Partners

合作伙伴 扬誉液压珍视与您的每一次合作

Yangyu Hydraulic Cherishes Every Cooperation with You

在提供优质产品的同时，切实解决您遇到的各种难题。扬誉液压，与您一起努力，定制解决方案，创新工艺技术。扬誉液压，不仅仅是您的供应商，更是您贴心的伙伴！

We can effectively solve various problems you have encountered while providing high-quality products. Yangyu Hydraulic is willing to work with you to customize solutions and innovate process technology. Yangyu Hydraulic is not only your supplier, but also your intimate partner!

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上海扬誉液压科技有限公司

SHANGHAI YANGYU HYDRAULIC CO.,LTD.

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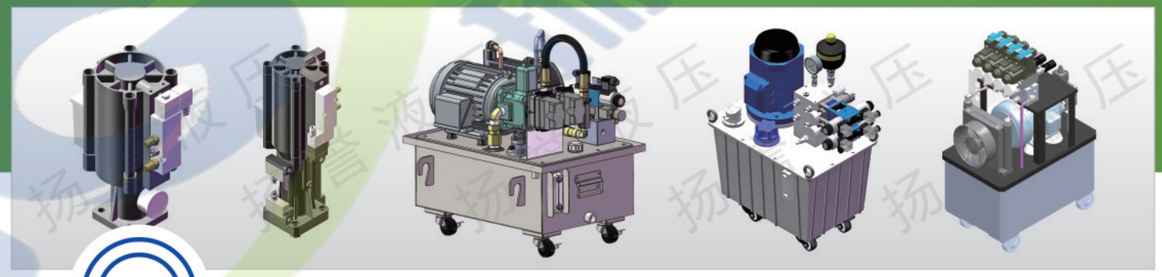
上海扬誉液压科技有限公司

SHANGHAI YANGYU HYDRAULIC CO.,LTD.



Servo hydraulic system

扬誉液压科技

核心动力配件一站式供应

液压系统/液压附件
Hydraulic system/hydraulic accessories
增压缸/打刀缸
Boosting cylinder/cutting cylinder
刹车汽油缸
Brake gasoline cylinder

专业 Professional | 质优 High Quality | 诚信 Honest | 可靠 Trustworthy

以客为尊 诚信务实 创新发展 品质稳定

公司简介
Company profile

上海扬誉液压科技有限公司，成立于2015年，经过不懈努力和项目的锤炼，成为集研发、制造、装配、销售，技术服务为一体的专业科技型公司，主要从事于伺服液压系统、变频液压系统、普通液压系统、中心出水过滤系统、液压动力单元及流体过滤系统的设计、研发、生产、改造、维修。公司还代理销售德国、日本、美国、韩国等品牌的旋转接头、液压卡盘及技术服务。

在液压系统领域，我们不断精进研发满足客户个性化需求的产品， 如今我们凭借先进的生产技术、精熟的工艺流程、优良的产品质量、高效的售后服务获得了广泛的应用市场接受度和可靠的信誉。

产品主要应用于数控机床、拉伸机床、拉伸机械、食品机械、木工机械、环保机械、注塑机、硫化机、冶金工业等领域。同时公司还有多个自主品牌产品：打刀缸、增压缸、TV-AB04、PS-500.....并具备以上各类设备及产品调试，配套服务的能力。

我们始终秉承着“质量为先、信誉为重、服务为诚、追求卓越”的经营理念，以技术为先导，以质量为根本，以市场求生存，锐意进取、精益求精，与时俱进、紧跟信息化时代步伐！

Shanghai Yangyu Hydraulic Co., Ltd. was established in 2015. After many years of hard work and project experience, it has become a professional technology-based company integrating R&D, manufacturing, assembly, sales and technical services, especially in the design, R&D, production, modification and maintenance of servo hydraulic system, variable frequency hydraulic system, ordinary hydraulic system, center outlet filtration system, hydraulic power unit and fluid filtration system. The company is also an agent of many famous brands of rotary joints and hydraulic chucks from Germany, Japan, USA and South Korea, including providing technical services.

In the field of hydraulic systems, we continue to improve and develop our products that meet the personalized needs of customers. Relying on advanced production technology, sophisticated techniques, excellent product quality and efficient after-sales service, we have gained market acceptance and reliable reputation.

Our products are mainly used in CNC machine tools, stretching machine tools, stretching machinery, food machinery, woodworking machinery, environmentally-friendly machinery, injection molding machines, vulcanizing machines, metallurgical industry, etc. The company also has a number of self-owned brands, including unclamping cylinder, booster cylinder, TV-AB04, PS-500, etc. We also have the ability to provide supporting services for the above equipment and products.

We have always been adhering to the business philosophy of "Quality First, Reputation First, Honest Service and Pursuit of Excellence" . We are determined to make continuous progress, strive for perfection and keep pace with the times base on technology, quality and market.

真诚合作，共创辉煌！欢迎垂询！

Hope to cooperate with you to create a brilliant future together!
Welcome to inquire!

专业 Professional　质优 High Quality　诚信 Honest　可靠 Trustworthy

CONTENTS
目录

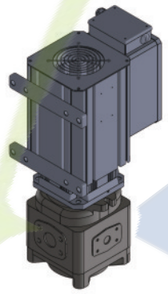
伺服液压系统 Servo Hydraulic System

产品特点 FEATURES

动力强大，最高压力30MPA；
采用低噪音和节能设计的泵只在需要时工作；
与传统的液压系统相比大幅度节省能源；
利用高速处理的伺服控制器还可以进行UM级的定位；
结构紧凑并采用一体化设计实现了节省空间；
(可选择垂直或者水平安装型)

Powerful with maximum pressure 30MPA;
Low-noise and energy-saving pump only works when needed;
Energy greatly saved compared with traditional hydraulic systems;
UM-level positioning by high-speed servo controller;
Compact structure and integrated design greatly reduce footprint;
(Vertical or horizontal mounting type available)

工作原理 WORKING PRINCIPLE



使电机正转时油被送入油缸的头部侧而上升，反转时油被送入油缸的阀杆侧而下降，以泵的旋转方向控制油缸的移动方向。

The oil is sent to the head of the cylinder and rises when the motor is running forward, and the oil is sent to the stem of the cylinder and falls when it is running reversely. The running direction of the cylinder is controlled by the rotating direction of the pump.

选型说明 MODEL DESCRIPTION

YYSV3-3M/12-3V-23-DE

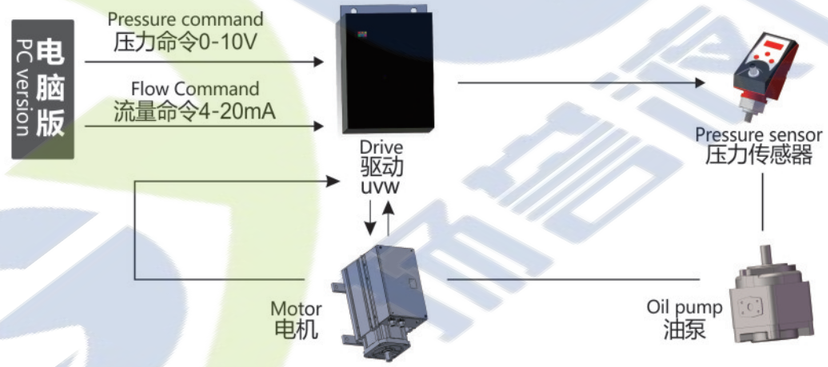
- Hydraulic station type: 液压站类型:
  - YYV: Standard YYV:标准型
  - YYTV: Pressure-retaining type YYTV:停机保压型
  - YYSV: Servo type YYSV:伺服型
- Oil tank volume: 油箱容积:
  - 3:30L
  - 6:60L
  - 8:80L
- Motor horsepower: 电机马力:
  - 1M:1HP
  - 2M:2HP
  - 3M:3HP
- 泵浦额定流量: Rated pump flow:
  - 12:12L/min
  - 20:20L/min
  - 30:30L/min
- 回路数:Number of loops:
  - 1:1回路(loop)
  - 2:2回路(loop)
  - 3:3回路(loop)
- 生产年份: Year of production:
  - 19:2019年
  - 21:2021年
  - 23:2023年
- 电气: Electrical:
  - 带DE:有电控 DE: With electrical control
  - 带E:有接线盒 E: With terminal box
  - 不带E: 无接线盒 No E: Without terminal box

#订购说明：本液压系统属可定制系统：油箱选配，各组阀功能可单独定制,各回路单独动作，互不干扰，适用于高中低压范围。
Order instructions: This hydraulic system is customizable: The oil tank is optional, the functions of each group of valves can be customized separately, and each circuit acts independently without interfering with each other. It is suitable for high, medium and low pressure.

系统构成（标准构成） SYSTEM COMPOSITION (STANDARD)

从机器的控制装置向伺服控制器发送液压油缸动作指令信号（位置、速度、压力）时，则按照动作指令驱动液压站。伺服控制器接收来自传感器的反馈信息正确控制液压油缸，使之与动作指令信号偏差为0.通过使用位置传感器和压力传感器构成反馈系统，可高精度地控制位置、速度和推力（压力）。

When the hydraulic cylinder motion signal (position, speed and pressure) is sent from the control device to the servo controller, the hydraulic station is driven accordingly. The servo controller receives the feedback information from the sensor to correctly control the hydraulic cylinder with, so that the deviation from the motion signal is 0. By using the position sensor and the pressure sensor for the feedback system, the position, speed and thrust (pressure) can be precisely controlled.



智能节能型液压系统 Intelligent Energy-saving Hydraulic System

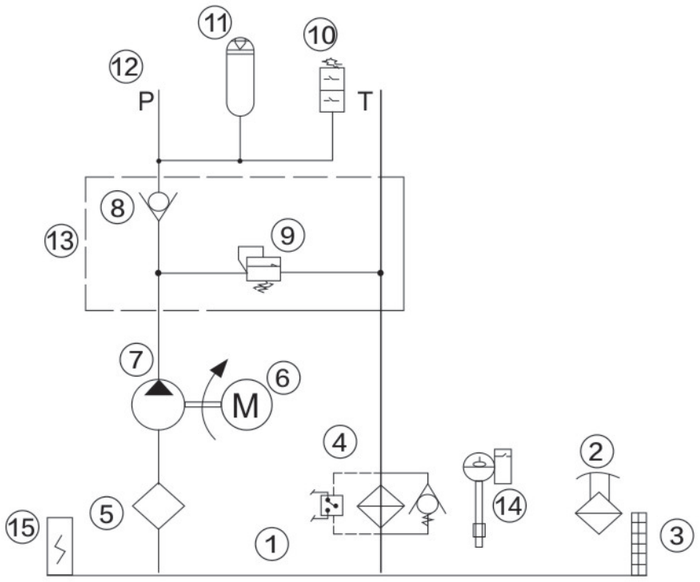
产品特点 FEATURES

智能节能型液压系统:(智能电控+智能供给)新的智能节能型液压系统，拥有以下优点:
Intelligent energy-saving hydraulic system: (Intelligent electrical control + Intelligent supply) The new intelligent energy-saving hydraulic system has the following advantages:

1、低功耗:系统拥有最新一代技术，要比传统液压动力更加高效,电机和泵的完美协调配合，从而实现按需供能。
2、低发热:因系统按需供能，实现主机高精度，省去冷却系统,少容量的油箱设计，有效节省成本。
3、低噪音:提高了工作的舒适度;低噪音是除高效节能外，生产制造高还应考虑的因素之一。
4、易操作:简单的结构和可靠性，确保容易操作和维护，接电即用。新增加功能模块化，损坏的零件只需几分钟更换即可。
5、智能化:采用简单操作界面，可实现直接与机床联机与气密、检测模块等交换数据.实时做到心中有数。

Low power consumption: The system is designed according to the latest generation of technology, which is more efficient than traditional hydraulic power. The motor works perfectly with the pump achieve on-demand energy supply.
Low heat: The system supplies energy on demand to achieve high precision control. The cooling system is not required and small-capacity oil tank design effectively saves costs.
Low noise: Improve the comfort of work. Low noise is one of the factors to be considered in production in addition to high efficiency and energy saving.
Easy to operate: Simple structure and reliability ensure easy operation and maintenance. Ready to use when power connected. Modular design for new functional modules and the damaged parts can be replaced in a few minutes.
Intelligence: Simple operation interface is used to directly connect with the machine tool to exchange data with airtight and detection modules in real time.

