范围 Not included in supply</p>	<p>压力/功率控制 带压力切断功能,可远程控制 Power control with pressure cut off remotely operated</p>																																																	
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六、安装连接尺寸 Mounting Dimension

规格尺寸 45 (Unit dimensions, size 45)

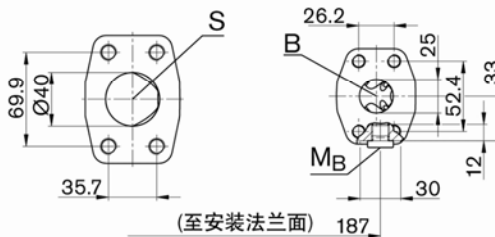
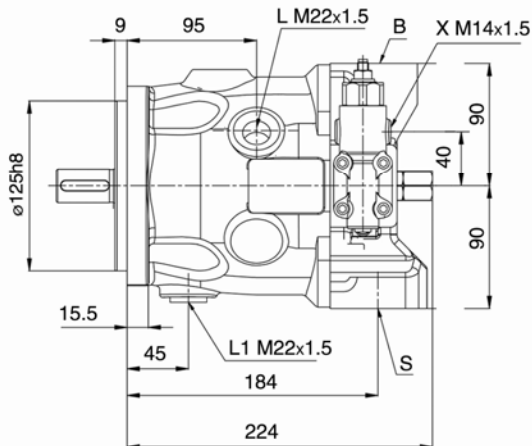
ISO3019-2

型号 Example HA10VSO45XXX/32R-VXB22U99

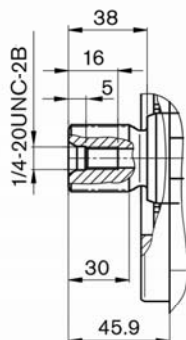


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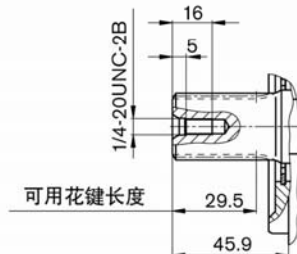
型号 Example HA10VSO45XXX/32R-VXB12N00



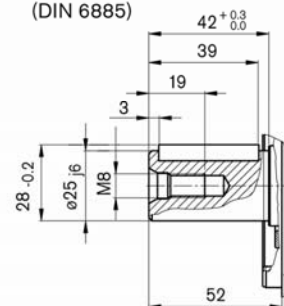
S 花键轴, 1 in
15T 16/32DP (SAE J744)



R 花键轴, 1 in
15T 16/32DP (SAE J744)



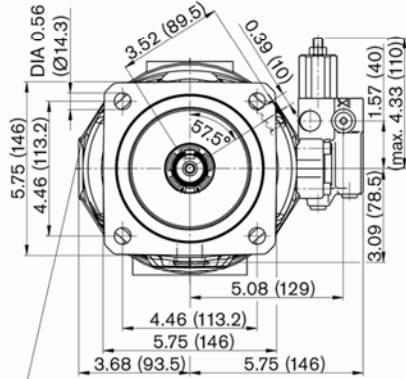
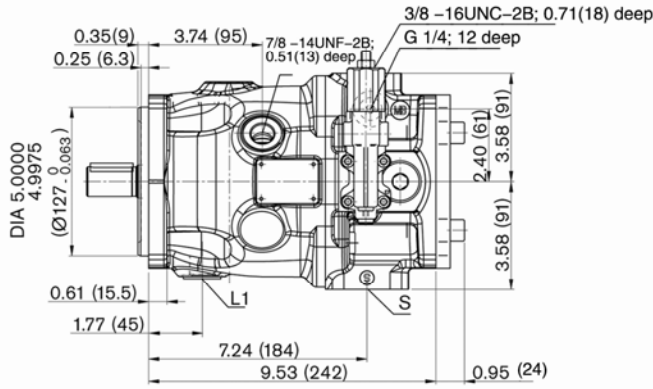
P 平键轴
(DIN 6885)



规格尺寸 45 (Unit dimensions, size 45)

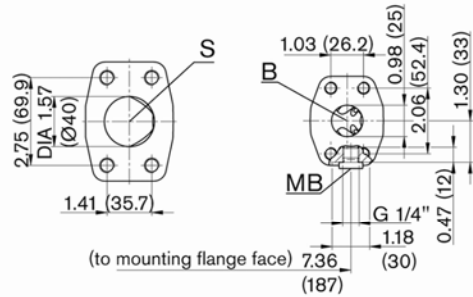
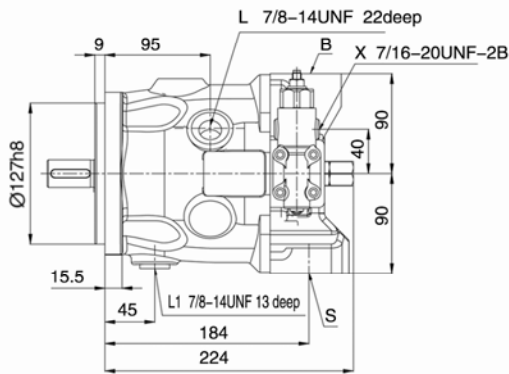
ISO3019-1

型号 Example HA10VSO45XXX/32R-VXD72U99



Valve mounting for counter clockwise rotation

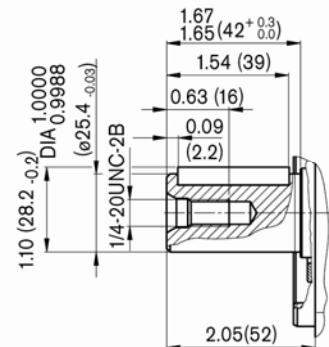
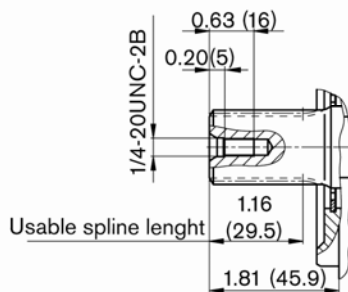
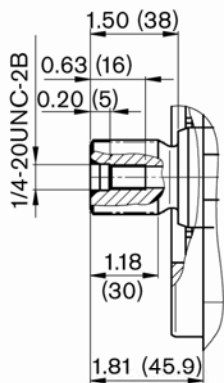
型号 Example HA10VSO45XXX/32R-VXD62N00



S Splined shaft 1 in 15T 16/32DP (SAE J744 - 25-4 (B-B))

R Splined shaft 1 in 15T 16/32DP (SAE J744 - 25-4 (B-B))

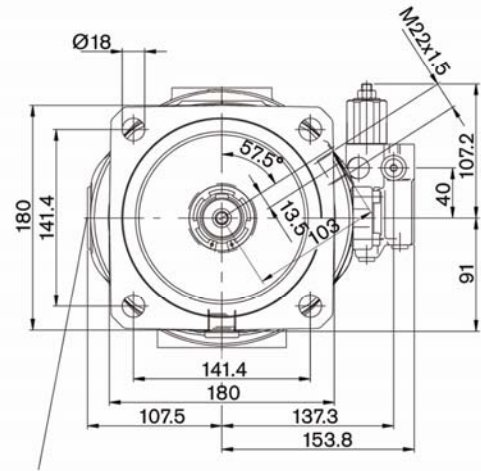
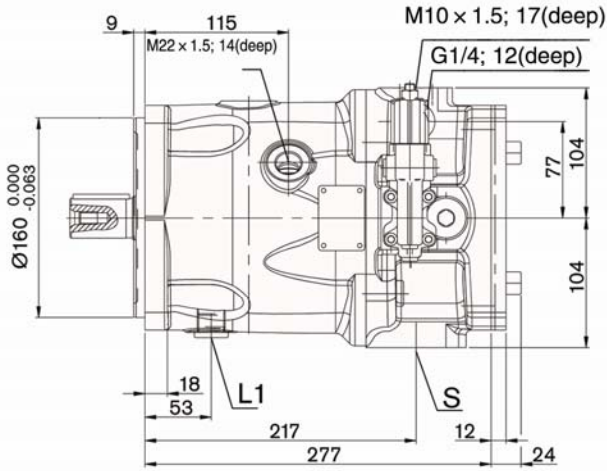
K Parallel keyed shaft (ISO 3019-1)



