

A10V 轴向柱塞变量泵

Swashplate Axial Piston Pump

型号说明 Model Description

A10V(S)	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																																																	
O	运行模式: 泵, 开式回路 Mode of operation pump, open circuit																																																	
28	规格排量: 18、28、45、71、100、140 (ml/r) Displacement: 18、28、45、71、100、140 (ml/r)																																																	
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31	产品系列: 31系列 Product series: 31 series																																																	
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R	转向 (从轴端看): Direction of Rotation R--顺时针 Clockwise L--逆时针 Anti-clockwise																																																	
P	密封件: Seale P-丁腈橡胶 Perbunan V-氟橡胶 Viton																																																	
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62	油口型式 Port for service lines	18	28	45	71	100	140
	11--后面SAE, 公制螺纹 SAE flange rear, fixing thread metric		√	√	√	√	√
	61--后面SAE, NUC螺纹 SAE flange rear, fixing thread NUC		√	√	√	√	√
	12--两侧SAE, 公制螺纹 SAE flange on opposite side, fixing thread metric	√	√	√	√	√	√
	62--两侧SAE, NUC螺纹 SAE flange on opposite NUC	√	√	√	√	√	√
	41(91)--后面SAE, 公制 (NUC) 螺纹 SAE flange rear, fixing thread metric (NUC)				√		
	42(92)--两侧SAE, 公制 (NUC) 螺纹 SAE flange on opposite side, fixing thread metric (NUC)				√		

N00	通轴型式 With through drive to accept an axial piston pump or gear pump	18	28	45	71	100	140
	不通轴 Without through drive	√	√	√	√	√	N00

● 技术数据 Technical Data

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 pore S

Pabs min 0.8 bar

Pabs max 30 bar

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.

进油口工作压力范围 Operating pressure range-inlet

进油口 (B口) 压力 Pressure at pore B

公称压力 Nominal pressure PN 280 bar

峰值压力 Peak pressure Pmax 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 permissible.

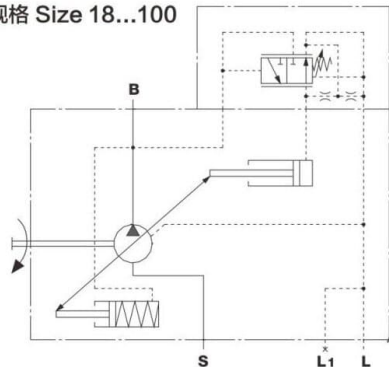
规格 Size			18	28	45	71	100	140
排量 Displacement	V _{gmax}	ml/r	18	28	45	71	100	140
最高转速 Max.speed	n _{max}	rpm	3300	3000	2600	2200	2000	1800
最大流量 Max.Output flow	在 in n _{max}	Q _v	59.4	84	117	156	200	252
	在 in 1500r/min	Q _v	27	42	68	107	150	210
最大功率 (Δp=280bar) Max.power	在 in n _{max}	P _{max}	27.7	39	55	73	93	118
	在 in 1500r/min	P _{max}	12.6	20	32	50	70	98
最大扭矩 (Δp=280bar) Max.torque	在 in V _{gmax}	T _{max}	80.1	125	200	316	445	623
重量 Weigh	m	kg	12	15	21	33	45	60

A10V 轴向柱塞变量泵 Swashplate Axial Piston Pump

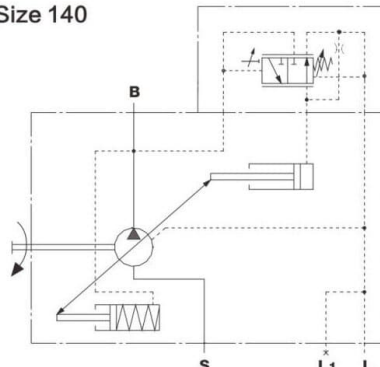
DR – 压力控制 Pressure control

在泵的控制范围内，恒定控制将液压系统中的压力保持恒定。因此，泵只提供执行器所需的液压油量。压力可在控制阀中无级设定。
In the control range of the pump, the pressure in the hydraulic system is kept constant. Therefore, the pump only provides the hydraulic oil required for the actuator. Pressure can be set in the control valve.

