

AOVITE

奥威特液压

无级变速器

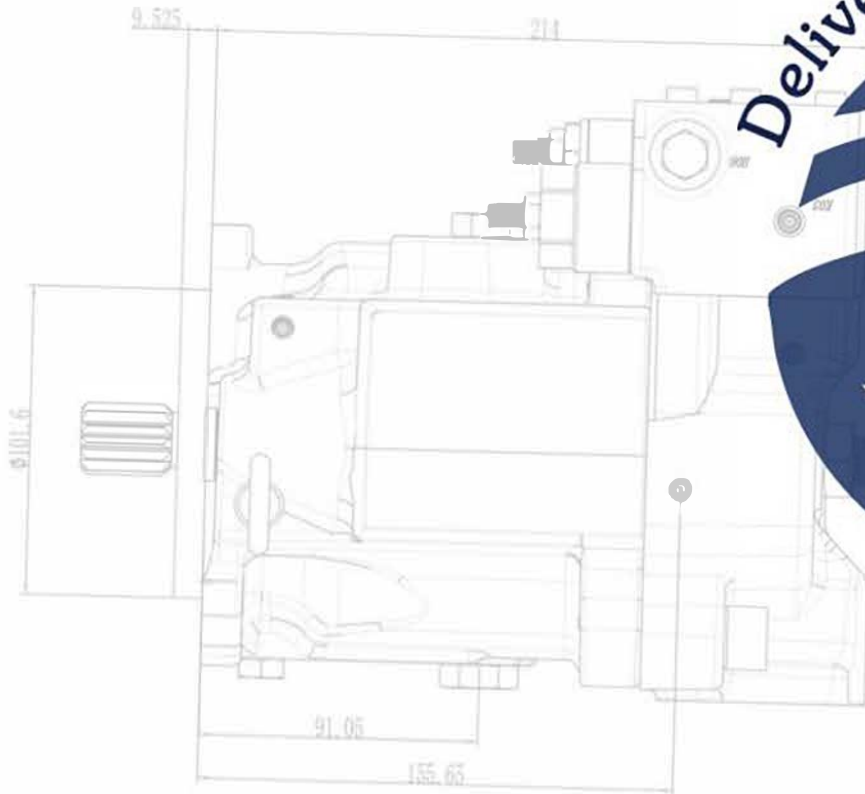


Apply to 0.1-10 tons moving machines

适用于中小型行走机械

集开发、生产、销售、服务为一体的液压制造中心

Deliver Customer Value



PRODUCT

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AOVITE

奥威特液压

崇尚科技 * 提升品质 * 完美服务

Advocating technology * Improve quality * perfect service



✉ HST 液压无级变速装置。

产品结构特点 Product Features :

HST液压无级变速装置由双向变量柱塞泵、手动定量马达、补油泵、阀组件、滤油器等组成。

WHPVMF HST consist of variable piston pump ,bi-direction piston motor ,Cycloid boost pump, valve assy ,oil filters and other components.

工作原理 Work Principle :

动力装置带动HST内的柱塞泵，实现机械能到液压能的转化；液压能通过柱塞马达，实现液压能到机械能的转化，从而为执行元件提供扭矩。柱塞泵和柱塞马达相互构成闭路循环，其泄漏油由补油泵供给。柱塞马达输出轴驱动行走装置，实现机器的前进、停止、后退功能。

Power device drive the piston pump to convert mechanical energy into hydraulic energy , then hydraulic energy converts into mechanical energy through piston motor to provide torque for executive component . Piston pump and motor constitute closed loop, leaked oil be supplied by cycloid boost pump . Piston motor output shaft drive the running device to realize the machine's forward , stop , back functions .

在行走机械上的应用特点 Features:

1. 操作简便：采用HST的行走机械，一杆操作即可完成即可完成进退、换向及平稳的无级变速。

Operate easily : WHPVMF can fulfill retreat , commutation and stable any speed change only by operating a lever .

2. 应用性强：HST集液压泵、马达、阀于一体，重量轻，不仅容易实现四轮四驱驱动、动力输出和脉宽调制，还可以增加电子控制等多种装置，实现机、电、液一体化控制，提高产品性能。

Usefully : WHPVMF products are doing all-in-one right with a very small weight . It not only can easily to realize all-wheel drive , power output and pulse width modulation , but also can add variety of electronic control device to achieve electrification , improving machines performance .

3. 灵活性强：采用HST的行走机械，可以极低的速度在很小的回转半径内行走，实现灵活转弯或进出作业场地的目的。

Flexibility : Machine with the WHPVMF can move in a very small turning radius with a very slowly speed, it can turn or go in and out a site flexibility .

4. 作业效率高：HST 独特的结构设计在减轻重量的同时，缩短了管路，降低功率损耗，有效地提高工作效率，HST 总效率高达80%；HST可根据不同工况，负载以及装卸的数量改变斜盘角度，调整流量和输出扭矩，使收割机作业效率更高。

High efficiency : WHPVMF's unique design reduce the weight , shorten pipeline , lower power consumption, improve the efficiency , its overall efficiency is up to 80% . According to different conditions , load and unload , WHPVMF can Change oblique plate angle , adjusts the flow and the output torque to make machine operate more efficiently .

技术参数的计算 Calculate Technical Data :

流量 Flow	$Q = \frac{Vg \cdot n \cdot \eta_v}{1000}$	L/min $Vg =$ 每转排量，单位：cm ³ Displacent per revolution in cm
驱动转矩 Driving torque	$T = \frac{Vg \cdot \Delta P}{20 \cdot \pi \cdot \eta_{mh}} = \frac{1.59 \cdot Vg \cdot \Delta P}{100}$	$\Delta P =$ 压差，单位：bar Differential pressure in bar
功率 Power	$P = \frac{2\pi \cdot T \cdot n}{60000} = \frac{q_v \cdot \Delta P}{600 \cdot \eta_t} = \frac{T \cdot n}{9549}$	$n =$ 转速，单位：rpm Speed in rpm
		$\eta_v =$ 容积效率 Volumetric efficiency
		$\eta_{mh} =$ 机械液压效率 Mechanical hydraulic efficiency
		$\eta_t =$ 总效率 Total efficiency

工作要求 Technical data

液压油 Hydraulic fluid

有关液压油的选择和应用条件的详细资料，在项目设计之前请参考标准GB11118.1-2011。(WHPVMF适用HM68抗磨液压油)

Before starting project planning, pls refer to standard GB11118.1-2011 for detailed information regarding the choice of hydraulic fluid and application conditions.

HM68 hydraulic fluid is suitable for WHPVMF

工作粘度范围

为了得到最优效率的使用寿命，我们推荐工作粘度（在工作温度时）在下列范围内选择：

V_{opt} =最佳工作粘度 16....36mm²/s 取决于油箱温度（闭回路）。

粘度极限范围

粘度极限值如下：

V_{min} = 5 mm ² /s 短时 (t<3 min) 允许最高温度 t_{max} =+115°C	V_{max} = 1600mm ² /s 短时 (t<3 min) 冷启动时 (p≤30bar, n≤1000t _{in} =≤-40°C) rpm
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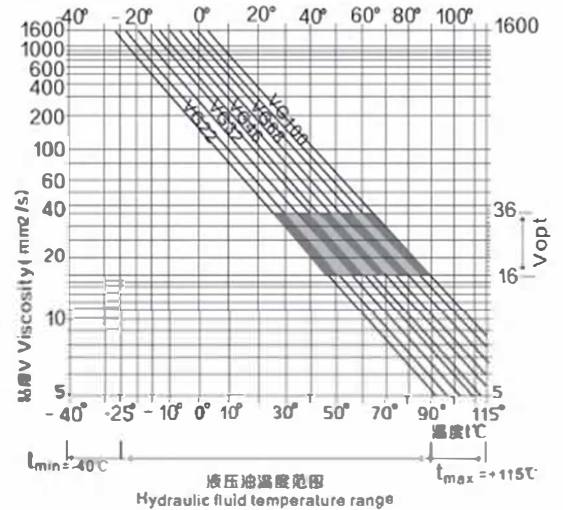
以上仅适用于无载启动，必须在大约15分钟内达到最佳工作粘度。

请注意：最高允许油液温度115°C即使在局部（如轴承区）也不可超过该温度。轴承区的温度与压力和转速有关，它最高比平均壳体油温度高5K。温度在-25°C和-40°C之间时（冷启动阶段）应采用特殊措施，请与我司联系。

工作温度范围（参见选图）

数据表（理论值，不包括系数和公差；近似值）

选图 Selection diagram



Viscosity and temperature of hydraulic fluid

Viscosity[mm ² /s]	Temperature	Comment
Transport and storage at ambient temperature	$T_{min} \geq -50^\circ\text{C}$ $T_{op} = +5^\circ\text{C}$ to $+20^\circ\text{C}$	Factory preservation: up to 12 months with standard, up to 24 months with long-term
(Cold) start-up ¹⁾ $V_{max}=1600$	$T_{st} \geq -40^\circ\text{C}$	$t \leq 3$ min, without load (p ≤ 50 bar), n ≤ 1000 rpm
Permissible temperature difference	$\Delta T \leq 25\text{K}$	between axial piston unit and hydraulic fluid
Warm-up phase $v < 1600$ to 400	$T = -40^\circ\text{C}$ to -25°C	at $p \leq 0.7 \cdot P_{nom}$, $n \leq 0.5 \cdot n_{nom}$ end $t \leq 15$ min
Operating phase		
Temperature difference	$\Delta T = \text{approx. } 5\text{K}$	between hydraulic fluid in the bearing and at port T in the bearing measured at port T
Maximum temperature	115°C 110°C	
Continuous operation $V=400$ to 10 $V_{opt}=36$ to 16	$T = -25^\circ\text{C}$ to $+90^\circ\text{C}$	measured at port T, no restriction within the permissible data
Short-term operation $V_{min} \geq 7$	$T_{max} = +110^\circ\text{C}$	measured at port T, $t < 3$ min, $p < 0.3 \cdot P_{nom}$
Shaft seal ¹⁾	$T \leq +115^\circ\text{C}$	see below "Shaft seal"
At temperatures below -25°C , an NBR shaft seal is required (permissible temperature range: -40°C to $+90^\circ\text{C}$).		

液压油选择说明

Details regarding the choice of hydraulic fluid

为了正确选择液压油，必须知道与环境温度相关的工作温度：闭式回路中指回路温度。

液压油应选择选择：在工作温度范围内粘度处于最优范围(Vopt) 见选择图的阴影区域，我们推荐在同种条件下选择较高的粘度等级。

示例：X℃的环境温度下，回路中的工作温度为60℃。在最佳的工作粘度范围（Vopt阴影区域），对应粘度等级VG46 或VG68，应选择VG68。

请注意：壳体泄油温度受压力和转速的影响，总是高于回路温度，系统内任何一点的温度都不能超过115℃。

The correct choice of hydraulic fluid requires knowledge of the operating temperature in relation to the ambient temperature: in a closed circuit, the circuit temperature. The hydraulic fluid should be chosen so that the operating viscosity in the operating temperature range is within the optimum range (Vopt see shaded area of the selection diagram). We recommended that the higher viscosity class be selected in each case.

Example: At an ambient temperature of X °C, an operating temperature of 60 °C is set in the circuit. In the optimum operating viscosity range (Vopt, shaded area), this corresponds to the viscosity classes VG 46 and VG 68; to be selected: VG 68.