规格尺寸 71 (Unit dimensions, size 71)

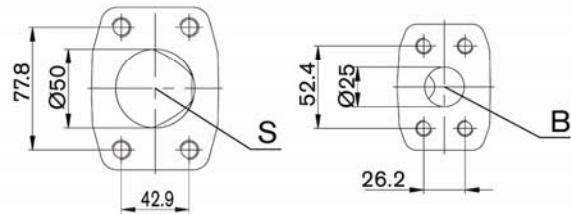
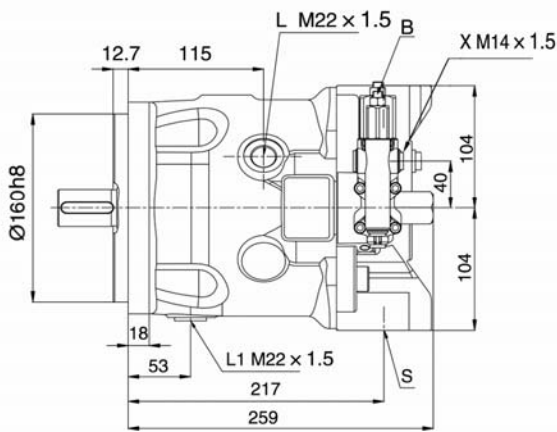
ISO3019-2

型号 Example HA10VSO71XXX/32R-VXB22U99

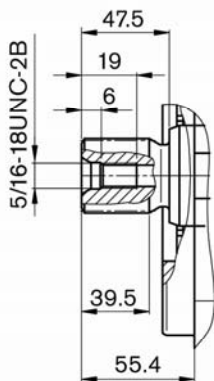


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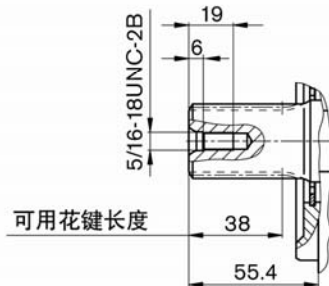
型号 Example HA10VSO71XXX/32R-VXB12N00



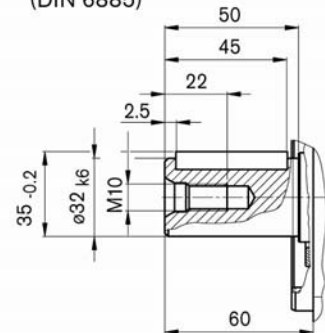
S 花键轴, 1 1/4 in,
14T 12/24DP (SAE J744)



R 花键轴, 1 1/4 in,
14T 12/24DP (SAE J744)



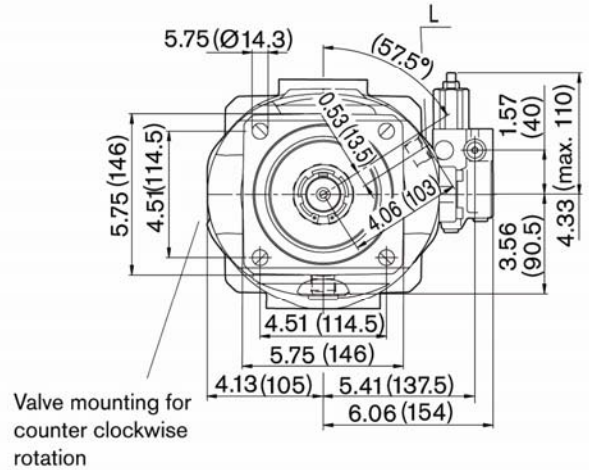
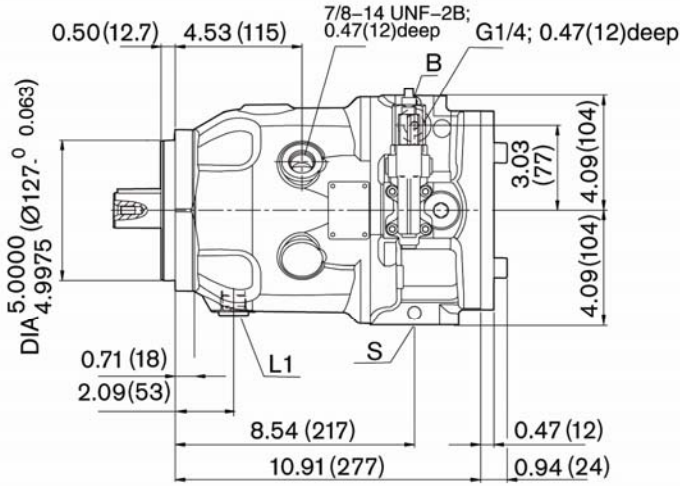
P 平键轴
(DIN 6885)



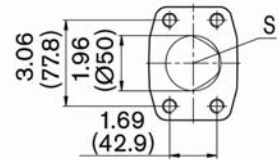
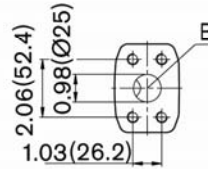
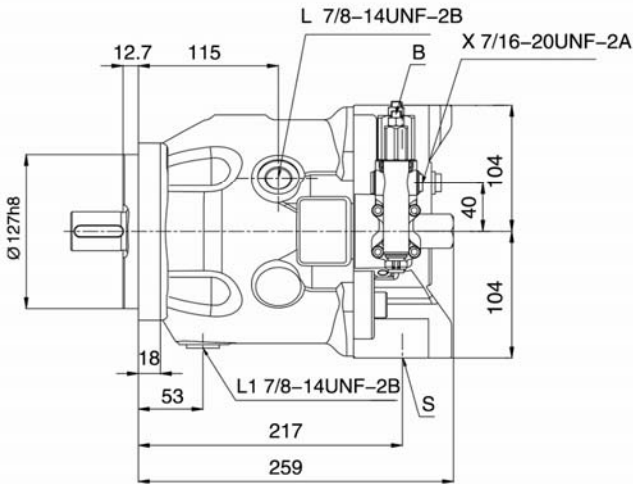
规格尺寸 71 (Unit dimensions, size 71)

ISO3019-1

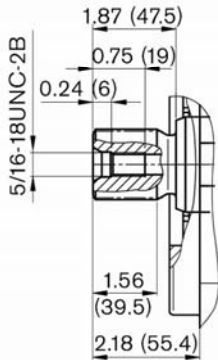
型号 Example HA10VSO71XXX/32R-VXD72U99



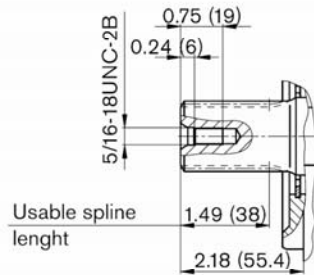
型号 Example HA10VSO71XXX/32R-VXD62N00



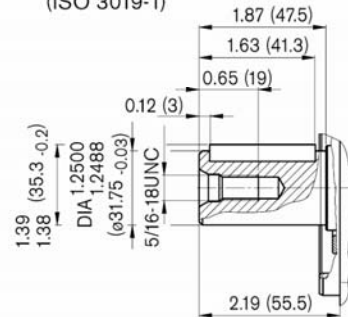
S Splined shaft 1 1/4 in 14T
12/24DP (SAE J744 - 32-4 (C))



