

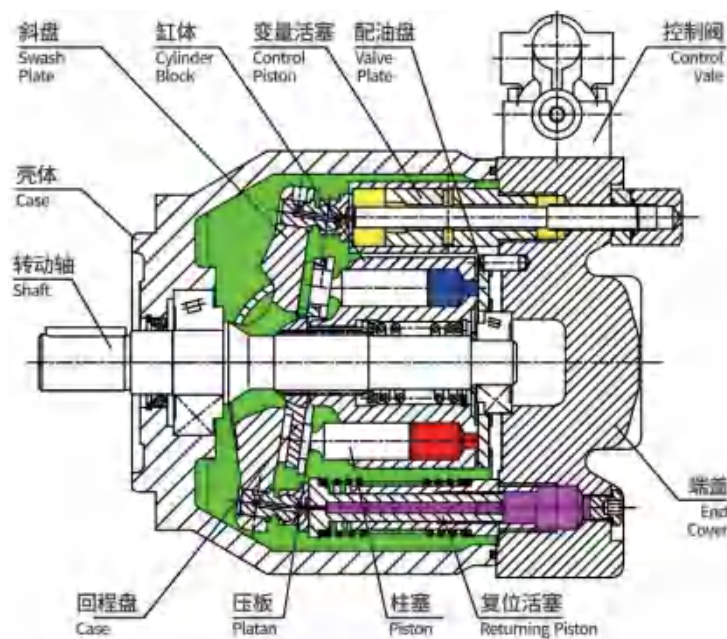
TA10VO/32系列变量柱塞泵

Variable Displacement Piston Pump TA10VO/32

概述 Overview

TA10VO/32 系列变量柱塞泵均为斜盘式轴向柱塞变量泵，分别为工业用和行走机械用设计，都是专为开式回路液压驱动设计的，采用通轴结构，额定工作压力可达28MPa。

TA10VO/32 series variable displacement piston pump swash plate axial plunger variable pump, respectively for industrial use and for mobile machinery design, is designed for open loop hydraulic driven design, adopts a shaft structure, rated working pressure up to 28MPa.



特点

- ※斜盘结构轴向柱塞变量泵，用于开式回路中的静液压传动
- ※流量与传动速度和排量成正比。
- ※可通过调节旋转斜盘角度无级更改流量。
- ※已释放了流体静力的摇架轴承
- ※高压油口上的测量传感器链接
- ※底噪音等级
- ※低压脉动
- ※高效率
- ※高度抗气蚀、吸油压力和壳体压力峰值下降
- ※通用通轴驱动

Features

- ※Variable pump with axial piston rotary group of swash-plate design for hydrostatic drives in open circuit
- ※Flow is proportional to the drive speed and displacement.
- ※The flow can be infinitely varied by adjusting the swash-plate angle.
- ※Hydrostatic unloading of the cradle bearings
- ※Connection for measuring sensor on the high-pressure port
- ※Low noise level
- ※Low pressure pulsation
- ※High efficiency
- ※High resistance against cavitation, loss of suction pressure and case pressure peaks
- ※Universal through driv

型号标识 Type Code

T	A10V	O	45	DR	/	32	R	—	V	P	B	22U	B3
	1	2	3	4		5	6		7	8	9	10	11

1-结构分类 Machinery Classification

轴向柱塞，直轴式，可变量，工业用 Axial piston, swash plate design, variable, used in industry	A10V
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2-运行模式 Operational Mode

开式回路 Open circuit	O
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3-规格 Size

公称排量Nominal displacement mL/r	45	71	100	140
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4-控制机构 Control Devices

直接控制，两位调节 Two point control, directly operated DG							DG
压力控制 Pressure Control			●	●	●	●	DR
	带流量控制 with flow controller	X-T开启open	●	●	●	●	DRF
		X-T关闭plugged	●	●	●	●	DRS
	带远程压力控制Remote pressure control		●	●	●	●	DRG
功率控制Power control	带压力切断 With pressure cut-off 功率控制初始值为： beginning of control	至5MPa	●	●	●	●	LA5D
		自5.1至9MPa	●	●	●	●	LA6D
		自9.1至16MPa	●	●	●	●	LA7D
		自16至24MPa	●	●	●	●	LA8D
		超过24MPa	●	●	●	●	LA9D
功率控制，带压力切断,远程控制 Power controller with pressure cut-off , remotely operated		功率初始值同上	●	●	●	●	LA*DG
功率控制，带压力切断，流量控制, X-T关闭 Poywer ,controller with pressure cut-off flow control, X-T plugged		功率初始值同上	●	●	●	●	LA*DS
功率控制，带单独流量控制，X-T关闭 Power controller flow control, X-T plugged, electically over-ridable (nega-tive control)		功率初始值同上	●	●	●	●	LA*S

5-系列 Series

	32
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6-旋转方向（从轴端看）Rotating Direction(View on Shaft End)

顺时针 Clockwise	R
逆时针 Counterclockwise	L

7-密封 Seals

氟橡胶VitonFKM	V
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8-轴伸 Shaft End

	45	71	100	140	
平键轴伸Keyed shaft DIN6885	●	●	●	●	P
花键轴伸Splined shaft SAE	●	●	●	●	S
花键轴伸Similar to shaftS 较高通轴驱动转矩	●	●	-	-	R

图表说明Chart shows: ●=可以供货Available, ○=在准备中In preparation, --=无Not available

9-安装法兰 Mounting Flange

ISO 4孔	B
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10-工作油口 Service Line Ports

吸油口S和压力油口B在底部与顶部, SAE法兰, 公制螺钉孔, 通用通轴驱动	22U
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11-通轴驱动Through Drive