原理介绍 PRINCIPLE INTRODUCTION



主要元件清单 List of main components	
项次 No.	名称 Name
1	定制油箱 Customized oil tank
2	空气滤清器 Air filter
3	液面计 Liquid level gauge
4	回油过滤器 Oil return filter
5	滤油网 Oil sieve
6	电机 Motor
7	油泵 Oil pump
8	单向阀 Check valve
9	溢流阀 Relief valve
10	压力继电器 Pressure relay
11	蓄能器 Accumulator
12	客户自定义块 Customer-defined block
13	油路块 Oil block
14	液位液温开关 Level and temperature switch
15	电气控制 Electrical control

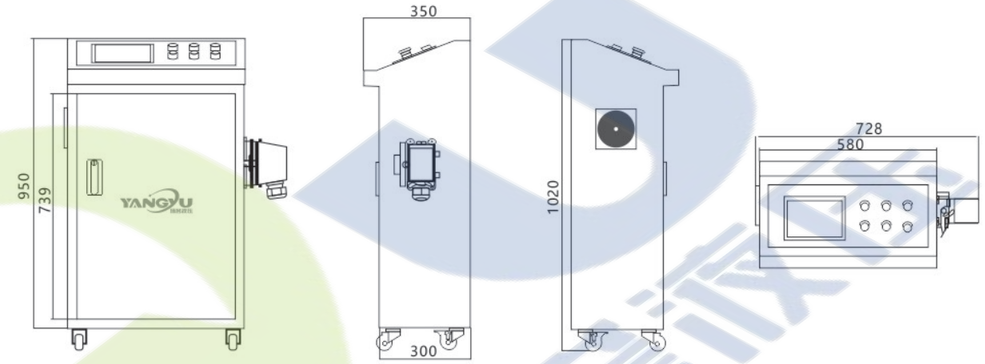
选型说明 MODEL DESCRIPTION

YYSV3-3M/16-1V-23-DE

- Hydraulic station type: 液压站类型:
  - YYV: Standard YYV:标准型
  - YYTV: Pressure-retaining type YYTV:停机保压型
  - YYSV: Servo type YYSV:伺服型
- Oil tank volume: 油箱容积:
  - 3:30L
  - 6:60L
  - 8:80L
- Motor horsepower: 电机马力:
  - 1M:1HP
  - 2M:2HP
  - 3M:3HP
- 泵浦额定流量: Rated pump flow:
  - 16:16L/min
  - 20:20L/min
  - 30:30L/min
- 回路数: Number of loops:
  - 1:1回路(loop)
  - 2:2回路(loop)
  - 3:3回路(loop)
- 生产年份: Year of production:
  - 19:2019年
  - 21:2021年
  - 23:2023年
- 电气: Electrical:
  - 带DE:有电控 DE: With electrical control
  - 带E:有接线盒 E: With terminal box
  - 不带E: 无接线盒 No E: Without terminal box

#订购说明：本液压系统属可定制系统：油箱选配，各组阀功能可单独定制,各回路单独动作，互不干扰，适用于高中低压范围。
Order instructions: This hydraulic system is customizable: The oil tank is optional, the functions of each group of valves can be customized separately, and each circuit acts independently without interfering with each other. It is suitable for high, medium and low pressure.

外形尺寸 DIMENSIONS



功耗对比 POWER CONSUMPTION COMPARISON

传统的液压系统的无效功率损耗几乎全部转化为热能，导致油温升高，为降温又增加了降温措施（风冷，水冷，油冷机），导致二次的能源损耗。
液压系统的功效率损耗主要包括:原动机效率，压力流量匹配效率，转换效率，传输效率。而压力流量匹配效率是其中最主要的零泄露液压站短时间动作完成的影响因素，工作时长期保压，因而避免了流量压力匹配损耗（溢流）。使得液压油温度和工作环境温度保持一致。
变频液压站和伺服液压站在动作完成后,通过改变电机转速，使油泵流量减少达到节能的目的，但系统仍是不断溢流,存在溢流流量功率损失,同时电机持续转存在机械功率损失,原动机效率损失。
同时油泵在转速降低后其容积效率下降很严重，存在大的容积效率损失,因而其油箱做的也是比较大,并且增加了风冷措施，存在二次能源损耗。

The ineffective power loss of the traditional hydraulic system is almost completely converted into heat energy, which leads to the increase of oil temperature. Cooling systems (air-cooled, water-cooled and oil-cooled) are added to cause secondary energy loss.
The efficiency loss of hydraulic system mainly includes: prime mover efficiency, pressure-flow matching efficiency, conversion efficiency and transmission efficiency.
The pressure-flow matching efficiency is the most important factor affecting the short-term operation of the zero-leakage hydraulic station, and the pressure is retained for a long time during operation to avoid the pressure-flow matching loss (overflow). The hydraulic oil temperature is consistent with the working environment temperature.
The variable frequency hydraulic station and servo hydraulic station reduce the flow rate of the oil pump by changing the motor speed to save energy after the operation is completed. However, the system still overflows continuously, causing overflow power loss. At the same time, the motor continues to run to cause mechanical power loss and prime mover efficiency loss.
The volumetric efficiency of the oil pump significantly decreases after the speed is reduced and there is a large volumetric efficiency loss. Therefore, the oil tank is relatively large and air cooling systems are added to cause secondary energy loss.

下面就节能方面做一个新旧液压装置方面的比较
Comparison of New and Old Hydraulic Systems in terms of Energy Saving

1

从原理图看，与普通的液压装置好像没有多大的差别，但是如和动作循环表一起看的话、就会发现电机只是在油缸运动的时候才有接通电源、才耗电能，在其它时间是不消耗能量的，是处于停机状态。从而准确地把握您对机器的要求，最大化设备产能，高精度、高动态和生产过程中的灵活性将决定机器的生产能力。

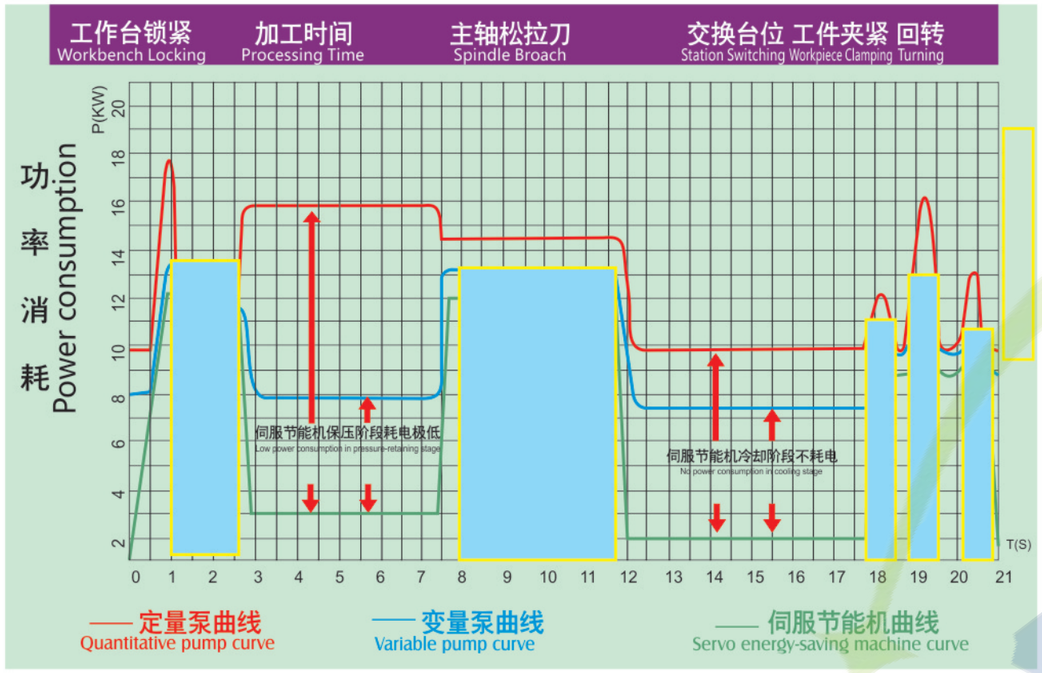
From the schematic diagram, it seems that there is no much difference with ordinary hydraulic systems. However, if you look at it together with the motion cycle chart, you will find that the motor is only powered when the cylinder is running. At other times, it does not consume power and is in a shutdown state. In order to accurately grasp your requirements for the machine and maximize the production capacity, high precision, high dynamics and flexibility in the production will determine the production capacity of the machine

2

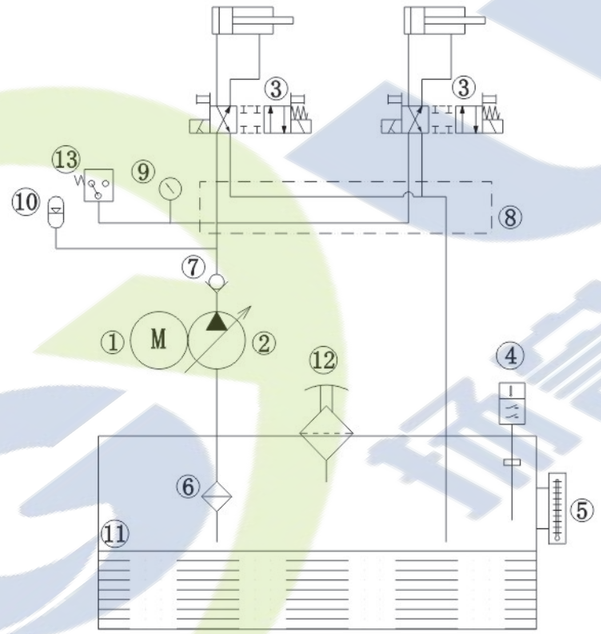
从控制器到执行元件来看，我们有多种方案可供选择，如液压、电控或是电液复合方案；新的智能动力液压系统，是更节能的系统，高能效理念涵盖能源系统设计、高能效元件、噪音回收、按需供能四大技术支持，使您的工作更轻松，全程参与设计并充分利用三维仿真软件来寻找最高动态、高响应的系统方案。

In terms of controllers and actuators, we have a variety of solutions, such as hydraulic, electrical control or electro-hydraulic solutions. The new intelligent power hydraulic system is a more energy-saving system. The concept of high energy efficiency involves four technical supports: energy system design, high energy-efficient components, noise recovery and on-demand energy supply, which make your work easier. You can participate in the whole process of design and use 3D simulation software to find the most dynamic and highly responsive system solution.