R Splined shaft 1 1/4 in 14T
12/24DP (SAE J744 - 32-4 (C))



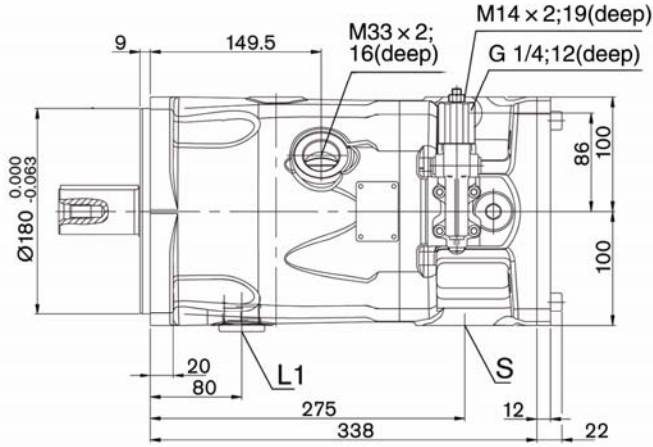
K Parallel keyed shaft
(ISO 3019-1)



规格尺寸 100 (Unit dimensions, size 100)

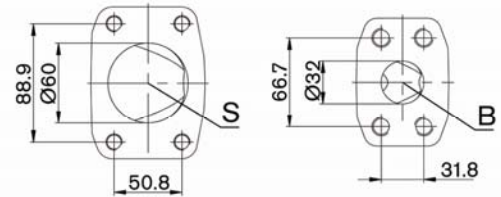
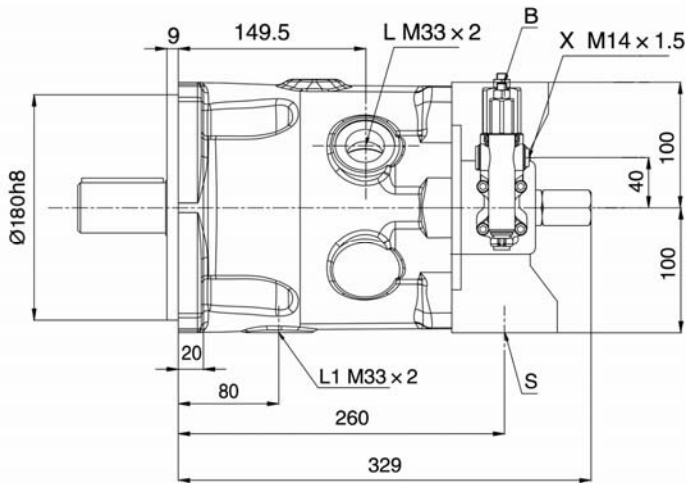
ISO3019-2

型号 Example HA10VSO100XXX/32R-VXB22U99

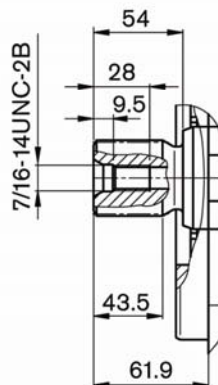


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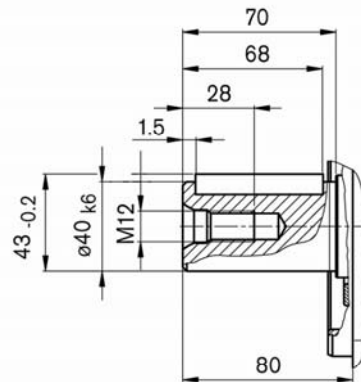
型号 Example HA10VSO100XXX/32R-VXB12N00



S 花键轴, 1 1/2 in,
17T 12/24DP (SAE J744)



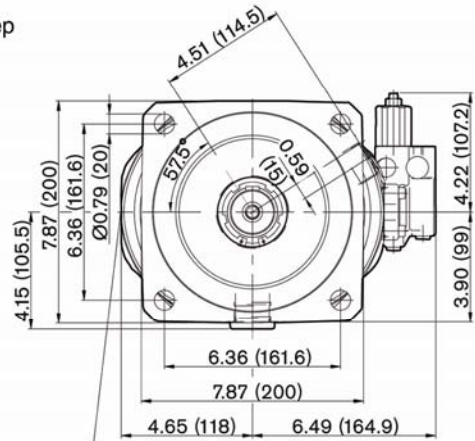
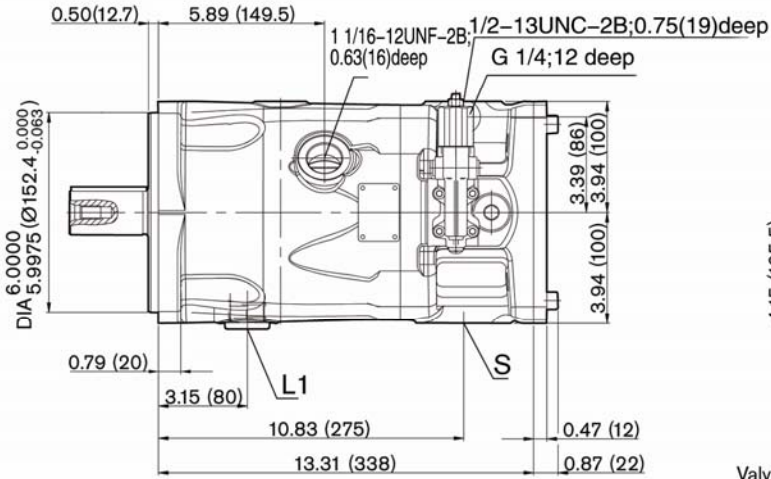
P 平键轴 (DIN 6885)



规格尺寸 100 (Unit dimensions,size 100)

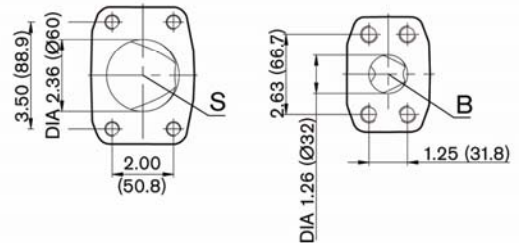
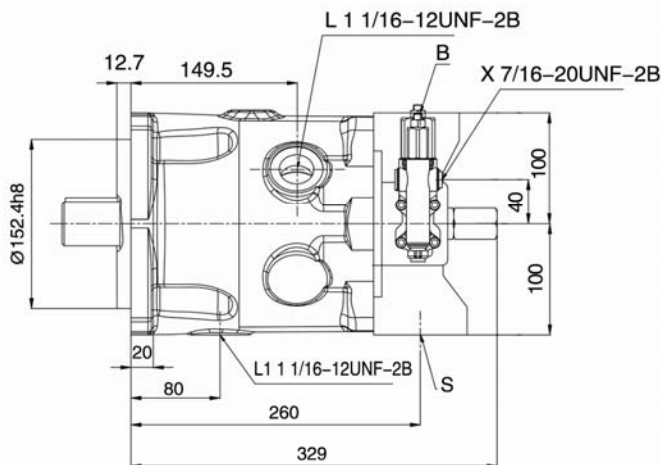
ISO3019-1

