Shanghai Aohu Automation Equipment Co., Ltd.

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奥虎

AOHU

Automation Equipment

Shanghai Aohu Automation Equipment Co., Ltd.

Profile of Company:

Firstly, we appreciate that you could review the profile of our company at your busy schedule. After reading, you would have an assessment of the company's ability and a general understanding. Shanghai AOHU was established on December 8, 2010. The company is located at No. 365, Lianyang Road, Songjiang District, Shanghai. It is a production company integrating trade, production and scientific research. Since its establishment, the company has always focused on the development of the CNC machine tool industry. The AOHU team has experienced 15 years of study and practice, with an in-depth understanding of the electrical parts and mechanical parts of more than 100 brands of turntables around the world. AOHU. As a customized service provider for the core parts of CNC machine tools, has achieved a complete range of products. The company's existing products include: four-axis motor drives, four-axis wires, single-axis control systems, intelligent hydraulic systems, CNC spindle Tool Release Cylinder, booster cylinders, High-Pressure Through-Spindle Coolant Filtration System, four-axis installation and debugging, etc. It provides a one-stop solution for customers, avoiding the problems of incorrect selection in scattered procurement and installation and after-sales issues.

As a supporting manufacturer in the CNC machine tool industry, AOHU keeps researching and developing new products to meet market demands. After deeply engaging in the machine tool industry for thirteen years, we have a profound understanding of the troubles and losses that quality problems can cause in on-site applications. We share our customers' concerns and keep delving into the technical field to solve technical problems such as waterproofing, anti-interference, wear resistance, and excessive current values, helping our cooperative customers solve difficult problems and reducing their unnecessary losses.

As a full-case technical manufacturer, we are constantly upgrading and iterating the professional knowledge reserves and service awareness of our team, aiming to create an elite team for Aohu. In addition, the company has long-term cooperative, high-quality and stable suppliers, which can respond quickly and ensure excellent product quality. Time doesn't speak, but it proves everything. Thirteen years of growth is the recognition of Aohu's product quality and service by a large number of customers. We always put the interests of our customers at the center, adhere to the sustainable development strategy, and will never sacrifice the future for immediate benefits.

Our core philosophy is to always put the interests of our customers first. Customer satisfaction is our ultimate goal.

CATALOG

Belt-Driven Spindle Tool Release Cylinder

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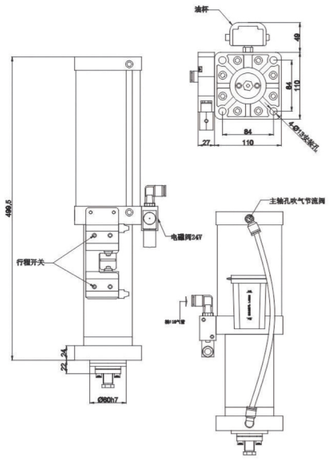


名称：打刀缸

型号：TOS-60-15

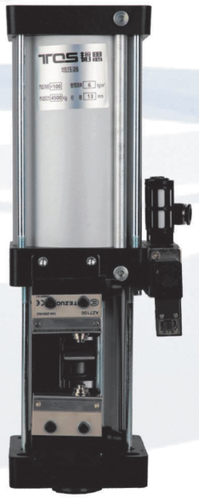
缸径：φ100

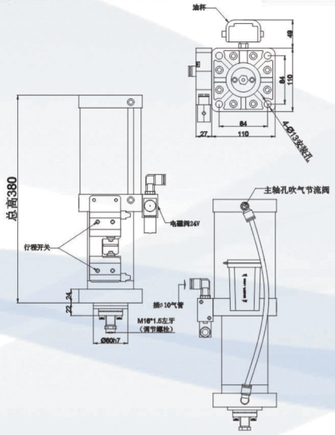
出力：6000Kg

行程：15mm

适用于BT50刀柄机床

Product Name	Tool release cylinder	Output	6000KG
Model	TOS-60-15	Stroke	15MM
Bore Diameter	Φ100	Suitable for	BT50 Tool Holder Machines





名称：打刀缸

型号：TOS-45-13

缸径：φ100

出力：4500Kg

行程：13mm

适用于BT40刀柄机床

Product Name	Tool release cylinder	Output	4500KG
Model	TOS-45-13	Stroke	13MM
Bore Diameter	Φ100	Suitable for	Bt40 Tool Holder Machines

Direct-Connected Spindle Booster Cylinder

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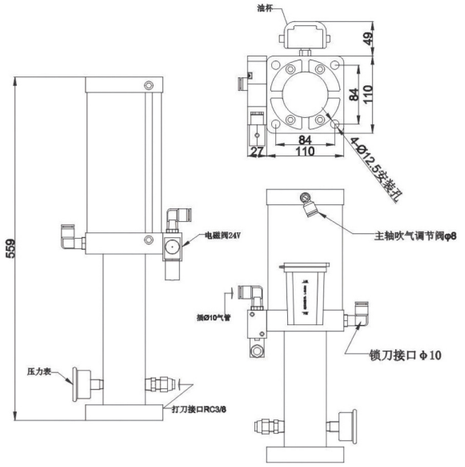


名称：增压缸

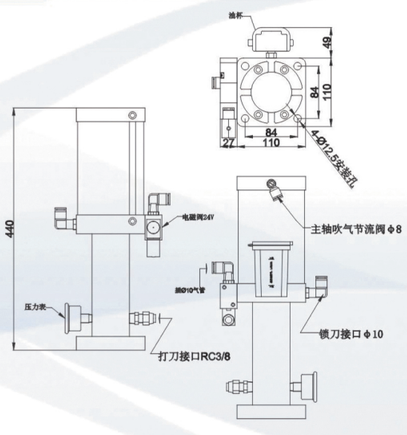
型号： TOS-16-110

缸径：φ100

增压比：1:16

出油量：110cc

Product Name	Booster Cylinder	Boosting Ratio	1:16
Model	TOS-16-110	Oil Displacement	110CC
Bore Diameter	Φ100		



名称：增压缸

型号：TOS-12. 7-110

缸径：φ100

增压比：1:12. 7

出油量：110cc

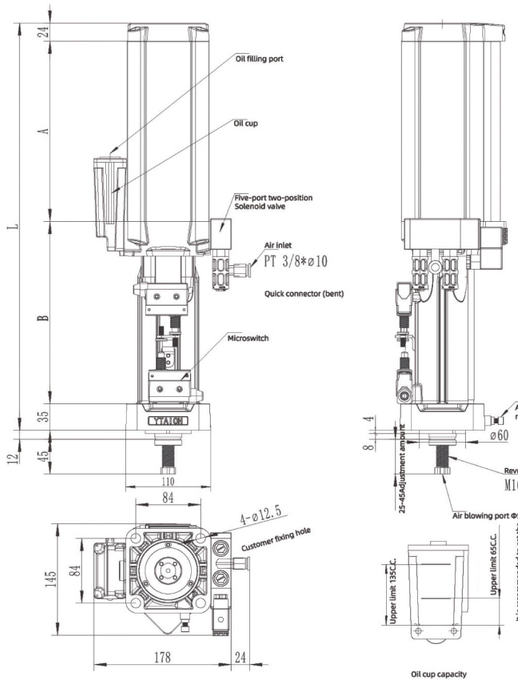
Product Name	Booster Cylinder	Boosting Ratio	1:12.7
Model	TOS-12.7-110	Oil Displacement	110CC
Bore Diameter	Φ100		

Belt-Driven Spindle Tool Release Cylinder

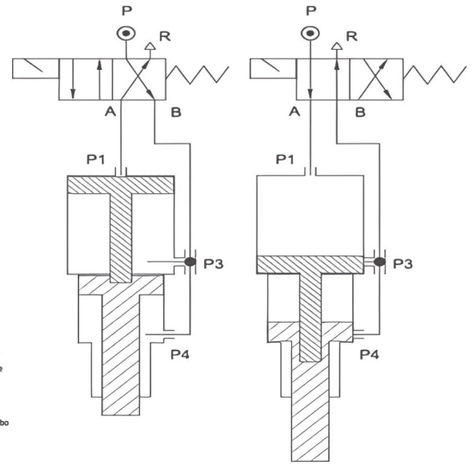
Belt-Driven Spindle Tool Release Cylinder of the Microswitch Series

Working pressure	0.4Mpa ~ 0.6Mpa clean compressed air
Transmission oil	ISO VG32 or the same level
Working temperature	0℃~60℃
Total Travel	13mm、15mm
Operating voltage	DC24V、AC110V、220V

