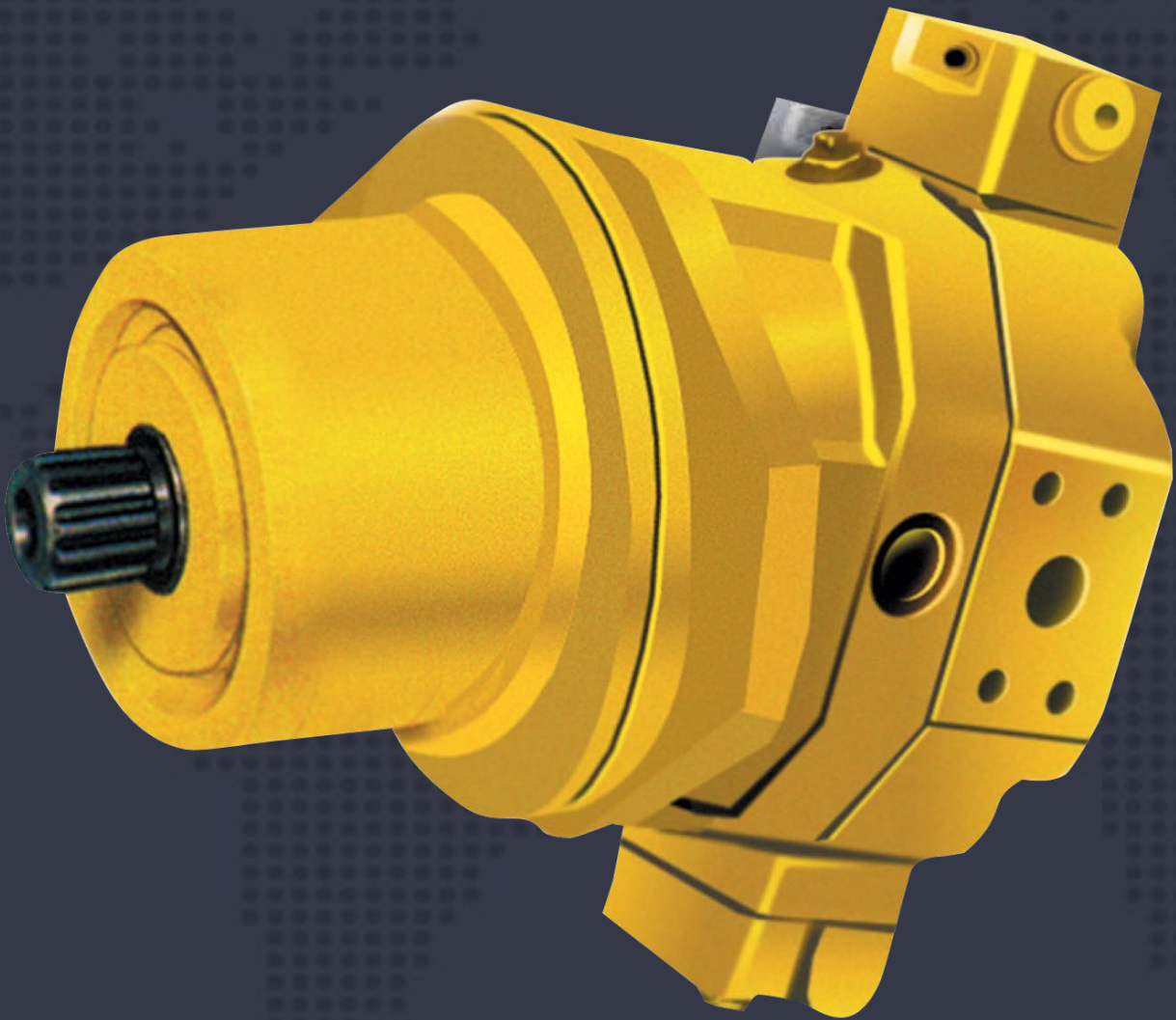


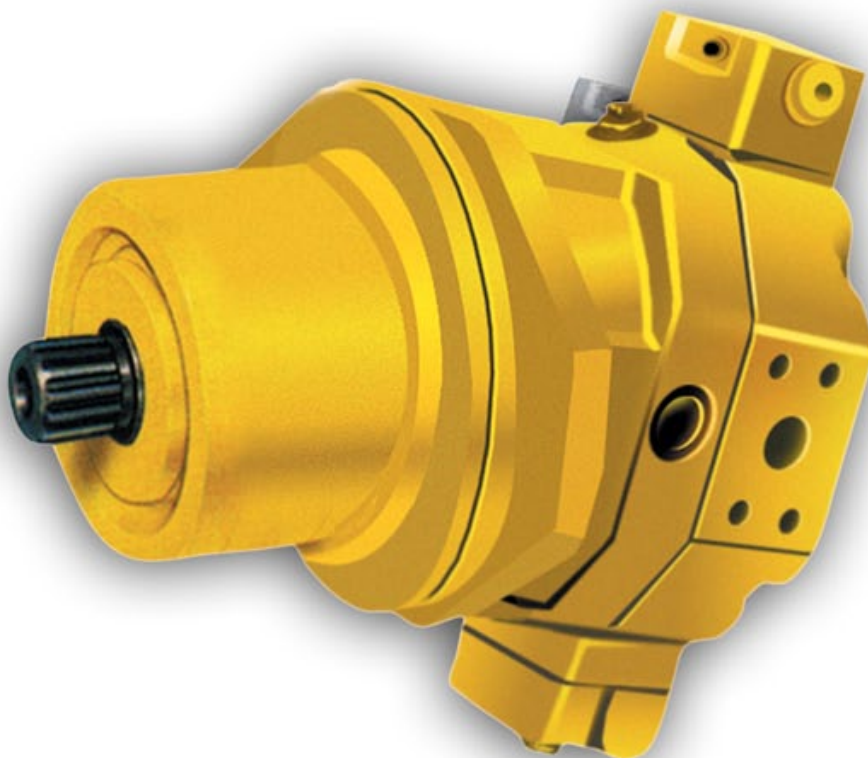


Catálogo de Productos



Plug-in Variable Displacement Motor - A6VE

北京华德液压工业 集团有限责任公司 BEIJING HUADE HYDRAULIC INDUSTRIAL GROUP CO.,LTD.	A6VE 内藏式变量马达 Plug-In Variable Displacement Motor A6VE 弯轴结构轴向锥形柱塞元件 axial tapered piston rotary group of bent axis design 用于安装在机械齿轮箱中 for mounting in mechanical gearboxes	RC91200/12.2004
	规格 Size 55-160	公称压力 31.5MPa 最高压力 35MPa Nominal pressure Peak press
		替代: Replace RC91200/09.2003



A6VE 内藏式变量马达装有一套弯轴结构的标准轴向锥形柱塞旋转组件。

液压内藏式马达主要用来安装在机械齿轮箱中，例如，履带驱动轮箱。

马达的安装法兰设计在壳体的中间，这种结构允许马达几乎完全装进机械齿轮箱，从而提供一个十分紧凑的部件。

内藏式马达部件的特殊优点是：

- 整个部件，已组装和试验
- 易于组装，仅需“插入”机械齿轮箱
- 不需要考虑安装公差

The variable displacement plug-in motor A6VE is equipped with a standard axial tapered piston rotary group of bent axis design.

Hydrostatic plug-in motors are intended primarily for installation in mechanical gearboxes, e.g. track drive gear boxes.

The design of the motor with the mounting flange in the center of the housing allows it to be almost fully integrated into a mechanical gearbox to give an extremely compact unit.

The particular advantages of the plug-in motor over kit designs are:

- complete unit, ready assembled and tested.
- easy assembly simply plug-in to mechanical gearboxes.
- no installation tolerances to consider.