			45	71	100	140	
无通轴驱动 Without through drive			●	●	●	●	N00
带通轴驱动, 从泵连接尺寸如下 With through drive, the second pump connection dimension as follows							
安装法兰 Mounting flange	轴伸 Spline shaft	可接受的从泵 The second pump					
ISO80-2	S轴 3/4in11T16/32DP	TA10VSO18/31	●	●	●	●	B2
ISO100-2	S轴 7/8in13T16/32DP	TA10VSO28/31	●	●	●	●	B3
ISO100-2	S轴 1 in15T16/32DP	TA10VSO45/31	●	●	●	●	B4
ISO125-4	S轴 1 in15T16/32DP	TA10VSO45/32	●	●	●	●	E1
ISO160-4	S轴 1 1/4in14T12/24DP	TA10VSO71/32	-	●	●	●	B8
ISO180-4	S轴 1 1/2in17T12/24DP	TA10VSO100/32	-	-	●	●	B9
ISO180-4	S轴 1 3/4in13T8/16DP	TA10V0140/31-32	-	-	-	●	B7
SAE82-2	U轴 5/8in9T16/32DP	TA10VSO18/31	●	●	●	●	01
SAE82-2	S轴 3/4in11T16/32DP	TA10VSO18/31	●	●	●	●	52
SAE101-2	S轴 7/8in13T16/32DP	TA10VSO28/31	●	●	●	●	68
SAE101-2	S轴 1 in15T16/32DP	TA10VSO45/31	●	●	●	●	04
SAE127-4	S轴 1 in 5T16/32DP	TA10VSO71/31	●	●	●	●	E2
SAE127-4	S轴 1 1/4in14T12/24DP	TA10VSO100/31	-	●	●	●	15
SAE127-2	S轴 1 1/2in17T12/24DP	TA10VSO140/31	-	-	●	●	24
SAE152-4	S轴 1 1/2in17T12/24DP	TA10VSO100/32	-	-	●	●	96
SAE152-4	S轴 1 3/4in13T8/16DP	TA10V0140/31-32	-	-	-	●	17

技术参数 Technical Data

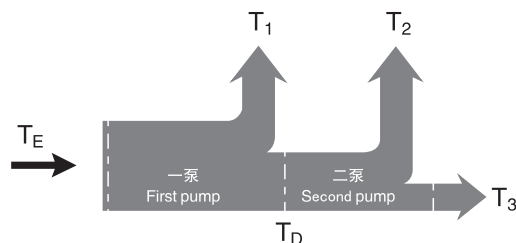
■参数表 Parameters Table

规格 Size				45	71	100	140
排量Displacement		V _{g max}	mL/r	45	71	100	140
吸入US压力(绝对压力) Pressure at suction port US (Absolute pressure)	最低压力 Minimum pressure	P _{s min}	bar	0.8		1	
	最高压力 Maximum pressure	P _{s max}	bar	10			
出油口B压力(绝对压力) Pressure at Outlet port B (Absolute pressure)	额定压力 Rated pressure	P _N	bar	280			
	峰值压力 Peak pressure	P _{max}	bar	350			
	最小压力 Minimum pressure		bar	10			
压力变化速率 Rate of pressure change		R _A	bar/s	16000			
泄油口L、L ₁ 压力 (绝对压力) Drain port L, L ₁ pressure (Absolute pressure)		P _L	bar	2			

规格 Size				45	71	100	140
排量 Displacement $V_{g \max}$ mL/r				45	71	100	140
最大转速 ¹⁾ Max. speed $P_s = 1\text{bar}$	$V_g = V_{g \max}$ 时	$n_{o \max}$	r/min	1800	1800	—	—
	$V_g < V_{g \max}$ 时		r/min	—	—	1800	1800
最大流量 Max. flow	$n = n_{o \max}$ 时	$Q_{vo \max}$	L/min	81	128	180	252
	$n = 1500 \text{ r/min}$ 时		L/min	67.5	106.7	150	210
最大功率 Maximum power ($\Delta p = 280 \text{ bar}$)	$n = n_{o \max}$ 时	$p_{o \max}$	kW	38	59.7	84	118
	$n = 1500 \text{ r/min}$ 时		kW	31	50	70	98
扭矩 Torque ($V_g = V_{g \max}$)	$\Delta p = 280 \text{ bar}$ 时	$T_{\max}$	Nm	200	317	446	624
	$\Delta p = 100 \text{ bar}$ 时	T	Nm	72	113	159	223
旋转刚度 Torsional stiffness	轴伸 P Shaft extension P		Nm/rad	34587	80627	132335	188406
	轴伸 S Shaft extension S		Nm/rad	29497	71884	121142	169537
	轴伸 R Shaft extension R		Nm/rad	41025	76545	—	—
旋转总成转动惯量 Moment of inertia of the rotating assembly		J	kgm ²	0.0035	0.0087	0.0185	0.0276
最大角加速度 Max. angular acceleration			rad/s ²	4000	2900	2400	2000
壳体容积 Volume of case			L	1.0	1.6	2.2	3.0
重量 Weight			kg	30	47	69	73
扭矩 Torque ($V_{g \max}$ 且 $\Delta p = 280 \text{ bar}$ 时)		$T_{\max}$	Nm	200	317	446	624
最大输入扭矩 ¹⁾ Max. input torque ¹⁾	轴伸 P Shaft extension P	$T_{E \max}$	Nm	200	439	857	1206
		ϕ	mm	25	32	40	45
	轴伸 S Shaft extension S	$T_{E \max}$	Nm	319	626	1104	1620
		ϕ	in	1	1 1/4	1 1/2	1 3/4
	轴伸 R Shaft extension R	$T_{E \max}$	Nm	400	644	—	—
		ϕ	in	1	1 1/4	—	—

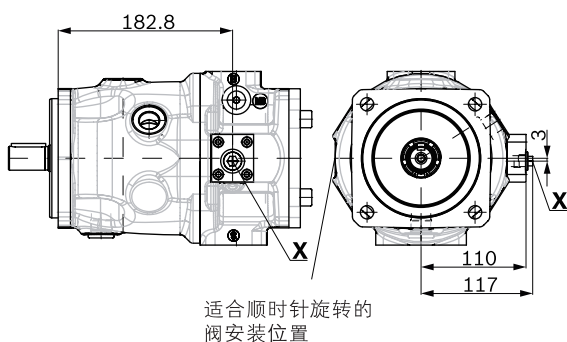
- 1) $V_g = V_{g \max}$ 时的数值适用于吸油口 S 的进口压力为 $P_s = 1\text{bar}$ (绝对压力) 时的情况, 当进口压力 P_s 增加或排量减小, 则转速可增加, 当进口压力为 $P_{s \min} = 0.8\text{bar}$ 时, 转速应减小至 90%。 $V_g < V_{g \max}$ 时的数值为转速极限。
- 1) Once $V_g = V_{g \max}$, the value is applicable to the inlet pressure at suction port S is $P_s = 1\text{bar}$ (absolute pressure), when the inlet pressure P_s increase or decrease the displacement, the speed can be increased, when the inlet pressure $P_{s \min} = 0.8\text{bar}$, the speed should be reduced to 90%. $V_g < V_{g \max}$ value when the speed limit.
- 2) 适用于无径向力作用的传动轴 For drive shaft free of radial load