Product size



Circuit diagram



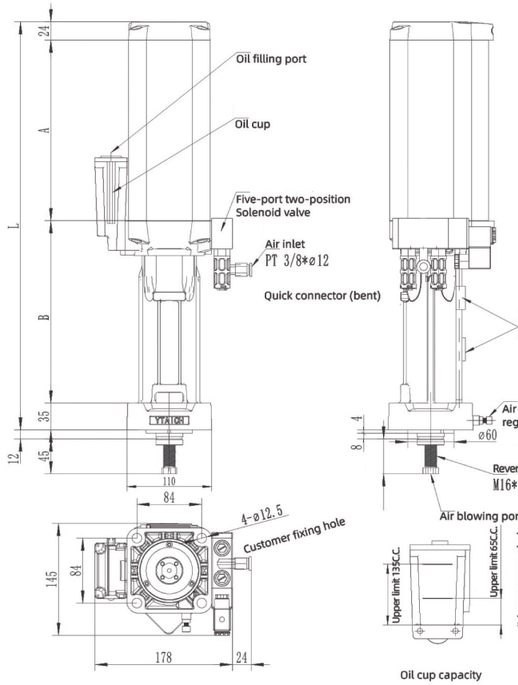
Specifications	A	B	L	Theoretical output force (kgf)		
				4	5	6
4513	170	194	424	3066	3833	4600
6015	234	236	530	3787	4734	5681

Belt-Driven Spindle Tool Release Cylinder

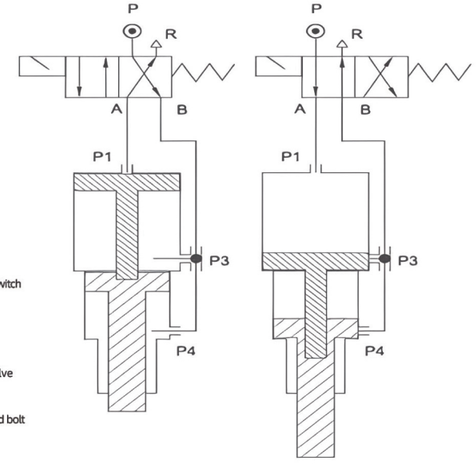
Belt-Driven Spindle Tool Release Cylinder of the Magnetic Induction Series

Working pressure	0.4Mpa ~ 0.6Mpa clean compressed air
Transmission oil	ISO VG32 or the same level
Working temperature	0℃~60℃
Total Travel	13mm、15mm
Operating voltage	DC24V、AC110V、220V

Product size



Circuit diagram



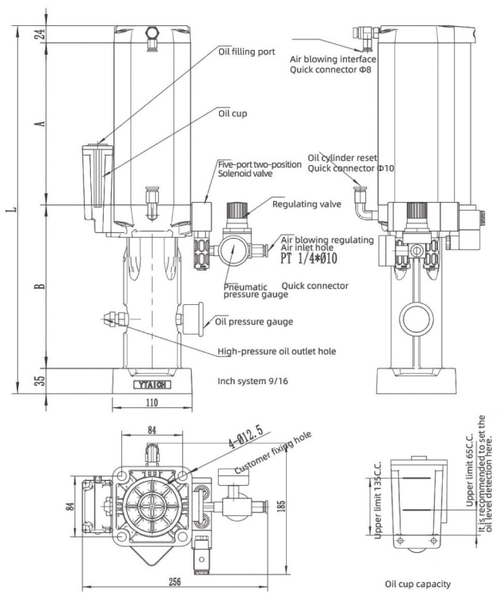
Specifications	A	B	L	Theoretical output force (kgf)		
				4	5	6
4513	170	194	424	3066	3833	4600
6015	234	236	530	3787	4734	5681

Direct-Connected Spindle Booster Cylinder

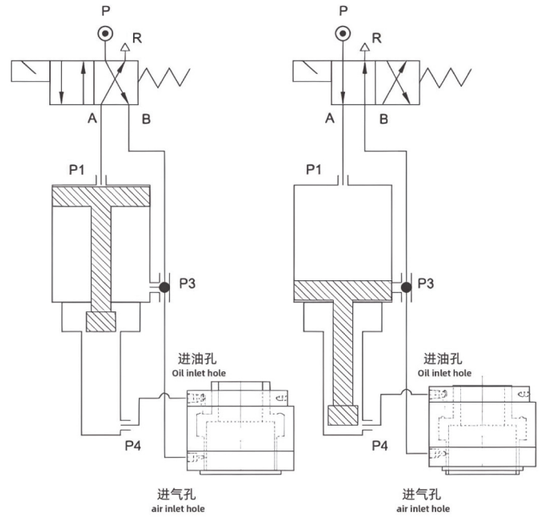
Direct-connected spindle tool booster cylinder

Working pressure	0.4Mpa ~ 0.6Mpa clean compressed air
Transmission oil	ISO VG32 or the same level
Working temperature	0℃~60℃
Discharge volume	110cc
Operating voltage	DC24V、AC110V、220V

Product size



Circuit diagram



Specifications	A	B	L	Theoretical output force (kgf/cm²)		
				4	5	6
127110	224	226	510	51	63	76
16110	290	295	645	64	80	96

Ordering code

Ordering code of Belt-type model

YTAICH—10—U—45—M—13—L—DC24

1. Brand
2. Cylinder diameter:10:Φ100/ 12:Φ125.....
3. Applicable models:U: MC knife E: others
4. Force:45=4.5T 60=6T
5. Liquid level detection:M: Liquid level detection N: No liquid level detection
6. Total travel:13 = 13MM 15=15MM
7. Sensing switch:L: Micro Switch M: Magnetic Switch
8. Working voltage:DC24V AC110V AC220V

Ordering code of direct-connected model

YTAICH—10—U—12—M—C110—DC24

1. Brand
2. Cylinder diameter:10:Φ100/ 12:Φ125.....
3. Applicable models:U:MC knife E: other
4. Pressurization ratio:12=1:12.7 16=1:16
5. Liquid level detection:M: Liquid level detection N: No liquid level detection
6. Oil output: C110 =110cc
7. Working voltage:DC24V AC110V AC220V

Introduction to the New Release Cylinder

The spindle tool release cylinder of CNC machine tool is a key functional component for realizing automatic tool change (ATC), which is mainly used for clamping and releasing the tool. Its core features are shown as below:

Feature Description

I .Integrated Molding of the Oil Cylinder Body
1. Eliminate the probability of oil leakage.
2. It is not prone to loosening with the aesthetic appearance.

II. Efficient and Reliable Power Drive
1. Pneumatic-to-Hydraulic Mode
It adopts pneumatic-to-hydraulic drive. The pneumatic type has a fast response speed, is clean and free of oil stains, and the hydraulic type has a large output force.
2. Quick Response
Cooperating with the machine tool control system and the tool changing mechanism, it can achieve a millisecond-level action response, shortening the tool changing time (accounting for about 1 second of the tool changing time) and improving the processing efficiency.

III. High Precision and Stability
1. Precise Positioning
It is equipped with multiple guide rings made of world-class materials inside, ensuring the position accuracy during loperation (with an error <0.01mm), and avoiding the tilting or Idamage of the tool caused by the deviation of the tool clamping cylinder's action during tool changing.
2.Stable Working Performance
It is realized through the trinity of "Control technology +structural design + monitoring and protection".

IV. Compact Design and Integration
1. Compact Structure
It adopts an axial integrated design and can be directly linstalled on the top of the spindle, saving space and meeting the compact layout requirements of all spindles.
2. Modular Installation
The control valve adopts a wall-mounted connection, and the pipelines of the air cylinder and the oil cylinder are hidden inside. It has a large gas flow rate, a beautiful and simple appearance, and saves installation space.

V. High Durability and Safety
1. Long-Life Materials
The cylinder body and the piston and other components are made of high-strength aluminum alloy or stainless steel. The surface is treated with hard anodization or hard chromium plating, which is wear-resistant and corrosion-resistant and can adapt to the processing environment with a lot of dust and humidity.
2. Multiple Safety Protections
Microswitch or magnetic induction: It can detect the positions of loosening and clamping the tool up and down in real time to avoid tool collisions and unwarranted shutdowns.
When loosening the tool, a specific signal (such as the completion of spindle positioning) needs to be triggered to avoid the risk of accidental tool breakage.
Sealing design: It adopts world-class double-lip oil seals, sealing rings, and combined seals to prevent air/hydraulic leakage and ensure the reliability of the action.
3. Oil Cup Liquid Level Monitoring Device
It is connected to the machine tool system through the induction switch on the outside of the oil cup to avoid tool collisions and unwarranted shutdowns. It is made of transparent material, which is collision-resistant and convenient for observing the oil quantity.