A6VE 内藏式变量马达 Plug-In Variable Displacement Motor A6VE

型号说明 Type Code

A6V E 80 HA1 2 F Z 1 039

马达型号 Motor Type	变量马达 Variable displacement motor	A6V
安装型式 Mounting Type	内藏式 E plug-in E	E
规格 Size	排量 /ml/r displacement	
	1.5-54.8ml/r	55
	23-80ml/r	80
	30.8-107ml/r	107
	46-160ml/r	160
变量方式 Control Device		

液控变量 Hydraulic control, pilot pressure related	控制压差 $\Delta p=1\text{MPa}$ Pilot pressure Increase	HD1
	控制压差 $\Delta p=2.5\text{MPa}$ Pilot pressure Increase	HD2
高压自动变量 Automatic control, high pressure related	恒压 Constant pressure 不带超调 With out override	HA1
	升压 Pressure increase $\Delta p=10\text{MPa}$ 不带超调 With out override	HA2
电控双速变量	Electrical 2-speed 12v control(with switching solenoid)24	ES1
		ES2
电控比例变量	Electrical control 12v (with proportional solenoid) 24v	EP1
		EP2
手动变量	Manual control (with handwheel)	MA

最小排量设定值 Min. Swept Volume Setting

例: Example.	$V_{gmin}=39\text{ml/r}$	039
例: Example.	$V_{gmin}=54\text{ml/r}$	054

装配型式 Assembly Type

解释见变量说明及元件尺寸 For explanation see description of control device and unit dimensions		1
		2

轴伸 Shaft End

平键 GB 1096-79 Keyed parallel shaft	P
花键 DIN 5480 Splined shaft	Z
花键 GB 3478.1-83 Splined shaft	S

油口连接 Pipe Connections

SAE 法兰, 侧面 SAE flange, on side	F
螺纹连接, 侧面 Metric threads, on side	G

结构型式 Series

结构 2, 规格 Series 2, sizes 55.80.107.160	2
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订货示例: A6V.E.80.HD1.2.F.Z.2.039
Ordering Example A6V.E.80.HD1.2.F.Z.2.039

斜轴变量马达 A6V, 内藏式 E, 规格 80, 液控变量, $\Delta p=1\text{MPa}$, 结构 2, 侧面 SAE 法兰连接, 德标花键, 第 2 种装配型式。
最小排量 $V_{gmin}=39\text{ml/r}$

Axial-piston-variable displacement motor A6V, plug-in E size 80, with hydraulic control, pilot pressure related, $\Delta p=1\text{MPa}$, series 2. SAE flange connections on side, splined shaft, assembly type 2, min. swept volume setting $V_{gmin}=39\text{ml/r}$

A6VE内藏式变量马达Plug-In Variable Displacement Motor A6VE

技术参数 Technical Data

工作压力范围: Operating Pressure Range

A 或 B 口压力: Pressure at port A or B

额定压力 Nominal pressure $p_n = 31.5 \text{ MPa}$

最高压力 Peak pressure $p_{max} = 35 \text{ MPa}$

A、B 油口压力总和不得超过 63MPa, 每侧油口压力最高 40MPa。

The sum of the pressures at ports A and B should not exceed 63MPa. (Individual pressure at either port max. 35MPa)

泄油压力: Leakage oil Pressure:

允许 T 口最大泄油压力

Maximum permissible leakage oil pressure(at Port T)

$P_{abs} = 0.2 \text{ MPa}$

油温范围: Fluid Temperature Range

$t_{min} = -25 \text{ C}$

$t_{max} = +80 \text{ C}$

粘度范围: Viscosity Range:

$u_{min} = 10 \text{ mm}^2/\text{s}$

u_{max} (短时)(for short periods) $1000 \text{ mm}^2/\text{s}$

最佳工作粘度: Optimum Operating Viscosity:

$v_{opt} = 16 \sim 36 \text{ mm}^2/\text{s}$

油液选择: Fluid Recommendation

工作温度 推荐粘度等级符合 DIN51519

Operating Recommended Viscosity grade

temperature to DIN51519

range ISO(VG)

30-40 C VG22=22mm²/s at40 C

40-50 C VG32=32mm²/s at40 C

50-60 C VG46=46mm²/s at40 C

60-70 C VG68=68mm²/s at40 C

70-80 C VG100=100mm²/s at40 C

液压油的过滤:

推荐过滤精度为 $10 \mu\text{m}$ 。亦可使用 $25 \sim 40 \mu\text{m}$ 的, 但使用 $10 \mu\text{m}$ 可以延长使用寿命 (降低磨损)。

Filtration of Hydraulic Fluid

Recommended filtration $10 \mu\text{m}$. Coarser filtration of 25 to $40 \mu\text{m}$ is possible, however longer service life is achieved with filtration of $10 \mu\text{m}$ (reduced wear).