动作循环表 MOTION CYCLE CHART



原理介绍 PRINCIPLE INTRODUCTION

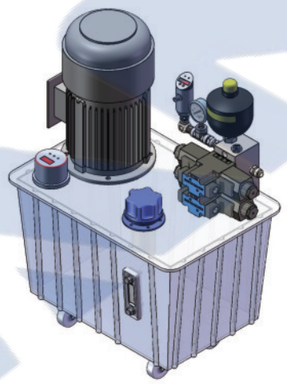


主要元件清单 List of main components

项次 No.	名称 Name
1	电机 Motor
2	泵浦 Pump
3	电磁阀 Solenoid valve
4	液位温度传感器 Level and temperature sensor
5	液位计 Level gauge
6	滤油网 Oil sieve
7	管式单向阀 Tubular check valve
8	油路板 Oil plate
9	压力表 Pressure gauge
10	蓄能器 Accumulator
11	油箱 Oil tank
12	加油口 Filler port
13	压力传感器 Pressure sensor

停机保压型液压系统 Pressure-retaining Hydraulic System

产品特点 FEATURES



停机保压型液压系统拥有以下优点：

1、节能：与传统液压系统相比，节能达大约70%。相比较变量叶片泵动力系统，二次能源浪费大大减少。
2、低热：因系统采用蓄能器供能，实现主机高效率，省去冷却系统，少容量的油箱设计，有效节省成本。
3、低噪：提高了工作的舒适度；低噪音是除高效节能外，生产制造商还应考虑的因素之一。
4、易操作：简单的结构和可靠性，确保容易操作和维护接电即用。新增加功能模块化，损坏的零件只需几分钟更换即可。
5、易安装：紧凑的外观设计，让系统可以变得很小。
6、停机保压能够缓解启动停止以及换向时的液压冲击，有效提高了零件寿命。

Energy saving: About 70% of energy saved compared with traditional hydraulic systems. Secondary energy loss is greatly reduced compared with variable vane pump system.
Low heat: Accumulator is used for the system to supply energy to achieve efficient operation of the machine. The cooling system is not required and small-capacity oil tank design effectively saves costs.
Low noise: Improve the comfort of work. Low noise is one of the factors to be considered by the manufacturer in addition to high efficiency and energy saving.
Easy to operate: Simple structure and reliability ensure easy operation, maintenance and ready-to-use. Modular design for new functional modules and the damaged parts can be replaced in a few minutes.
Easy to install: The compact structure design makes the system smaller.
Pressure retaining function during shutdown can alleviate hydraulic impact during start-up, stop and reversing, and effectively improve the life of parts.

选型说明 MODEL DESCRIPTION

YYTV3-1M/16-2V-23

Hydraulic station type: 液压站类型：
YYV: Standard YYV:标准型
YYTV: Pressure-retaining type YYTV:停机保压型
YYSV: Servo type YYSV:伺服型

Oil tank volume: 油箱容积：
3:30L
6:60L
8:80L

Motor horsepower: 电机马力:
1M:1HP
2M:2HP
3M:3HP

泵浦额定流量: Rated pump flow:
16:16L/min
20:20L/min
30:30L/min

回路数：Number of loops:
1:1回路(loop)
2:2回路(loop)
3:3回路(loop)

生产年份: Year of production:
19:2019年
21:2021年
23:2023年

电气：Electrical:
带DE:有电控 DE: With electrical control
带E:有接线盒 E: With terminal box
不带E：无接线盒 No E: Without terminal box

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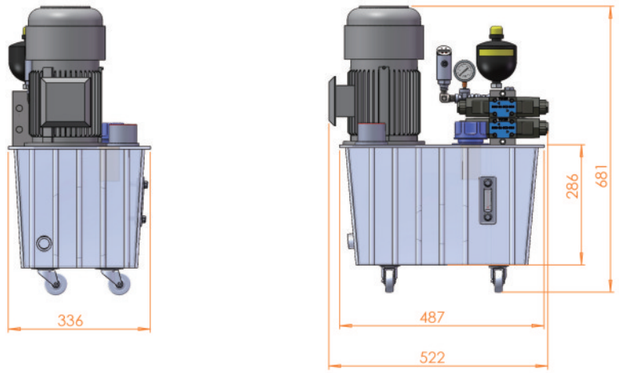
Order instructions: This hydraulic system is customizable: The oil tank is optional, the functions of each group of valves can be customized separately, and each circuit acts independently without interfering with each other. It is suitable for high, medium and low pressure.

外形尺寸 DIMENSIONS

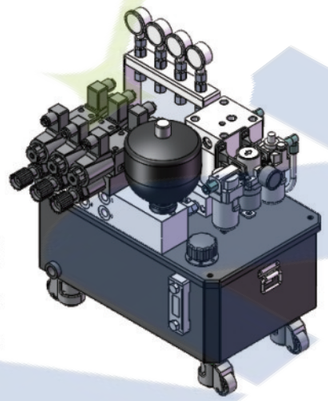


气动型节能液压系统 Pneumatic Energy-saving Hydraulic System

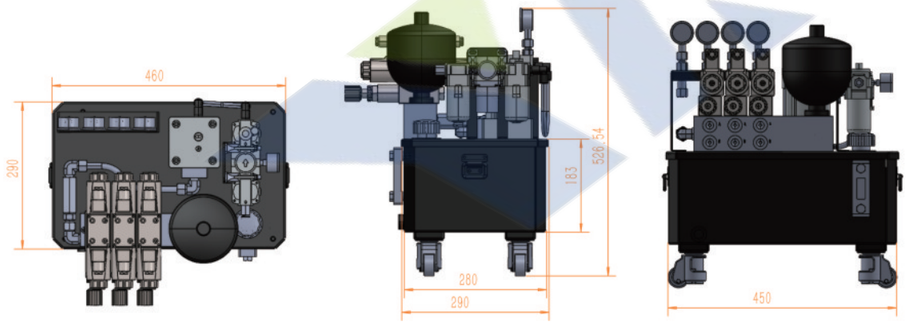
产品特点 FEATURES

使用方便:无需任何电源，利用压缩空气作为动力源对压缩空气进行增压，使出口压力达到2~5倍进气压压力。通过调整进气压力，可以很方便地获得所需压力。
自动保压:当出口压力达到预设定压力值时，空气增压阀自动停止工作。
节约能源:当出口压力低于预设定压力值时，自动补压，保持压力恒定，保压时无额外能量消耗，环保节能。
适用于工装夹具工况，增压比可根据要求定制。

Easy to use: Power supply is not required and compressed air is used as the power source to pressurize the compressed air, so that the outlet pressure is 2-5 times the inlet pressure. The required pressure can be easily obtained by adjusting the inlet pressure.
Automatic pressure retaining: When the outlet pressure reaches the preset value, the air booster valve automatically stops working to save power.
When the outlet pressure is lower than the preset value, it automatically increases the pressure and keep the pressure constant without additional power consumption, environmentally friendly and energy saving.
Suitable for tooling and fixtures. The boost pressure ratio can be customized according to requirements.



外形尺寸 DIMENSIONS

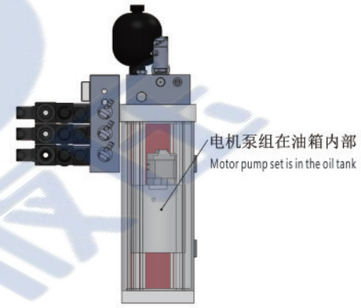


紧凑型液压系统 Compact Hydraulic System

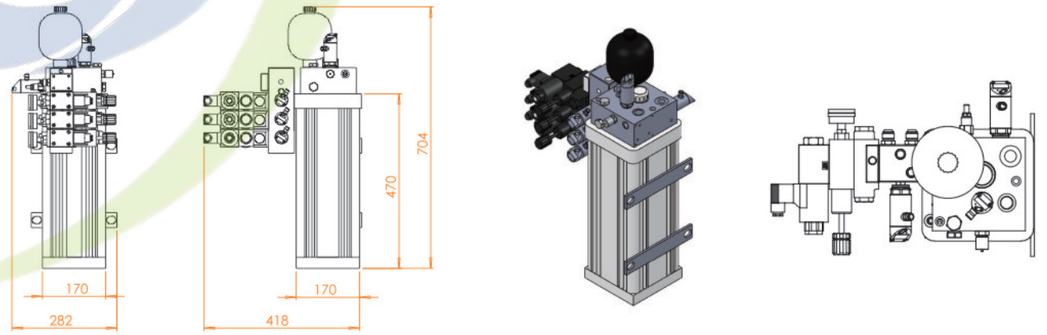
产品特点 FEATURES

为间歇式工作的液压系统提供压力油液压泵站；
油箱（不同尺寸可选）；
驱动电机（不同电压和功率可选）；
径向柱塞泵或齿轮泵由电机轴直接驱动;
该紧凑型泵组提供有效而便捷的系统解决方案，通过直接安装连接阀板(见D6905++)及相关阀组可以提供完整的解决方案
该产品被广泛用于机床，工具安装和通用机械设备中

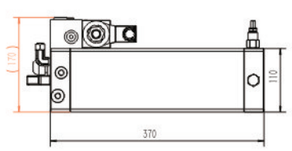
A hydraulic pump station to provide pressure oil for intermittent working hydraulic systems.
Oil tank (different sizes are available);
Drive motor (different voltages and powers are available);
The radial piston pump or gear pump is directly driven by the motor shaft;
Compact pump set design, efficient and easy to use. A complete solution can be provided by directly connecting the valve plate (see D6905++) and valve sets.
This product is widely used in machine tools, tool installation and general machinery.



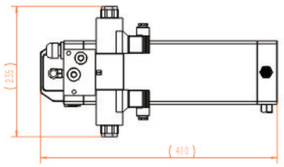
类型一外形尺寸 TYPE 1 DIMENSIONS



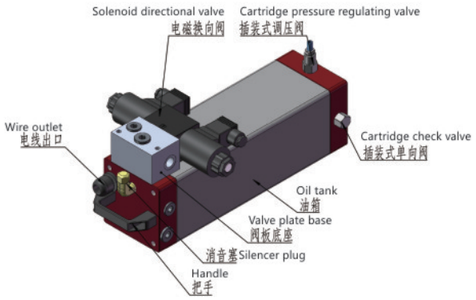
类型二外形尺寸 TYPE 2 DIMENSIONS



电机功率:0.35KW
电机电压:单向AC220V
Motor power: 0.35KW
Motor voltage: One-way, AC220V

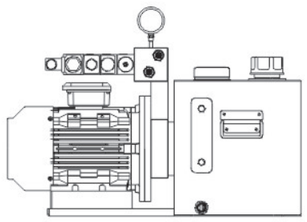


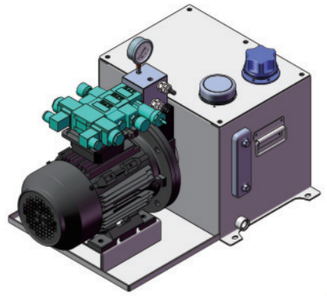
泵流量:2L/MIN
系统压力:7.0Mpa
Pump flow: 2L/MIN
System pressure: 7.0Mpa