VI. Wide Range of Application Scenarios
CNC Machining Centers: The pneumatic tool clamping cylinder meets the requirements of fast tool changing.
Precision Machining: The high-precision tool clamping cylinder ensures micron-level positioning and is suitable for the processing of components in the fields of optics, medicine, auto parts, aerospace, etc.

Conclusion:
The spindle tool clamping cylinder of the CNC machine tool takes"high efficiency, precision, and reliability" as its core. Through the loptimization of the power form, structural design, and intelligent control, it has become a key guarantee for the tool changing link in processing, directly affecting the processing efficiency, precision,and safety of the machine tool. When actually selecting the model, it is necessary to comprehensively consider the type of the machine tool spindle and the processing working conditions.

High-Pressure Through-Spindle Coolant Filtration System

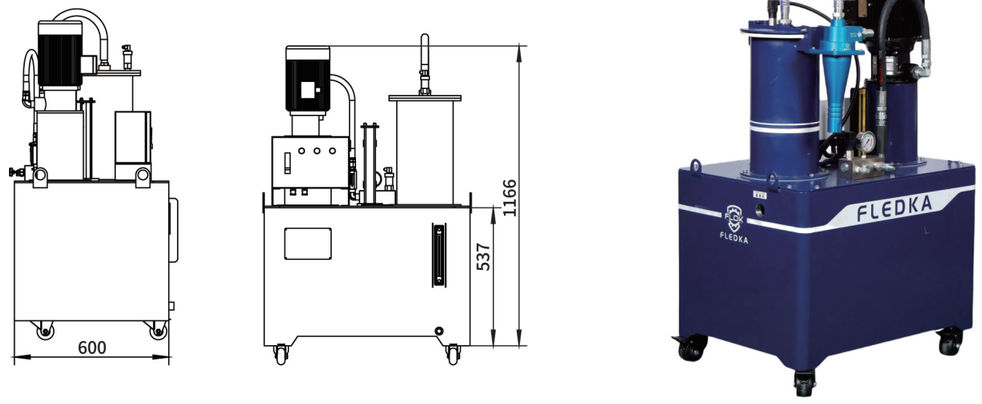
30Bar

FD-CTS230L-30Bar-4kw Model: FD-CTS230L-30Bar-4kw

Filtration Options: Level I Patent Filter Bag, Level II Cyclone Separator, Level III Inline Filtration

30 Bar high pressure through-spindle coolant filtration system

Improves operational efficiency and reduces energy consumption by enabling functions such as chip breaking, chip removal, high-pressure cooling, and tool internal cooling. This effectively addresses issues such as chip wrapping, debris clogging, frequent tool retraction and replacement, and even tool breakage during the machining process. Additionally, it significantly enhances workpiece accuracy and surface finish, while reducing operational costs.



Specifications and Parameters	
Tank Capacity	Capacity: 230L, overall dimensions: 800mm x 600mmx 1166mm
30 bar Centrifugal Pump	Power: 4.0kW, Maximum Working Pressure: 30 Bar, Flow Rate: 2 m^3/h, Voltage: Three-phase 220/380V
Filtration Accuracy	25μm (patented filter bag)
High/Low Liquid Level Indicators	The high-level refill pump stops when the liquid reaches a high level, and the low-level refill pump activates when the liquid reaches a low level.
Alarm Switch	High-pressure pump fault protection, with alarms triggered for low discharge pressure, shutdown protection for excessive low pressure, and warnings for abnormal water shortage.
Connection Size	The inlet is 1 inch (DN25), and the overflow outlet is 1 inch (DN25).
Medium	Water-based cutting fluids, emulsions, and similar mediums.

High-Pressure Through-Spindle Coolant Filtration System

50Bar

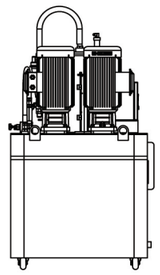
Model: FD-CTS230L-50Bar-3kW + 3kW

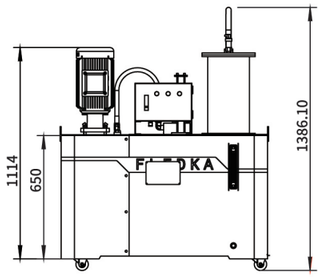
Filtration Options: Level I Patent Filter Bag, Level II Cyclone Separator, Level III Inline Filtration

Optional Pump Configurations: Gear Pump, AR Plunger Pump, Twin Centrifugal Pump

50 Bar high pressure through-spindle coolant filtration system

Improves operational efficiency and reduces energy consumption by enabling functions such as chip breaking, chip removal, high-pressure cooling, and tool internal cooling. This effectively addresses issues such as chip wrapping, debris clogging, frequent tool retraction and replacement, and even tool breakage during the machining process. Additionally, it significantly enhances workpiece accuracy and surface finish, while reducing operational costs.





Specifications and Parameters	
Specifications and Parameters	Capacity: 230L, overall dimensions: 1088mm x 720mm x 1386mm
Tank Capacity	Power: 3.0KW + 3.0KW, maximum working pressure: 50Bar, flow rate: 2m³/h, voltage: three-phase 220/380V
50bar centrifugal pump unit	25μm (patented filter bag)
Filtration Accuracy	The high-level refill pump stops when the liquid reaches a high level, and the low-level refill pump activates when the liquid reaches a low level.
High/Low Liquid Level Indicators	High-pressure pump fault protection, with alarms triggered for low discharge pressure, shutdown protection for
Alarm Switch	excessive low pressure, and warnings for abnormal water shortage.
Connection Size	The inlet is 1 inch (DN25), and the overflow outlet is 1 inch (DN25).
Medium	Water-based cutting fluids, emulsions, and similar mediums.

High-Pressure Through-Spindle Coolant Filtration System

70Bar

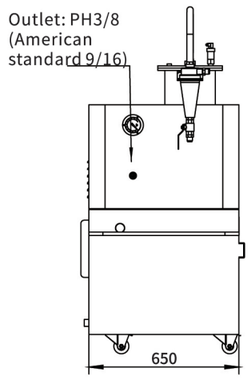
Model: FD-CTS230L-70Bar-3.7KW

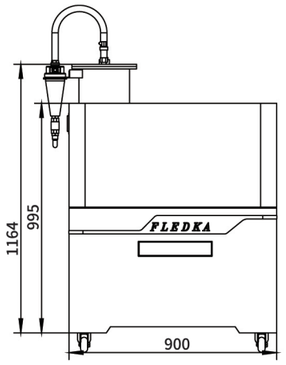
Filtration Options: Level I: Patent Filter Bag, Level II: Cyclone Separator, Level III: Inline Filtration

Pump options: Italy AR plunger pump, screw pump

70 Bar high pressure through-spindle coolant filtration system

Improves work efficiency, reduces energy consumption, and achieves functions such as chip breaking, chip removal, high-pressure cooling, and tool internal cooling, effectively solving issues like chip entanglement, debris blockage, frequent tool changes, and even tool breakage during machining, while significantly improving workpiece precision and surface roughness, thereby lowering production costs.





Specifications and Parameters	
Tank Capacity	Capacity: 230L, overall dimensions: 900mm x 650mm x 1164mm
Motor	Motor: 3.75KW 6-speed high-speed motor
Plunger pump	Italy AR50L high-flow plunger pump, with closed-end or two 1mm outlets and one 2mm outlet, pressure: 70Bar
Filtration Accuracy	25μm (patented filter bag)
High/Low Liquid Level Indicators	The high-level refill pump stops when the liquid reaches a high level, and the low-level refill pump activates when the liquid reaches a low level.
Low-pressure limit alarm	High-pressure pump fault protection, with alarms triggered for low discharge pressure, shutdown protection for excessive low pressure, and warnings for abnormal water shortage.
Cartridge clogging alarm	Reminds the customer to clean or replace the filter cartridge
High-pressure upper limit alarm	Tool change anomaly, pressure exceeding the set range, shutdown protection
Connection Size	The inlet is 1 inch (DN25), and the overflow outlet is 1 inch (DN25).
Medium	Water-based cutting fluid oil-water ratio: at least 1%

High-Pressure Through-Spindle Coolant Filtration System

Centrifugal pump

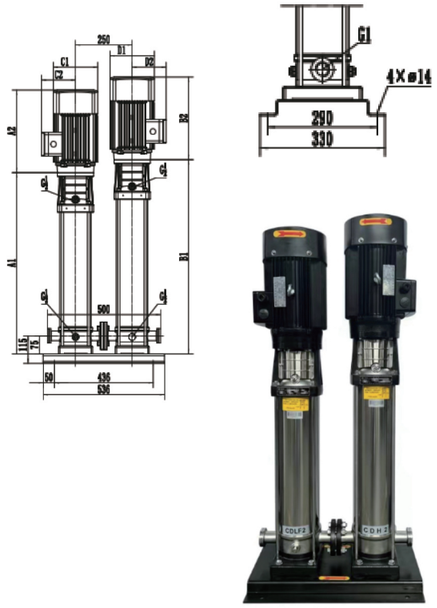
Flow rate: 1m³/h, head: 502m-706m
Power: 3kW + 3kW / 4kW + 4kW, diameter: DN32

High reliability High pressure High efficiency

The pump design features a direct flange connection between the series pumps, eliminating connecting pipes and reducing the width required for pump installation. The pump' s inlet and outlet can be configured with either flange or threaded connections, providing multiple options to meet customer requirements.