规格 Size 18...100

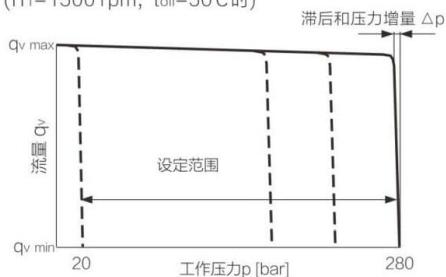


规格 Size 140



静态特性曲线

($n_1=1500\text{ rpm}$; $t_{oil}=50^\circ\text{C}$ 时)



动态特性曲线

左侧曲线显示了测试条件下的平均没量值。

条件: $n=1500\text{ rpm}$; $t_{oil}=50^\circ\text{C}$

管路主溢流阀设在 350bar

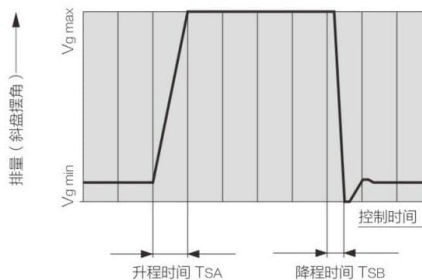
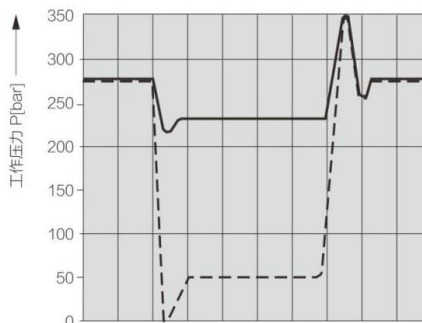
使用距离泵压力出油口下游1m的溢流阀，迅速开启或关闭压力管路，可实现分级负载。

Left curve shows the average value of the test conditions.

Condition: $n=1500\text{ rpm}$; $t_{oil}=50^\circ\text{C}$

The main overflow valve is located in 350bar

Using the distance pump pressure from the oil port downstream 1m of the overflow valve, quickly open or close the pressure line, can achieve the classification load.



油口

- B** 压力油口
- S** 吸油口
- L, L1** 泄油口 (L1 关闭)

最大压力增量

规格 Size	18	28	45	71	100	140
Δp bar	4	4	6	8	10	12

控制油耗 最大约 3L/min

$q_{v\max}$ 时的流量损失参见第8、9页。

控制数据

滞后和重复精度 Δp 最大值 3bar

控制时间

规格 Size	18	28	45	71	100	140
$t_{SA}[\text{ms}]$ 50bar 时	50	60	80	100	125	130
$t_{SA}[\text{ms}]$ 220bar 时	25	30	40	50	90	110
$t_{SA}[\text{ms}]$ 零排量280bar	20	20	20	25	30	30

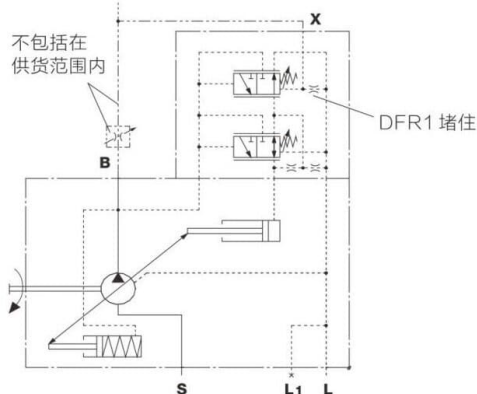
A10V 轴向柱塞变量泵 Swashplate Axial Piston Pump

DFR/DFR1 – 压力/流量控制 Pressure / flow control

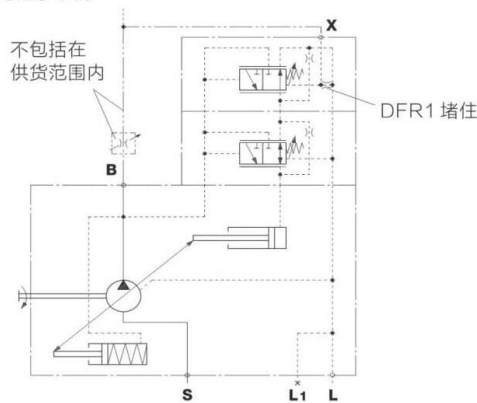
除了压力控制功能之外，还可通过压差（如节流孔或换向阀上的压差）调节泵流向执行元件的流量。泵只提供执行器所需的油液。在DFR1型上，油口X与油箱之间的节流孔被堵住。压力控制的功能和内容参见第18/19页。

In addition to the pressure control function, but also through the differential pressure (such as the throttle valve or valve on the pressure difference) to regulate the flow of the pump flow. Pump to provide the oil needed for the actuator. In the DFR1 type, the throttle hole between the oil port X and the fuel tank is blocked. The function and content of the pressure control refer to page 18/19.