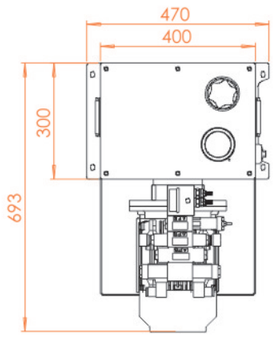


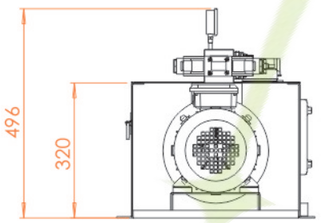
微型动力液压系统 Micro Power Hydraulic System

外形尺寸 DIMENSIONS

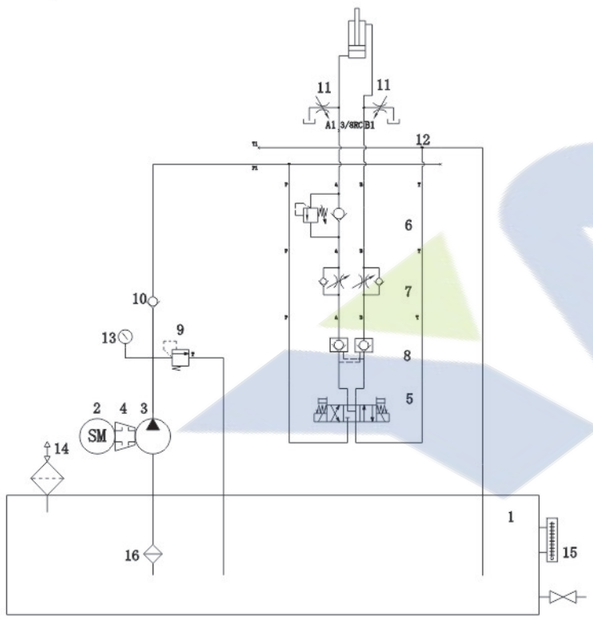








原理介绍 PRINCIPLE INTRODUCTION



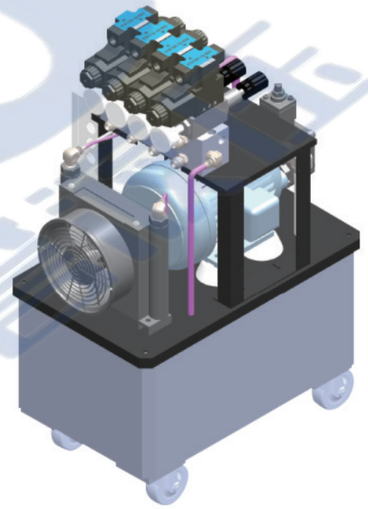
主要元件清单 List of Main Components	
项次 No.	名称 Name
1	油箱 Oil tank
2	电机 Motor
3	定量泵 Quantitative pump
4	联轴器+钟形罩 Coupling + bell-shaped cover
5	三位四通电磁换向阀 Three-position four-way solenoid directional valve
6	抗衡阀 Counterbalance valve
7	叠加式单向节流阀 Superimposed one-way throttle valve
8	叠加式液控单向阀 Superimposed hydraulic check valve
9	溢流阀 Relief valve
10	单向阀 Check valve
11	节流阀 Throttle valve
12	油路板 Oil plate
13	压力表 Pressure gauge
14	加油口 Filler port
15	液位计 Level gauge
16	滤油网 Oil sieve

标准型30L液压系统 Standard 30L Hydraulic System

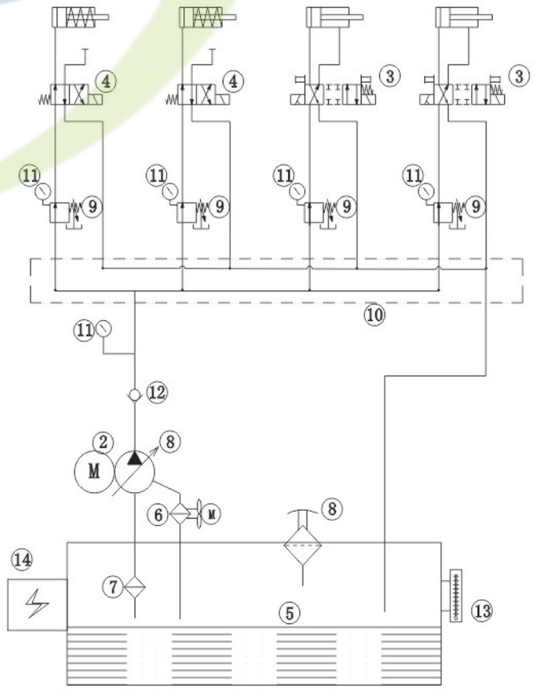
产品特点 FEATURES

立体空间布局设计结构紧凑，占用空间小，精致美观，供压稳、噪音小、温升小、性能稳定。常用输出压力3-5Mpa.

3D layout design, compact structure, small footprint and beautiful appearance. Stable pressure supply, low noise, low temperature-rise and stable performance. Common output pressure 3-5Mpa.



原理介绍 PRINCIPLE INTRODUCTION



主要元件清单 List of Main Components	
项次 No.	名称 Name
1	液压站 Hydraulic station
2	电机泵组 Motor pump set
3	电磁阀 Solenoid valve
4	电磁阀 Solenoid valve
5	油箱 Oil tank
6	风冷 Air-cooled
7	滤油网 Oil sieve
8	加油口 Filler port
9	叠加式减压阀 Superimposed pressure reducing valve
10	油路板 Oil plate
11	压力表 Pressure gauge
12	管式单向阀 Tubular check valve
13	液位计 Level gauge
14	集线盒 Junction box

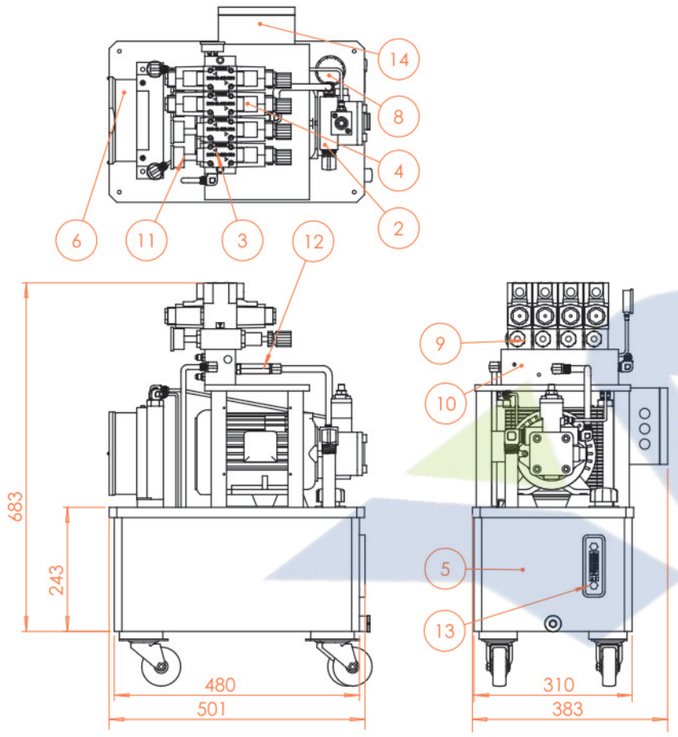
选型说明 MODEL DESCRIPTION

YYV3-3M/16-4V-23-E

- Hydraulic station type: 液压站类型:
  YYV: Standard YYV: 标准型
  YYTV: Pressure-retaining type YYTV: 停机保压型
  YYSV: Servo type YYSV: 伺服型
- Oil tank volume: 油箱容积:
  3:30L
  6:60L
  8:80L
- Motor horsepower: 电机马力:
  1M:1HP
  2M:2HP
  3M:3HP
- 泵浦额定流量: Rated pump flow:
  16:16L/min
  20:20L/min
  30:30L/min
- 回路数: Number of loops:
  1:1回路 1:1 loop
  2:2回路 2:2 loop
  4:4回路 4:4 loop
- 生产年份: Year of production:
  19:2019年
  21:2021年
  23:2023年
- 电气: Electrical:
  带DE:有电控 DE: With electrical control
  带E:有接线盒 E: With terminal box
  不带E: 无接线盒 No E: Without terminal box

此液压系统属可定制系统,油箱选配,回路数,各组阀功能可单独定制,各回路单独动作互不干扰。
This hydraulic system is customizable. The oil tank is optional. The number of circuits and the functions of each group of valves can be customized separately. Each circuit operates separately without interfering with each other.

外形尺寸 DIMENSIONS



主要元件清单 List of Main Components	
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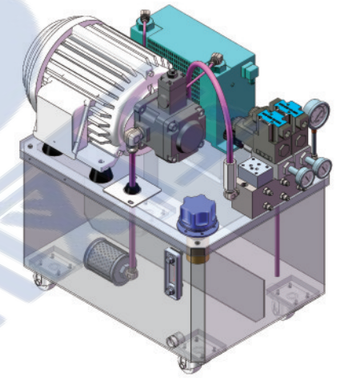
5	油箱 Oil tank
6	风冷 Air-cooled
7	滤油网 Oil sieve
8	加油口 Filler port
9	叠加式减压阀 Superimposed pressure reducing valve
10	油路板 Oil plate
11	压力表 Pressure gauge
12	管式单向阀 Tubular check valve
13	液位计 Level gauge
14	集线盒 Junction box

标准型60L液压系统 Standard 60L Hydraulic System

产品特点 FEATURES



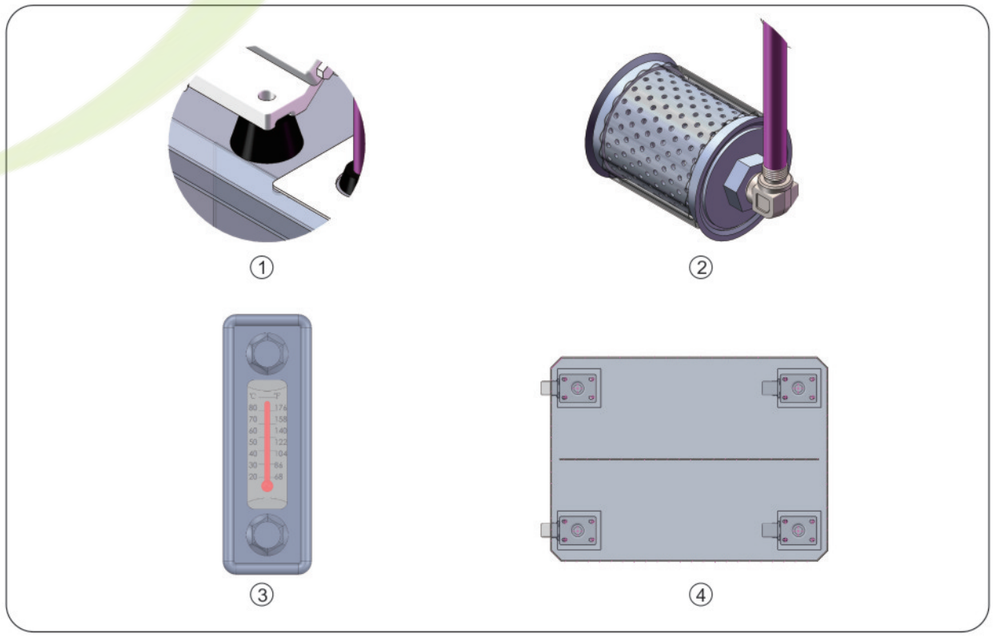
1. 用垫圈垫住电机，有效阻碍了电机对于液压系统的震动影响，提高了系统平稳性，延长了产品的寿命。
2. 吸油口处安装滤油网，滤油网上有许多细缝，过滤了许多杂质，提高了液体流动的流畅性。
3. 侧边安装液位计，液位计左边是温度刻线，内部玻璃棒内红色区域对应温度示数，可观测出油温。右边是液面刻度线，内部油液会溢到液位计，根据液面高度对应右边刻度可观测出液面高度。
4. 油箱内设隔板，将吸油口与回油口隔开，增大了吸油与回油之间的最短路径，使得回油后的油冷却时间长，同时也让杂质沉淀和气泡分离更加充分，使得系统运行趋向于最佳状态。

1. Washers are used to effectively reduce the vibration impact of the motor on the hydraulic system, thus improving the system stability and prolonging the service life.

2. The oil suction port is installed with oil sieve, which has many fine slits to effectively filter many impurities and improve the liquid flow.