Dual centrifugal pump

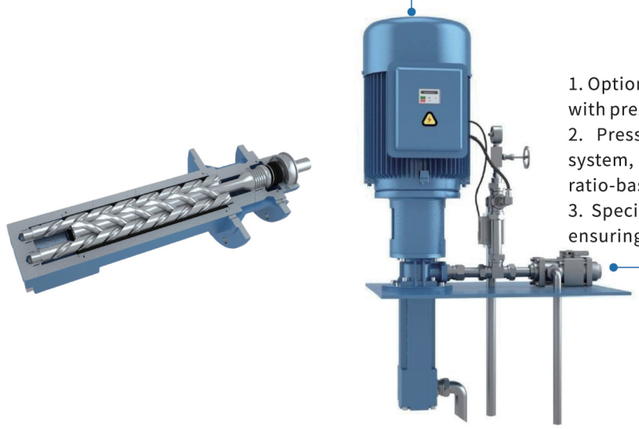
The CDLF+CDH series forms a dual-pump system with custom pressure-bearing components and high-pressure mechanical seals, capable of generating a maximum pressure of 70Bar. The CDH pump is specifically designed for high-pressure applications, with its rotational direction opposite to that of the feed pump. The flow passage is reversed, ensuring that the pressure-bearing cylinder and mechanical seal only endure the exit pressure from the feed pump, significantly enhancing reliability.



High-Pressure Through-Spindle Coolant Filtration System

Variable Frequency Pressure Regulation

1. The pressure can be adjusted within the 0-10MPa range by regulating the drive motor frequency.
2. Compared to constant pressure adjustment, variable frequency pressure regulation reduces energy consumption by more than 60%.
3.Ensures smooth operation and long pump life.



1. Optional complete pump group control valves available, with pressure adjustment within the 0.5-10MPa range.
2. Pressure regulation controlled by the upper-level system, with pneumatic control pressure and analog ratio-based outlet pressure regulation.
3. Specially designed valves are insensitive to particles, ensuring a long lifespan.

Overflow Pressure Regulation

Screw Pump

Reliable and Durable
External bearings are highly resistant to contamination.

Maintenance-Free
Maintenance-free shaft seal design eliminates the risk of oil leakage maintenance.

Long Service Life
Ultra-hard ceramic inner lining offers excellent wear resistance and extended lifespan.

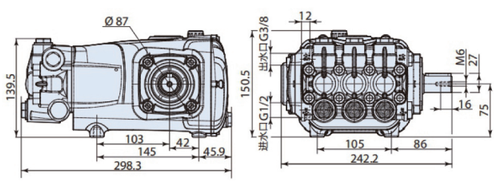
High reliability
Special hardened steel screws offer high precision, wear resistance, and rigidity.

Vortex Filter

1. The vortex filter is one of the most sought-after filtration devices.
2. This filtration technology is based on the principle of centrifugal separation, which led to the development of this device.
3. The vortex filter separates impurities and liquids using centrifugal force.
4. This product effectively filters impurities from cutting fluids, providing a much greater filtration efficiency than similar products, without requiring consumables and without the need for maintenance.

Plunger pump

The AR high-pressure plunger pump adopts advanced industrial design principles.The primary working principle involves the crankshaft driving the plunger through a connecting rod, creating an axial stroke inside the pump head. With the help of one-way inlet and outlet valves, the fluid inside the pump head is efficiently transported in one direction.



Common Fault Causes and Troubleshooting Methods

Common Fault Symptoms	Possible Causes	Normal Troubleshooting Methods
No water output	Pump rotation is reversed	Rewire the motor
	Insufficient Immersion Depth	Lower the pump installation position
	Insufficient Water in Pump, Air in Pump or Inlet	Increase water supply and evacuate air
Motor Fails to Start	Power failure	Check the power supply
	Motor Overload	Inspect the system
	Problem with the control circuit	Inspect the control circuit
Excessive Noise	Motor bearings or internal pump components are damaged	Replace motor bearings or pump components
Unusual Noise	Low water level	Check the pump inlet and position of the faceplate
	High Liquid Temperature	Lower the water intake height or reduce the temperature

Bag Filter Replacement Instructions

1. When the bag filter detection switch senses and sends a signal, replace the internal filter bag immediately.
(Detection pressure: 2 kg, signal change from normally open to normally closed)
2. Due to varying usage environments, the replacement cycle may differ, but it is recommended to replace the filter bag every 4 weeks. Do not wash and reuse.
3. Replacement Steps: Open the vent valve on the cover to release pressure, loosen the latch, lift the filter cover, and remove and replace the filter bag and filter basket.

High-Pressure Through-Spindle Coolant Filtration System

Level III Online Filtration

Installed on the high-pressure outlet pipeline, it further removes residual particles, dust, and other chemical contaminants from external sources.

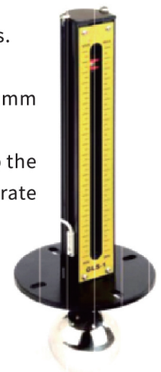
Low Pressure Loss, Deep Impurity Purification, and High Filtration Precision (as low as 2μm)

The system is ideal for use in servo and automation control systems, offering enhanced protection against impurities clogging tools.

Stainless Steel Float Ball Level Switch

Sensing Method:	**Magnetic**	Magnetic induction
Load Voltage:	**DC6V~30V**	DC 6V~30V
Load Current:	**100mA-MAX**	100mA (maximum)
Operating Temperature:	**-10°C~150°C**	-10°C to 150°C

1. Aesthetic Design: The level switch features an attractive appearance and is easy to read liquid levels.
2. LED Addition: An optional LED can be added for clear level indication, even in low-light conditions.
3. Detection Range: The sensing switch has a detection range of 8mm, which is superior to the 5mm detection range offered by other brands, effectively eliminating detection errors.
4. The upper end of the float rod is equipped with a 4000 Gauss magnetic sensor, which is superior to the 1800 Gauss of iron oxide-based magnets commonly used in the market, ensuring highly accurate and error-freedetection.
5. The level detection point can be adjusted using the built-in positioning ring.



Intelligent Energy-Saving Hydraulic Systems - System Overview

Advantages

- 1. Energy Saving and Cost Reduction

  Significantly reduces cooling and hydraulic oil costs, saving 50%-90% in electricity, and cuts labor and time spent on maintenance.

- 2. High Efficiency

  By utilizing proper energy storage, pressure holding, and acceleration/deceleration control, the system greatly improves pressure maintenance and stabilization times, resulting in a significant increase in cycle time compared to traditional hydraulic systems.

- 3. High Precision

  The hydraulic system pressure, oil temperature, and oil level are all fully closed-loop controlled to meet a wide range of process requirements.

- 4. Low Noise

  The system consistently operates at around 50 decibels, improving the working environment's comfort.

- 5. Low Oil Temperature

  The intelligent energy-saving hydraulic station often operates with the motor in a low-speed, standby pressure-maintaining state. This reduces mechanical friction between the oil, pump, and valve, thereby lowering heat generation and maintaining a lower oil temperature.

- 6. Low Failure Rate

  The intelligent energy-saving hydraulic station minimizes unnecessary work. With lower oil temperatures, the motor and pump in the energy-saving system operate for shorter durations, significantly reducing the likelihood of failure and extending the service life of key components such as the motor and pump. This also facilitates easier maintenance.