型号 Example HA10VSO100XXX/32R-VXD72U99

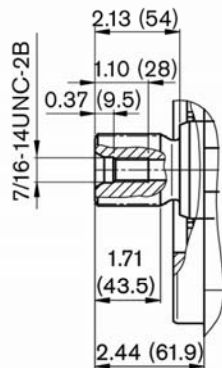


Valve mounting for counter clockwise rotation

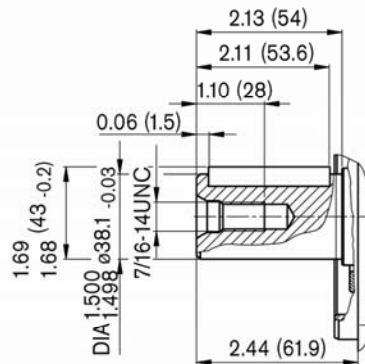
型号 Example HA10VSO100XXX/32R-VXD62N00



S Splined shaft 1 1/2 in 17T 12/24DP (SAE J744 - 38-4 (C-C))



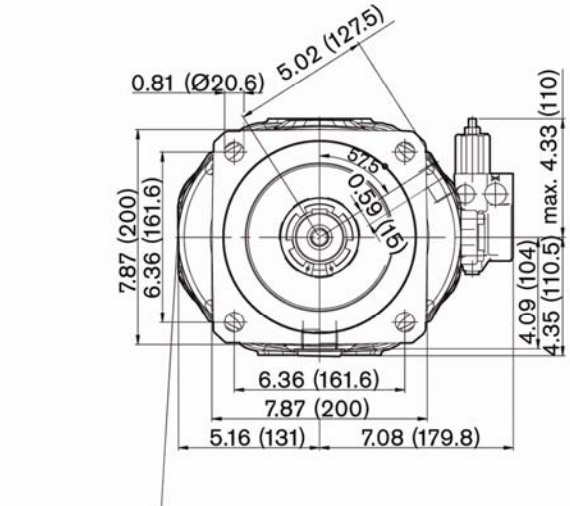
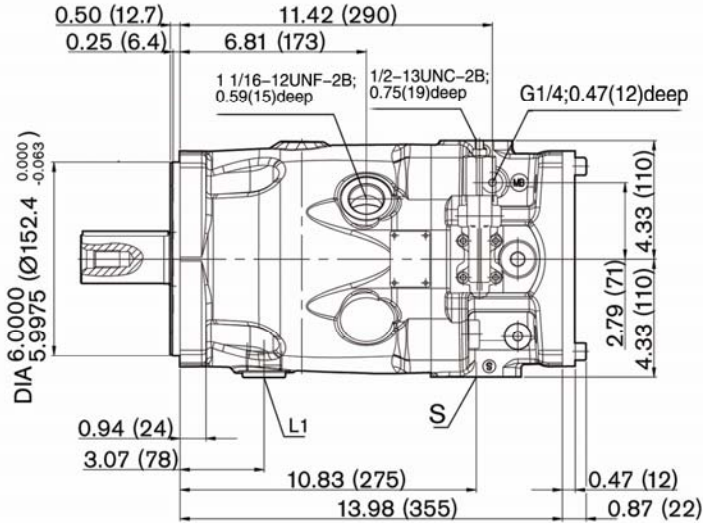
K Parallel keyed shaft (ISO 3019-1)



规格尺寸 140 (Unit dimensions, size 140)

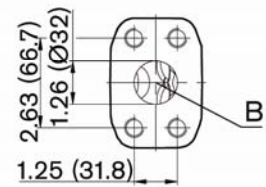
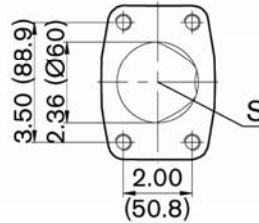
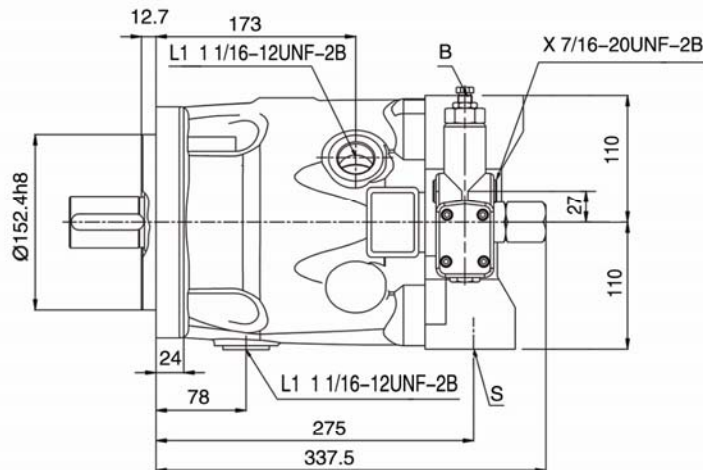
ISO3019-1

型号 Example HA10VSO140XXX/32R-VXD72U99

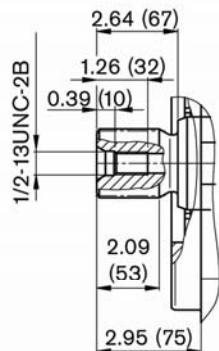


Valve mounting for counter clockwise rotation

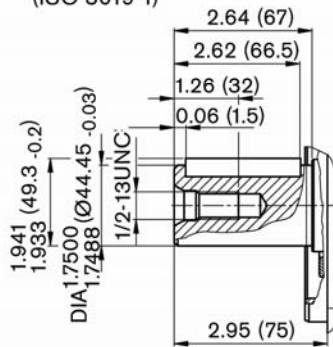
型号 Example HA10VSO140XXX/32R-VXD62N00



S Splined shaft 1 3/4 in 13T
8/16DP (SAE J744 - 44-4 (D))



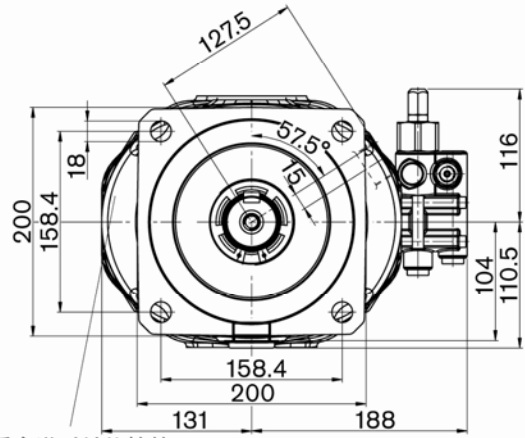
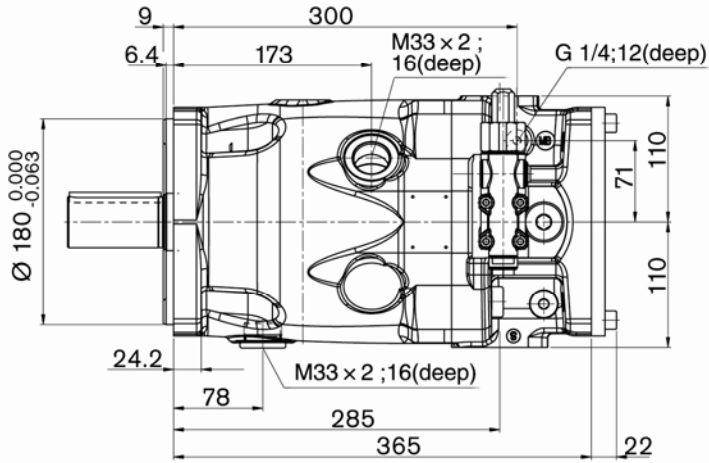
K Parallel keyed shaft
(ISO 3019-1)