扭矩分布 Torque Distribution

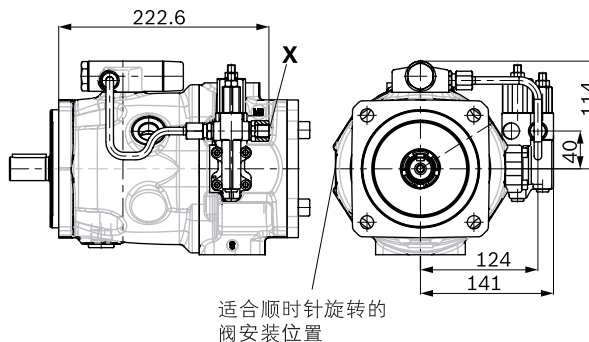


油口 Ports	标准	规格	P _{max} [bar]	状态
B 出油口Outlet port 紧固螺纹Fastening thread	SAE J518 DIN 13	1 in M10 x 1.5;17(深)	350	O
S 进油口Suction port 紧固螺纹Fastening thread	SAE J518 DIN 13	1 1/2 in M12 x 1.75;20(深)	10	O
L 泄油口Drain port	DIN 3852	M22 x 1.5;14(深)	2	O
L ₁ 泄油口Drain port	DIN 3852	M22 x 1.5;14(深)	2	X
X 控制油口Control pressure	DIN 3852	M14 x 1.5;12(深)	350	O
X 控制压力Control pressure for DG control	DIN ISO 228	G 1/4 in;12(深)	280	O
M _B 测量压力 B Measuring pressure B	DIN 3852	G 1/4 in;12(深)	350	X