Aohu Hydraulic System Energy Consumption Comparison

In traditional hydraulic systems, ineffective power losses are almost entirely converted into heat energy, which raises the oil temperature. To reduce the oil temperature, additional cooling measures such as air cooling or oil coolers are required, leading to secondary energy losses.

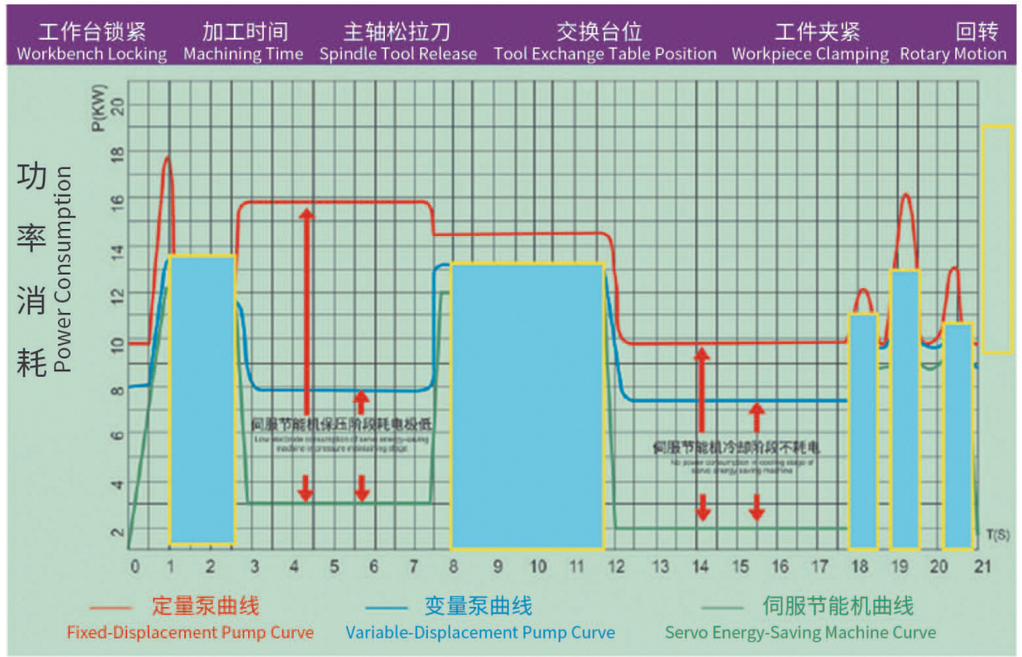
The power efficiency losses in a hydraulic system primarily include: Efficiency of the prime mover, Pressure-flow matching efficiency, Conversion efficiency, Transmission efficiency.

Among these, pressure-flow matching efficiency is the most significant. Since hydraulic stations typically complete operations in a short amount of time and maintain pressure over extended periods, they avoid flow-pressure matching losses and overflow.

The energy-saving effect of intelligent hydraulic systems is far superior to that of traditional hydraulic stations. We only recommend these systems to clients when energy savings exceed 50% under standard operating conditions. In our on-site measurements for clients working with complex machining components, we have recorded energy savings of up to 95%. Of course, in addition to energy savings, the intelligent energy-saving hydraulic station offers other advantages that make it a preferred choice, even in conditions where energy savings are below 50%. These advantages include ultra-low oil temperatures, exceptionally low noise levels, and low failure rates, among others.

Aohu Hydraulic System Energy Consumption Comparison Chart

Product Images	Hydraulic System 	TOS-Energy-Saving Servo Hydraulic System  Low Noise, High Energy Efficiency, Low Oil Temperature	TOS-Energy-Saving Hydraulic System  Low Noise, High Energy Efficiency, Low Oil Temperature	TOS-Energy-Saving Hydraulic System  Low Noise, High Energy Efficiency, Low Oil Temperature
Product Name	Standard Hydraulic Station	Servo Hydraulic Station	Standard Energy-Saving Hydraulic Station	High-End Energy-Saving Hydraulic Station
Product Model	TOSY-50-M2V2-11-A	TOSY-50-SM2A3-12-A	TOSY-50-NXQM2V2-13-A	TOSY-95-NXQM2A1-15-A
Motor Power [KW]	1. 5KW	1. 5KW	1. 5KW	1. 5KW
Pressure Range (MPa)	3-7HPa	3-7MPa	3-7HPa	3-7MPa
Test Duration [h] – 24 Hours	24H	24H	24H	24H
Final Total Energy Consumption	32	6	8	5
Hourly Energy Consumption [KW·h]	1. 33	0. 25	0. 33	0.2
Note: Energy consumption may vary depending on the specific application and operating conditions on-site.				

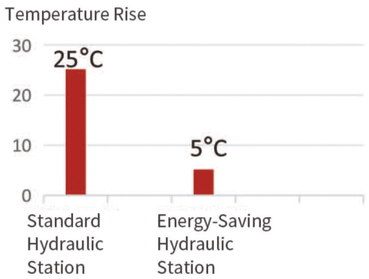


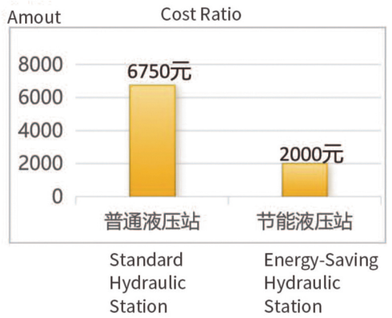
Low oil temperatures can reduce the temperature by 50% to 90%, which helps to slow down the degradation of hydraulic oil and extends the lifespan of motors.

Intelligent Energy-Saving Hydraulic Systems - System Overview

Advantage

Cost Reduction, Energy Savings





Electricity consumption is billed directly:

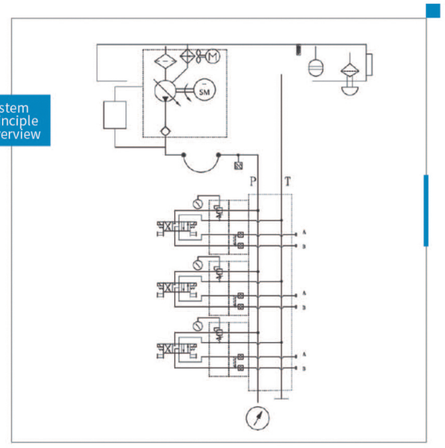
For example, a 1.5 kW hydraulic station operates approximately 300 days a year for 15 hours each day, consuming 1.5 kWh per hour (test value), with a cost of 1 yuan per kWh. Assuming a minimum efficiency of 70% for the energy-saving hydraulic station, the calculations reflect significant cost savings.

Standard Hydraulic Station Annual Electricity Cost: 300 days×15 hrs×1.5 kWh×1 Yuan=6750 Yuan

Energy-Saving Hydraulic Station Annual Electricity Cost: 6750 Yuan × (1- 70%)=2000 Yuan

Annual Savings: 4750 Yuan

System Principle Overview



Main Component List	
1	Oil Tank
2	Gear Pump
3	Servo Motor
4	Suction Filter
5	Check Valve
6	Pressure Gauge
7	Pressure Switch
8	Pressure Sensor
9	Solenoid Directional Valve
10	Integrated Relief Valve
11	Integrated Pressure Reducing Valve
12	Oil Level and Temperature Gauge
13	Oil Circuit Block
14	Oil Fill Port
15	Junction Box

Model Description

TOSY - 50- SM1 A1-13-A

Series	Tank Capacity	Servo motor power	Pump Output Specifications	Number of Axes	Fixture
TOSY	40=40L 50=50L 60=60L 70=70L 80=80L	SM1=0.75KW SM2=1.5KW SM3=2.2KW SM5=3.75KW	A1=HGP-1A A2=HGP-2A A3=HGP-3A A4=HGP-4A	1 = 4-axis 2 = 5-axis	0 = No fixture 1 = 1 set of fixture 2 = 2 sets of fixtures 3 = 3 sets of fixtures 4 = 4 sets of fixtures 5 = 5 sets of fixtures

Servo Energy-Saving Hydraulic Station

System Overview

1. By leveraging the characteristics of servo technology and integrating hydraulic principles, the system provides on-demand supply, achieving energy savings of approximately 70%.
Compared to variable displacement pumps, secondary energy waste is significantly reduced.