Note: The case drain temperature, which is affected by pressure and speed, can be higher than the circuit temperature. At no point of the component may the temperature be higher than 115 °C

液压油的过滤

Filtration of the hydraulic fluid

油液过滤得越精细，油液的清洁度越高，轴向柱塞元件的使用寿命就越长。为了确保轴向柱塞元件的正常工作，油液的清洁度等级应至少按ISO4406的20/18/15级。

根据系统和应用情况，对WHPVMF我们推荐过滤器滤芯精度应在10um之内；过滤器滤芯的压差升高时，过滤精度不得降低。在较高油液温度（90℃至最高115℃），清洁度等级应至少按ISO4406的19/17/14级。

壳体压力必须等于或大于外部对轴密封圈的压力。

Finer filtration improves the cleanliness level of the hydraulic fluid, which increases the service life of the axial piston unit. To ensure the functional reliability of the axial piston unit, a gravimetric analysis of the hydraulic fluid is necessary to determine the amount of solid contaminant and to determine the cleanliness level according to ISO 4406. A cleanliness level of at least 20/18/15 is to be maintained. Depending on the system and the application, for the WHPVMF, we recommend filter's filtering precision should within 10µm. With an increasing differential pressure at the filter cartridges, the filtering precision of filter must not deteriorate. At very high hydraulic fluid temperatures (90 °C to maximum 115°C), a cleanliness level of at least 19/17/14 according to ISO 4406 is necessary.

The case pressure must be equal to or higher than the ambient pressure.

轴密封圈 Shaft seal

允许压力负载

轴密封圈的使用寿命受泵的转速和壳体泄油压力的影响。建议工作温度下的平均持久壳体泄油压力不可超过0.28Mpa绝对压力。转速减小时，最高允许壳体泄油压力为0.6Mpa。短时(t<0.1s)允许绝对压力峰值最高为1Mpa，压力峰值出现的频率越高，轴密封圈的使用寿命越短。

Permissible pressure loading

The service life of the shaft seal is influenced by the speed of the axial piston unit and the case drain pressure. We suggest the average of the persistent case drain pressure must not exceed 0.28 Mpa absolute pressure (when the speed decreases, the maximum permissible case drain pressure is 0.6Mpa under operating temperature. Momentary pressure spikes (t < 0.1 s) of up to 1Mpa are permitted. The service life of the shaft seal decreases with an increase in the frequency of pressure spikes.

The case pressure must be equal to or higher than the ambient pressure.

工作压力范围

0.08MPa < 进油压力Pabs < 1.2Mpa

工作压力Pn-----21Mpa

额定压力Pmax-----28Mpa

壳体回油压力P-----<0.28Mpa

Operating pressure range

0.08MPa < inlet pressure Pabs Pabs < 1.2Mpa

Working pressure Pn-----21Mpa

Rated pressure Pmax-----28Mpa

Case drain pressure P-----<0.28Mpa

WHPVMF 系列

型号说明 Type Code

WHPV	MF	28	L	02	A	Z	M
01	02	03	04	05	06	07	08

轴向柱塞元件 Axial Piston Unit

01	斜盘结构变量柱塞泵 Swashplate design , Variable pump
02	斜盘结构定量马达 Swashplate design , Quantitative motor

规格 Size

03	排量 DSPL (ml/r)	28	32	37	42
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旋转方向 Rotation

04	泵 Pump	双向 Bi direction	B
		顺时针 Clockwise	R
		逆时针 Anti-clockwise	L
	马达 Motor	双向 Bi direction	

滤清器 Filter

05	无滤清器 None	01
	有滤清器 Yes	02

滤清位置 Filter Location

06	安装于泵侧端 Install on the pump's side	A
	安装于泵后端 Install on the rear of pump	B
	加装连接装置 Install connect adapter	C

零位定位器 Zero Controller

07	无定位器则不标注 None	
	加装定位器 Choice zero controller (能精准的控制驻车系统, 帮助简化安装和调适。)	Z

手柄位置 Control Hand Location

08	手柄安装左侧 Control hand in the left	M
	手柄安装右侧 Control hand in the right	N

技术参数 Technical Data

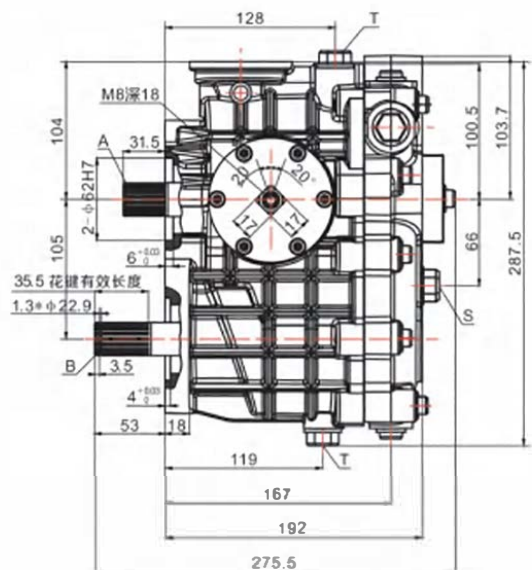
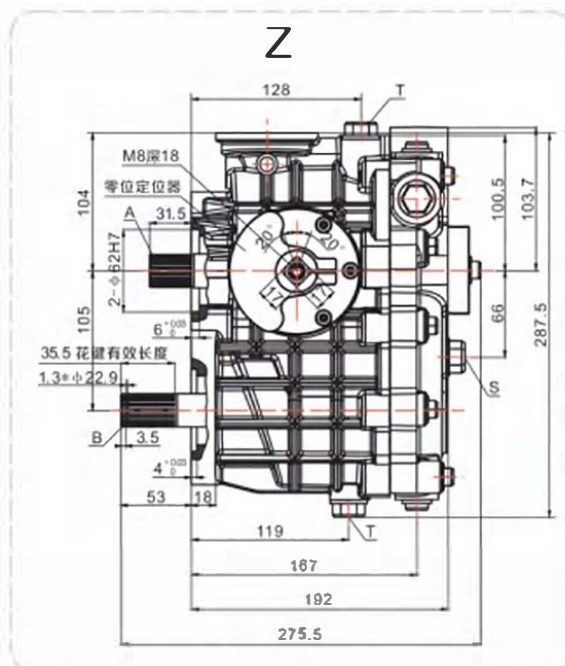
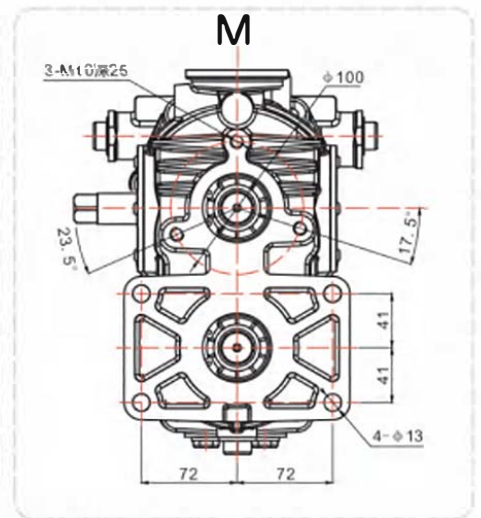
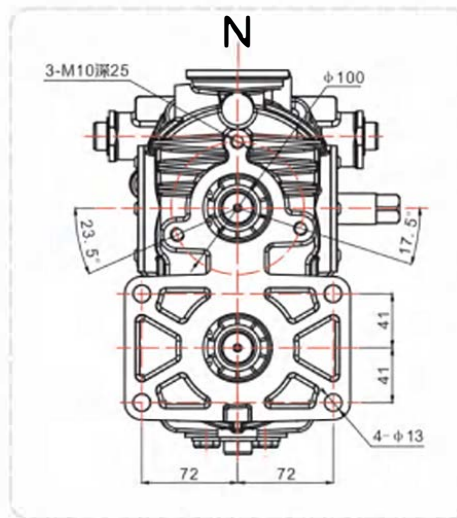
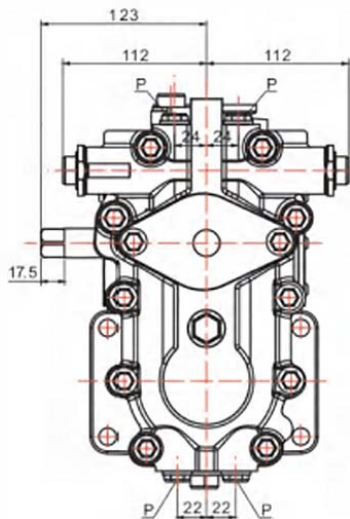
规格 Size		28	32	37	42
排量 Displacement	泵 Pump Vg max mL/r	28	32	37	42
	马达 Motor Vg max mL/r	28	32	37	42
	补油泵 Boost Pump Vg max mL/r	7	7.2	7.3	10
	转速 Rotation	输入 Input n max r/min	3000		
	输出 Output n max r/min	0---3000			
最大流量 Flow(Max)	在 When n max时 L/min	84	96	111	126
	在 When n=1500时 L/min	42	48	55.5	63
最大转矩 Torque(Max)	在 When Vg max时 $\Delta P=28MPa$	124.7	142.5	164.7	186.9
	在 When Vg max时 $\Delta P=10MPa$	44.5	50.9	58.8	66.8
最大功率 Power(Max)	在 n max时 Pmax 功率KW When n in max	39.2	44.8	51.8	58.7
	在 n=1500r/min时 Pmax 功率KW When n=1500r/min	19.6	22.4	25.9	29.4
壳体容积 Case volume	L	0.8	0.81	0.84	0.85
重量 Weight	KG	22.5	23	27.5	28

外形及安装尺寸图 Mounting Dimension

WHPVMF-28-L/R-01A/AZ-N/M 液压无级变速装置 HST ASSY



油口代号 Port	螺塞规格 Size	渐开线花键A、B参数 Parameter of involute spline A、B	
P	G1/4	齿数 Number of Teech	18
T	G1/2	模数 Modulus	1.25
S	3/4-16UNF	压力角 Pressure angle	20°
		变位置 Displacement coefficient	1
		分度圆直径 Reference circle diameter	φ22.5
		大径 Big diameter	φ24.5 ^{0u} _{-0.050}
		小径 Small diameter	φ22 ⁰ _{-0.021}
		精度等级 Precision grade	GB/T3478.1-1995 6级 Grade

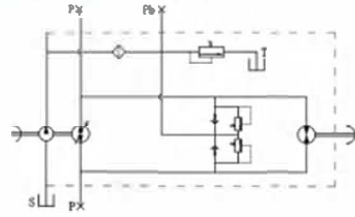


As picture say,contraol hand in the right,so it' s "N"

如图所示,手柄位置安装在轴向右侧,即 "N"