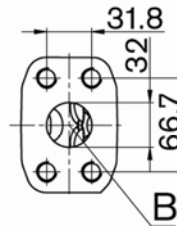
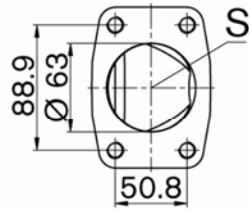
规格尺寸 180 (Unit dimensions, size 180)

ISO3019-2

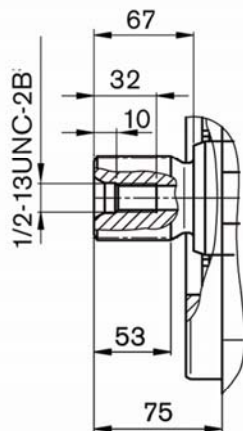
型号 Example HA10VSO180XXX/32R-VXB22U99



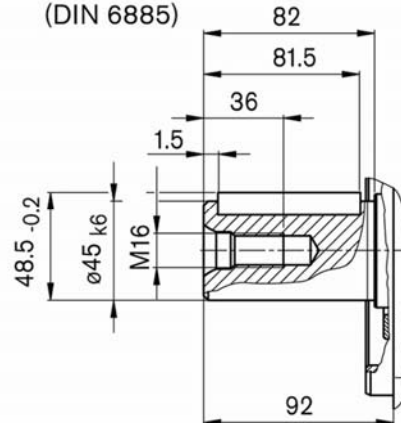
适合逆时针旋转的
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S 花键轴, 1 3/4 in,
13T 8/16DP (SAE J744)

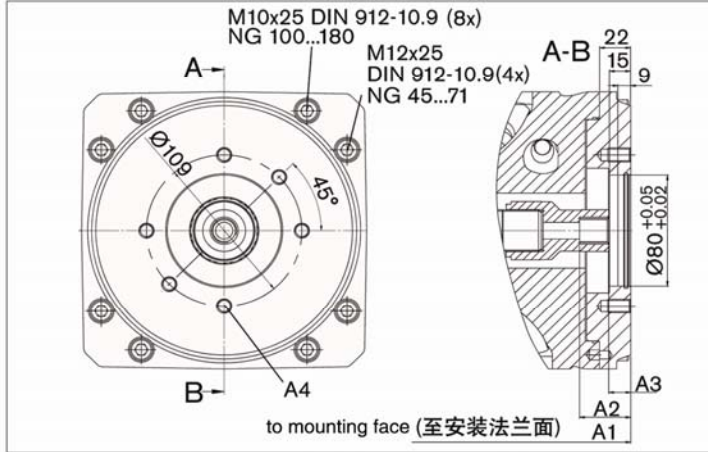


P 平键轴
(DIN 6885)



七、通轴驱动尺寸 Dimensions Through Drive

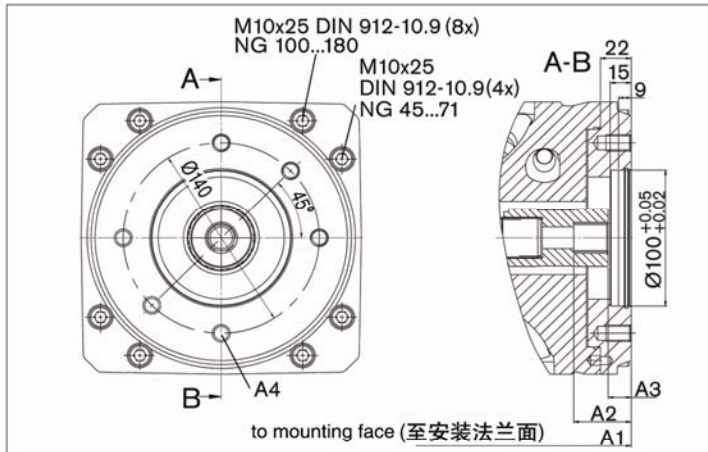
- B2 法兰 Flange ISO 3019-2 - 80 2-螺栓 bolt**
花键轴耦合器符合 ANSI B92.1a-1996, 3/4in 11T 16/32 DP
 Coupler for splined shaft to



(SAE J744 - 16-4 (A-B))

规格 Size	A ₁	A ₂	A ₃	A ₄
45	264	38	15.5	M10 x 1.5; 16 deep
71	299	38	15.5	M10 x 1.5; 16 deep
100	360	38	15.5	M10 x 1.5; 16 deep
140	377	38	15.5	M10 x 1.5; 16 deep
180	387	38	15.5	M10 x 1.5; 16 deep

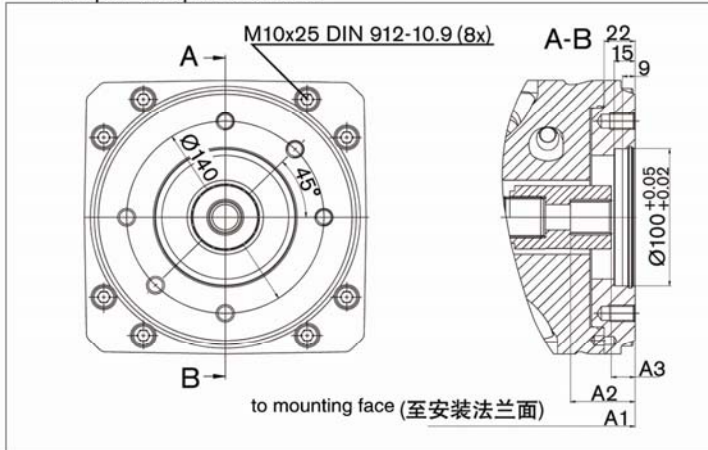
- B3 法兰 Flange ISO 3019-2 - 100 2-螺栓 bolt**
花键轴耦合器符合 ANSI B92.1a-1996, 7/8in 13T 16/32 DP
 Coupler for splined shaft to



(SAE J744 - 22-4 (B))

规格 Size	A ₁	A ₂	A ₃	A ₄	U99
45	264	41	16.5	M12 x 1.75; 18 deep	
71	299	41	16.5	M12 x 1.75; 18 deep	
100	360	41	16.5	M12 x 1.75; 18 deep	
140	377	41	16.5	M12 x 1.75; 18 deep	
180	387	41	16.5	M12 x 1.75; 18 deep	

- B4 法兰 Flange ISO 3019-2 - 100 2-螺栓 bolt**
花键轴耦合器符合 ANSI B92.1a-1996, 1in 15T 16/32 DP
 Coupler for splined shaft to

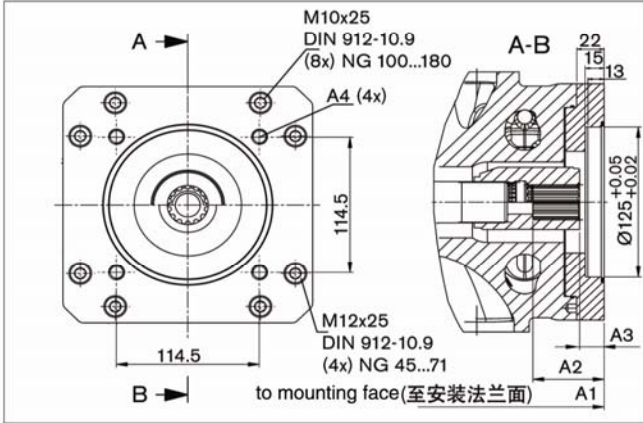


(SAE J744 - 25-4 (B-B))