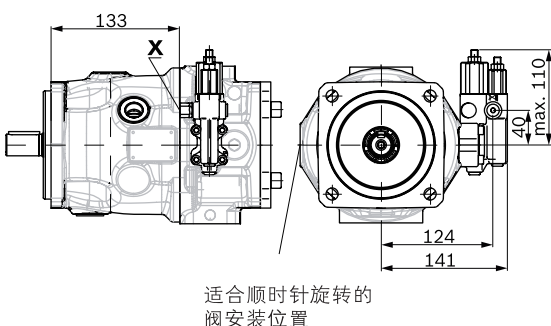
▼ DG - 两点直动式控制



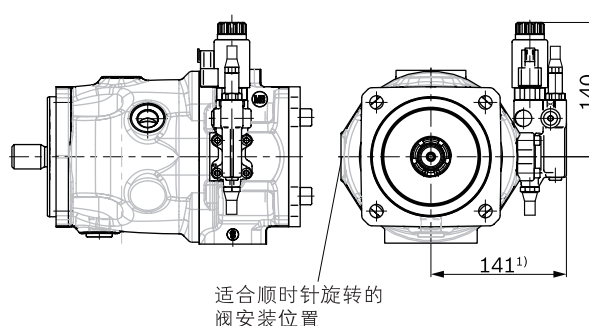
▼ LA.DS - 压力、流量和功率控制



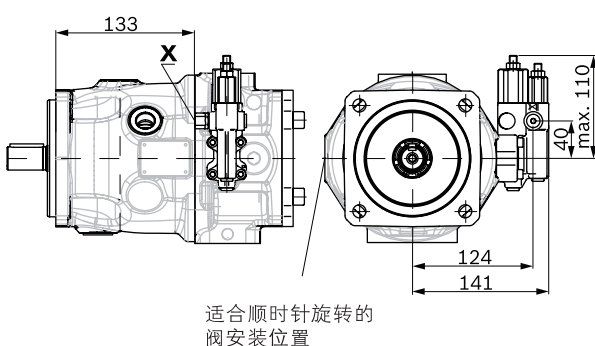
▼ DRG - 远程控制压力控制器



▼ ED7./ER7.- 电动压力控制器

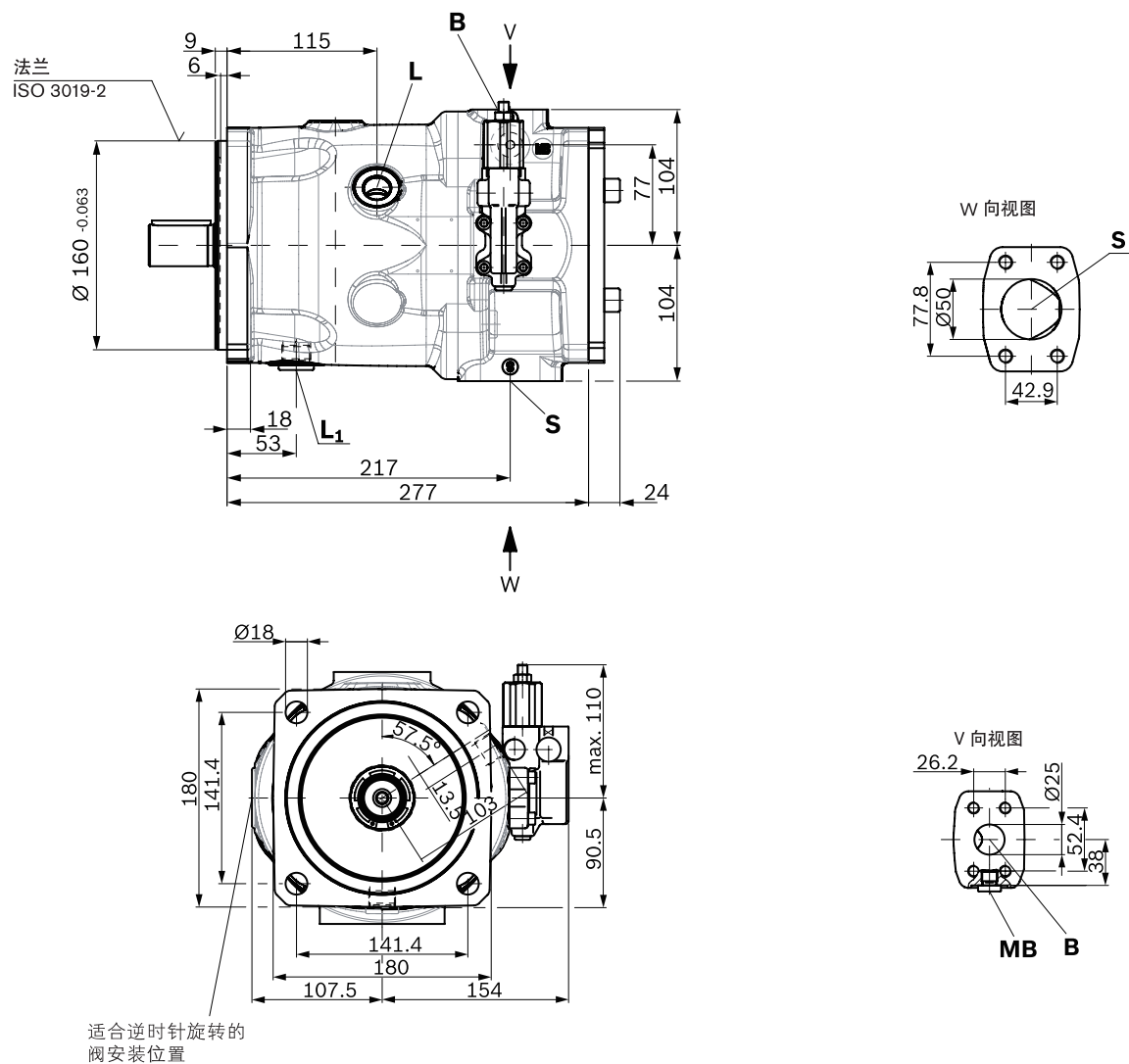


▼ DRF/DRS ■ 压力和流量控制器



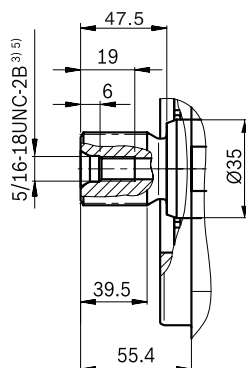
外形尺寸 规格 71 (控制机构DR、DRG、DFR/DFR1)

Dimensions size 71 (Control devices DR, DRG, DFR/DFR1)

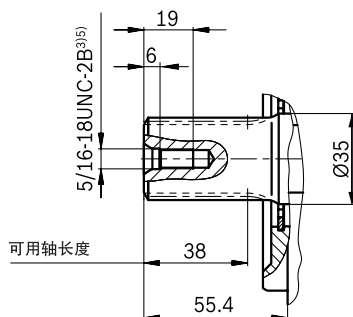


轴伸 Shaft

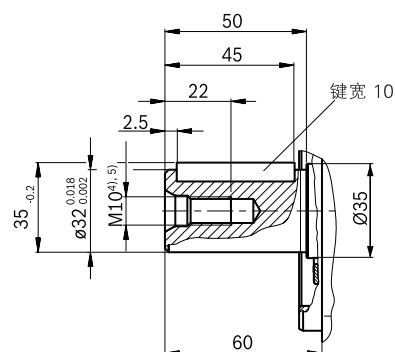
S 花键轴, 14T 12/24DP⁽¹⁾
(SAE J744)



R 花键轴, 14T 12/24DP⁽¹⁾⁽²⁾
(SAE J744)

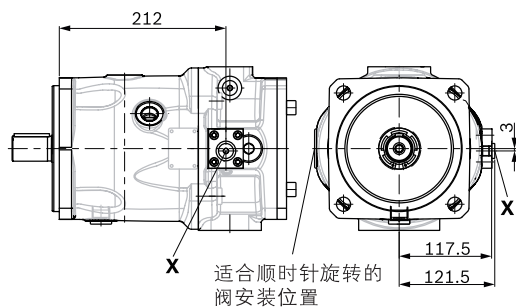


P 平键轴 DIN6885, A10x8x45

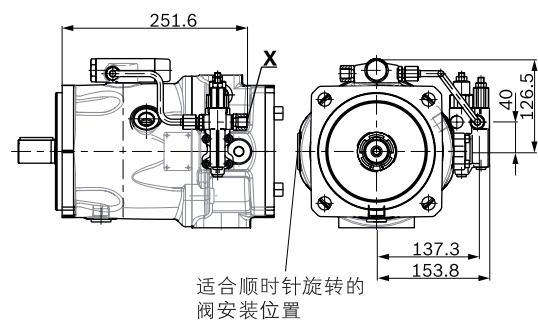


油口 Ports	标准	规格	P _{max} [bar]	状态
B 出油口Outlet port 紧固螺纹Fastening thread	SAE J518 DIN 13	1 in M10 x 1.5;17(深)	350	O
S 进油口Suction port 紧固螺纹Fastening thread	SAE J518 DIN 13	2 in M12 x 1.75;20(深)	10	O
L 泄油口Drain port	DIN 3852	M22 x 1.5;14(深)	2	O
L ₁ 泄油口Drain port	DIN 3852	M22 x 1.5;14(深)	2	X
X 控制油口Control pressure	DIN 3852	M14 x 1.5;12(深)	350	O
X 控制压力Control pressure for DG control	DIN ISO 228	G 1/4 in;12(深)	280	O
M _B 测量压力 B Measuring pressure B	DIN 3852	G 1/4 in;12(深)	350	X