3. A level gauge is installed on one side and the temperature mark is on the left side of the level gauge. The red area in the inner glass rod corresponds to the temperature reading, and the oil temperature can be observed. The right side is the level mark and the internal oil will overflow to the level gauge. The level height can be observed according to the mark on the right side.

4. The oil tank is equipped with a partition plate to separate the oil suction port from the oil return port and increase the shortest path. The returned oil cooling time is longer, and at the same time settled impurities and bubbles can be completely separated to make the system run in an optimal state.



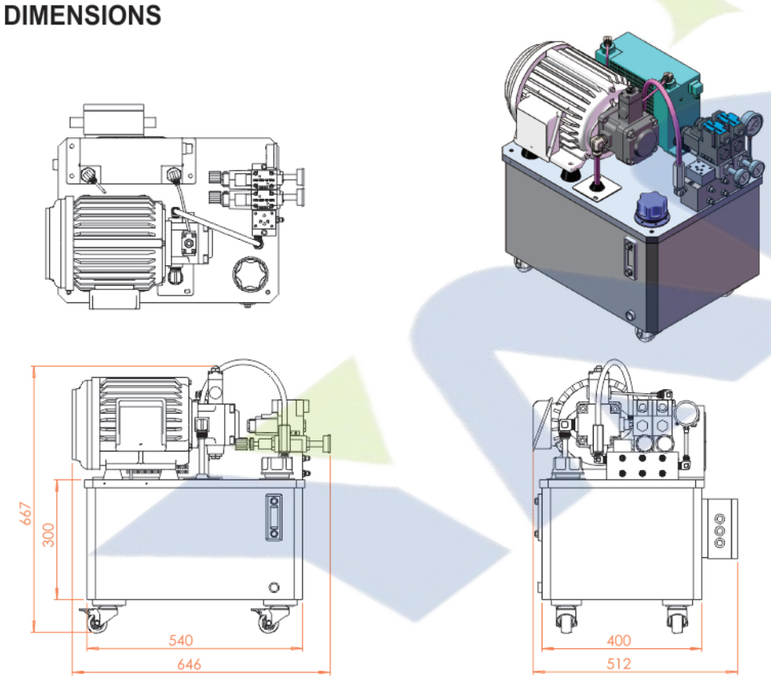
选型说明 MODEL DESCRIPTION

YYV6-5M/24-3V-23-E

- Hydraulic station type: 液压站类型:
  - YYV: Standard YYV: 标准型
  - YYTV: Pressure-retaining type YYTV: 停机保压型
  - YYSV: Servo type YYSV: 伺服型
- Oil tank volume: 油箱容积:
  - 3:30L
  - 6:60L
  - 8:80L
- Motor horsepower: 电机马力:
  - 1M:1HP
  - 2M:2HP
  - 5M:5HP
- 泵浦额定流量: Rated pump flow:
  - 16:16L/min
  - 20:20L/min
  - 24:24L/min
- 回路数: Number of loops:
  - 1:1回路 1:1 loop
  - 2:2回路 2:2 loop
  - 3:3回路 3:3 loop
- 生产年份: Year of production:
  - 19:2019年
  - 21:2021年
  - 23:2023年
- 电气: Electrical:
  - 带DE:有电控 DE: With electrical control
  - 带E:有接线盒 E: With terminal box
  - 不带E: 无接线盒 No E: Without terminal box

此液压系统属可定制系统,油箱选配,回路数,各组阀功能可单独定制,各回路单独动作互不干扰。
This hydraulic system is customizable. The oil tank is optional. The number of circuits and the functions of each group of valves can be customized separately. Each circuit operates separately without interfering with each other.

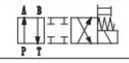
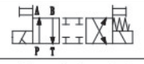
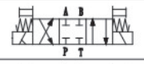
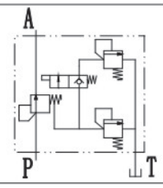
外形尺寸 DIMENSIONS



常用元件图标型号对应 Common Component Icons and Models

动力/冷却/辅助/过滤元件类 Power/Cooling/Auxiliary/Filter Components			
1	电机 Motor		动力 Power
2	定量泵 Quantitative pump		
3	变量泵 Variable pump		
4	联轴器+钟形罩 Coupling + bell-shaped cover		
5	风冷却器 Air cooler		冷却 Cooling
6	蓄能器 Accumulator		辅助 Auxiliary
7	加油口 Filler port		
8	滤油网 Oil sieve		
9	回油过滤器 Oil return filter		过滤 Filtration
10	高压过滤器 High pressure filter		

普通阀类 Ordinary Valves			
1	单向阀 Check valve		CIT-03,CIT-04等 (etc.)
2	插装溢流阀 Cartridge relief valve		RDBA-LAN等 (etc.)
3	叠加式减压阀 Superimposed pressure reducing valve		MBRV-02P
4	叠加式液控单向阀 Superimposed hydraulic check valve		MPCV-02W
5	叠加式单向节流阀 Superimposed one-way throttle valve		MTCV-02W
6	同步阀 Synchronous valve		

电磁阀类 Solenoid Valves			
1	两位四通电磁换向阀 Two-position four-way solenoid directional valve		DSG-02-2B2-24V
2	两位四通电磁换向阀 Two-position four-way solenoid directional valve		DSG-02-2D2-24V
3	三位四通电磁换向阀 Three-position four-way solenoid directional valve		DSG-02-3C4-24V
4	三位四通电磁换向阀 Three-position four-way solenoid directional valve		DSG-02-3C2-24V
5	三位四通电磁换向阀 Three-position four-way solenoid directional valve		DSG-02-3C3-24V
6	三位四通电磁换向阀 Three-position four-way solenoid directional valve		DSG-02-3C6-24V
7	电动止回阀 Electric check valve		SV-08等(etc.)
8	二段式电磁减压阀 Two-stage solenoid relief valve		MSPR-02P-D24V
检测元件类 Detection Components			
1	液位计 Level gauge		
2	压力表 Pressure gauge		
3	温度表开关 Thermometer switch		
4	压力继电器 Pressure relay		
5	数显压力传感器 Digital pressure sensor		
6	液位传感器 Level sensor		
7	液位温度传感器 Liquid level temperature sensor		

YQD机床，四轴专用气液转换增压器

YQD Machine Tool, Dedicated Four-axis Gas-liquid Conversion Supercharger

型号说明 MODEL DESCRIPTION

YQD - 625 - 100 - 10 - 24V

- 24V：电磁阀电压 (DC24V) Solenoid voltage (DC24V)
- 10：气管接口(Φ10) Gas pipe interface (Φ10)
- 100：输出油量(毫升) Oil output (ml)
- 625：增压比: 625/1 :6.25
  气压0.1(MPa)/油压0.625(MPa)
  Boost ratio: 625/1: 6.25
  Air pressure 0.1 (MPa)/oil pressure 0.625 (MPa)
- YQD：产品系列号 Product series number

YQD35增压器为一种气液转换增压器，主要用于只有气源而无液压单元且需要较大夹紧力的场合，可用于对液压装置的驱动，工件的拉伸、弯曲、校直、铆接等多种场合。

YQD35 supercharger is a gas-liquid conversion supercharger, which is mainly used in places where there is only gas source but no hydraulic unit and large clamping force is required. It can be used for hydraulic device driving as well as workpiece stretching, bending, straightening and riveting.

性能参数 PERFORMANCE PARAMETERS

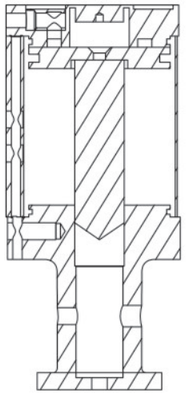
型号 Model	增压比 Boost Ratio	输出油量 Oil Output CC/ml	工作气压 Working Pressure (Mpa)	总高 Total Height (mm)	安装孔距 Mounting Hole Distance (mm)
625100	1:6.25	100	0.2-0.8	270	84*84
116	1:16	110	0.2-0.8	565	84*84

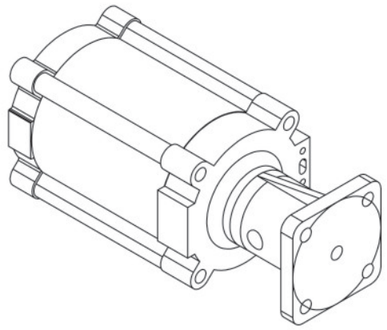
说明:增压器可按技术要求设计配置。
Note: The supercharger can be designed and configured according to technical requirements.

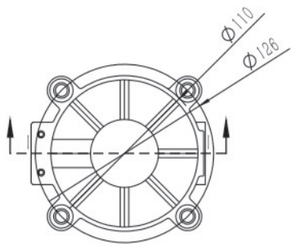
性能特点 PERFORMANCE FEATURES

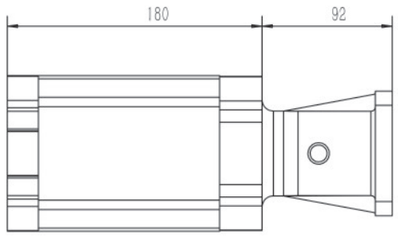
1. 气液转化增压节约能耗高达90%。
2. 压力稳定，效率高。
3. 结构紧凑，体积小。
4. 安装便捷，易操作。

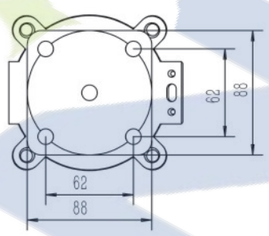
1. Gas-liquid conversion and pressurization, reducing energy consumption by up to 90%.
2. Stable pressure and high efficiency.
3. Compact structure and small volume.
4. Easy to install and operate.

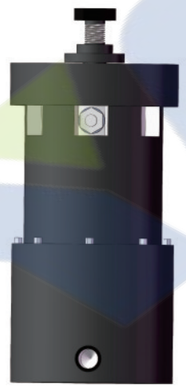


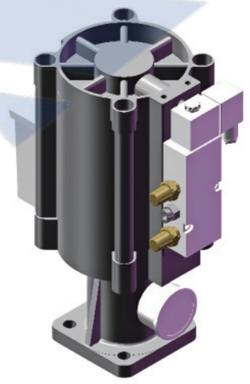












安装注意事项 INSTALLATION PRECAUTIONS

1、增压器只可以立式安装（其他方向不可使用）。
2、建议使用L-HM32液压油
3、输入气压≤8Kgf/cm²。根据增压比通过输入气压可设定输出油压。例：输入气压为6Kgf/cm²时x增压比6.25 =输出油压 37.5Kgf/cm²
4、检查油杯，油量是否足够。
5、确认电磁阀电压（标准配置为DC24V ,亦可选用AC110V）后，再进行配电使用。

1.The supercharger can only be installed vertically (not for other directions).

2.L-HM32 hydraulic oil is recommended.

3.Input air pressure ≤ 8 Kgf/cm². The output oil pressure can be set based on input air pressure according to the boost ratio. Example: When the input air pressure is 6Kgf/cm², x booster ratio is 6.25 = Output oil pressure 37.5 Kgf/cm²

4.Check whether the oil cup has sufficient oil.

5.Confirm the voltage of solenoid valve (standard DC24V, or AC110V) and then connect the power.

使用说明 OPERATION INSTRUCTIONS

1、使用前应将管路中的空气完全排除干净，并将油杯盖上的密封螺钉卸下。
2、使用时增压器输出油压可由增压表上得知，如在不增压情况下，压力表压力为0 Kgf/cm²。
3、连接液压管路（参考）
1）将增压器上的螺母塞头（H3/8）旋下，然后把高压胶管一端的内牙接头（H3/8）旋在增压器座上的外牙接头（H3/8）上。
2）在高压胶管另一端的内牙接头（H3/8）上 ,旋上外牙过渡接头（H3/8-PT3/8）
3）在外牙过渡接头（H3/8-PT3/8）上，旋上液压快速接头母头（内牙PT3/8）
4）将液压快速接头公头（内牙PT3/8）旋在液压转台上的接头（外牙PT3/8）上。
5）将液压快速接头的公头、母头对接即可完成管路连接。
注：液压快速接头公头的内牙螺纹可根据转台接头的外牙螺纹来配套确定。

1.Completely discharge the air in the pipeline and remove the sealing screws on the oil cup cover before operation.