规格 Size 18...100

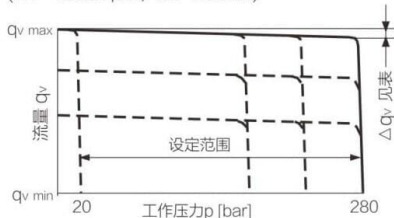


规格Size 140

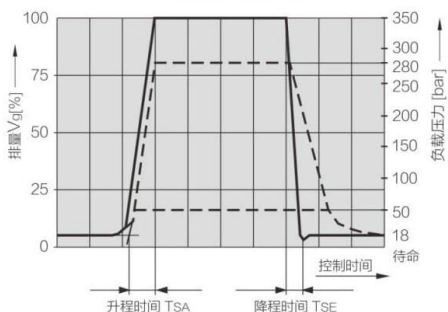
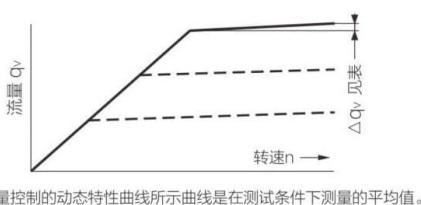


静态特性曲线

($n_1=1500$ rpm; $t_{oil}=50^\circ\text{C}$ 时)



变转速情况下的静态特性曲线



控制时间

规格 Size	18	28	45	71	100	140
t_{sA} [ms] 待命-280bar	40	40	50	60	120	130
t_{sA} [ms] 280bar 待命	15	20	25	30	60	60
t_{sA} [ms] 50bar 待命	40	40	50	60	120	130

油口

- B** 压力油口
- S** 吸油口
- L, L1** 泄油口 (L1 关闭)
- X** 先导压力油口

型式	规格 Size 18...100	规格 Size 140
11、12	带接头	不带接头
61、62	不带接头	带接头

压差 Δp :

标准设定值：14bar, 如需其它设定值，请用文字说明。
X油口卸载通油箱时（出油口B关闭），将产生一个 $p=18 \pm 2$ bar的零排量压力。（待命压力取决于 Δp ）

控制数据

压力控制的技术参数参见第30页。最大流量偏差（滞后和升高）是在驱动转速 $n = 1500$ rpm时测量的：

规格 Size	18	28	45	71	100	140
Δq_{vmax} L/min	0.9	1.0	1.8	2.8	4.0	6.0

A10V 轴向柱塞变量泵

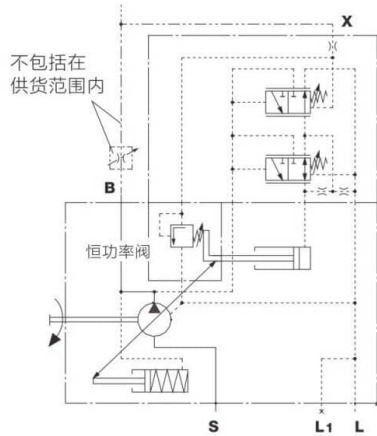
Swashplate Axial Piston Pump

DFLR – 压力/流量/功率控制 Pressure / flow / power control

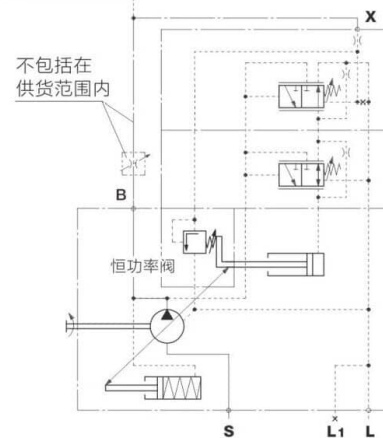
为了在工作压力变化的情况下获取恒定的驱动扭矩，通过改变轴向柱塞元件的摆角，从而改变输出流量，使流量和压力的乘积保持恒定。流量控制只能在恒功率控制曲线以下。

In order to obtain a constant driving torque in the case of working pressure change, by changing the angle of the axial piston element, thus changing the output flow, so that the product of flow and pressure remain constant. Flow control can only be in the constant power control curve.