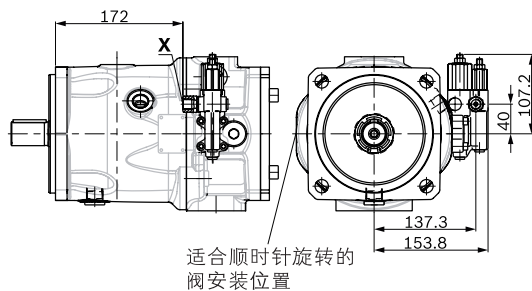
▼ DG - 两点直动式控制



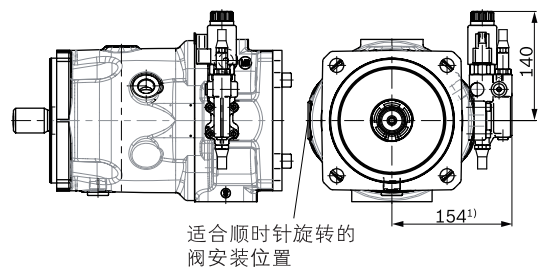
▼ LA.DS - 压力、流量和功率控制



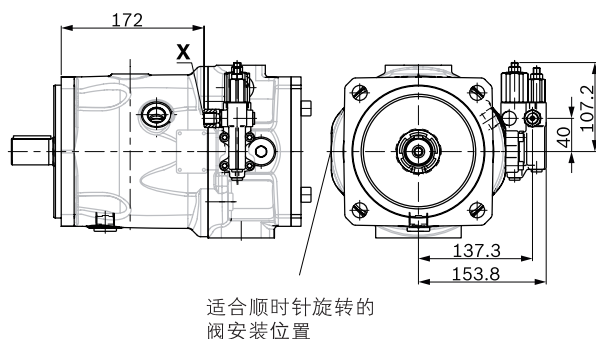
▼ DRG - 远程控制压力控制器



▼ ED7./ER7.-电动压力控制器

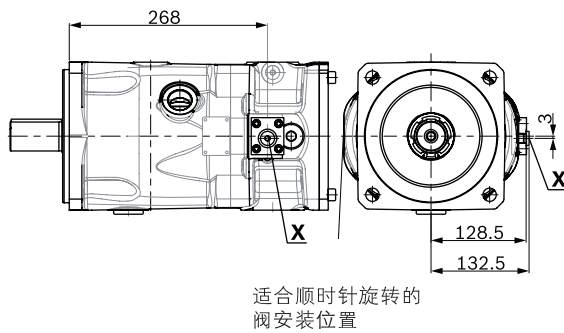


▼ DRF/DRS 压力和流量控制器

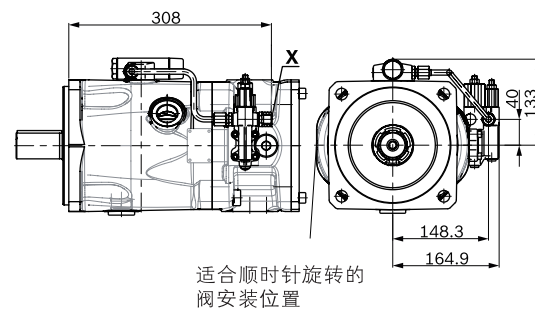


油口 Ports	标准	规格	P _{max} [bar]	状态
B 出油口Outlet port 紧固螺纹Fastening thread	SAE J518 DIN 13	1 1/4 in M14 x 2;19(深)	350	O
S 进油口Suction port 紧固螺纹Fastening thread	SAE J518 DIN 13	2 1/2 in M12 x 1.75;17(深)	10	O
L 泄油口Drain port	DIN 3852	M33 x 2;16(深)	2	O
L ₁ 泄油口Drain port	DIN 3852	M33 x 2;16(深)	2	X
X 控制油口Control pressure	DIN 3852	M14 x1.5;12(深)	350	O
X 控制压力Control pressure for DG control	DIN ISO 228	G 1/4 in;12(深)	280	O
M _B 测量压力 B Measuring pressure B	DIN 3852	G 1/4 in;12(深)	350	X