外形及安装尺寸图 Mounting Dimension

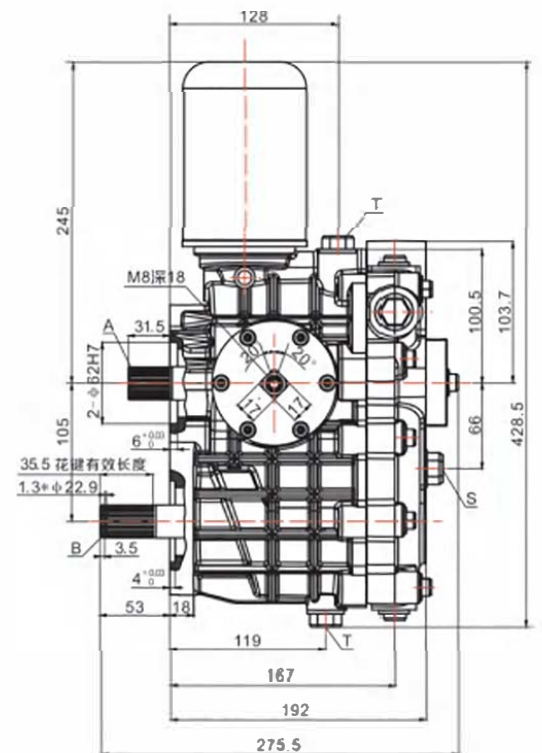
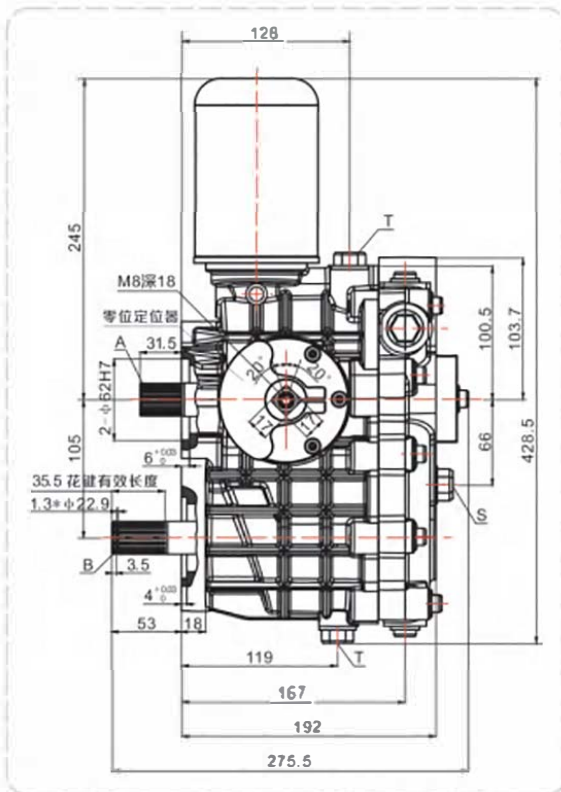
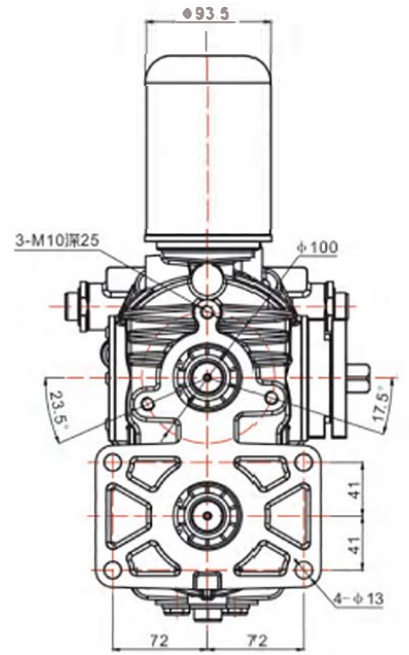
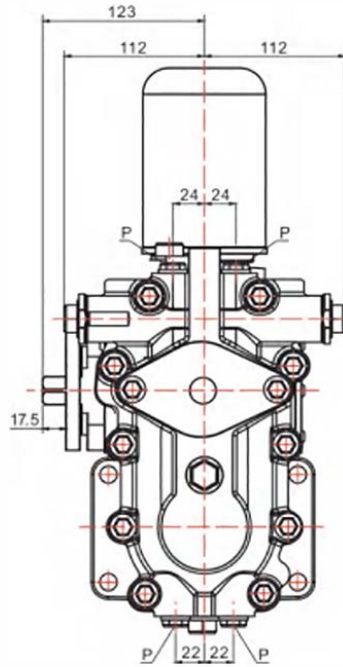
WHPVMF-28-L/R-02A/AZ-N 液压无级变速装置 HST ASSY



液压原理图
Hydraulic schematic diagram

油口代号 Port	螺塞规格 Size
P	G1/4
T	G1/2
S	3/4-16UNF

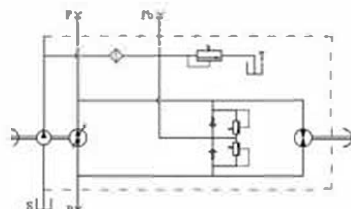
渐开线花键A、B参数 Parameter of involute spline A、B	
齿数 Number of Teeth	18
模数 Modulus	1.25
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精度等级 Precision grade	GB/T3478.1-1995 6级 Grade



虚线内为零位定位器
侧面尺寸图

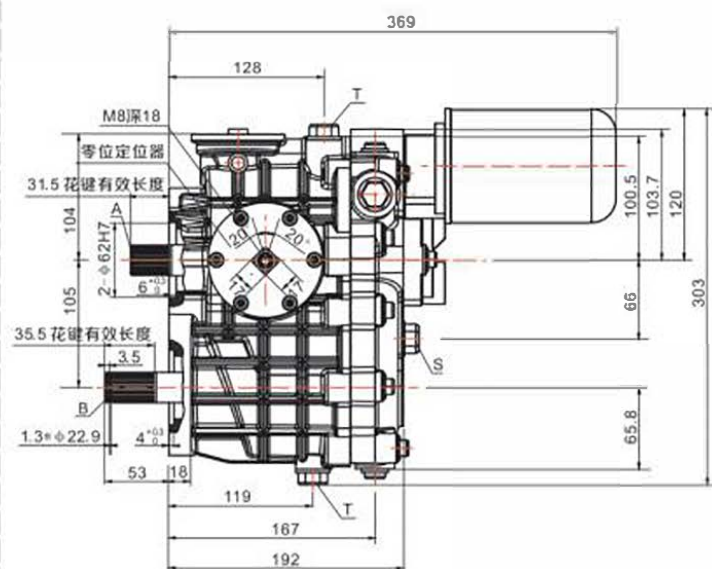
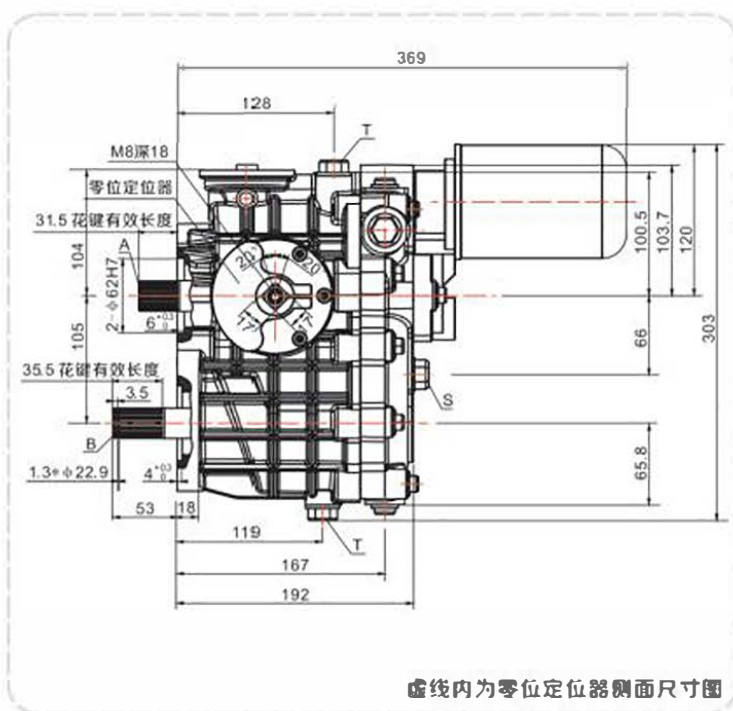
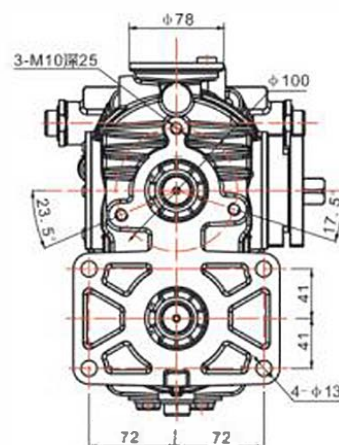
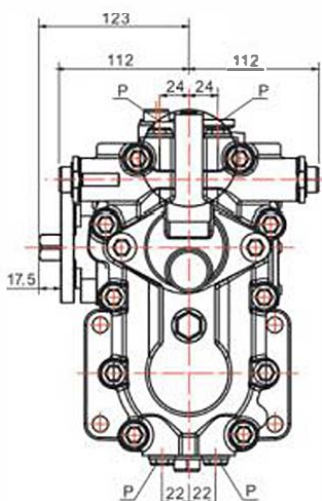
外形及安装尺寸图 Mounting Dimension

WHPVMF~ 28 - L/R - 02B/BZ - N 液压无级变速装置 HST ASSY



液压原理图
Hydraulic schematic diagram

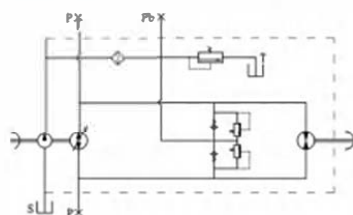
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渐开线花键A、B参数 Parameter of involute spline A、B	
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虚线内为零位定位器侧面尺寸图

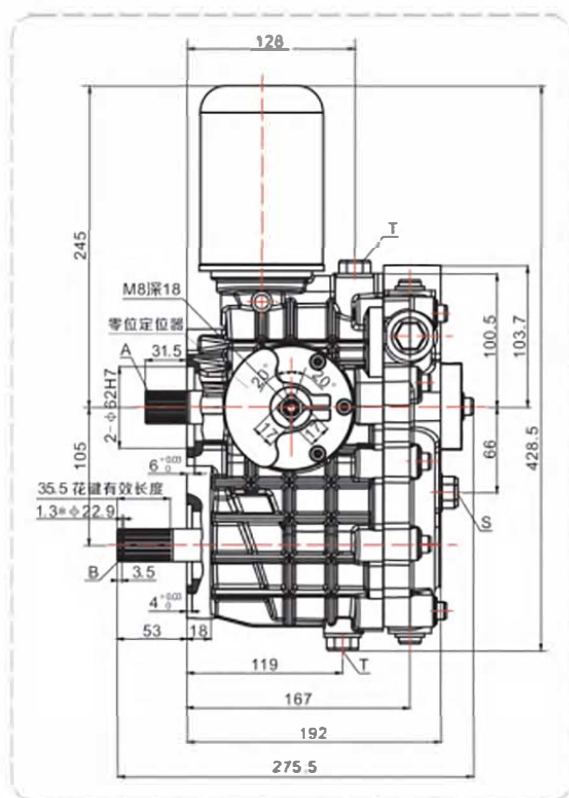
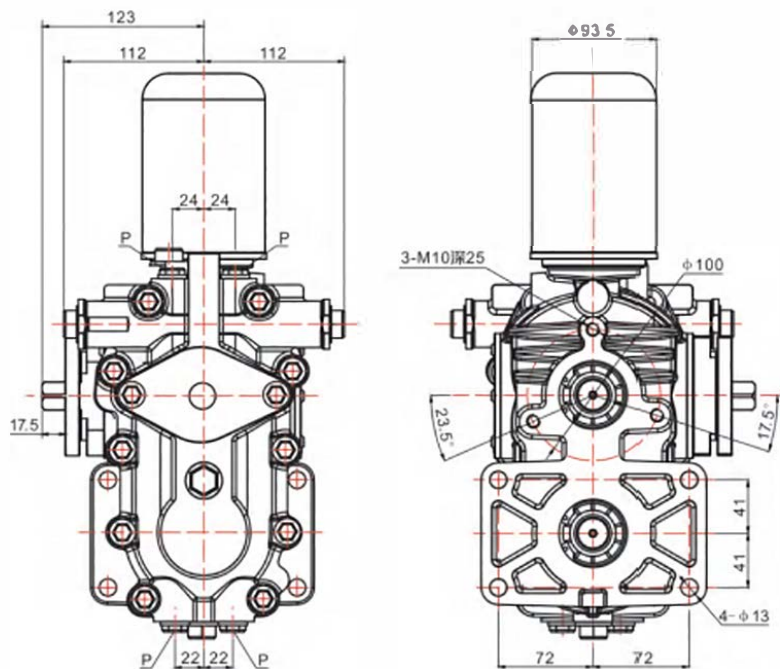
外形及安装尺寸图 Mounting Dimension