2.The output oil pressure can be known from the supercharger. For example, the pressure shown on the pressure gauge is 0 Kgf/cm² without pressurization.

3.Connect the hydraulic pipeline (reference)

1).Remove the nut plug (H3/8) on the supercharger, and then screw the female threaded joint (H3/8) at one end of the high-pressure hose to the male threaded joint (H3/8) on the supercharger base.

2).Screw the male threaded transition joint (H3/8-PT3/8) on the female threaded joint (H3/8) at the other end of the high-pressure hose.

3).Screw the female head of hydraulic quick joint (female threaded PT3/8) on the male threaded transition joint (H3/8-PT3/8).

4).Screw the male head of hydraulic quick joint (female threaded PT3/8) on the joint (male threaded PT3/8) of the hydraulic turntable.

5).Connect the male and female heads of the hydraulic quick joints to complete the pipeline connection.

Note: The internal thread of the hydraulic quick joint can be determined according to the external thread of the turntable joint.

故障排除 TROUBLESHOOTING:

使用过程中一旦发生故障，请参考以下方法来排除故障：
1、先确认，增压表压力是否正常。
2、检查油杯内油量是否正常。
3、检查管路连接是否正常，有无漏油。
4、检查电磁阀电线、线圈是否松脱。
5、用手动测试钮测试电磁阀是否可以正常动作，否则，请更换电磁阀。
6、上述部位均正常，可能因管路过长或管内有空气没有完全排除，导致不能完全增压。

In case of failure, please refer to the following methods for troubleshooting:

1.First confirm whether the pressure of the supercharger is normal.

2.Check whether the oil in the oil cup is sufficient.

3.Check whether the pipeline is connectedly properly without leakage.

4.Check whether the solenoid valve wires and coils are loose.

5.Use the manual test button to test whether the solenoid valve can operate normally. Otherwise, please replace the solenoid valve.

6.If all the above parts are normal, it may not be fully pressurized due to the long pipe path or the air in the pipe is not completely discharged.

打刀缸 Unclamping Cylinder

型号说明 MODEL DESCRIPTION

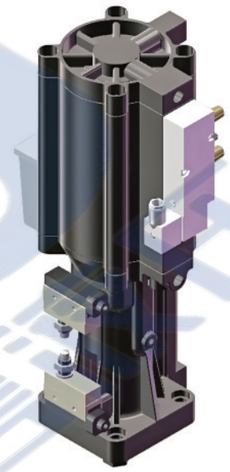
YQG - 45 - 13 - 10 - 24V

- 电磁阀电压 (DC24V) / Solenoid voltage (DC24V)
- 气管接口 (Φ10) / Gas pipe interface (Φ10)
- 打刀行程 (毫米) / Unclamping stroke (mm)
- 打刀出力 4500kg
- 气压0.6 (MPa) / 打刀力4500(Kg) / Unclamping output 4500kg / Air pressure 0.6 (MPa)/Unclamping force 4500 (Kg)
- 产品系列号 / Product series number

性能特点 PERFORMANCE FEATURES

1. 气液转化打刀缸约能耗高达90%。
2. 压力稳定，效率高。
3. 结构紧凑，体积小。
4. 安装便捷，易操作。

1. The energy consumption of the unclamping cylinder is up to 90%.
2. Stable pressure and high efficiency.
3. Compact structure and small volume.
4. Easy to install and operate.

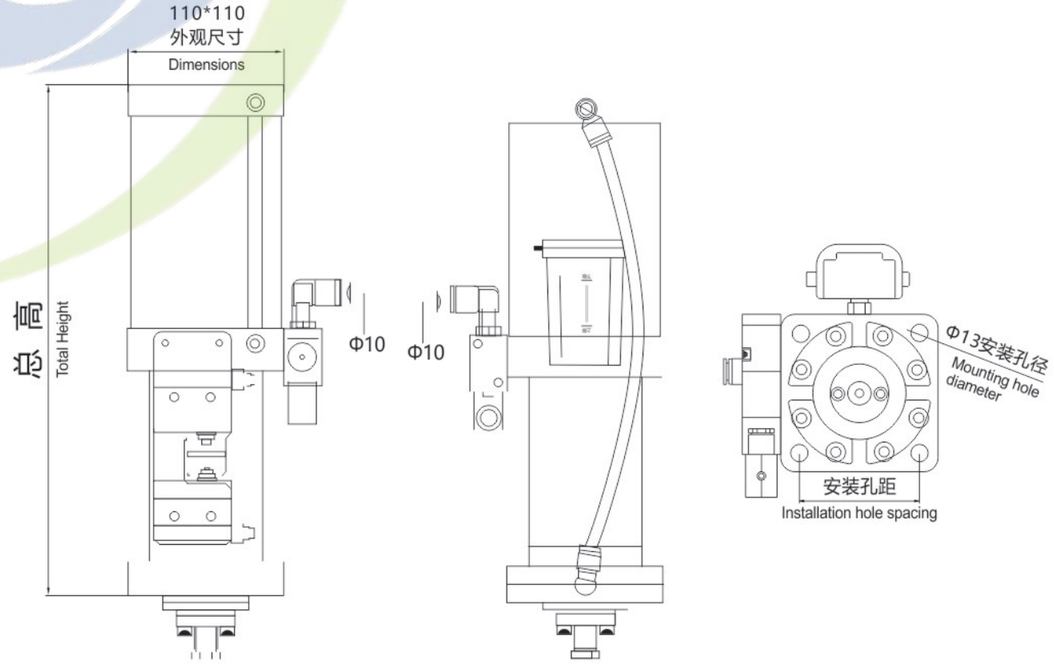


性能参数 PERFORMANCE PARAMETERS

型号 Model	动作压力 Motion Pressure (Kg)	行程 Stroke (mm)	工作气压 Working Pressure (Mpa)	总高 Total Height (mm)	安装孔距 Mounting Hole Distance (mm)
3513	3500	13	0.6-0.8	365	84*84
4513	4500	13	0.6-0.8	380	84*84
6015	6000	15	0.6-0.8	502	84*84

说明: 打刀缸可按技术要求设计配置。
Note: The unclamping cylinder can be designed and configured according to technical requirements.

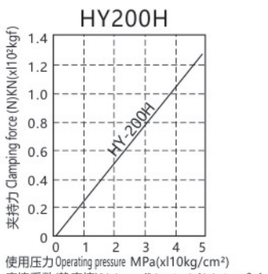
外形尺寸 DIMENSIONS

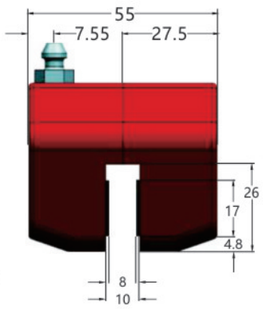


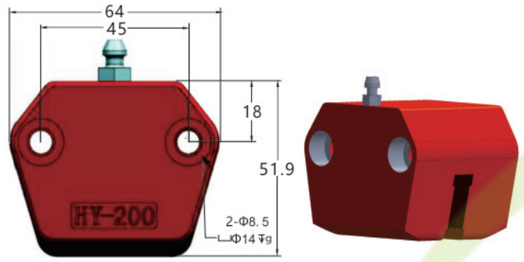
油(气)压车铣复合刹车器 Oil (gas) Pressure Turning and Milling Composite Brake

外形尺寸 DIMENSIONS

HY200H

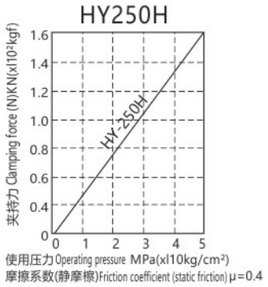


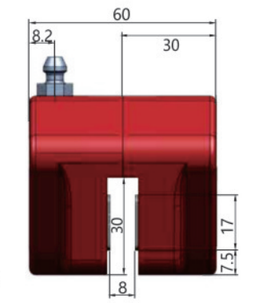


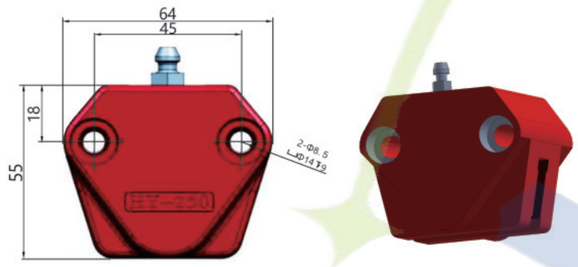


(普森主轴自带刹车盘专用)
(POSA spindle with brake disc)

HY250H

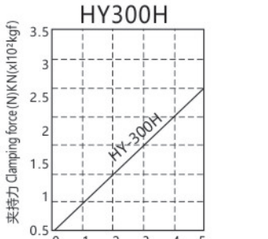


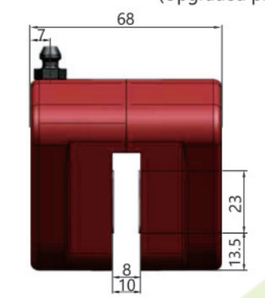


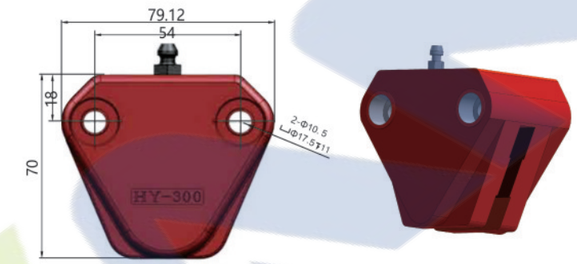


(原HY200升级产品，夹持力更大)
(Upgraded product of original HY200 with greater clamping force)

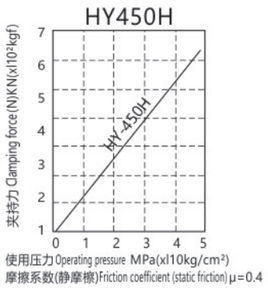
HY300H

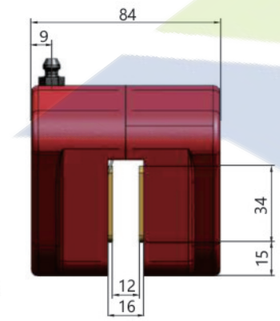


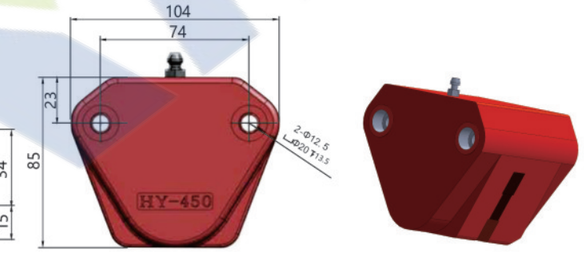




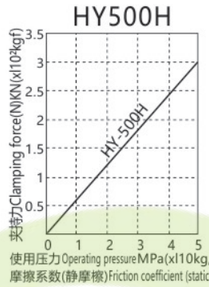
HY450H

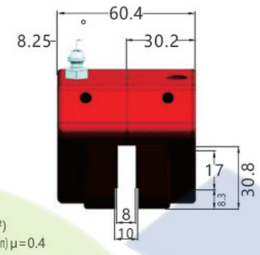


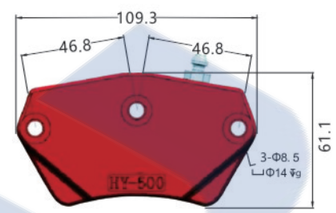


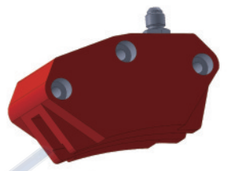


HY500H









性能特点 PERFORMANCE FEATURES

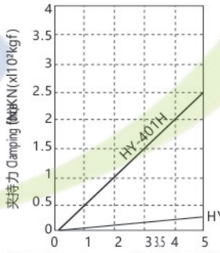
◆HY-200H , HY-250H , HY-300H , HY-450H , HY-500H系列特性(Series Features)

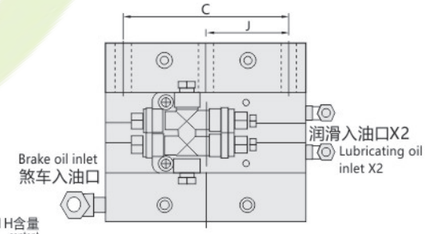
1.体积小，使用方便。2.价格低。3.油压夹特力强。4.夹持面采用大摩控系数，适用于车铁加工时，精度更稳定。
1.Small size and easy to use. 2.Low price. 3.Powerful hydraulic clamping force 4. Large friction coefficient on the clamping surface, suitable for baht machining with more stable accuracy.