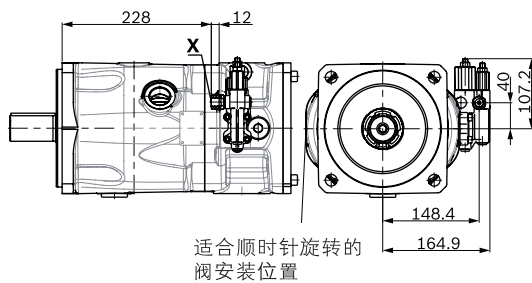
▼ DG - 两点直动式控制



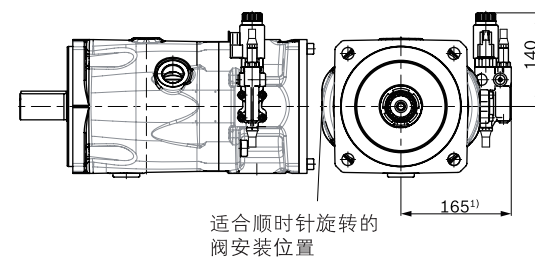
▼ LA.DS - 压力、流量和功率控制



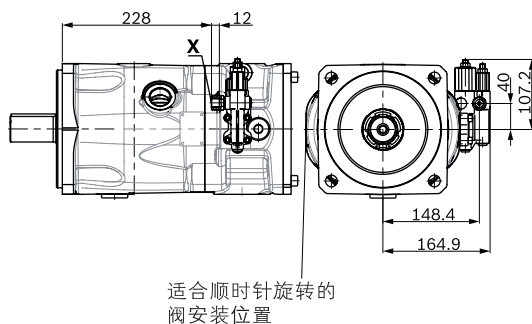
▼ DRG - 远程控制压力控制器



▼ ED7./ER7.-电动压力控制器

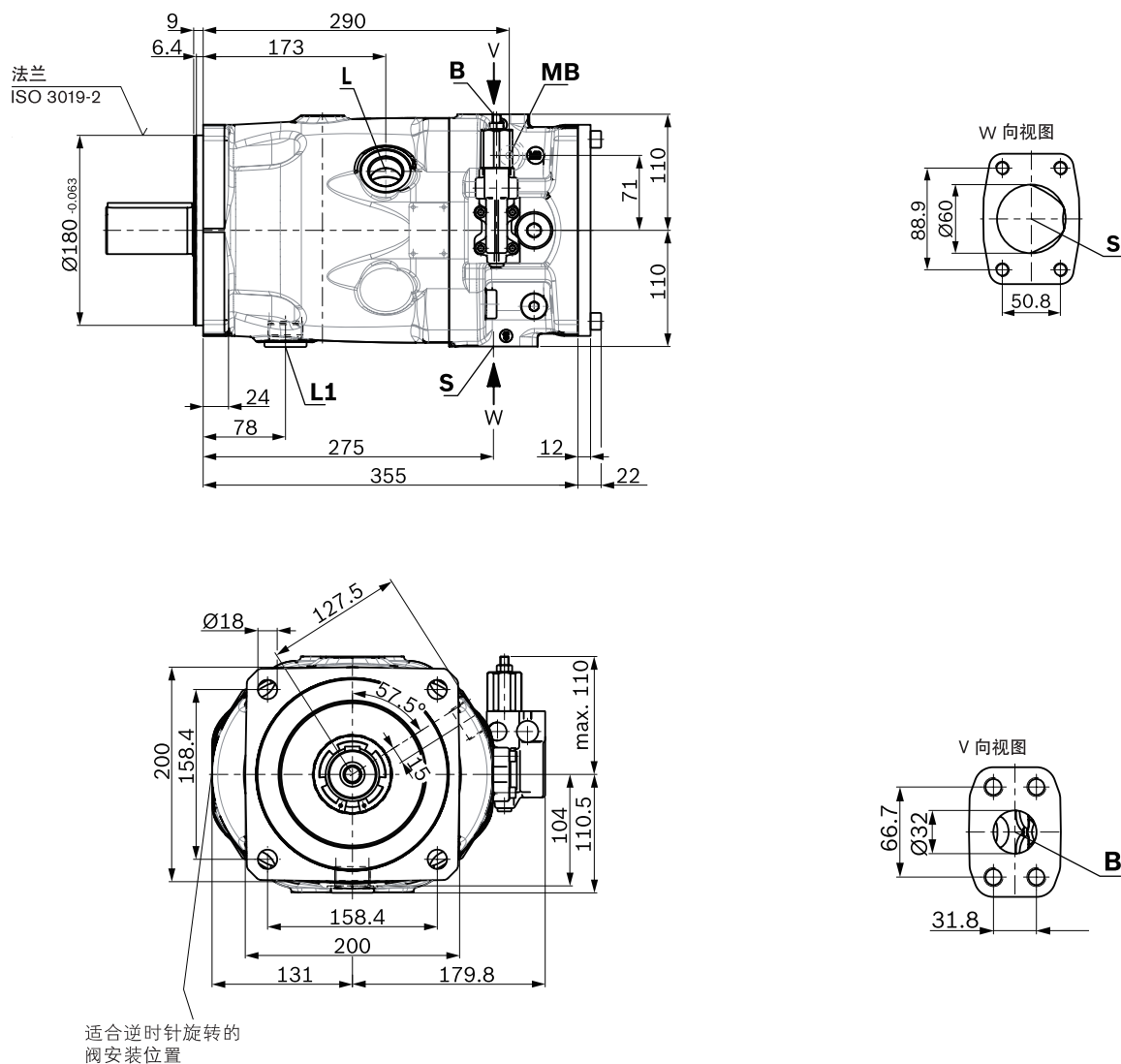


▼ DRF/DRS-压力和流量控制器



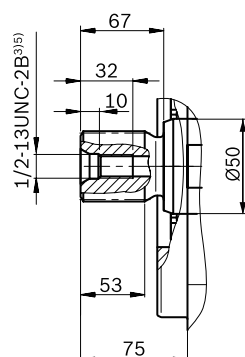
外形尺寸 规格140(控制机构DR、DRG、DFR/DFR1)

Dimensions size 140(Control devices DR, DRG, DFR/DFR1)

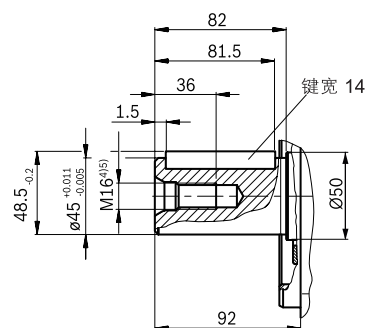


轴伸 Shaft

S 花键轴, 13T 8/16DP¹⁾
(SAE J744)

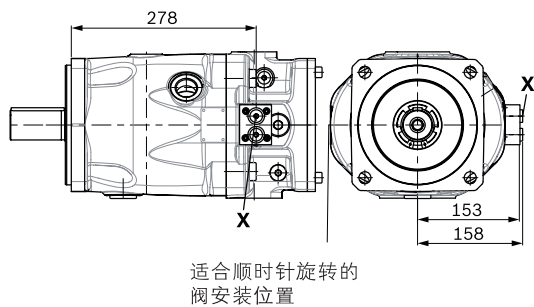


P 平键轴 DIN6885, A12x8x68

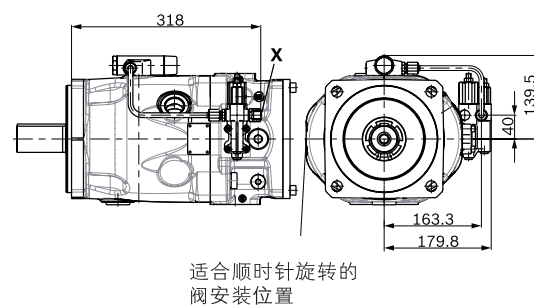


油口 Ports	标准	规格	P _{max} [bar]	状态
B 出油口Outlet port	SAE J518	1 1/4 in	350	O
紧固螺纹Fastening thread	DIN 13	M14 x 2;19(深)		
S 进油口Suction port	SAE J518	2 1/2 in	10	O
紧固螺纹Fastening thread	DIN 13	M12 x 1.75;17(深)		
L 泄油口Drain port	DIN 3852	M33 x 2;16(深)	2	O
L ₁ 泄油口Drain port	DIN 3852	M33 x 2;16(深)	2	X
X 控制油口Control pressure	DIN 3852	M14 x1.5;12(深)	350	O
X 控制压力Control pressure for DG control	DIN ISO 228	G 1/4 in;12(深)	280	O
M _B 测量压力 B Measuring pressure B	DIN 3852	G 1/4 in;12(深)	350	X