规格 Size	A ₁	A ₂	A ₃	A ₄	U99
45	264	45.9	16.9	M12 x 1.75; 18 deep	
71	299	45.9	16.9	M12 x 1.75; 18 deep	
100	360	45.9	16.9	M12 x 1.75; 18 deep	
140	377	45.9	16.9	M12 x 1.75; 18 deep	
180	387	45.9	16.9	M12 x 1.75; 18 deep	

直接传动尺寸 Dimensions Direct Drive

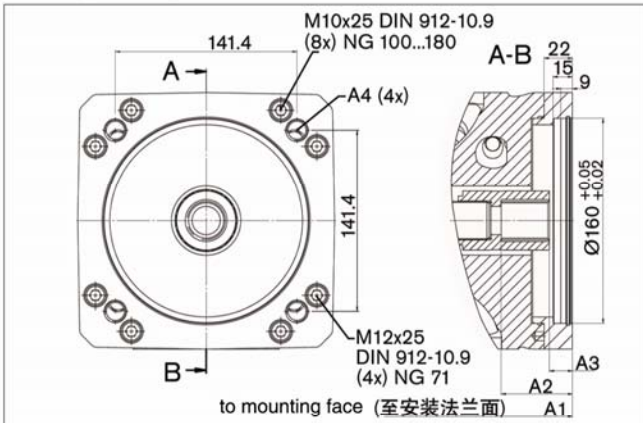
E1 法兰 Flange ISO 3019-2 - 125 4-螺栓 bolt
花键轴耦合器符合 ANSI B92.1a-1996, 1 in 15T 16/32 DP
Coupler for splined shaft to



(SAE J744 - 25-4 (B-B))

规格 Size	A ₁	A ₂	A ₃	A ₄	U99
45	264	45.9	16.9	M12 x 1.75; 22 deep	
71	299	45.9	16.9	M12 x 1.75; 15 deep	
100	360	45.9	16.9	M12 x 1.75; 15 deep	
140	377	45.9	16.9	M12 x 1.75; 15 deep	
180	387	45.9	16.9	M12 x 1.75; 22 deep	

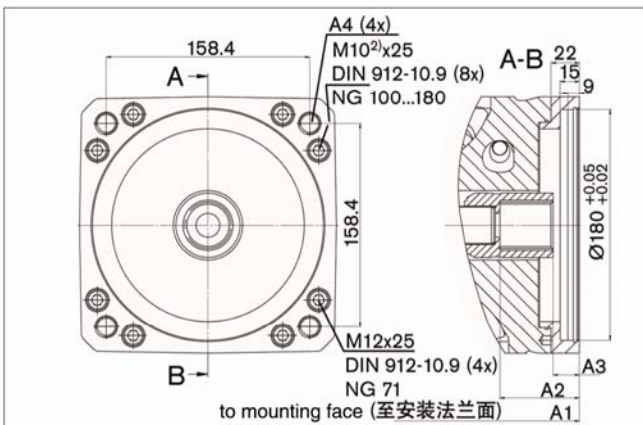
B8 法兰 Flange ISO 3019-2 - 160 4-螺栓 bolt
花键轴耦合器符合 ANSI B92.1a-1996, 1 1/4in 14T 12/24 DP
Coupler for splined shaft to



(SAE J744 - 32-4 (C))

规格 Size	A ₁	A ₂	A ₃	A ₄	U99
71	299	55.4	17.9	M16 x 2; 20 deep	
100	360	55.4	17.9	M16 x 2; 20 deep	
140	377	55.4	17.9	M16 x 2; 20 deep	
180	387	55.4	17.9	M16 x 2; 20 deep	

B9 法兰 Flange ISO 3019-2 - 180 4-螺栓 bolt
花键轴耦合器符合 ANSI B92.1a-1996, 1 1/2in 17T 12/24 DP
Coupler for splined shaft to

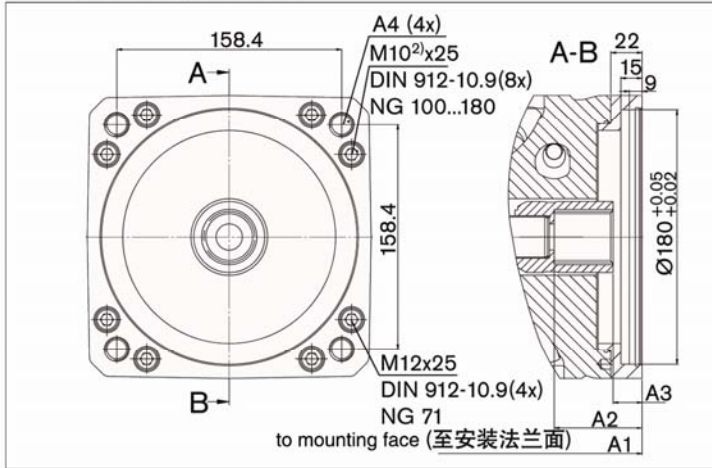


(SAE J744 - 38-4 (C-C))

规格 Size	A ₁	A ₂	A ₃	A ₄	U99
100	360	61.9	20.4	M16 x 2; 20 deep	
140	377	61.9	20.4	M16 x 2; 20 deep	
180	387	61.9	20.4	M16 x 2; 20 deep	

B7 法兰 Flange ISO 3019-2 - 180 4-螺栓 bolt
花键轴耦合器符合 ANSI B92.1a-1996, 1 3/4in 13T 8/16 DP
 Coupler for splined shaft to

(SAE J744 - 44-4 (D))

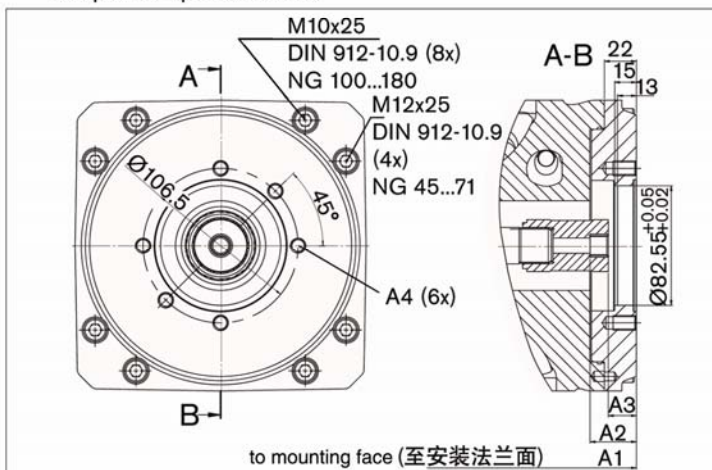


规格 Size	A ₁	A ₂	A ₃	A ₄	U99
140	377	75	根据要求提供 On request	M16 x 2; 20 deep	
180	387	75	根据要求提供 On request	M16 x 2; 20 deep	

U00 M16 x 2 处所有 NG 的螺纹; 22 (深)

01 法兰 Flange ISO 3019-1 - 82-2 (A)
花键轴耦合器符合 ANSI B92.1a-1996, 5/8in 9T 16/32 DP
 Coupler for splined shaft to