转速范围:

最低转速没有限制, 在要求十分均匀的转速时, n_{min} 不小于 50 r/min 。最高转速由来自泵的最大流量和变时马达的最小排量确定。最小排量则由一个调节螺钉限位, 所以变量马达不会超速运转。最高允许转速见技术参数表

Speed Range

No limitation on minimum speed n_{min} . Where very even speeds are required. n_{min} should not be less than 50 r/min . The maximum flow from the pump and the minimum swept volume of the variable motor together determine the maximum output speed. The min swept volume is limited mechanically by means of an adjustment screw so that the max. permissible speeds (of the variable motor and the driven unit) cannot be exceeded. See date table for max. permissible speeds.

流量

$$\text{Swept Volume } Q = \frac{V_g \cdot n}{1000 \cdot \eta_v} \quad [\text{L/min}]$$

输出转速

$$\text{Output Speed } n = \frac{Q \cdot 1000 \cdot \eta_v}{V_g} \quad [\text{r/min}]$$

输出扭矩

$$\text{Output Torque } M = \frac{V_g \cdot \Delta p \cdot \eta_{mh}}{2\pi} = \frac{1.59 V_g \cdot \Delta p \cdot \eta_{mh}}{10} \quad [\text{Nm}]$$

或 or

$$M = \frac{K_M \cdot \Delta p \cdot \eta_{mh}}{10} \quad [\text{Nm}]$$

输出功率

$$\text{Output Power } P = \frac{M \cdot n}{9549} = \frac{Q \cdot \Delta p}{60} \cdot \eta_t \quad [\text{KW}]$$

V_g = 最大排量(ml/r)

M = 扭矩 (Nm)

Δp = 压差 (MPa)

n = 转速(r/min)

η_v = 容积效率

η_{mh} = 机械效率

η_t = 总效率

max geometry displacement[ml/r]

torque[Nm]

differential pressure[MPa]

speed[r/min]