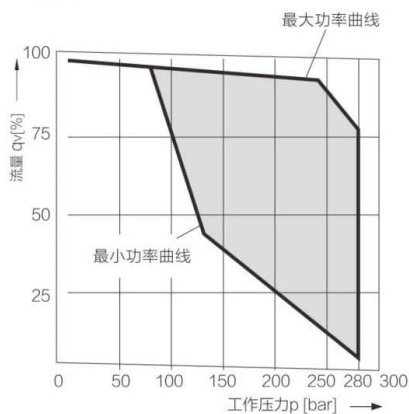
规格 Size 28...100



规格 Size 140



静态特性曲线



功率特性由工厂设定，因此请用文字说明细节，如1500rpm时为20kW。

油口

- B** 压力油口
- S** 吸油口
- L, L1** 泄油口 (L1 关闭)
- X** 控制压力油口

控制数据

压力控制的技术参数参见第30页。

流量控制的技术参数参见第32页。

控制起点 _____ 从80ba起

控制油耗 _____ 最大约5.5L/min

qvmax时的流量损失参见第32页。

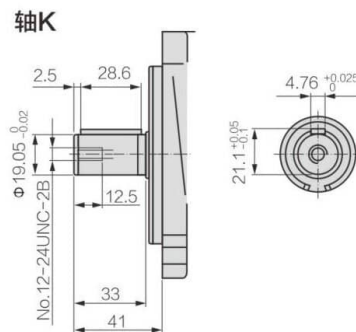
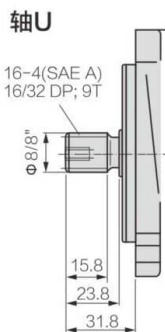
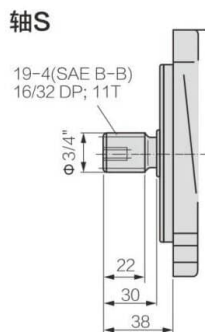
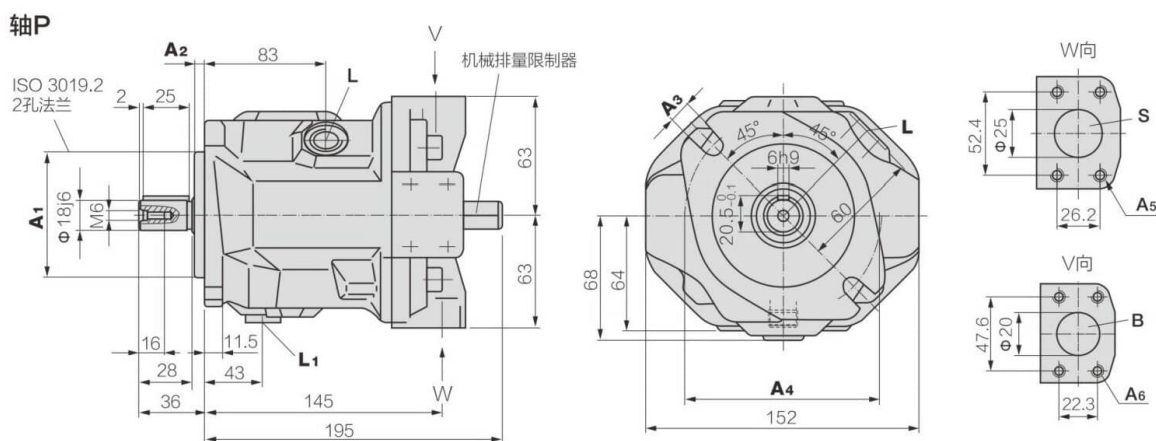
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● 液压泵规格尺寸 Dimensions & Size

安装连接尺寸规格18

N00型无控制阀



B 压力油口 SAE 3/4" (标准压力范围)

S 进油口 SAE 1" (标准压力范围)

L/L1 壳体泄油口 (L1口在工厂已堵死)

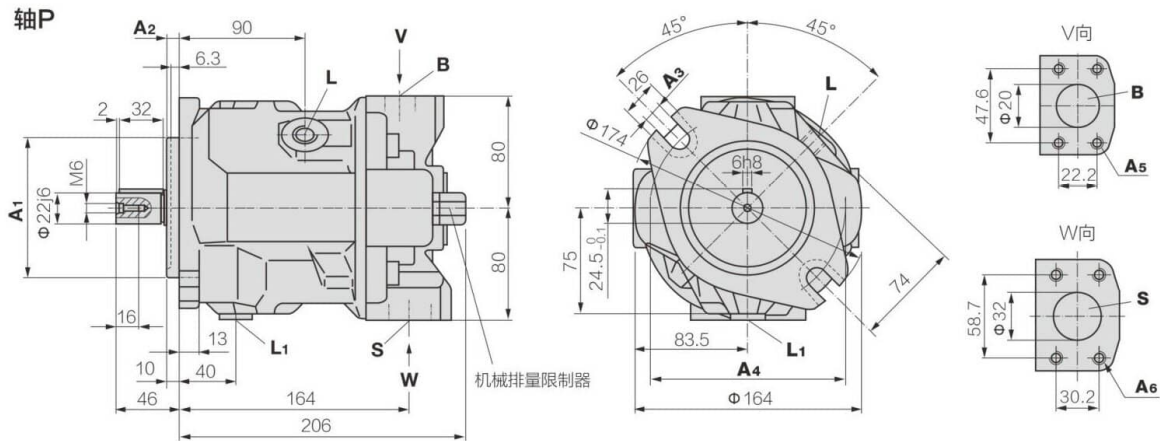
规格 Size	A1	A2	A3	A4	A5	A6	油口 L/L1
18ISO	Φ80h8	7	11	Φ109	4-M10 深 deep 17	4-M10 深 deep 17	M16 × 1.5
18SAE	Φ82.55h8	6.3	11	Φ106.4	4-3/8-16UNC-2B 深 deep 20	4-3/8-16UNC-2B 深 deep 20	9/16-18UNF-2B