WHPVMF-32-L/R-02A/AZ-N 液压无级变速装置 HST ASSY

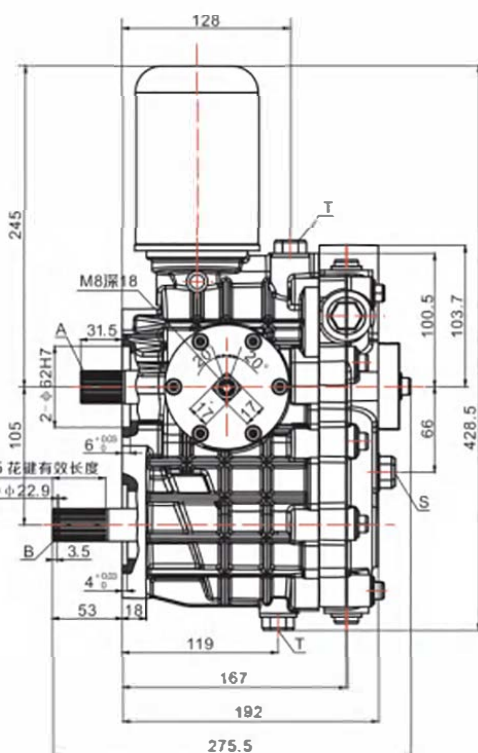


液压原理图
Hydraulic schematic diagram

油口代号 Port	螺塞规格 Size
P	G1/4
T	G1/2
S	3/4-16UNF
渐开线花键A、B参数 Parameter of involute spline A、B	
齿数 Number of Teeth	18
模数 Modulus	1.25
压力角 Pressure angle	20°
变位量 Displacement coefficient	1
分度圆直径 Reference circle diameter	φ22.5
大径 Big diameter	φ24.5 ⁰ _{-0.050}
小径 Small diameter	φ22 ⁰ _{-0.021}
精度等级 Precision grade	GB/T3478.1-1995 6级 Grade

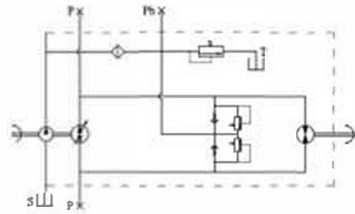


虚线内为零位定位器
侧面尺寸图



外形及安装尺寸图 Mounting Dimension

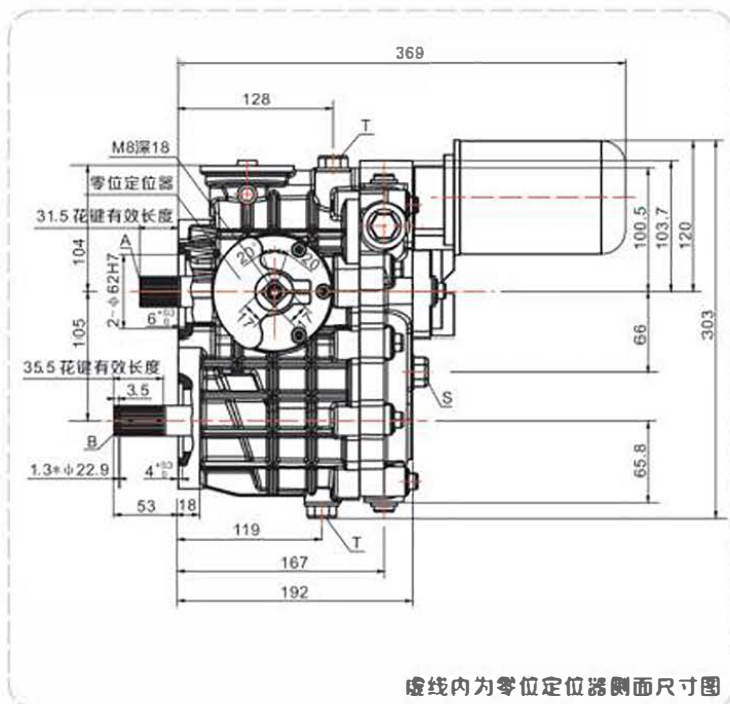
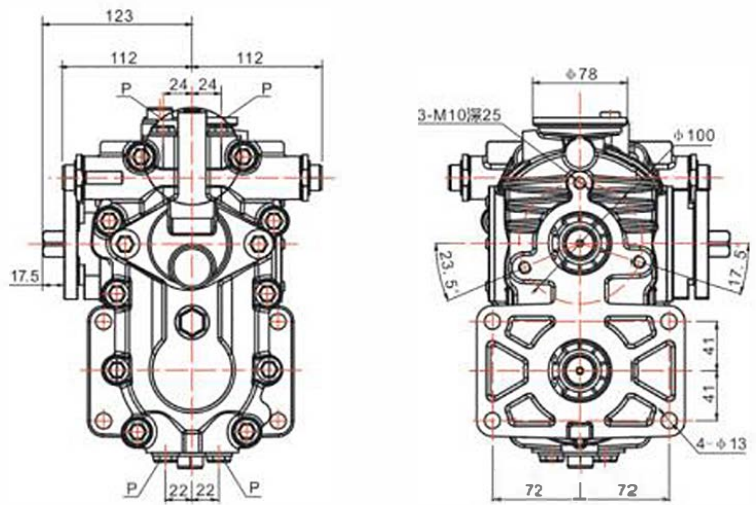
WHPVMF-32-L/R-02B/BZ-N 液压无级变速装置 HST ASSY



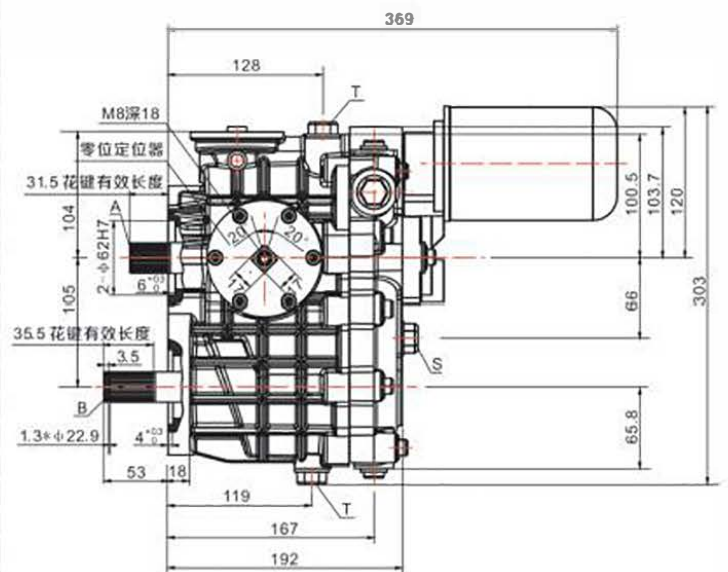
液压原理图
Hydraulic schematic diagram

油口代号 Port	螺穿规格 Size
P	G1/4
T	G1/2
S	3/4-16UNF

渐开线花键A、B参数 Parameter of involute spline A、B	
齿数 Number of Teeth	18
模数 Modulus	1.25
压力角 Pressure angle	20°
变位置 Displacement coefficient	1
分度圆直径 Reference circle diameter	φ22.5
大径 Big diameter	φ24.5 ^{+0.050}
小径 Small diameter	φ22 ^{-0.021}
精度等级 Precision grade	GB/T3478.1-1995 6级 Grade

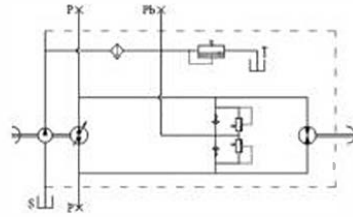


虚线内为零位定位器侧面尺寸图



外形及安装尺寸图 Mounting Dimension

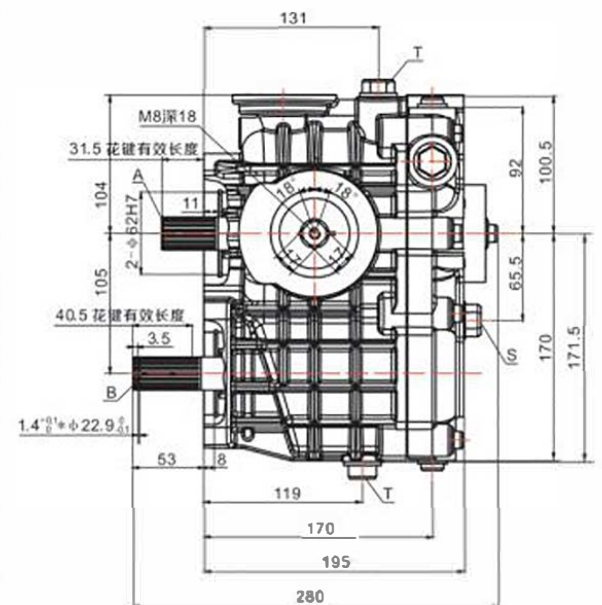
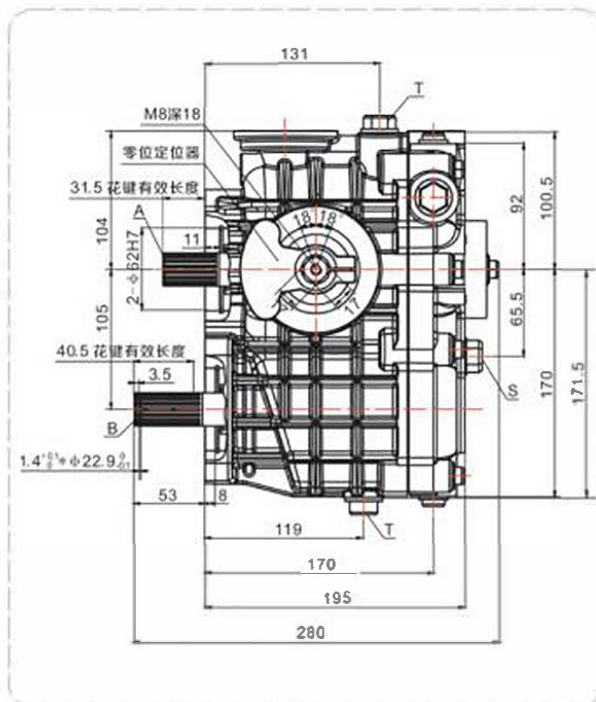
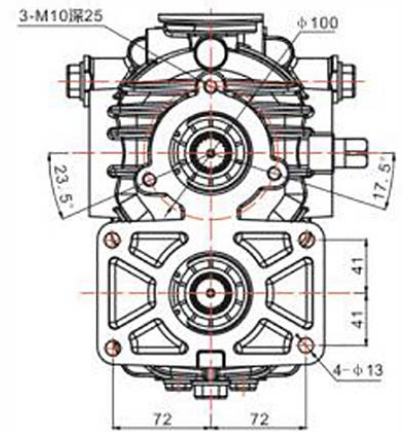
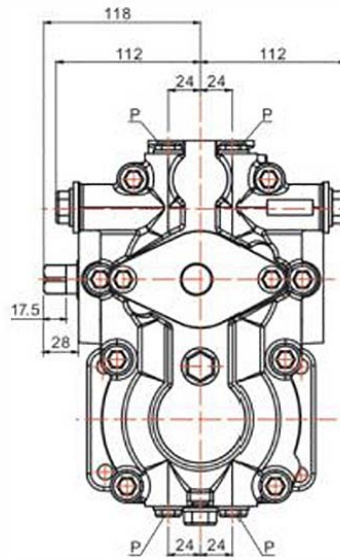
WHPVMF-37-L/R-01A/AZ-N 液压无级变速装置 HST ASSY