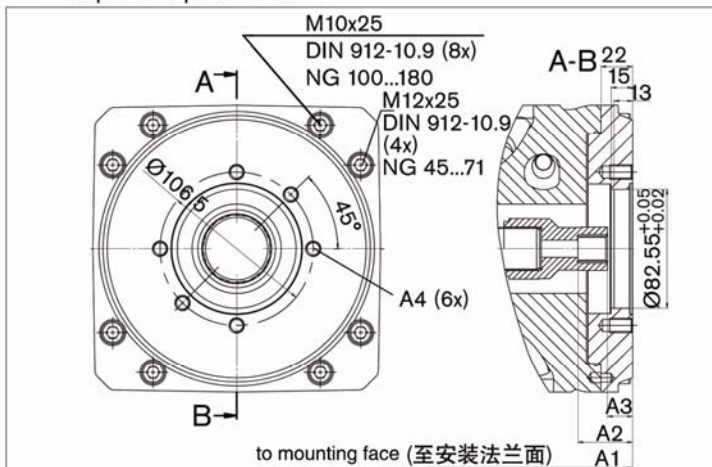
(SAE J744 - 16-4 (A))



规格 Size	A ₁	A ₂	A ₃	A ₄
45	264	31.8	19.3	M10 x 1.5; 16 deep
71	299	31.8	19.3	M10 x 1.5; 16 deep
100	360	31.8	根据要求提供 On request	M10 x 1.5; 16 deep
140	377	31.8	根据要求提供 On request	M10 x 1.5; 16 deep
180	387	31.8	根据要求提供 On request	M10 x 1.5; 16 deep

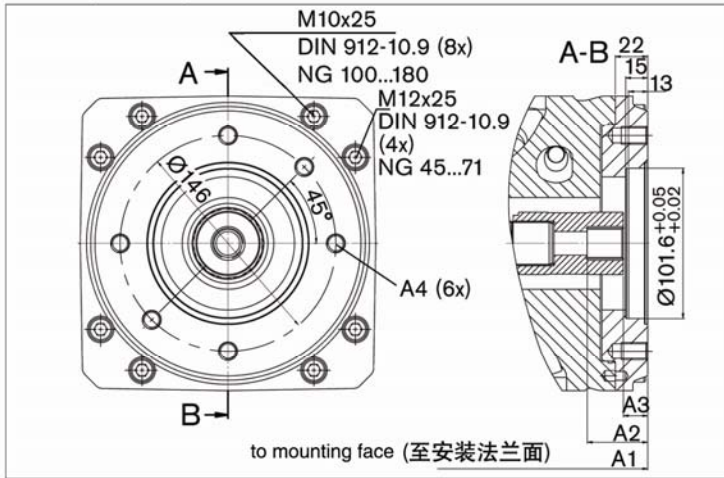
52 法兰 Flange ISO 3019-1 - 82-2 (A)
花键轴耦合器符合 ANSI B92.1a-1996, 3/4in 11T 16/32 DP
 Coupler for splined shaft to

(SAE J744 - 19-4 (A-B))



规格 Size	A ₁	A ₂	A ₃	A ₄
45	264	38	17.5	M10 x 1.5; 16 deep
71	299	38	17.5	M10 x 1.5; 16 deep
100	360	38	17.5	M10 x 1.5; 16 deep
140	377	38	17.5	M10 x 1.5; 16 deep
180	387	38	17.5	M10 x 1.5; 16 deep

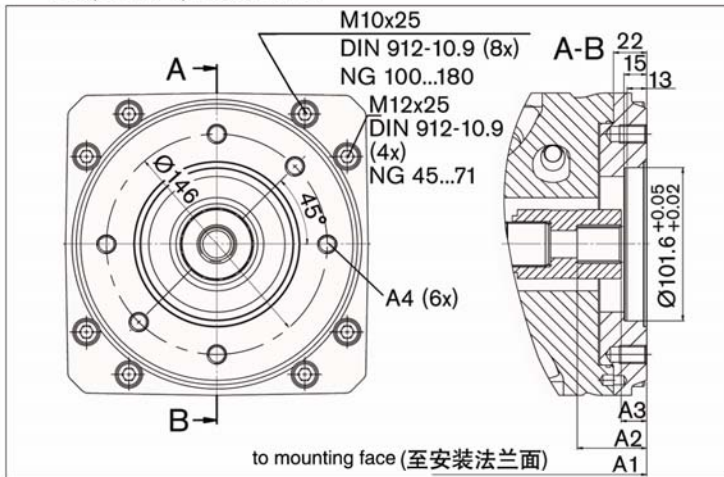
68 法兰 Flange ISO 3019-1 - 101-2 (B)
花键轴耦合器符合 ANSI B92.1a-1996, 7/8in 13T 16/32 DP
Coupler for splined shaft to



(SAE J744 - 22-4 (B))

规格 Size	A ₁	A ₂	A ₃	A ₄	U99
45	264	41	16.5	M12 x 1.75; 22 deep	
71	299	41	16.5	M12 x 1.75; 22 deep	
100	360	41	16.5	M12 x 1.75; 18 deep	
140	377	41	16.5	M12 x 1.75; 18 deep	
180	387	41	16.5	M12 x 1.75; 18 deep	

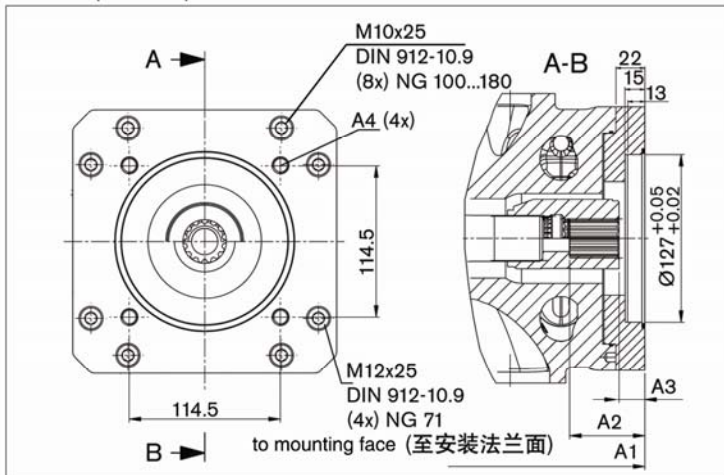
04 法兰 Flange ISO 3019-1 - 101-2 (B)
花键轴耦合器符合 ANSI B92.1a-1996, 1in 15T 16/32 DP
Coupler for splined shaft to



(SAE J744 - 25-4 (B-B))

规格 Size	A ₁	A ₂	A ₃	A ₄	U99
45	264	45.9	16.9	M12 x 1.75; 22 deep	
71	299	45.9	16.9	M12 x 1.75; 22 deep	
100	360	45.9	16.9	M12 x 1.75; 18 deep	
140	377	45.9	16.9	M12 x 1.75; 18 deep	
180	387	45.9	16.9	M12 x 1.75; 18 deep	

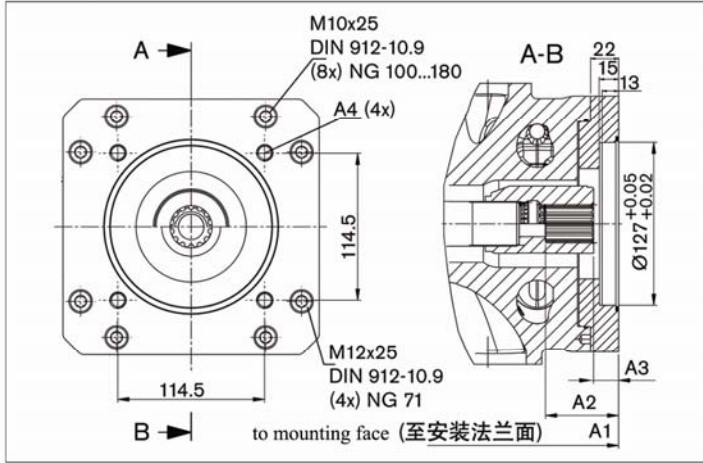
E2 法兰 Flange ISO 3019-1 - 127-4 (C)
花键轴耦合器符合 ANSI B92.1a-1996, 1 in 15T 16/32 DP
Coupler for splined shaft to