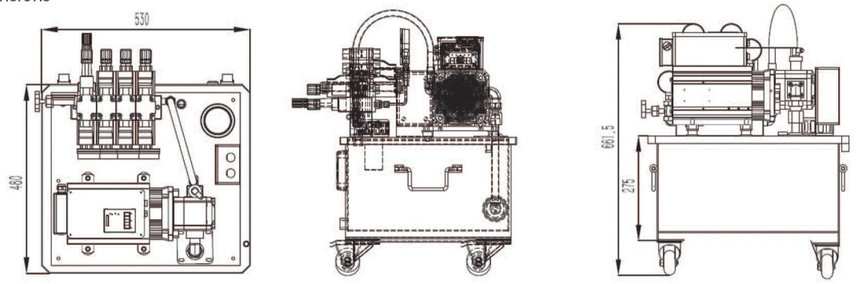
2. The application of servo technology greatly reduces wasted energy, resulting in minimal heat generation.
With low operating temperatures, the lifespan of hydraulic components is extended, and the accuracy of the equipment is improved, achieving zero-leakage pressure holding.

3. Simple operation and easy maintenance.

4. Compact design, maximizing space efficiency.

5. Modular assembly for easy maintenance and installation.

Dimensions



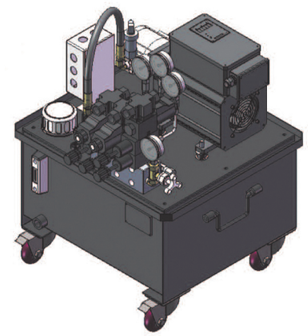
Technical Parameters

Model	TOSY-50-SM2 A1-11-A
Pressure Range	1.5-7MPA
Pump Type	Fixed Displacement Gear Pump
Maximum Flow Range	8-15CC/REC
Power Supply	3-phase AC 380V 50Hz/60Hz or 3-phase AC 220V 50Hz/60Hz
Oil Specification	ISO VG32-46NAS
Coating Color	Black

Note: 1.The above charts are for reference only; the actual product will be made according to specific working conditions.

2. Additional components not shown in the diagram can be selected to meet various operational requirements.

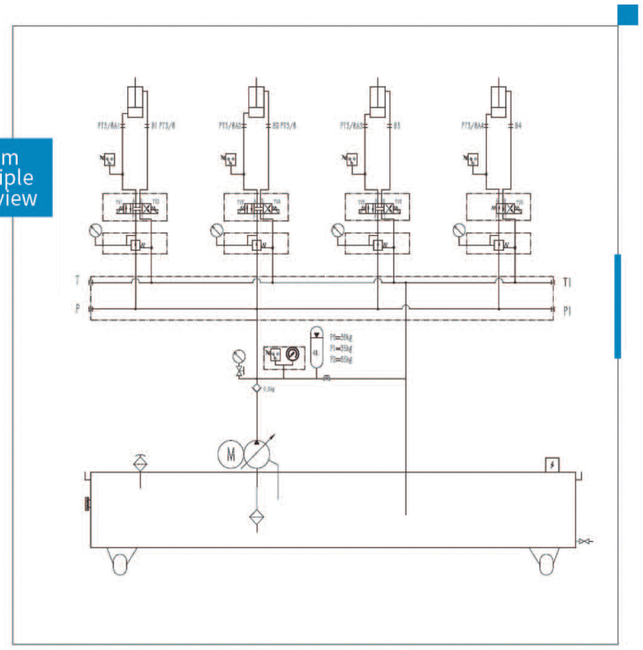
3.This hydraulic system is customizable: each valve function can be individually tailored, with independent circuit operation that does not interfere with one another, suitable for high, medium, and low-pressure ranges.



3D Diagram is for reference purposes only, actual product shall prevail.

Servo Energy-Saving Hydraulic Station

System Principle Overview



Main Component List	
1	Oil Tank
2	Variable Vane Pump
3	Asynchronous Motor
4	Suction Filter
5	Check Valve
6	Pressure Gauge
7	Electrical Contact Pressure Gauge
8	Pressure Gauge Switch
9	Solenoid Directional Valve
10	Integrated Relief Valve
11	Stacked Hydraulic Block
12	Oil Level and Temperature Gauge
13	Oil Filling Port
14	Accumulator
15	High-Pressure Ball Valve
16	Pressure Switch
17	Junction Box

Model Description(Standard Energy-Efficient Hydraulic Station)

TOSY-50-NXQ-M2 V2-13-A

Series	Tank Capacity	Accumulator	Asynchronous Motor Power	Pump Output Specification	Number of Shafts	Fixture
TOSY	40=40L 50=50L 60=60L 70=70L 80=80L	Customization	M1 = 0.75KW M2 = 1.5KW M3 = 2.2KW M5 = 3.75KW	V1 = VP15 V2 = VP20 V3 = VP30 V4 = VP40	1 = 4-axis 2 = 5-axis	0 = No fixture 1 = 1 set of fixture 2 = 2 sets of fixtures 3 = 3 sets of fixtures 4 = 4 sets of fixtures 5 = 5 sets of fixtures

Standard Energy-Efficient Hydraulic Station

System Overview

1.The energy storage tank's characteristics are utilized to achieve the pressure-holding function during shutdown, significantly reducing secondary energy waste.

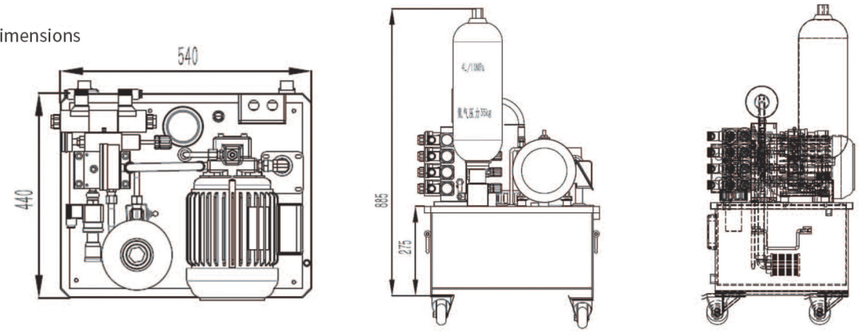
2.Compared to traditional hydraulic systems, energy savings can reach approximately 70%. The secondary energy waste is greatly reduced when compared to vane pump systems without energy storage functionality.

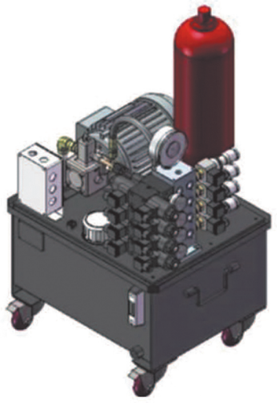
3.The system's use of an energy storage tank provides power, achieving high efficiency for the main unit. This eliminates the need for a cooling system, effectively saving energy and reducing power consumption.

4.The integration of an energy storage tank improves operational comfort. Low noise levels, along with high energy efficiency, are prioritized in manufacturing, with consideration given to both noise reduction and simplified equipment design.

5.The simple structure and high reliability ensure ease of operation and maintenance. The compact design of the system saves space and enhances overall efficiency.

Dimensions





3D Diagram is for reference purposes only, actual product shall prevail.

Technical Parameters

Model	TOSY-50-NXQ M1V1-11-A
Pressure Range	1.5-7MPA
Pump Type	Variable Vane Pump
Maximum Flow Range	8-20L/MIN
Power Supply	3-phase AC 380V 50Hz/60Hz 3-phase AC 220V 50Hz/60Hz
Oil Specification	ISO VG32-46NAS
Coating Color	Black

Note: 1. The above charts are for reference only; the actual product will be made according to specific working conditions.

2. Additional components not shown in the diagram can be selected to meet various operational requirements.

3. This hydraulic system is customizable: each valve function can be individually tailored, with independent circuit operation that does not interfere with one another, suitable for high, medium, and low-pressure ranges.

High-End Energy-Eficient Hydraulic Station

System Overview

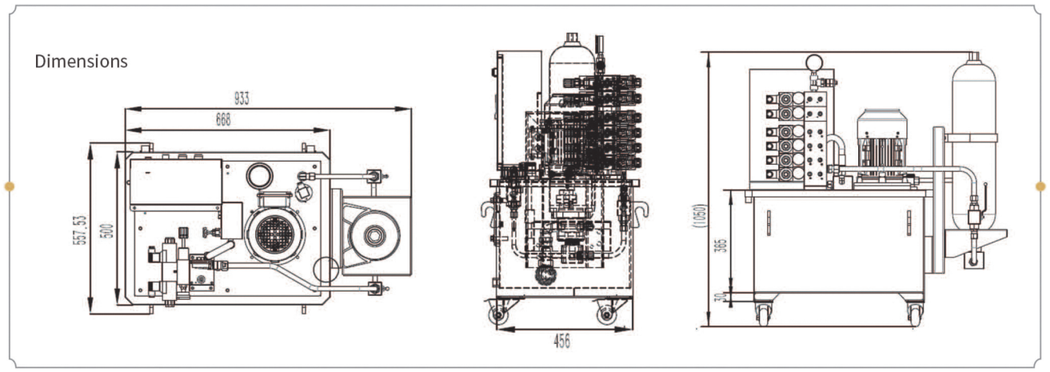
1. The advanced tooling fixture high-end energy-efficient hydraulic station is environmentally friendly with very low carbon emissions, designed to be energy-saving by only operating when additional pressure is required.