液压原理图
Hydraulic schematic diagram

油口代号 Port	标准规格 Size
P	G1/4
T	G1/2
S	3/4-16UNF

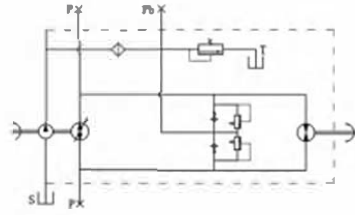
渐开线花键A、B参数 Parameter of involute spline A、B	
齿数 Number of Teeth	18
模数 Modulus	1.25
压力角 Pressure angle	20°
变位量 Displacement coefficient	1
分度圆直径 Reference circle diameter	Φ22.5
大径 Big diameter	Φ24.5 ⁰ _{-0.050}
小径 Small diameter	Φ22 ⁰ _{-0.021}
精度等级 Precision grade	GB/T3478.1-1995 6级 Grade



虚线内为零位定位器
侧面尺寸图

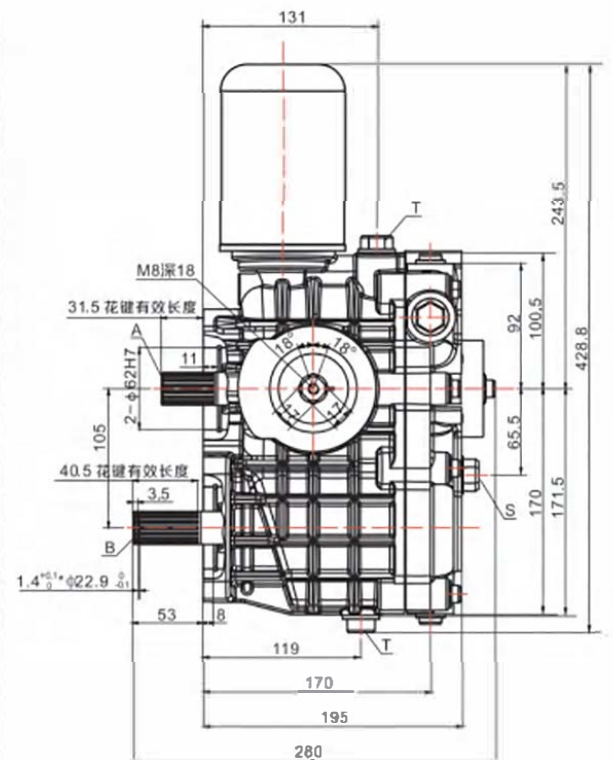
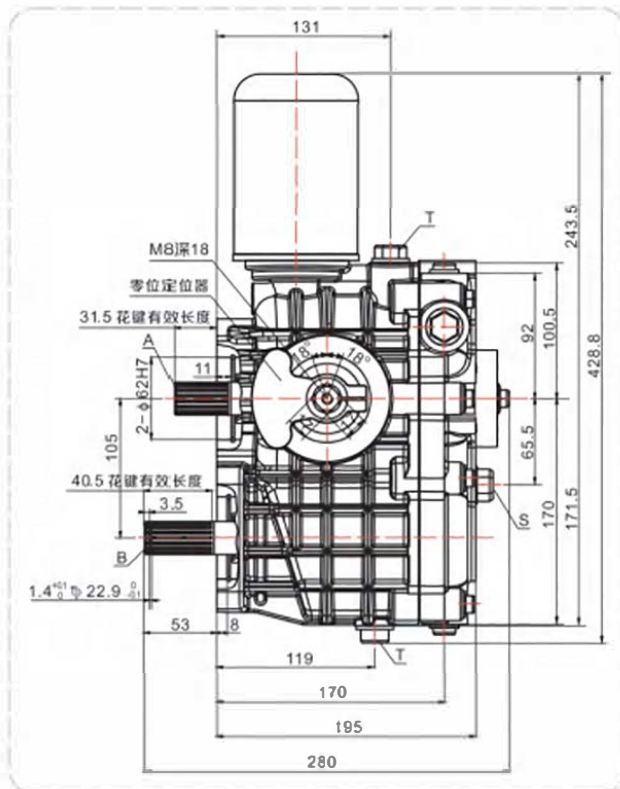
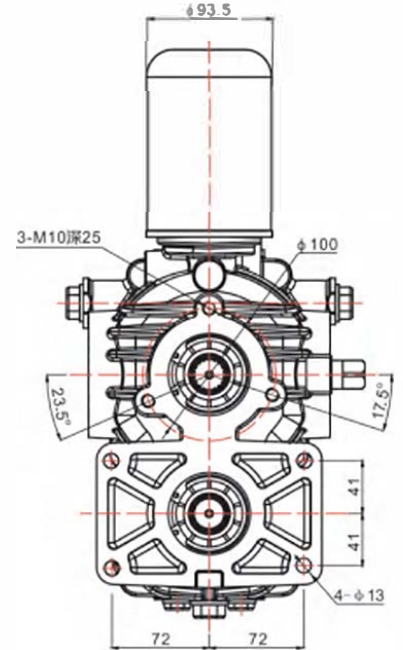
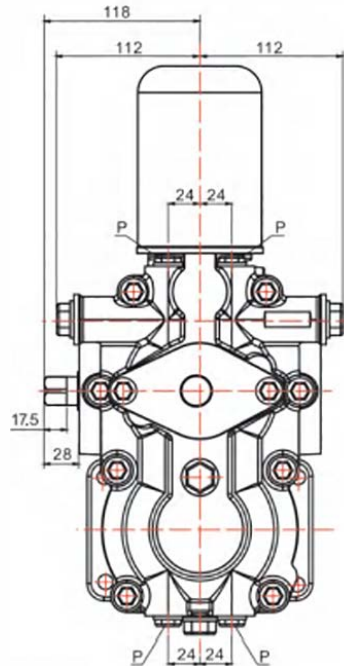
外形及安装尺寸图 Mounting Dimension

WHPVMF-37-L/R-02A/AZ-N 液压无级变速装置 HST ASSY



液压原理图
Hydraulic schematic diagram

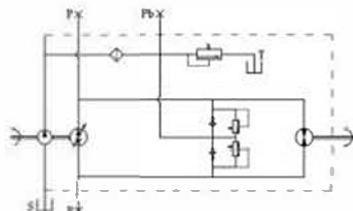
油口代号 Port	螺塞规格 Size
P	G1/4
T	G1/2
S	3/4-16UNF
渐开线花键A、B参数 Parameter of involute spline A、B	
齿数 Number of Teeth	18
模数 Modulus	1.25
压力角 Pressure angle	20°
变位量 Displacement coefficient	1
分度圆直径 Reference circle diameter	φ22.5
大径 Big diameter	φ24.5 ⁰ _{-0.050}
小径 Small diameter	φ22 ⁰ _{-0.021}
精度等级 Precision grade	GB/T3478.1-1995 6级 Grade



虚线内为零位定位器
侧面尺寸图

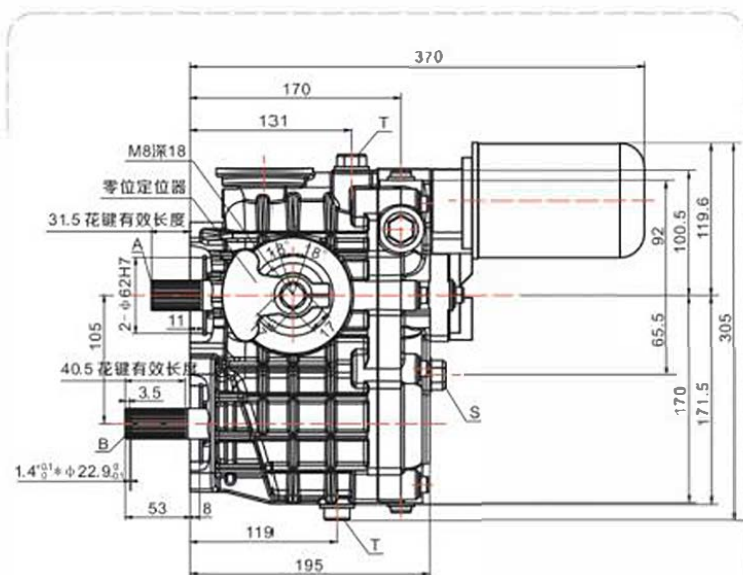
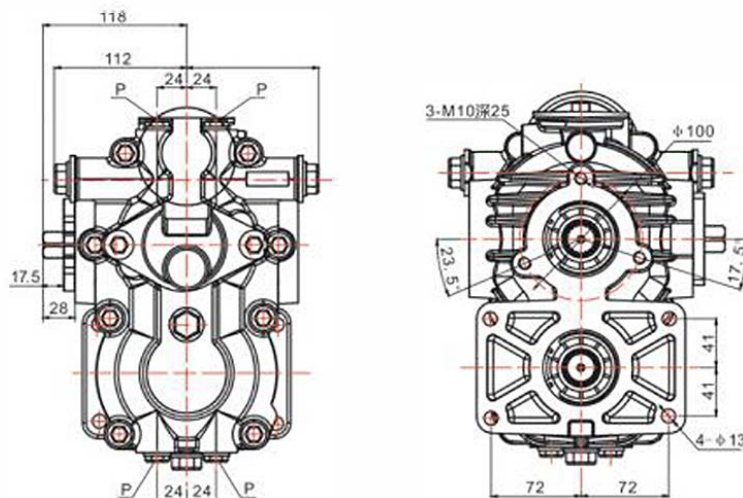
外形及安装尺寸图 Mounting Dimension

WHPVMF-37-L/R-02B/BZ-N 液压无级变速装置 HST ASSY

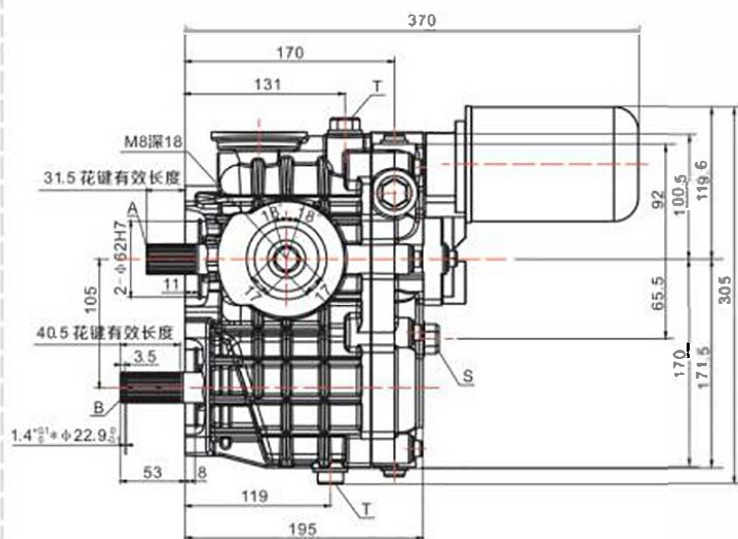


液压原理图
Hydraulic schematic diagram

油口代号 Port	螺塞规格 Size
P	G1/4
T	G1/2
S	3/4-16UNF
渐开线花键A、B参数 Parameter of involute spline A、B	
齿数 Number of Teeth	18
模数 Modulus	1.25
压力角 Pressure angle	20°
变位量 Displacement coefficient	1
分度圆直径 Reference circle diameter	φ22.5
大径 Big diameter	φ24.5 ⁰ _{-0.050}
小径 Small diameter	φ22 ⁰ _{-0.021}
精度等级 Precision grade	GB/T3478.1-1995 6级 Grade