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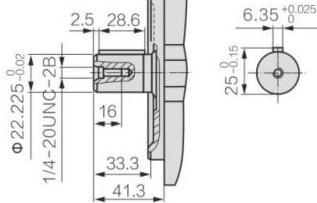
● 液压泵规格尺寸 Dimensions & Size

安装连接尺寸规格28
N00型无控制阀



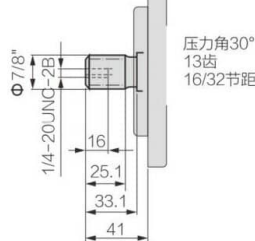
轴K

轴22-1; (SAE B)
ISO 3019-1



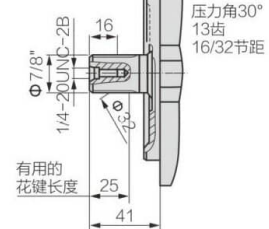
轴S

轴22-4; (SAE B)
SAE J744 OCT83



轴R

轴22-4; (SAE B)
SAE J744 OCT 83



- B** 压力油口 SAE 3/4" (标准压力范围)
- S** 进油口 SAE 1 1/4" (标准压力范围)
- L/L1** 壳体泄油口 (L1口在工厂已堵死)

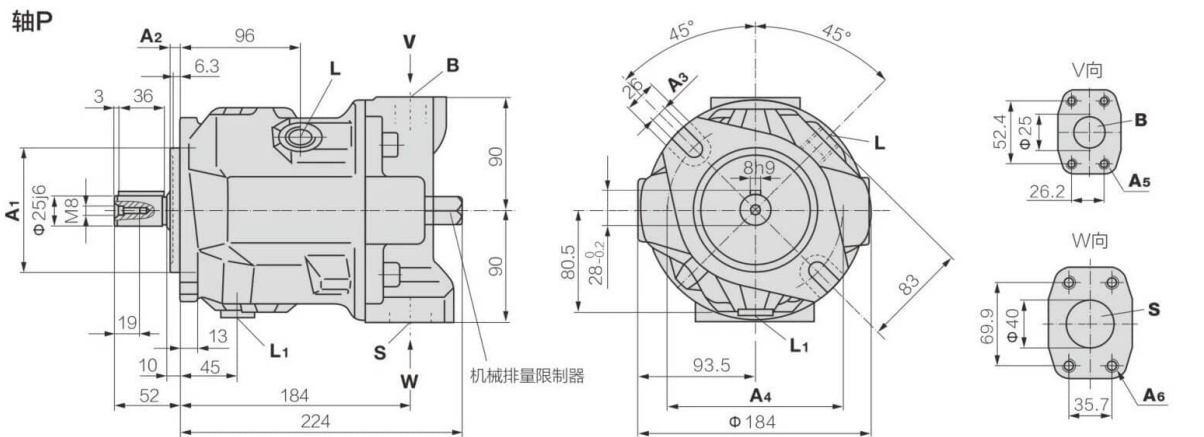
规格 Size	A1	A2	A3	A4	A5	A6	油口 L/L1
28ISO	Φ 100h8	9	14	Φ 140	4-M10 深 deep 17	4-M10 深 deep 17	M18 × 1.5
28SAE	Φ 101.6h8	9.5	Φ 14	Φ 146	4-3/8-16UNC-2B 深 deep 18	4-7/16-14UNC-2B 深 deep 24	3/4-16UNF-2B