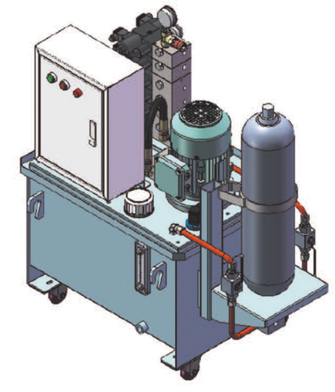
2. During operation, the pump is activated, reaches the preset pressure, and then automatically shuts off.

3. During operation, as pressure decreases, the pressure switch automatically activates the pump to restore the clamping pressure in the hydraulic system.

4. The pump should be operated according to requirements to reduce electrical consumption and prevent continuous operation that may cause excessive oil temperature.

Dimensions





3D Diagram is for reference purposes only, actual product shall prevail.

Technical Parameters

Model	TOSY-95-NXQ M1A1-11-A
Pressure Range	1.5-10MPA
Pump Type	Fixed Displacement Gear Pump
Maximum Flow Range	8-15CC/REC
Power Supply	3-phase AC 380V 50Hz/60Hz 3-phase AC 220V 50Hz/60Hz
Oil Specification	ISO VG32-46NAS
Coating Color	Black

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High-End Energy-Eficient Hydraulic Station

Note: 1. The above charts are for reference only; the actual product will be made according to specific working conditions.

2. Additional components not shown in the diagram can be selected to meet various operational requirements.

3.This hydraulic system is customizable: each valve function can be individually tailored, with independent circuit operation that does not interfere with one another, suitable for high, medium, and low-pressure ranges.

Model Description

TOSY-95-NXQ-M2 A1-1 5-A

Series	Tank Capacity	Accumulator	Asynchronous Motor Power	Pump Output Specification	Number of Shafts	Fixture
TOSY	40=40L 50=50L 60=60L 70=70L 80=80L	Customization	M1 = 0.75KW M2 = 1.5KW M3 = 2.2KW M5 = 3.75KW	A1 = HGP-1A A1 = HGP-2A A3 = HGP-3A A4 = HGP-4A	1 = 4-axis 2 = 5-axis	0 = No fixture 1 = 1 set of fixture 2 = 2 sets of fixtures 3 = 3 sets of fixtures 4 = 4 sets of fixtures 5 = 5 sets of fixtures

System Overview

1. By leveraging the characteristics of servo technology and integrating hydraulic principles, the system provides on-demand supply, achieving energy savings of approximately 70%.

Compared to variable displacement pumps, secondary energy waste is significantly reduced.

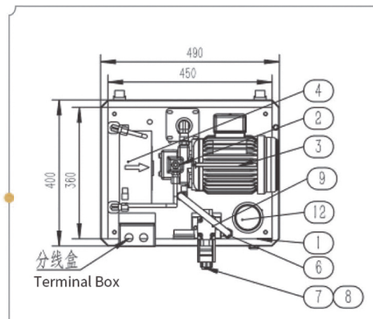
2. The application of servo technology greatly reduces wasted energy, resulting in minimal heat generation.

With low operating temperatures, the lifespan of hydraulic components is extended, and the accuracy of the equipment is improved, achieving zero-leakage pressure holding.

3. Simple operation and easy maintenance.

4. Compact design, maximizing space efficiency.

5. Modular assembly for easy maintenance and installation.



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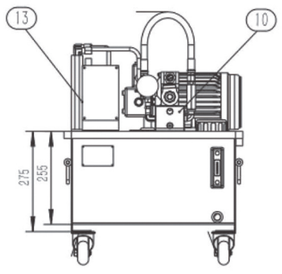

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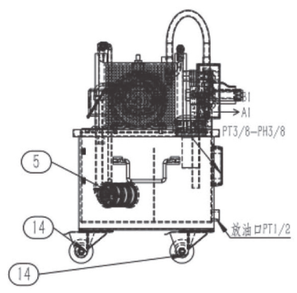

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Model Description

TOSY - 40 - M1 V1 - 1 0 - A

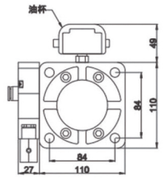
Series	Tank Capacity	Motor Power	Pump Output Specification	Number of Shafts	Fixture
TOSY	40=40L 50=50L 60=60L 70=70L 80=80L	M1 = 0.75KW M2 = 1.5KW M3 = 2.2KW M5 = 3.75KW	V1 = 15 V2 = 20 V3 = 30 V4 = 40	1 = 4-axis 2 = 5-axis	0 = No fixture 1 = 1 set of fixture 2 = 2 sets of fixtures 3 = 3 sets of fixtures 4 = 4 sets of fixtures 5 = 5 sets of fixtures

Model Description (Dedicated Four-Axis Booster Cylinder)

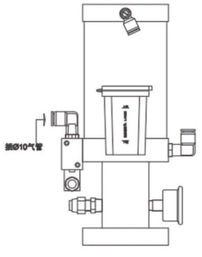
ZYH - 625 - 100

Series	Boosting Ratio	Oil Flow
	1:6.25	100CC

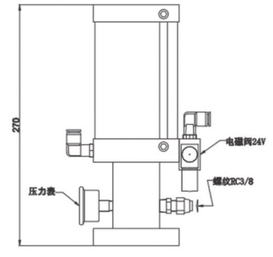
Model: ZH625100	Bore Diameter: 100 mm
Boost Ratio: 1:625	Oil Output: 100 cc



Top View



Front View



Side View

Dual-Circuit Hydraulic Station

Specifi-cations

1. System Tank Capacity: 50L

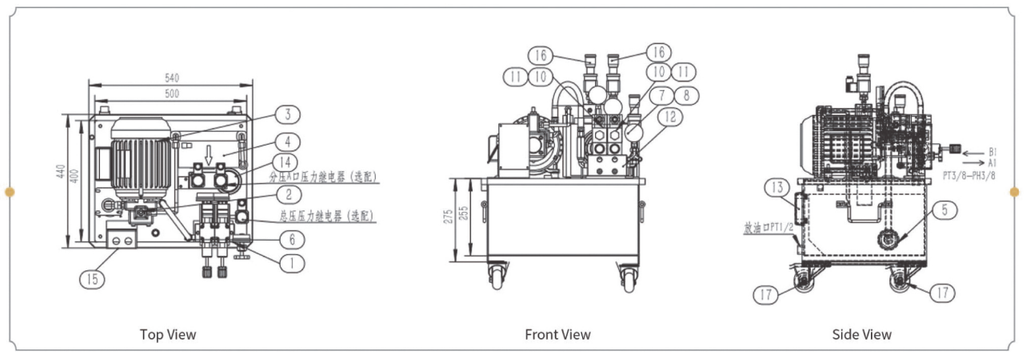
2.System Motor: 1.5KW 4P 380V/AC220V 50Hz, factory setting AC380V, speed: 1420 r/min

3. Pump: Variable Vane Pump, Flow Rate: 20L/min (1800cc/rev), factory preset working pressure: 5.0 Mpa

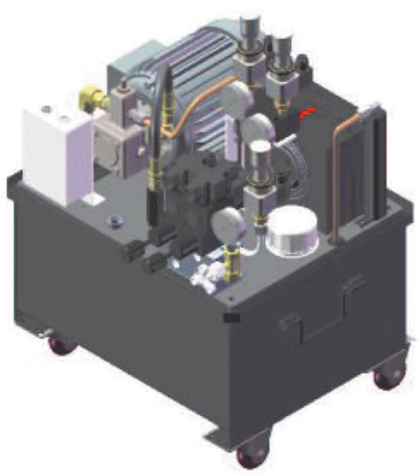
4. Solenoid Valve Voltage: DC24V, Fan Voltage: AC220V

5.Pressure Switch Configuration: Total pressure or electromagnetic valve A port pressure monitoring, optional based on specific requirements

6. Inlet/Outlet Ports A1-A2, B1-B2: PT3/8



Top View　　Front View　　Side View



3D Diagram is for reference purposes only, actual product shall prevail.