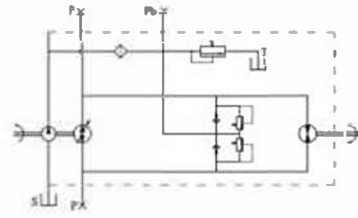


虚线内为零位定位器侧面尺寸图



外形及安装尺寸图 Mounting Dimension

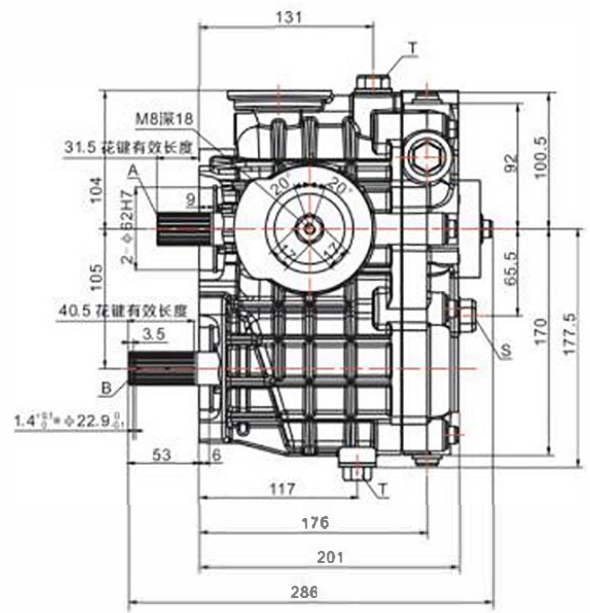
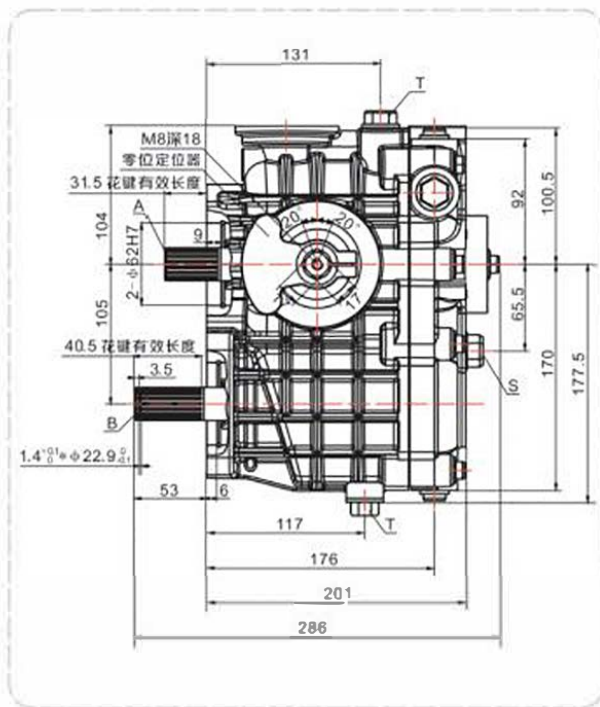
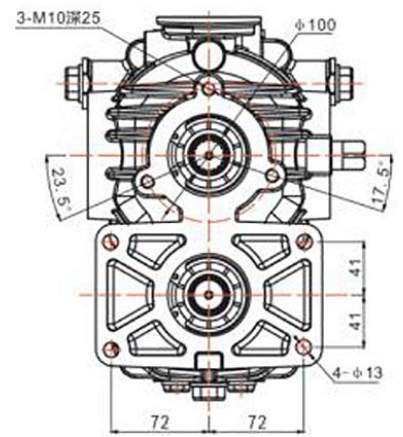
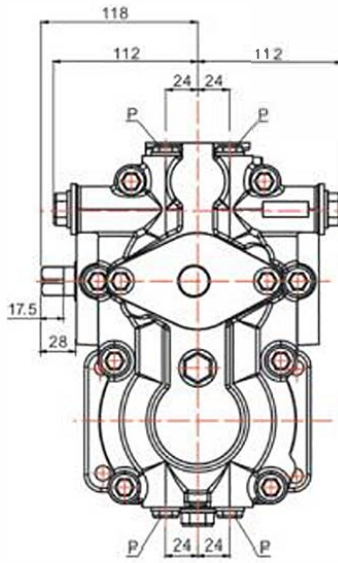
WHPVMF-42-L/R-01A/AZ-N 液压无级变速装置 HST ASSY



液压原理图
Hydraulic schematic diagram

油口代号 Port	锥塞规格 Size
P	G1/4
T	G1/2
S	3/4-16UNF

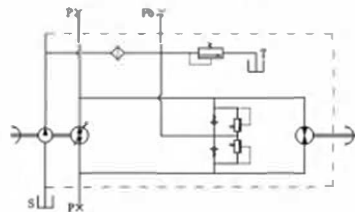
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齿数 Number of Teeth	18
模数 Modulus	1.25
压力角 Pressure angle	20°
变位量 Displacement coefficient	1
分度圆直径 Reference circle diameter	Φ22.5
大径 Big diameter	Φ24.5 ⁰ _{-0.050}
小径 Small diameter	Φ22 ⁰ _{-0.021}
精度等级 Precision grade	GB/T3478.1-1995 6级 Grade



虚线内为零位定位器
侧面尺寸图

外形及安装尺寸图 Mounting Dimension

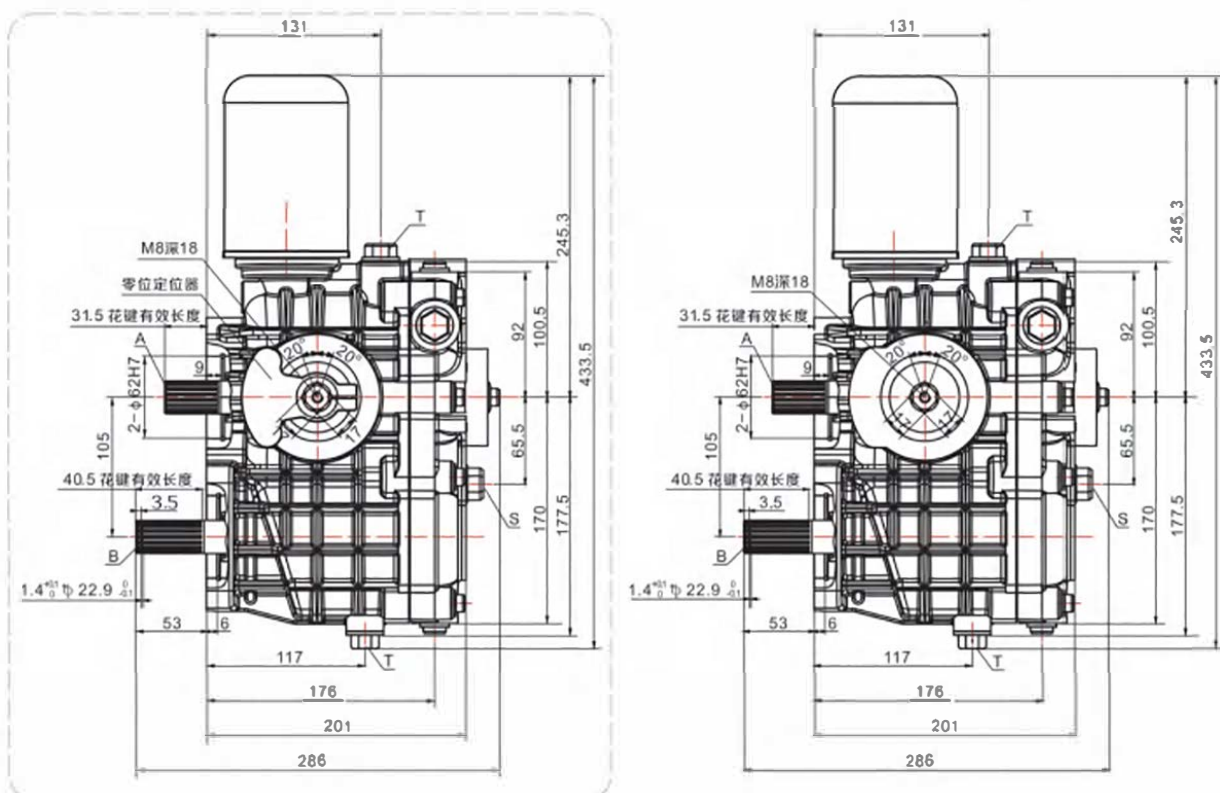
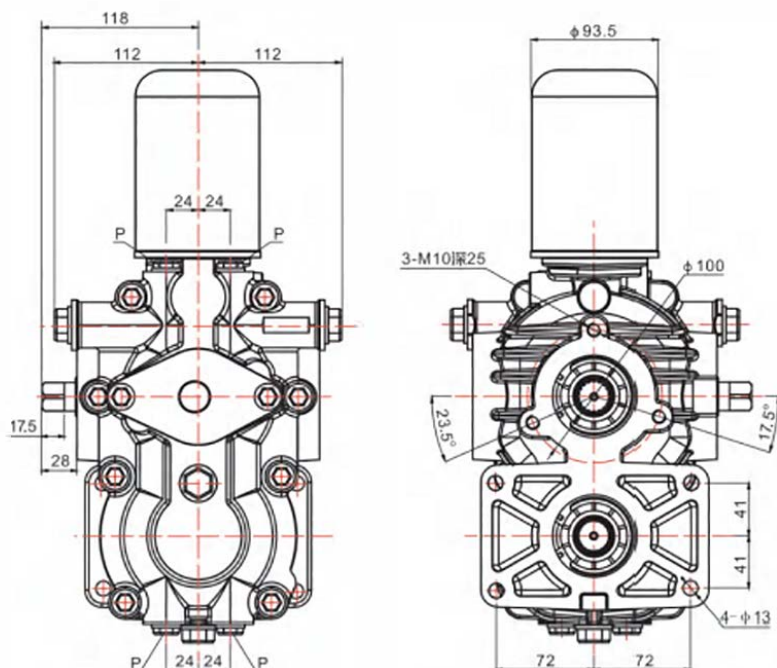
WHPVMF-42-L/R-02A/AZ-N 液压无级变速装置 HST ASSY



液压原理图
Hydraulic schematic diagram

油口代号 Port	螺母规格 Size
P	G1/4
T	G1/2
S	3/4-16UNF

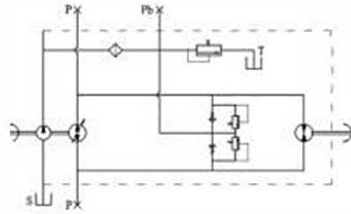
渐开线花键A、B参数 Parameter of involute spline A、B	
齿数 Number of Teeth	18
模数 Modulus	1.25
压力角 Pressure angle	20°
变位量 Displacement coefficient	1
分度圆直径 Reference circle diameter	φ22.5
大径 Big diameter	φ24.5 ⁰ _{-0.050}
小径 Small diameter	φ22 ⁰ _{-0.021}
精度等级 Precision grade	GB/T3478.1-1995 6级 Grade