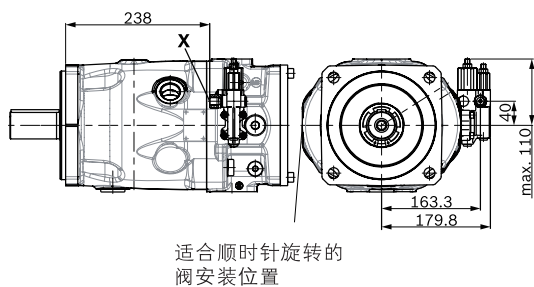
▼ DG - 两点直动式控制



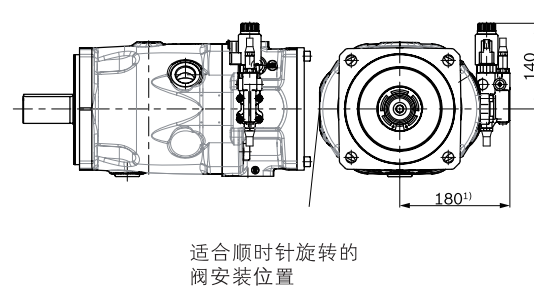
▼ LA.DS - 压力、流量和功率控制



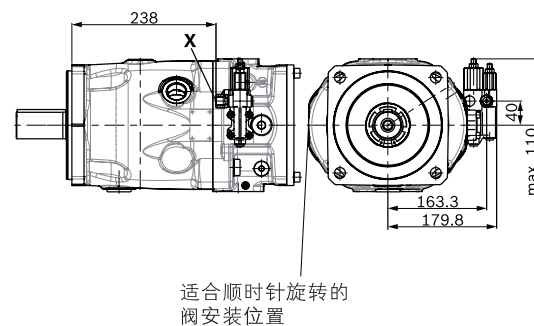
▼ DRG - 远程控制压力控制器



▼ ED7./ER7.-电动压力控制器



▼ DRF/DRS-压力和流量控制器

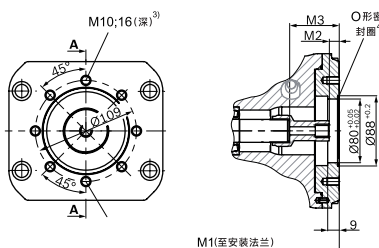


通轴尺寸 Dimensions,, through drive

法兰Flange ISO 3019-1(SAE) 直径Diameter Symbol		花键Hub for splined shaft ¹⁾ 直径Diameter		适用型号 Availability over sixes				代号
				45	71	100	140	Code
80-2		3/4 in	11T 16/32DP	●	●	●	●	UB2
100-2		7/8 in	13T 16/32DP	●	●	●	●	UB3

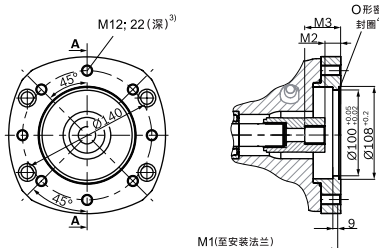
● = Available - = Not available

▼ 80, 2-hole



UB2	NG	M1	M2	M3
(SAE J744 16-4(A-B))	45	264	根据需要供货	
	71	299	21.3	40.6
	100	360	19	38.6
	140	377	19	38.6

▼ 100, 2-hole

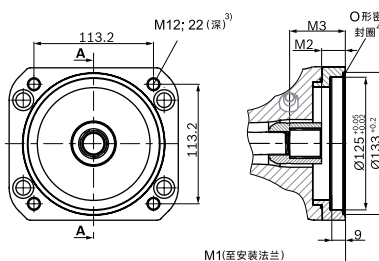


UB3	NG	M1	M2	M3
(SAE J744 22-4(B))	45	264	18	41.7
	71	299	20.3	44.1
	100	360	18	41.9
	140	377	18	41.6

法兰Flange ISO 3019-1(SAE) 直径Diameter Symbol		花键Hub for splined shaft ¹⁾ 直径Diameter		适用型号 Availability over sixes				代号
				45	71	100	140	Code
125-4		1 in	15T 16/32DP	●	●	●	●	UE1
160-4		1 1/4 in	14T 12/24DP	-	●	●	●	UB8

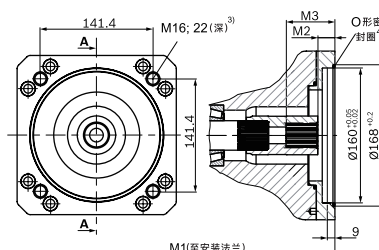
● = Available - = Not available

▼ 125-4



UE1	NG	M1	M2	M3
(SAE J744 25-4(B-B))	45	264	根据需要供货	
	71	299		
	100	360	18.2	46.9
	140	377	18.5	45.9

▼ 160-4



UB8	NG	M1	M2	M3
(SAE J744 32-4(C))	71	299	20.1	58.1
	100	360	19.8	56.4
	140	377	19.8	56.4
	180	387	20.1	56.4

1)30° 压力角, 平齿根, 侧面配合, 公差等级5

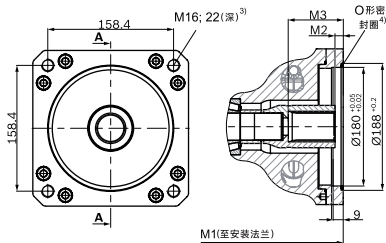
According to ANSIB92.1a,30° pressure angle, flat root, side fit, tolerance class 5

3)符合DIN 13 的螺纹Thread according to DIN 13

法兰Flange ISO 3019-1(SAE) 直径Diameter Symbol		花键Hub for splined shaft ¹⁾ 直径Diameter		适用型号 Availability over sixes				代号
				45	71	100	140	Code
180-4	⌘	1 1/2 in	17T 16/24DP	-	-	●	●	UB9
		1 3/4 in	13T 8/16DP	-	-	-	●	UB7

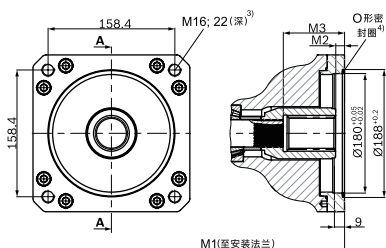
● = Available - = Not available

▼ 180-4



UB2	NG	M1	M2	M3
(SAE J744 38-4(C-C))	100	360	9	63.9
	140	377	10.2	74.9

▼ 180-4

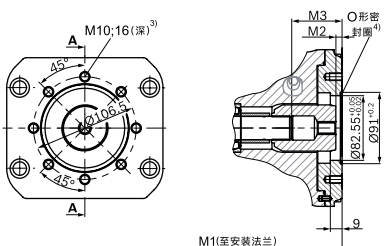


UB7	NG	M1	M2	M3
(SAE J744 44-4(D))	140	377	10.4	77.4

法兰Flange ISO 3019-1(SAE)		花键Hub for splined shaft ¹⁾		适用型号				代号
直径Diameter	Symbol			45	71	100	140	
82-2 (A)		5/8 in	9T 16/32DP	●	●	●	●	U01
		3/4 in	11T 16/32DP	●	●	●	●	U52