Triple-Circuit Hydraulic Station

Specifi-cations

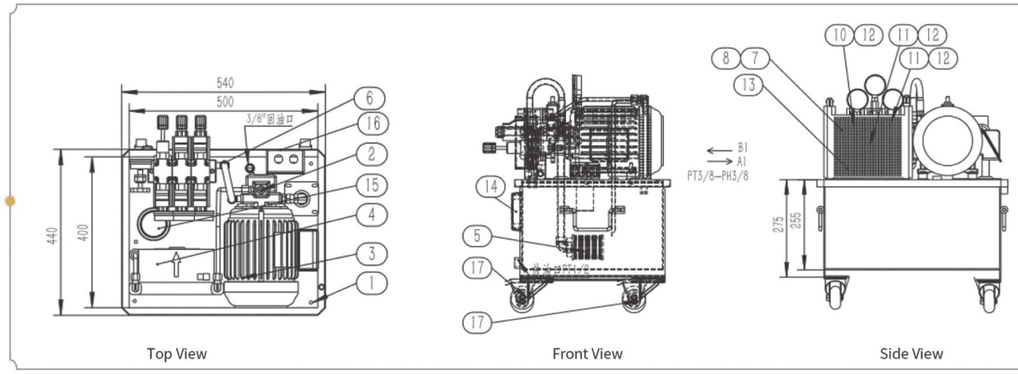
1. System Tank Capacity: 50L

2. System Motor: 1.5KW 4P 380V/AC220V 50Hz, factory setting AC380V, speed: 1420 r/min

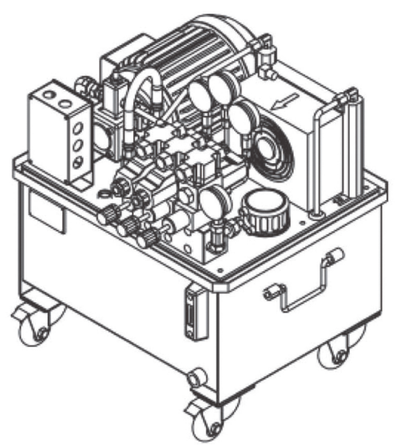
3. Pump: Variable Vane Pump, Flow Rate: 20L/min (1800cc/rev), factory preset working pressure: 5.0 MPa

4. Solenoid Valve Voltage: DC24V, Fan Voltage: AC220V

5. Inlet/Outlet Ports A1-A3, B1-B3: PT3/8, with reserved return port PT3/8"



Top View　　Front View　　Side View



3D Diagram is for reference purposes only, actual product shall prevail.

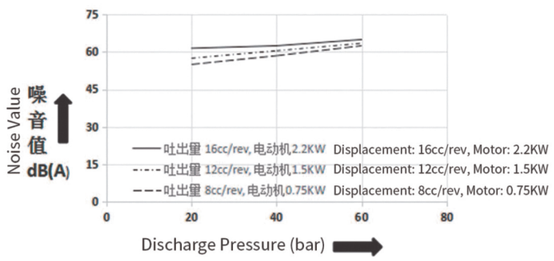
Triple-Circuit Hydraulic Station

Performance Characteristics

Noise Characteristics

Test Conditions

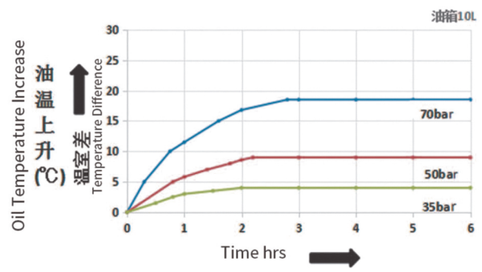
- Oil Viscosity: ISO VG 46
- Oil Temperature: 40±5°C
- Measurement Distance: 1 meter behind the pump



Temperature Rise Characteristics

Test Conditions

- Oil Viscosity: ISO VG 46
- Oil Temperature: 30°C
- Motor Power: 0.75-3.75KW

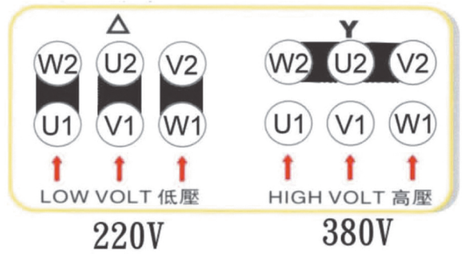


Regular inspection and maintenance of the hydraulic station.

Inspection Area	Inspection Item	Inspection Period	Inspection Method
Oil Tank (including working oil)	Oil Leaks	Weekly	Weekly
	Oil Leaks	Weekly	Weekly
	Oil Cleanliness and Condition	Every 3 Months	Lab Analysis
	Oil Temperature	Weekly	Oil Thermometer or Touch
	Displacement	Every 3 Months	Drive speed measurement, Test station
Pump	Pressure	Every 3 Months	Pressure Gauge
	Noise	Every 3 Months	Listening or Sound Level Meter
	Surface Temperature	Every 3 Months	Thermometer or Touch
	Seals, Gaskets, Leakage, or Air Intake	Every 3 Months	Visual or Check for Bubbles/Noise in Tank
Coupling	Oil Supply, Wear Condition	Annually	Visual Inspection
Pressure Control Valve	Set Value and Operation Status	Every 3 Months	Pressure Gauge or Actuator Movement
Flow Control Valve	Set Value and Operation Status	Every 3 Months	Drive Speed Measurement
Direction Control Valve	Operational Status	Every 3 Months	Actuator Movement Check
	Internal Leakage	Annually	Neutral Actuator Movement or Test Station Measurement
	Coil Insulation Resistance	Annually	Measured with a 500MΩ megger.
Filter	Cleaning	Monthly	Visual inspection.
	Cleaning	Every 3 months	Cleaning as required.
Cooler	Cooling Capacity	Every 3 months	Measured using an oil thermometer or touch.
	Water Leakage	Every 3 months	Reference to working oil analysis data.
Piping and Clamps (including rubber hoses)	Oil Leaks	Weekly	Visual inspection.
	Loosening and Vibration	Weekly	Visual, tactile inspection or vibration meter.
Rotary Hydraulic Cylinder	Cycle Time	Weekly	Measure the cycle time.
	Vibration & Impact	Weekly	Visual inspection, tactile inspection, or vibration meter.
	Oil Leaks	Weekly	Visual inspection.
Hydraulic Chuck	Lubrication Oil Supply	Daily	Immediately apply lubrication oil at the start of the workday.
	Cleaning	Every 6 months	Fully disassemble and clean.

Hydraulic Station Wiring

1. U, V, W: These are the motor control lines for the hydraulic station, factory set to three-phase AC380V. If connecting to three-phase AC220V, please adjust the internal jumper on the motor (as shown in the diagram below). PE is the ground connection.



2. F1, F2: These are the cooling fan control lines, with a voltage of AC220V.

3. D1, D2, D3, D4, D5, ... OV: These are the solenoid valve connections, with a voltage of DC24V.

4. 1COM, 1NO, 1NC, ...: These are the pressure switch connections, with COM as the common terminal (DC24V or as per the machine's electrical requirements). NO is for normally open, NC is for normally closed. (No wiring is required if there is no pressure switch).

5. Hydraulic station factory pressure: 30 kgf/cm² (3 MPa).

Please strictly follow the voltage specifications when wiring the system. Incorrect connections may result in damage to the components!

Maintenance and Servicing

Hydraulic Oil Usage and Maintenance

- The operating temperature should be kept below 70°C. Ideally, it should be below 60°C. Particularly in high-pressure conditions, the return oil temperature from the relief valve can be very high. Extra care should be taken if using heaters or localized heating. High temperatures will accelerate oxidation.
- Control contamination, as contaminants in the working oil will speed up oxidation.
- Prevent moisture from entering the working oil, as water will degrade the oil. Excess moisture can cause the oil to emulsify.
- Different manufacturers' working oils should not be mixed, as using oils with different brands, types, or grades can lead to the degradation of additives in the oil.
- Prevent leakage between hydraulic equipment connections to minimize oil loss.
- Regular inspection of the working oil.
- Used oil that has begun to degrade cannot have its service life extended simply by adding new oil. It should be completely replaced with fresh oil.