A10V 轴向柱塞变量泵

Swashplate Axial Piston Pump

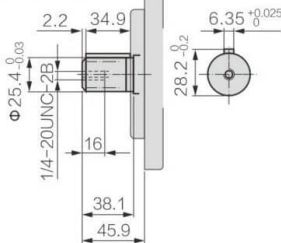
● 液压泵规格尺寸 Dimensions & Size

安装连接尺寸规格45
N00型无控制阀



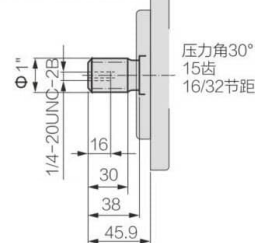
轴K

轴25-1; (SAE B-B)
ISO 3019-1



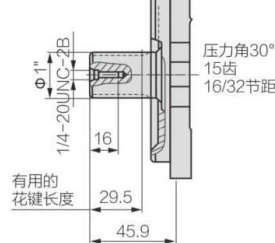
轴S

轴25-4; (SAE B-B)
SAE J744 OCT83



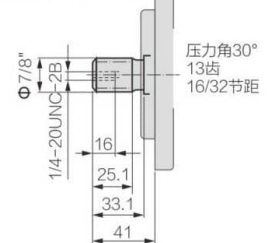
轴R

轴25-4; (SAE B-B)
SAE J744 OCT 83



轴U

轴22-4; (SAE B)
SAE J744 OCT 83



- B** 压力油口 SAE 1" (标准压力范围)
- S** 进油口 SAE 1 1/2" (标准压力范围)
- L/L1** 壳体泄油口 (L1口在工厂已堵死)

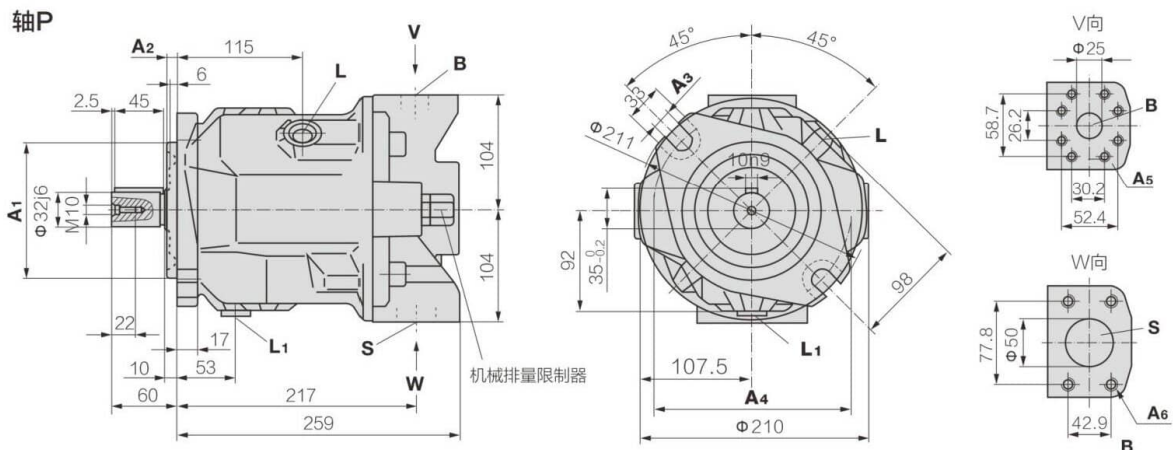
规格 Size	A1	A2	A3	A4	A5	A6	油口 L/L1
45ISO	Φ100h8	9	14	Φ140	4-M10 深 deep 17	4-M12 深 deep 20	M22 × 1.5
45SAE	Φ101.6h8	9.5	Φ14	Φ146	4-3/8-16UNC-2B 深 deep 18	4-1/2-13UNC-2B 深 deep 22	7/8-14UNF-2B

A10V 轴向柱塞变量泵

Swashplate Axial Piston Pump

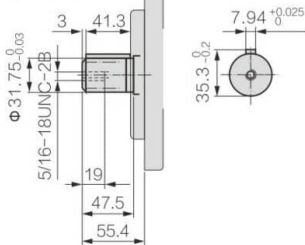
液 压 泵 规 格 尺 寸 Dimensions & Size

安装连接尺寸规格71
N00型无控制阀



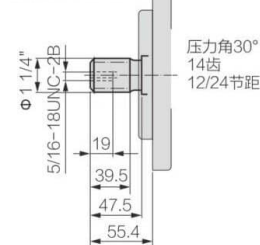
轴K

轴32-1; (SAE C)
ISO 3019-1



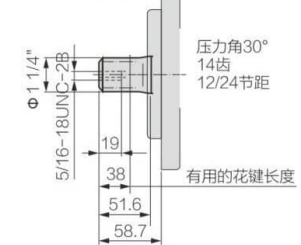
轴S

轴32-4; (SAE C)
SAE J744 OCT83



轴R

轴32-4; (SAE C)
SAE J744 OCT 83



- B** 压力油口 SAE 1" (标准压力范围)
- S** 进油口 SAE 2" (标准压力范围)
- L/L1** 壳体泄油口 (L1口在工厂已堵死)