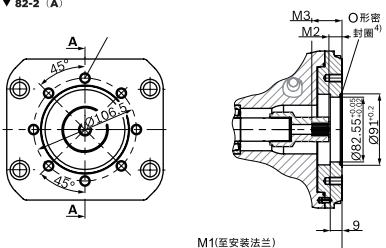
● = Available - = Not available

▼ 82-2 (A)



U01	NG	M1	M2	M3
(SAE J744 16-4(A))	45	264	根据需要供货	
	71	299	9.3	61.3
	100	360	10.5	65
	140	377	根据需要供货	

▼ 82-2 (A)



UB8	NG	M1	M2	M3
(SAE J744 19-4(A-B))	45	264	18.6	38.7
	71	299	20.7	41.4
	100	360	17	38
	140	377	19	38.6

1)30° 压力角, 平齿根, 侧面配合, 公差等级5

According to ANSIB92.1a,30° pressure angle, flat root, side fit, tolerance class 5

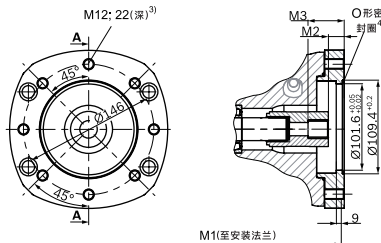
3)符合DIN 13 的螺纹Thread according to DIN 13

通轴尺寸 Dimensions,, through drive

法兰Flange ISO 3019-1(SAE) 直径Diameter Symbol		花键Hub for splined shaft ¹⁾ 直径Diameter		适用型号 Availability over sixes				代号
				45	71	100	140	Code
101-2(B)		7/8 in	13T 16/32DP	●	●	●	●	U68
		1 in	15T 16/32DP	●	●	●	●	U04

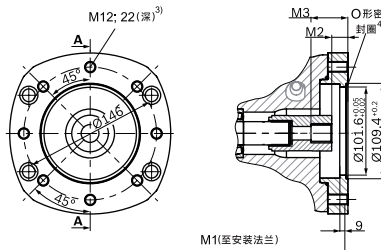
● = Available - = Not available

▼ 101-2 (B)



U68	NG	M1	M2	M3
(SAE J744 22-4(B))	45	264	18.2	41.5
	71	299	19.7	44.1
	100	360	17.4	41.3
	140	377	17.4	41.6

▼ 101-2 (B)

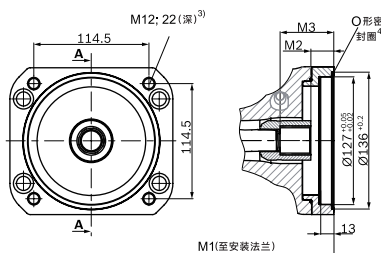


U04	NG	M1	M2	M3
(SAE J744 25-4(B-B))	45	264	根据需要提供	
	71	299	20.8	49.1
	100	360	17.6	46.6
	140	377	17.9	46.3

法兰Flange ISO 3019-1(SAE) 直径Diameter Symbol		花键Hub for splined shaft ¹⁾ 直径Diameter		适用型号 Availability over sixes				代号
				45	71	100	140	Code
127-4 (C)		1 in	15T 16/32DP	●	●	●	●	UE2
		1 1/4 in	14T 12/24DP	-	●	●	●	U15
127-2 (C)		1 1/2 in	17T 12/24DP	-	-	●	●	U24

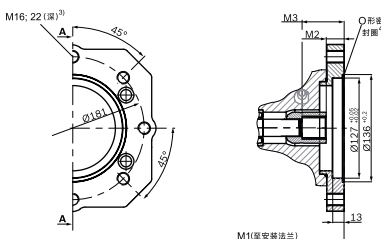
● = Available - = Not available

▼ 127-4 (C)



UE2	NG	M1	M2	M3
127-4 (C)	45	264	18.7	46.6
	71	299	根据需要提供	
	100	360		
	140	377		

▼ 127-2 (C)



U15	NG	M1	M2	M3
127-4 (C)	71	299	21.8	58.1
	100	360	根据需要提供	
	140	377		

U24	NG	M1	M2	M3
127-2 (C)	100	360	21.5	62.3
	140	377	10.5	62.3

1)30° 压力角, 平齿根, 侧面配合, 公差等级5

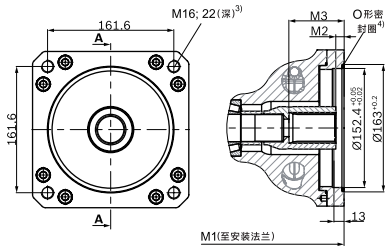
According to ANSIB92.1a,30° pressure angle, flat root, side fit, tolerance class 5

3)符合DIN 13 的螺纹Thread according to DIN 13

法兰Flange ISO 3019-1 (SAE) 直径Diameter	Symbol	花键Hub for splined shaft ¹⁾ 直径Diameter		适用型号 Availability over sizes				代号 Code
				45	71	100	140	
152-4(C)	⌘	1 1/2 in	17T 12/24DP	-	-	●	●	U96
		1 3/4 in	13T 8/16DP	-	-	-	●	U17

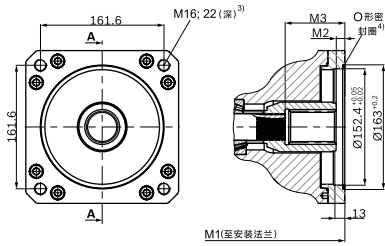
● = Available - = Not available

▼ 152-4 (C)



U96	NG	M1	M2	M3
152-4(D)	100	360	根据需要供货	
	140	377		

▼ 152-4 (C)



U17	NG	M1	M2	M3
152-4(D)	140	377	11	77.5

1)30° 压力角，平齿根，侧面配合，公差等级5
According to ANSIB92.1a,30° pressure angle, flat root, side fit,tolerance class 5
3)符合DIN 13 的螺纹Thread according to DIN 13