虚线内为零位定位器
侧面尺寸图

外形及安装尺寸图 Mounting Dimension

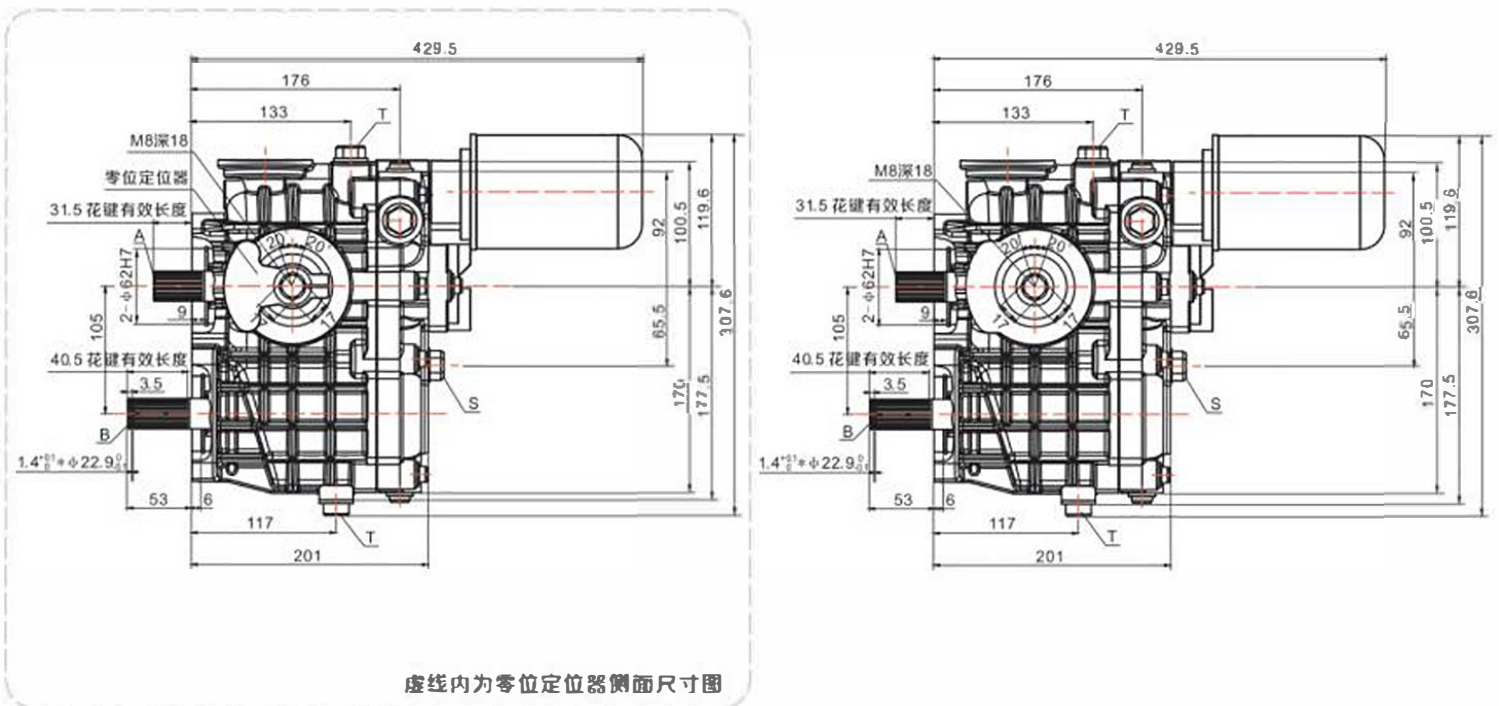
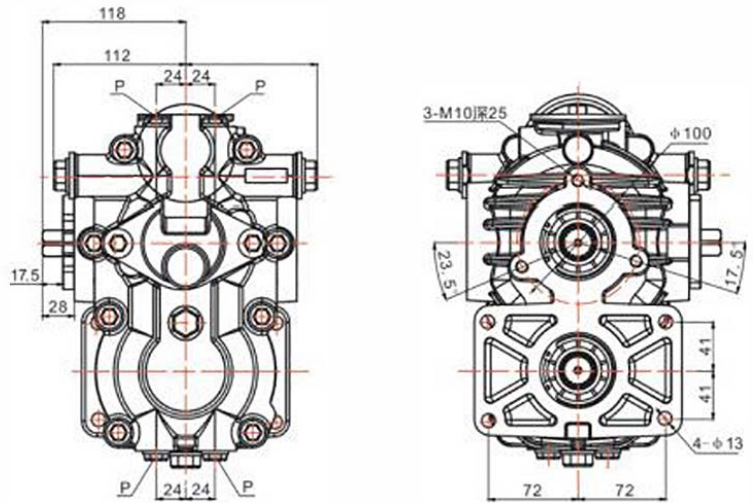
WHPVMF-42-L/R-02B/BZ-N 液压无级变速装置 HST ASSY



液压原理图
Hydraulic schematic diagram

油口代号 Port	螺塞规格 Size
P	G1/4
T	G1/2
S	3/4-16UNF

渐开线花键A、B参数 Parameter of involute spline A、B	
齿数 Number of Teeth	18
模数 Modulus	1.25
压力角 Pressure angle	20°
变位量 Displacement coefficient	1
分度圆直径 Reference circle diameter	φ22.5
大径 Big diameter	φ24.5 ⁰ _{-0.050}
小径 Small diameter	φ22 ⁰ _{-0.021}
精度等级 Precision grade	GB/T 3478.1-1995 6级 Grade



WHPM 系列

广泛用于插秧机、拖拉机、收割机、播种机等农业机械。其主要结构为柱塞液压泵和柱塞液压马达的一体化。动力经泵输入轴输入，通过操纵改变泵的斜盘角度，使马达输出轴输出不同的旋转方向和转速，因而可以非常方便的操控设备的进、后退、中立档位和对应的行进速度。

Widely be used in transplanter, tractor, harvester, planter and other agricultural machinery .Its main structure is the integration of the plunger hydraulic pump and motor. Which can be very convenient to control go forward, backward ,stop and correspond driving speed.

型号说明 Type Code

WHP	M	42	T1	L	Z	N
01	02	03	04	05	06	07

轴向柱塞元件 Axial Piston Unit

01	斜盘结构变量柱塞泵 Swashplate design ,Variable pump
02	斜盘结构定量柱塞马达 Swashplate design , Fixed motor

规格 Size

03	排量 Displacement (ml/r)	42	47
----	--------------------------	----	----

输出轴 Output Shaft

04	T1 18齿, ϕ 24.6
	T2 18齿, ϕ 24.6
	T3 18齿, ϕ 19.73

旋转方向 Rotation

05	泵 Pump	顺时针 Clockwise	R
		逆时针 Anti-clockwise	L
	马达 Motor	双向 Bi direction	

零位定位器 Zero controller

06	无定位器则不标注 None	
	加装定位器 Choice zero controller (能精准的控制驻车系统, 帮助简化安装和调适。)	Z

手柄位置 Control hand Location

07	手柄安装左侧 Control hand in the left	M
	手柄安装右侧 Control hand in the right	N

技术参数 Technical data

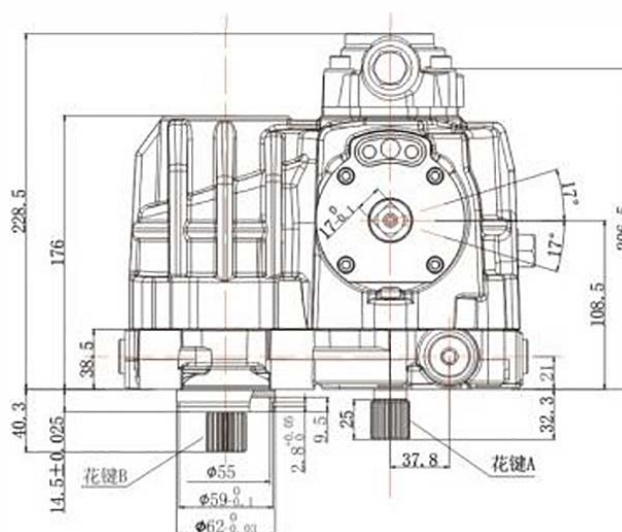
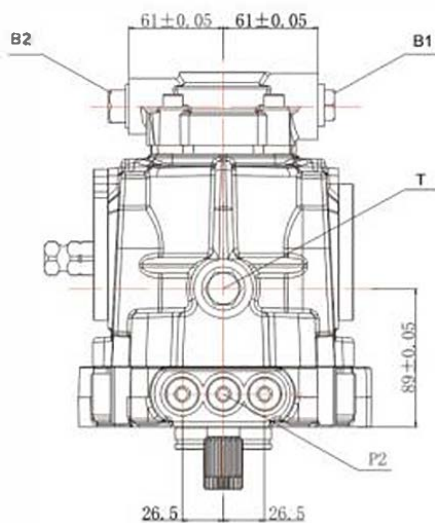
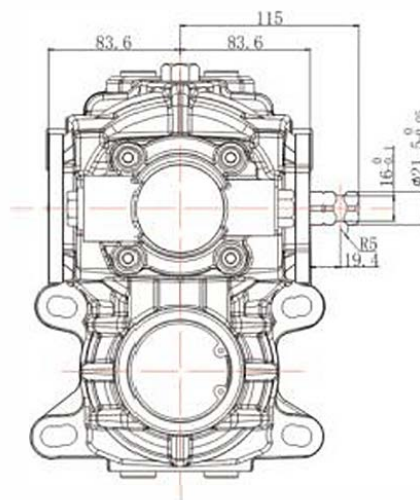
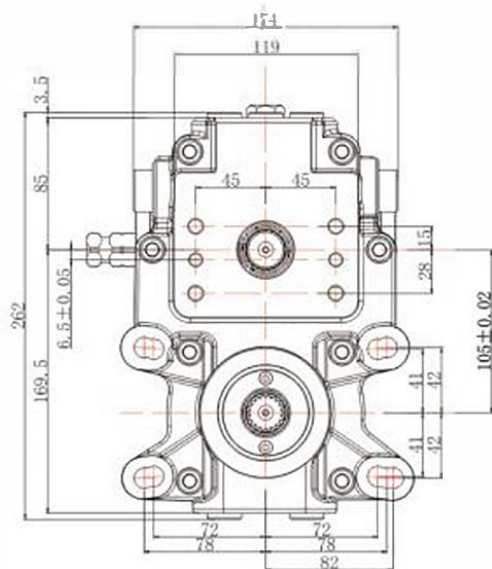
排量		补油泵排量	转速		最大流量		最大压力	最大功率	最大扭矩	重量
泵 Vg max mL/r	马达 Vg max mL/r	mL/r	输入 n max r/min	输出 n max r/min	在n max时 L/min	在n max时 Mpa	在n max时 Pmax功率KW	在Vg max时 $\Delta P=35\text{MPa}$ 的最大转矩Nm	Kg	
0~42	42	8.5	3000	0~3000	126	35	73.4	233.7	22.3	
0~47	47	8.5	3000	0~3000	141	35	82.2	261.6	23.0	