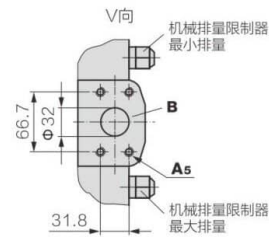
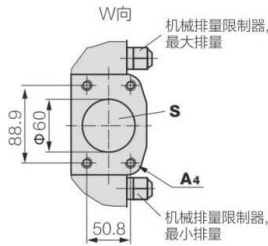
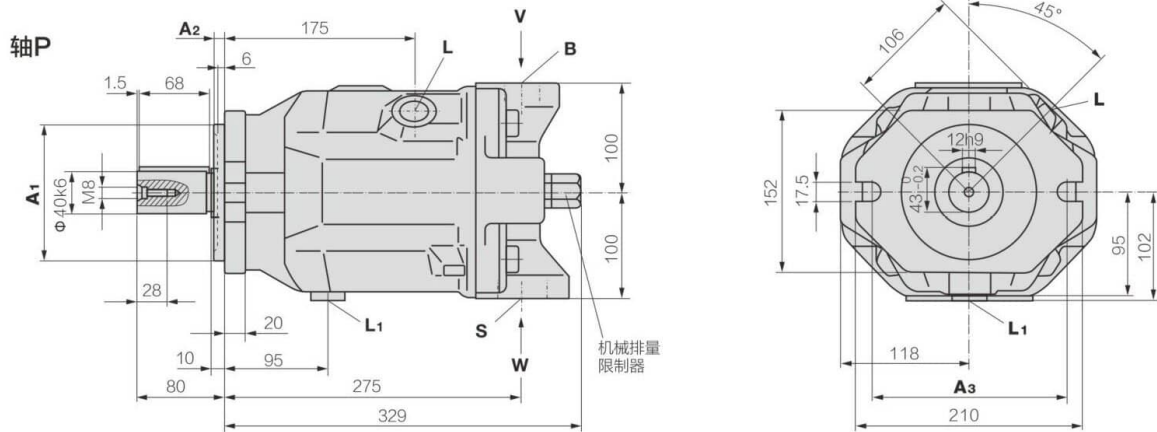
规格 Size	A1	A2	A3	A4	A5	A6	油口 L/L1
71ISO	Φ125h8	9	18	Φ180	4-M10 深 deep 17	4-M12 深 deep 20	M22 × 1.5
71SAE	Φ127h8	12.7	Φ18	Φ181	8-3/8-16UNC-2B 深 deep 18	4-1/2-13UNC-2B 深 deep 22	7/8-14UNF-2B

A10V 轴向柱塞变量泵

Swashplate Axial Piston Pump

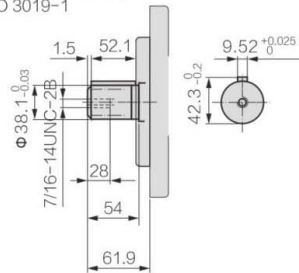
● 液压泵规格尺寸 Dimensions & Size

安装连接尺寸规格100
N00型无控制阀



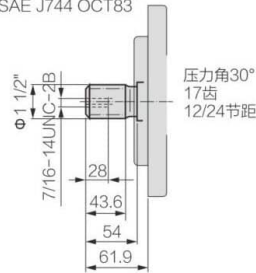
轴K

轴38-1; (SAE C-C)
ISO 3019-1



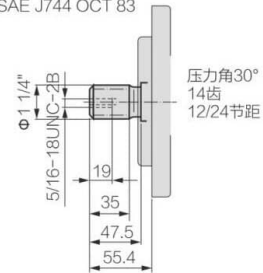
轴S

轴38-4; (SAE C-C)
SAE J744 OCT83



轴U

轴32-4; (SAE C)
SAE J744 OCT 83



- B** 压力油口 SAE 1 1/4" (标准压力范围)
- S** 进油口 SAE 2 1/2" (标准压力范围)
- L/L1** 壳体泄油口 (L1口在工厂已堵死)

规格 Size	A1	A2	A3	A4	A5	油口 L/L1
100iso	Φ 125h8	9	180	4-M12 深 deep 17	4-M14 深 deep 17	M27 × 2
100SAE	Φ 127h8	12.7	181	4-1/2-13UNC-2B 深 deep 27	4-1/2-13UNC-28-2B 深 deep 18	1 1/16-12UN-2B