规格（SPECIFICATION ）

型式 Type	HY-200H	HY-250H	HY-300H	HY-450H	HY-500H	HY-401H
缸径(mm) Cylinder diameter (mm)	Φ20	Φ25	Φ30	Φ45	Φ25*2	Φ40
碟盘外径（mm) Disc OD (mm)	Φ100~∞			Φ150~∞		
有效制动半（m) Effective braking radius (m)	r=(直径/2-10)/1000	r=(直径/2-11)/1000	r=(直径/2-12)/1000	r=(直径/2-18)/1000	r=(直径/2-11)/1000	r=(直径/2-20)/1000
使用压力（Mpa) Operating pressure (Mpa)	0.1~9					
扭力计算(kN) Torque calculation (kN)	T(N.m)=N.r					

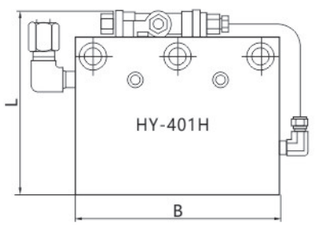
◆HY-401H特性(带阻尼车铣复合刹车器) HY-401H Features (with Damping Turning and Milling Composite Brake)

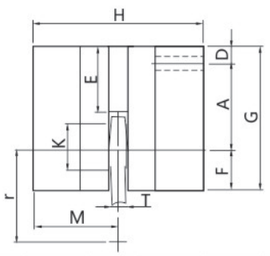


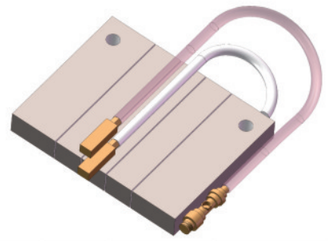


1.油压夹特力强
2.平持面采浮动设计，刹车盘不易变形,且接触面大。
3.刹车与刹车盘接触面 有润滑系统 可使车铣加工时 动作平顺。
4.须搭配脱压式机油注油机使用，工作压力为
8kgf/cm² ~30kgf/cm².
5.加工偏心请用润滑型。

1.Powerful hydraulic clamping force
2.Floating design for the clamping surface and the brake disc is not easy to deform, and the contact surface is large.
3.The contact surface between brake and brake disc has a lubrication system to ensure smooth operation during turning and milling.
4.It must be used with a de-pressurized oil filler with working pressure 8kgf/cm² ~ 30kgf/cm².
5.Lubricating type is recommended for eccentricity processing.



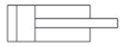
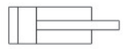




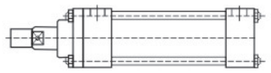
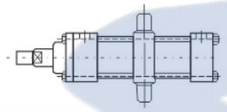
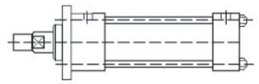
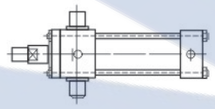
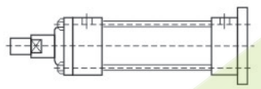
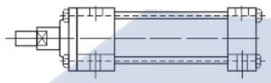
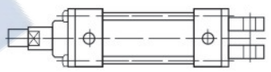
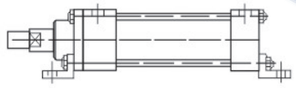
型式 Type	A	B	C	D	E	F	G	H	J	K	L	M	n-P	程Stroke (St)	T
HY-401H	55.5	45	45	12	44	28.5	96	112.5	22.5	φ31	113	56.25	2-M8×16	2.2	9

油缸 Oil Cylinder

油缸种类 OIL CYLINDER TYPE

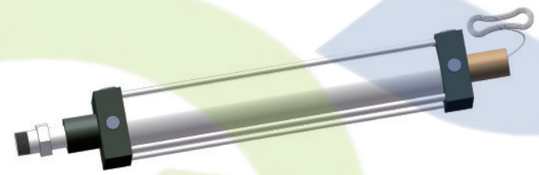
油缸种类 Oil Cylinder Type	示意图标 Symbol	说明 Description	常见内径规格 Common ID Specifications
行程缸 Stroke cylinder		行程:活塞单向移动的最大距离 Stroke: The maximum distance that the piston moves in one direction	Ø32,Ø40,Ø50 Ø63,Ø80,Ø100 Ø125,Ø150 Ø180,Ø200 Ø224,Ø250
双向缸 Two-way cylinder		油缸两侧都有活塞口，活塞贯穿油缸 There are piston ports on both sides of the cylinder and the piston runs through the cylinder	
多级缸 Multistage cylinder		两个或两个以上的活塞套装而成 There are two or more pistons in a set	
磁性缸 Magnetic cylinder		油缸内部带有磁性接近开关检测位置 Magnetic proximity switch is used in the cylinder	

安装形式 INSTALLATION METHODS

记号 Mark	称呼 Name	简图 Diagram	记号 Mark	称呼 Name	简图 Diagram
SD	基本型 Standard		TC	中间砲耳型 Intermediate lug type	
FA	前法兰型 Front flange type		TA	前砲耳型 Front lug type	
FB	后法兰型 Rear flange type		CA	单山型 Single-acting type	
LA	径向脚座型 Radial foot type		CB	双山型 Double-acting type	
LB	轴向脚座型 Axial foot type				

性能特点 PERFORMANCE FEATURES

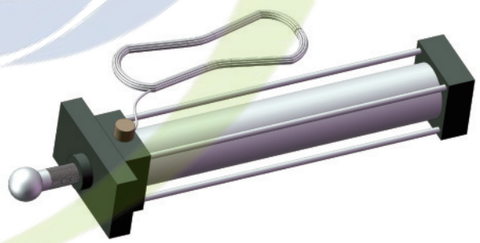
◆ 磁性傅感器油缸 Magnetic Induction Cylinder



- 内置磁性传感器，实现活塞杆位置反馈。
- 结构简单、紧凑、可靠性高。
- 检测精度高，通用性好。
- 安装调试方便。
- 传感器采用外国知名品牌。

- Built-in magnetic sensor for piston rod position feedback.
- Simple and compact structure and high reliability.
- High detection accuracy and good versatility.
- Easy to install and commission
- Well-known foreign brand sensor.

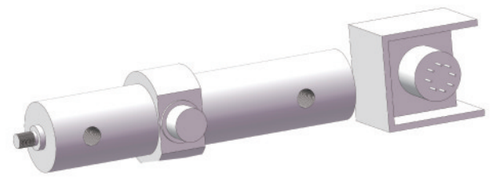
◆ 滚动式编码器油缸 Rotary Encoder Cylinder



- 内置编码器，可控制油缸行程。
- 结构简单，安装方便。
- 可实现油缸定位,位置反馈。
- 价格相对于传感器较便宜。
- 编码器采用外国知名品牌。

- Built-in encoder to control cylinder stroke.
- Simple structure and easy to install.
- Cylinder positioning and position feedback.
- Cheaper than the sensor.
- Well-known foreign brand encoder.

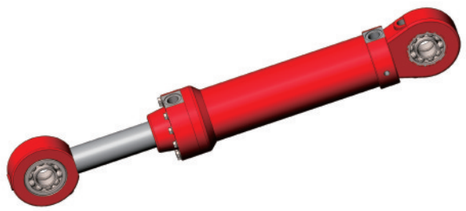
◆ 拉线式编码器油缸 Draw-wire Encoder Cylinder



- 内置编码器，可控制油缸行程。
- 结构简单，安装方便。
- 可实现油缸定位,位置反馈。
- 拉式结构比滚动式结构更可靠。
- 编码器采用外国知名品牌。

- Built-in encoder to control cylinder stroke.
- Simple structure and easy to install.
- Cylinder positioning and position feedback.
- Draw-wire structure is more reliable than rotary structure.
- Well-known foreign brand encoder.

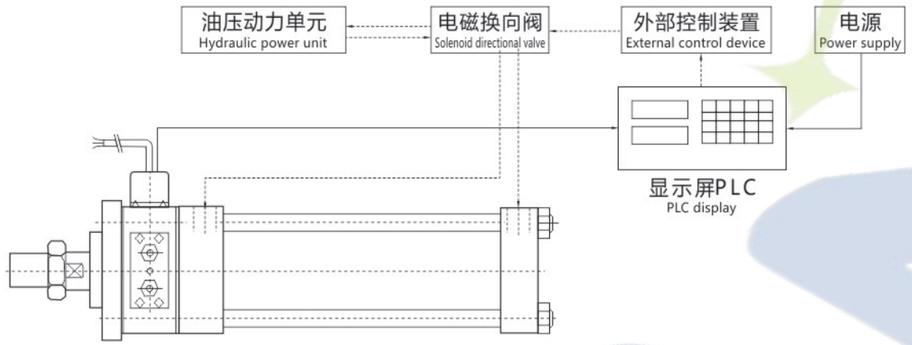
◆ 接近开关油缸 Proximity Switch Cylinder



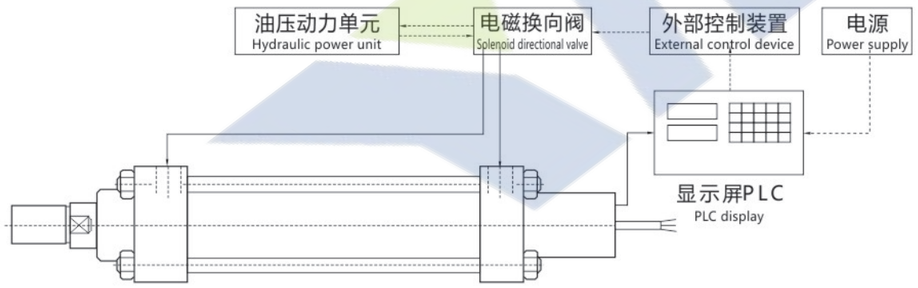
- 内置接近开关，可实现油缸在两端的位置反馈。
- 工作可靠，定位精度高。
- 结构简单、紧凑。
- 安装调试方便。
- 接近开关采用外国知名品牌。

- Built-in proximity switch for position feedback of the cylinder at both sides.
- Reliable and high positioning accuracy.
- Simple and compact structure.
- Easy to install and commission
- Well-known foreign brand proximity switch