(SAE J744 - 25-4 (B-B))

规格 Size	A ₁	A ₂	A ₃	A ₄	U99
45	264	45.9	16.9	M12 x 1.75; 22 deep	
71	299	45.9	16.9	M12 x 1.75; 22 deep	
100	360	45.9	16.9	M12 x 1.75; 22 deep	
140	377	45.9	16.9	M12 x 1.75; 15 deep	
180	387	45.9	16.9	M12 x 1.75; 22 deep	

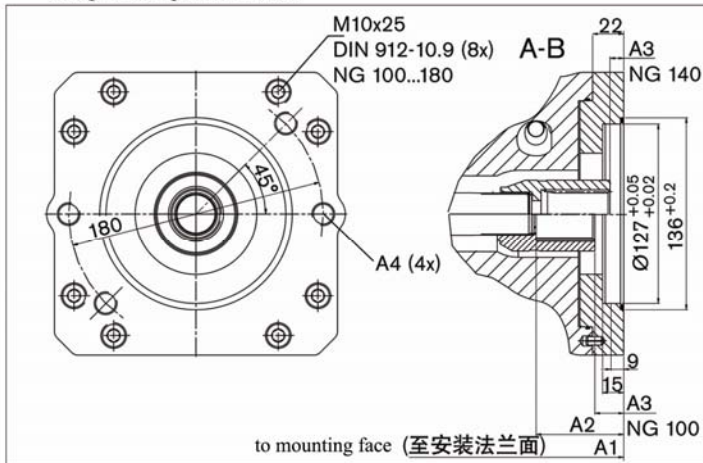
- 15 法兰 Flange ISO 3019-1 - 127-4 (C)**
 花键轴耦合器符合 ANSI B92.1a-1996, 1 1/4in 14T 12/24 DP
 Coupler for splined shaft to



(SAE J744 - 32-4 (C))

规格 Size	A ₁	A ₂	A ₃	A ₄	U99
71	299	55.4	17.9	M12 x 1.75; 22 deep	
100	360	55.4	17.9	M12 x 1.75; 15 deep	
140	377	55.4	17.9	M12 x 1.75; 15 deep	
180	387	55.4	17.9	M12 x 1.75; 22 deep	

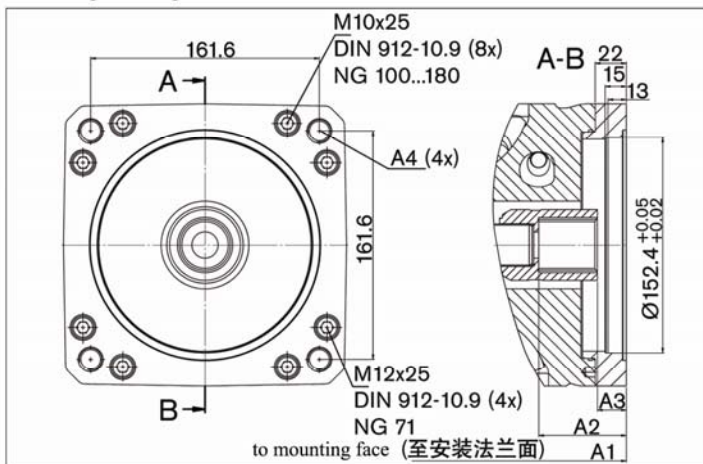
- 24 法兰 Flange ISO 3019-1 - 127-2 (C)**
 花键轴耦合器符合 ANSI B92.1a-1996, 1 1/2in 17T 12/24 DP
 Coupler for splined shaft to



(SAE J744 - 38-4 (C-C))

规格 Size	A ₁	A ₂	A ₃	A ₄
100	360	61.9	20.4	M16 x 2; 22 deep
140	377	61.9	20.4	M16 x 2; 22 deep
180	387	61.9	20.4	M16 x 2; 22 deep

- 96 法兰 Flange ISO 3019-1 - 152-4 (D)**
 花键轴耦合器符合 ANSI B92.1a-1996, 1 1/2in 17T 12/24 DP
 Coupler for splined shaft to

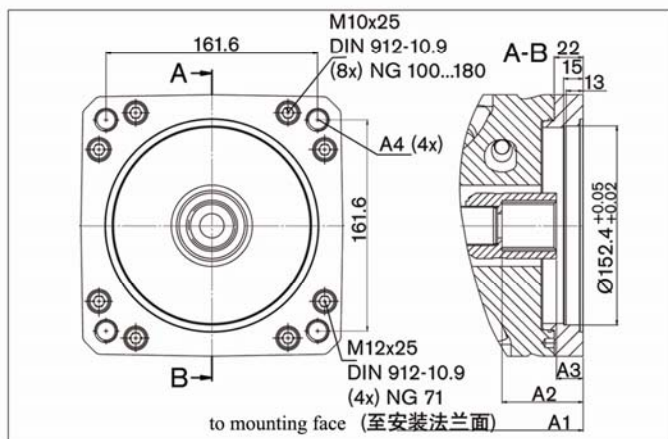


(SAE J744 - 38-4 (C-C))

规格 Size	A ₁	A ₂	A ₃	A ₄
100	360	61.9	20.4	M16 x 2; 22 deep
140	377	61.9	20.4	M16 x 2; 22 deep
180	387	61.9	20.4	M16 x 2; 22 deep

17 法兰 Flange ISO 3019-1 - 152-4 (D)

花键轴耦合器符合 ANSI B92.1a-1996, 1 3/4in 13T 8/16 DP
Coupler for splined shaft to



(SAE J744 - 44-4 (D))

规格	A ₁	A ₂	A ₃	A ₄
140	377	75	根据要求提供 On request	M16 x 2: deep 22
180	387	75	根据要求提供 On request	M16 x 2: deep 22

直接传动 - HA10VSO Through drive			安装选项第 2 泵 Mounting option 2nd pump			直接传动 适合尺寸 Through drive available for size
法兰 Flange	花键轴耦 合器 Coupler for splined shaft	代码	HA10VSO 规格 (轴) Size (shaft)	HA10VO 规格 (轴) Size (shaft)	外啮合齿轮泵 External gear pump 系列 (尺寸) Series (size)	
ISO 80, 2 螺栓 bolt	3/4 in	B2	10、18 系列 Size 52/31 (S、R)			71 to 180
ISO 100, 2 螺栓 bolt	7/8 in	B3	28 系列 31 (S、R)			71 to 180
	1 in	B4	45 系列 31 (S、R)			71 to 180
ISO 125, 4 螺栓	1 in bolt	E1	45 (S、R)			71 to 180
ISO 160, 4 螺栓	1 1/4 in bolt	B8	71 (S、R)			71 to 180
ISO 180, 4 螺栓	1 1/2 in bolt	B9	100 (S)			100 to 180
	1 3/4 in	B7	140 (S)			140 to 180
ISO 3019-1						
82-2(A)	5/8 in	01			F (5 to 22)	71 to 180
	3/4 in	52	10、18 系列 Size 52/31 (S)			71 to 180
101-2(B)	7/8 in	68		28 系列 31 (S、R)	N/G (26 to 49)	71 to 180
	1 in	04		45 系列 31 (S、R)		71 to 180
127-4(C)	1 in	E2		45 (S、R)		45 to 180
127-4(C)	1 1/4 in	15		71 (S)		71 to 180
127-2(C)	1 1/2 in	24		100 (S)	PGH	100 to 180
152-4(D)	1 1/2 in	96		100 (S)		100 to 180
	1 3/4 in	17		140 (S)		140 to 180