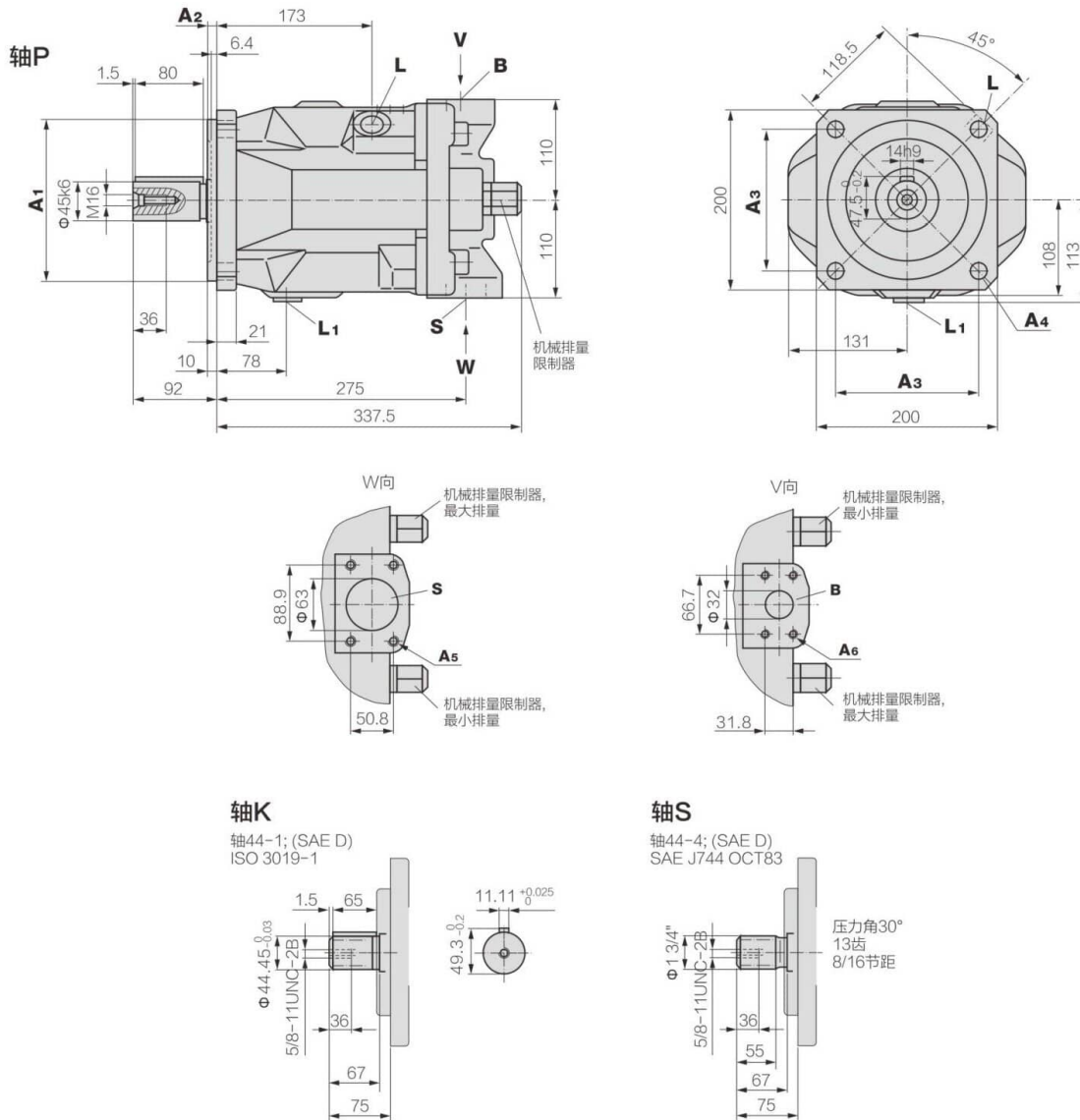
A10V 轴向柱塞变量泵

Swashplate Axial Piston Pump

液 压 泵 规 格 尺 寸 Dimensions & Size

安装连接尺寸规格140

N00型无控制阀



- B** 压力油口 SAE 1 1/4" (标准压力范围)
- S** 进油口 SAE 2 1/2" (标准压力范围)
- L/L1** 壳体泄油口 (L1口在工厂已堵死)

规格 Size	A1	A2	A3	A4	A5	A6	油口 L/L1
140iso	Φ180h8	9	158.4	4-Φ18	4-M12 深 deep 17	4-M14 深 deep 19	M27×2
140SAE	Φ152.4h8	12.7	161.6	4-Φ20	4-1/2-13UNC-2B 深 deep 17	4-1/2-13UNC-2B 深 deep 19	1 1/16-12UNF-2B