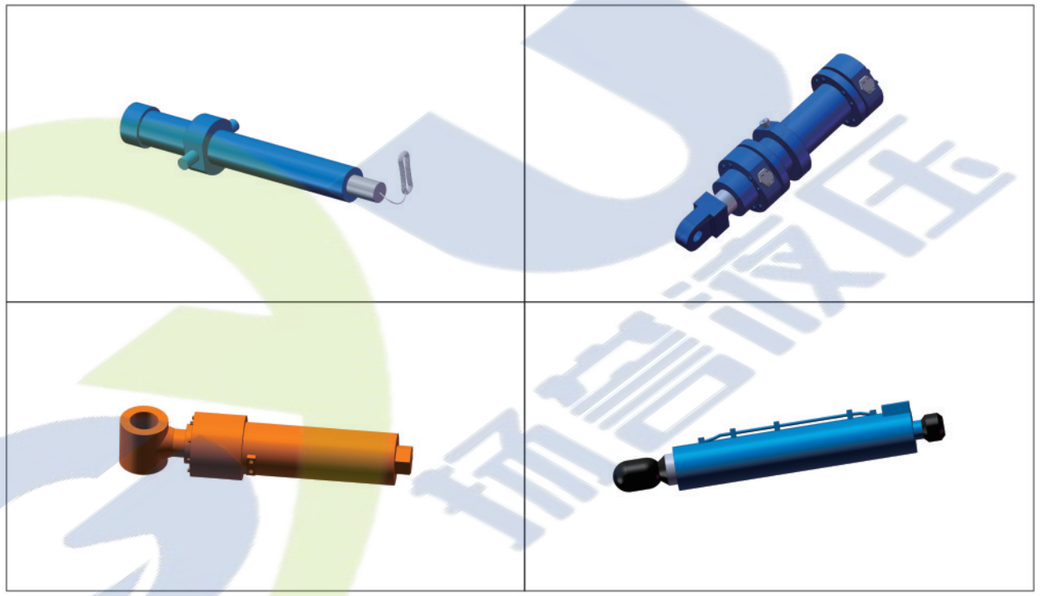
◆ 编码器油缸回路 Encoder Cylinder Circuit



◆ 传感器油缸回路 Sensor Cylinder Circuit



定制油缸 CUSTOMIZED CYLINDER



夹具油缸 CLAMP CYLINDER

液压系统实例 Example of Hydraulic Systems

智能节能型液压系统
Intelligent energy-saving hydraulic system

磨床比压比流液压系统
Grinding machine hydraulic system

小型简装液压系统
Small simple hydraulic system

伺服快速响应节能液压系统
Fast servo response energy-saving hydraulic system

伺服水车液压系统
Servo waterwheel hydraulic system

风冷却式稳定型压系统
Air-cooled stabilized pressure system

风冷却式停机保压液压系统
Air-cooled pressure-retaining hydraulic system

高精度过滤型液压系统
High-precision filtration hydraulic system

气动传动液压系统
Pneumatic drive hydraulic system

小型多功能液压系统
Small multifunctional hydraulic system

静止节能液压系统
Static energy-saving hydraulic system

阀测试台
Valve tester

机床液压系统
Machine tool hydraulic system

标准型液压系统
Standard hydraulic system

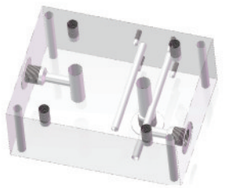
流水线生产液压系统
Assembly line hydraulic system

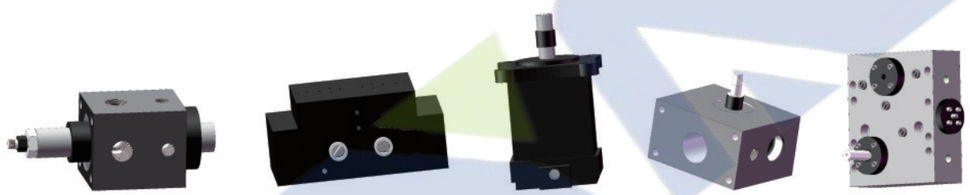
自动化流水线液压系统
Automatic assembly line hydraulic system

智能控制类自动化液压系统
Intelligent automatic hydraulic system

非标定制液压系统
Non-standard customized hydraulic system

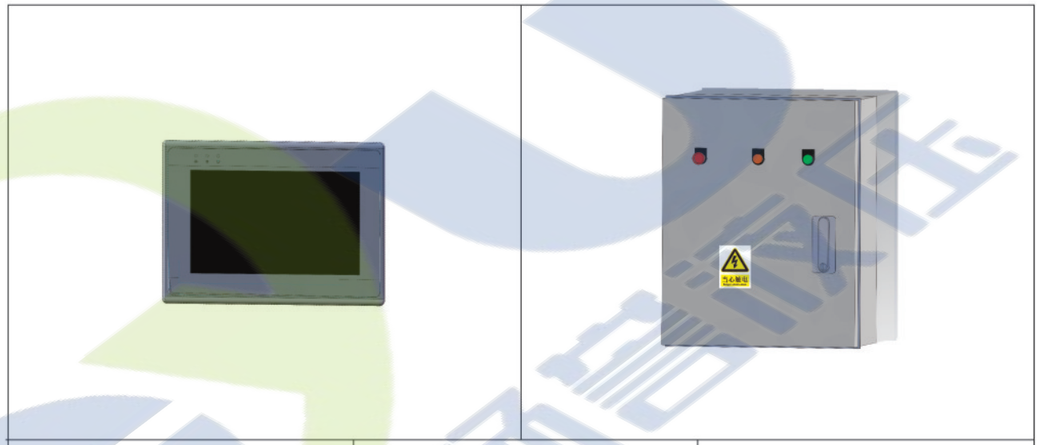
液压附件 Hydraulic Accessories

			
油路集成块 Oil circuit manifold	接头 Joint	压力表 Pressure gauge	油管 Oil pipe
			
蓄能器 Accumulator	滤油网 Oil sieve	加油口 Filler port	压力继电器 Pressure relay

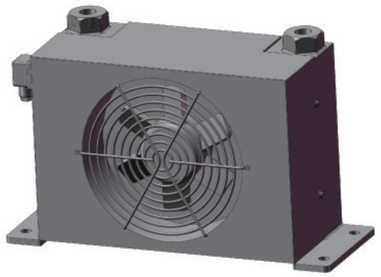


磨 床 阀
Grinder valve

定制电气控制 Customized Electrical Control System

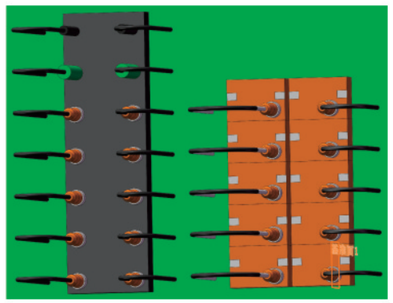


液压动力检测装置 Hydraulic Power Detection Device

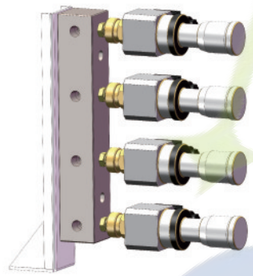


液压冷却装置
Hydraulic cooling device

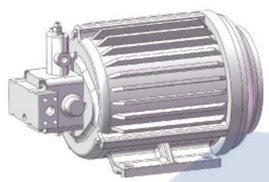
温度液位检测
Temperature and level detection device



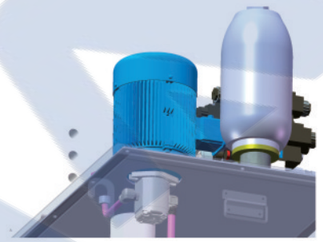
信号传输模块
Signal transmission module



压力检测装置
Pressure detection device



液压动力装置1
Hydraulic power unit 1



液压动力装置2
Hydraulic power plant 2

订购说明 Order Instructions

1	执行元件使用说明 Actuator Operation Instructions	(1) 内缸内径 __ mm *行程 __ mm*数量 __ 支安装方式 Inner cylinder ID _ _ mm * stroke _ _ mm * Qty. _ _ Installation method	计算该单元马力数、极数、泵吐出量及泵压力 Calculate the unit horsepower, pole number, pump output and pump pressure
		(2) 动作说明 __ 例：单动、移动、上下运动…… Motion description _ _ Examples: Single motion, moving, up and down motion	
		(3) 最大工作压力 __ kgf/cm² (MPA) 或最大出力 __ kg(N) Maximum working pressure _ _ kgf/cm² (MPA) or maximum output _ _ kg (N)	
		(4) 控制回路 __ 回路，特殊要求说明 Control loop _ _ loops, description of special requirements	
		(5) 每支缸作动往复时间, 前时时间 __ 秒,后退时间 __ 秒 Reciprocating time of each cylinder, forward time _ _ s, backward time _ _ s	
		(6)速度要求 __ mm/s ,速度形式:快慢速 □ 单速□ Speed requirement _ _ mm/s, speed type: Fast and slow □ single speed □	
		(7)前进到工件是否需要保压 □是，□否 保压精度 Forward to whether the workpiece needs to hold pressure □Yes, □No Pressure holding accuracy	
2	执行元件使用说明 Actuator Operation Instructions	(1)设计连续运转时间 __ 小时 Designed continuous running time _ _ hours	考虑冷却及防冻元件 Consider cooling and antifreeze elements
		(2)工作环境温度,需要 □风冷，□水冷，□油冷 Working environment temperature, □air-cooled, □water-cooled, □oil-cooled	关系该单元方向、压力及流量元件选择 Relate to the selection of the direction, pressure and flow components
		(3)被加工件种类及特性要求 Types and features of processed parts	

液压常用计算公式 Common Hydraulic Calculation Formulas

项目 ITEMS	公式 FORMULA	符号意义 SYMBOL MEANING
液压缸面积(cm²) Hydraulic cylinder area (cm²)	$A=0.25\pi D^2$	D:液压缸款活塞直径(cm) D: Diameter of piston for hydraulic cylinder (cm)
液压缸速度(m/min) Hydraulic cylinder speed (m/min)	V=Q/A	Q:流量(l/min) Q: Flow (l/min)
液压缸需要的流量(l/min) Flow rate required for hydraulic cylinder (l/min)	Q = V*A/10=A*S/10t	V：速度(m/min) V: Velocity (m/min) S:液压缸行程(m) S: Cylinder stroke (m) t:时间(min) t: Time (min)
液压缸出力(kgf) Hydraulic cylinder output (kgf)	F=P*A F=(p*A) -(p*A)(有背压存在时) F = (p*A) -(p*A) (with back pressure)	P：压力(kgf/cm²) P: Pressure (kgf/cm²)
泵或马达流量(l/min) Pump or motor flow (l/min)	Q = q*n/1000	q：泵或马达的几何排量(cc/rev) q: Geometric displacement of pump or motor (cc/rev) n:压力(rpm) n: Pressure (rpm)
泵或马达转速 Pump or motor speed (rpm)	n=Q/q*1000	Q:流量(l/min) Q: Flow (l/min)
液压所需功率 Hydraulic power required (kw)	$T = q*p/20\pi$	
管内流速 Flow rate in tube (m/s)	$v = q*21.22/d^2$	d=管内径(mm) d = Tube ID (mm)
管内压力降(kgf/cm²) Pressure drop in tube (kgf/cm²)	$\triangle P = 0.000698*USLQ/d^4$	U: 油的黏度(cst) U: Oil viscosity (cst) S: 油的比重 S: specific gravity of oil L: 管的长度(m) L: Length of tube (m) Q: 流量(l/min) Q: Flow (l/min) d: 管的内径(cm) d: Tube ID (cm)