外型尺寸图-模型 Mounting Dimension

WHPM-42/47-T2-L-M 液压无级变速装置 HST ASSY



油口代号 Port	螺塞规格 Size	渐开线花键A、B参数 Parameter of involute spline A、B	
T	G1/2	齿数 Number of Teeth	18
S	G3/8	模数 Modulus	1.25
B1	G3/4	压力角 Pressure angle	20°
B2	G1/2	变位量 Displacement coefficient	1
		分度圆直径 Reference circle diameter	φ22.5
		大径 Big diameter	φ24.6 ⁰ _{-0.050}
		小径 Small diameter	φ22 ⁰ _{-0.021}
		精度等级 Precision grade	GB/T3478.1-1995 6级 Grade



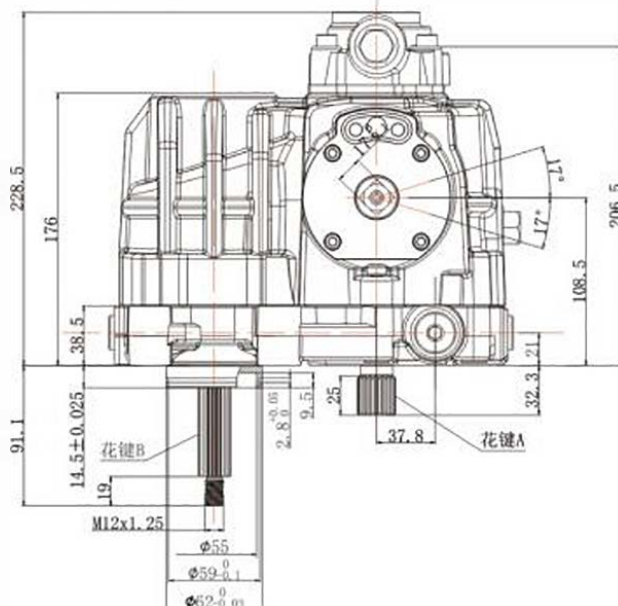
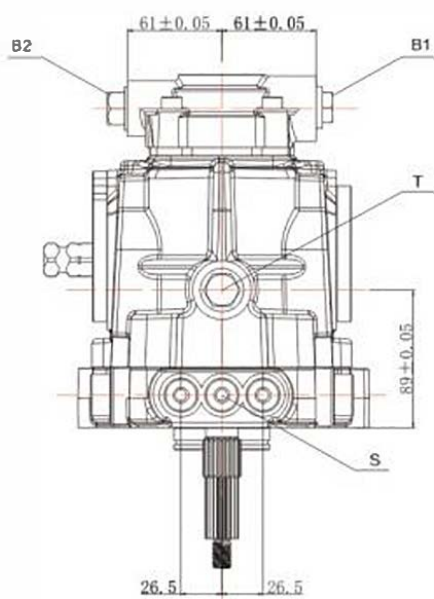
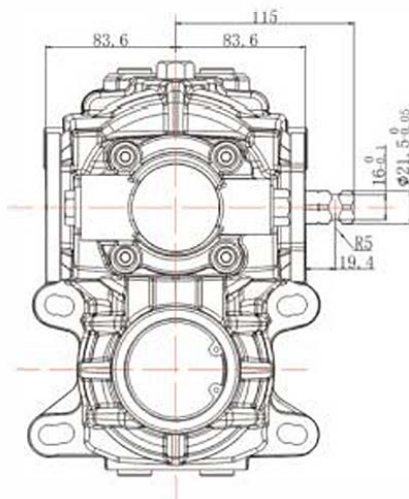
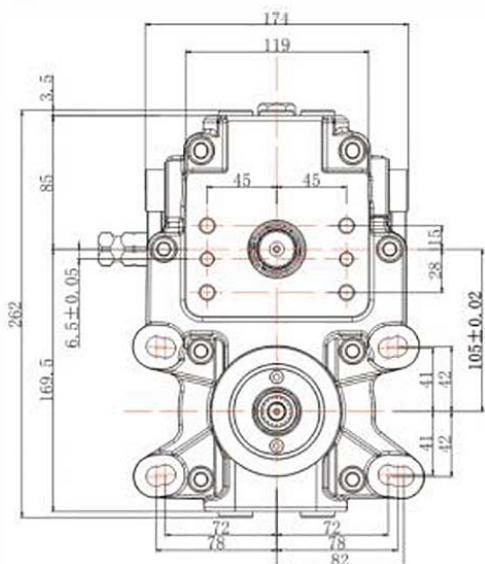
外型尺寸图-模型 Mounting Dimension

WHPM-42/47-T3-L-M 液压无级变速装置 HST ASSY



渐开线花键A 参数 Parameter of involute spline A	
齿数 Number of Teeth	18
模数 Modulus	1.25
压力角 Pressure angle	20°
变位量 Displacement coefficient	1
分度圆直径 Reference circle diameter	φ22.5
大径 Big diameter	φ24.6 ⁰ _{-0.050}
小径 Small diameter	φ22 ⁰ _{-0.021}
精度等级 Precision grade	GB/T3478.1-1995 6级 Grade
油口代号 Port	T S B1 B2
螺塞规格 Size	G1/2 G3/8 G3/4 G1/2

渐开线花键B 参数 Parameter of involute spline B	
齿数 Number of Teeth	18
模数 Modulus	1.05833
压力角 Pressure angle	25°
变位量 Displacement coefficient	0.7
分度圆直径 Reference circle diameter	φ18
大径 Big diameter	φ19.73 ^{±0.05}
小径 Small diameter	φ17.5 ⁰ _{-0.21}
精度等级 Precision grade	GB/T3478.1-1995 6级 Grade



WHU 系列

广泛用于插秧机、拖拉机、收割机、播种机等行走机械。其主要结构为柱塞液压泵和柱塞液压马达的一体化。动力经泵输入轴输入，通过操纵改变泵的斜盘角度，使马达输出轴输出不同的旋转方向和转速，因而可以非常方便的操控设备的进、后退、中立档位和对应的行进速度。

Widely be used in transplanter, tractor, harvester, planter and other moving machinery .Its main structure is the integration of the plunger hydraulic pump and motor. Which can be very convenient to control go forward, backward ,stop and correspond driving speed.

型号说明 Type Code

WHU	20	L	L	PJ	J	Z
01	02	03	04	05	06	07

轴向柱塞元件 Axial Piston Unit

01	闭式回路轴向柱塞传动单元 Closed circuit ,Swashplate design .Variable pump,Fixed motor
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规格 Size

02	排量 Displacement (ml/r)	20
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旋转方向 Rotation

03	泵 Pump	顺时针 Clockwise (从输入轴端方向看向右旋转)	R
		逆时针 Anti-clockwise (从输入轴端方向看向左旋转)	L
	马达 Motor	双向 Bi direction	

耳轴配置 Trunnion position

04	泵位于上方 Pump upside	从输入轴端方向看位于右侧 Trunnion on the right side through shaft side	R
		从输入轴端方向看位于左侧 Trunnion on the left side through shaft side	L

泵配置 (输入轴/PTO轴) Shaft-Input

05	PJ	平键 (输入) /JIS 14 T(PTO)
	PA	平键 (输入) /ANSI 16/32-13T(PTO)
	JJ	JIS 14T(输入)/JIS 14 T(PTO)
	AA	ANSI 16/32-13T(输入)/ANSI 16/32-13T(PTO)
	AB	内花键 Internal spline

输出轴配置 Shaft-output

06	J	JIS 14 T
	A	ANSI 16/32-13T

零位定位器 Zero controller

07	无定位器则不标注 None	
	加装定位器 Choice zero controller (能精准的控制驻车系统，帮助简化安装和调试。)	Z

补油泵 Charge pump

08	无补油泵 None	N
	加装补油泵 Charge pump (只适用于内花键AB型号)	P

技术参数 Technical data

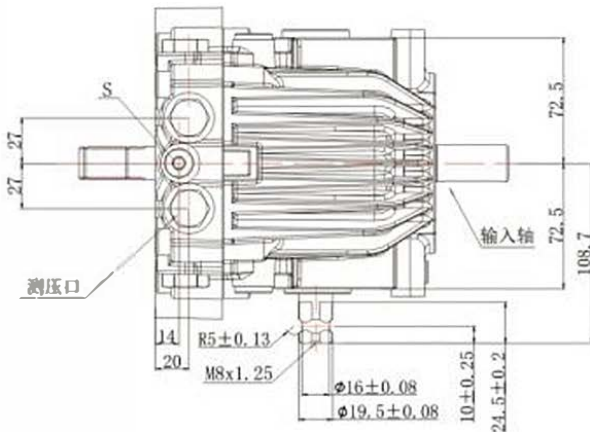
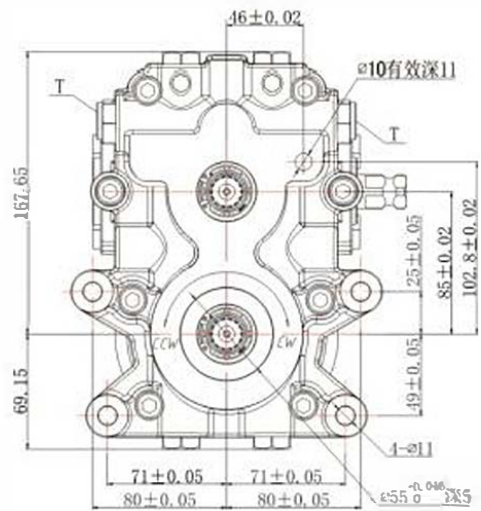
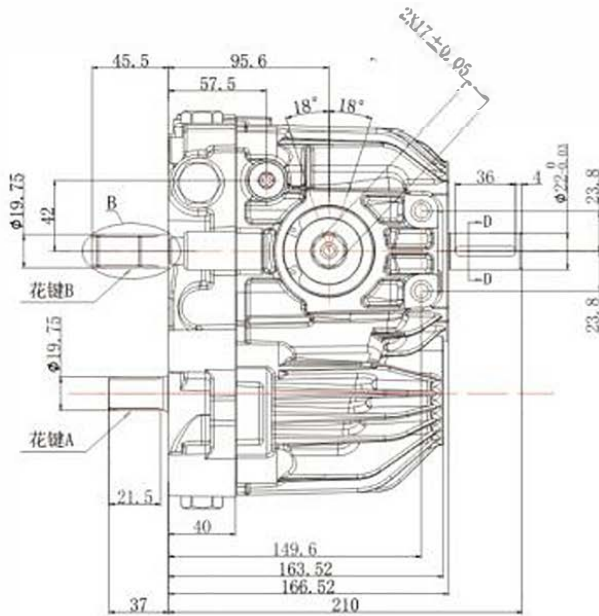
排量		补油泵排量	输入转速		系统压力		出厂设定压力	补油泵压力	重量
泵 Vg max mL/r	马达 Vg max mL/r	mL/r	额定 n max r/min	最高 n max r/min	额定 n max Mpa	最高 n max Mpa	Mpa	Mpa	Kg
0~21	20	6~8	3400	3800	30	34.5	30	0.6~0.8	14

外形及安装尺寸图 Mounting Dimension

WHU-20-N 液压无级变速装置 HST ASSY



油口代号 Port	螺塞规格 Size	渐开线花键A、B参数 Parameter of involute spline A、B	
T	3/4-16UNF	齿数 Number of Teech	14
S	9/16-18UNF	模数 Modulus	1.25
		压力角 Pressure angle	20°
		变位量 Displacement coefficient	0.8
		分度圆直径 Reference circle diameter	φ17.5
		大径 Big diameter	φ19.7 ⁰ _{-0.1}
		小径 Small diameter	φ17 ⁰ _{-0.1}
		精度等级 Precision grade	GB/T3478.1-1995 6级 Grade



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