volumetric efficiency

mechanical-hydraulic efficiency

overall efficiency

技术参数表 Technical Data

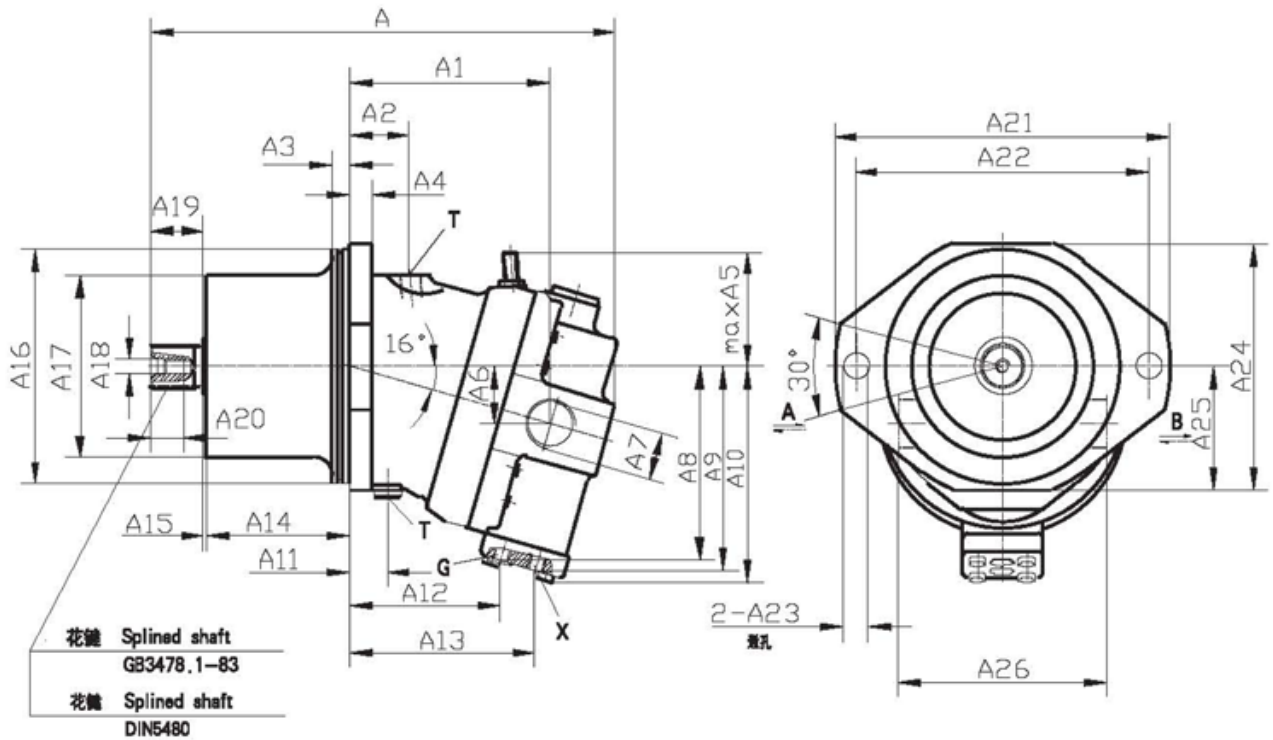
规格	size		55	80	107	160	
排量	Displacement	V_{gmax}	ml/r	54.8	80	107	160
		V_{gmax}	ml/r	15.8	23	30.8	46
最大允许流量	Max. Permissible Swept volume	Q_{gmax}	l/min	206	268	321	424
最高转速	Max. speeds	n_{max} 在 at V_{gmax}	r/min	3750	3350	3000	2650
	(在 at Q_{max} 下)	n_{max} 在 at $V_g < V_{gmax}$	r/min	5000	4500	4000	3500
扭矩常数	Torque constants	M_x 在 at V_{gmax}	Nm/MPa	8.701	12.75	16.97	25.41
		M_x 在 at V_{gmin}	Nm/MPa	2.511	3.73	4.9	7.35
最大扭矩	Max. torque	M_{max} 在 at V_{gmax}	Nm	304	446	594	889
	(在 at $\Delta p = 35 \text{ MPa}$)	M_{max} 在 at V_{gmax}	Nm	88	130	171	257
最大输出功率(在 35MPa 和 Q_{max} 下)	Max. output power(at 35MPa and Q_{max})		KW	120	156	187	247
惯性矩	Moment		kgm ²	0.0042	0.008	0.0127	0.0253
重量	Weight		kg	26	34	45	64

A6VE 内藏式变量马达 Plug-In Variable Displacement Motor A6VE

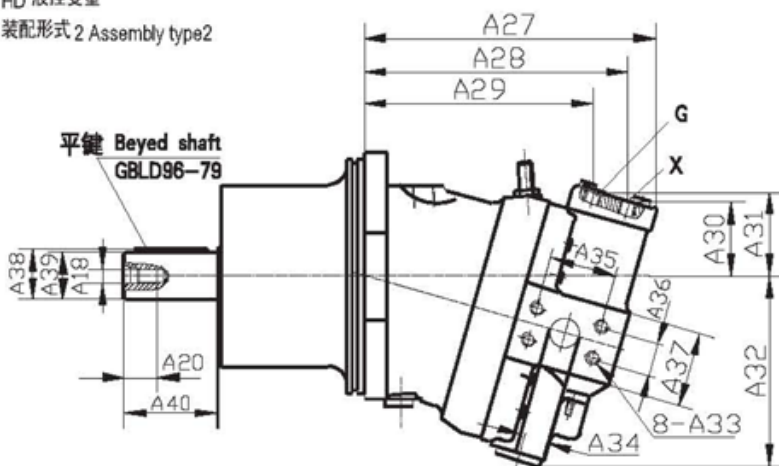
外形尺寸 Unit Dimensions

规格 160 size 160

HA 高压自动变量 Control
 装配形式 1 Assembly type 1



HD 液控变量
 装配形式 2 Assembly type 2



- A, B 工作油口 service port
- G 多元件同步控制
和遥控压力
油口 M14 × 1.5 port for synchronous
control of multiple
units and for
remote control pressure
- X 先导油口 pilot pressure
M22 × 1.5
- T 壳体、泄油口 case drain
M14 × 1.5