












Hydraulic Synchronous System

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Hydraulic Synchronous System Summary

As required, SAIVS provides hydraulic synchronous jacking system for various industries and applications.

Provides a hydraulic pusher in orbit to realize the smooth movement of large weight.

Provides hull transport vehicle and cost-effective equipment for long distance transport.

Provides hydraulic synchronous jacking system, including hydraulic lifting system and hydraulic pushing system develop all kinds of integrated hydraulic solutions.

The hydraulic synchronous system is hydraulic driven and automatically controlled by pressure and displacement closed-loop, it is widely applied in rubber support replacement of expressway, lifting of flyovers and river bridges, rectification of heavy equipment.

The flow of the pump in this system is controlled by changing the the switch frequency of the on-off valve, that means the output flow of pump was adjustable. And equipped with the suitable electric control devices to form the pressure and displacement closed-loop.

Every hydraulic cylinder can be precisely controlled to achieve synchronous lifting and keep balanced load when in weighting process.



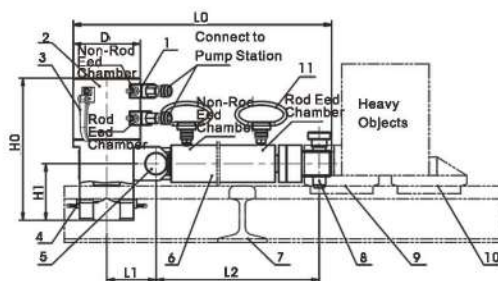
SCM Series, Hydraulic Pusher



Features

- It includes two parts: clamping pliers and pushing cylinder. It is widely used in various large parts transportation industries.
- Users shall prepare heavy rail (38kg/m, 43kg/m, 50kg/m) and main and passive slipper by themselves.
- In order to make the moving weight run smoothly, two sets of machine must be used simultaneously.
- Apply lubricating grease to the contact surface of the slipper and rail to reduce the friction system.

- 1-Distributor Valve
- 2-Clamping Cylinder
- 3-Switch
- 4-Jaw
- 5-Long Pin
- 6-Pushing Cylinder
- 7-Heavy Rail
- 8-Short Pin
- 9-Active sliding boot
- 10-Passive sliding boot
- 11-Rustproof Handle Ring



Capacity: 16-30tons
Pushing Stroke: 600mm / time
Maximun Operating Pressure: 504-624bar
Pushing Capacity in Ideal Condition:
SCM16-600 158ton SCM30-600 400ton

Ordering Example

Model: SCM16-600 16 ton Hydraulic Pusher
 Clamping plier:SCM16-600-1,2pcs
 Pusher:SCM16-600-2,2pcs
 Electric hydraulic pump:PE10,2pcs
 High pressure hoses:
 SZAX-3 - M22X1. 5, 4pcs
 SZAX-6 - NPT3/8, 4pcs
 Active and passive boots:User backup



Model Number	Dimensions (mm)					
	L0	L1	L2	H0	H1	D
SCM16-600	1143	132.5	887	382	152	180
SCM30-600	1193	157.5	905	417	152	250

Model Number	Clamping Plier						Pusher					
	Working pressure	Rated clamping force	Clamping Travel	Reservoir Oil capacity	Usable oil volume	weight	Working pressure	Rated pushing force	Pushing stroke	Reservoir Oil capacity	Usable oil volume	Weight
	Bar	KN	mm	L	L	kg	bar	KN	mm	L	L	kg
SCM16-600	504	775	35	0.27	0.54	67	504	157	600	0.92	1.87	50
SCM30-600	624	1960	35	0.52	1.1	137	585	294	600	1.34	3.02	69

SVS Series, Ship Transportation Trolley



Features

- Design for "ship building in sections" which equipments need to be transported on long distance.
- High precision equipment to adjust the ship in three dimensionals.
- Single equipment capacity of 80t, 150, 300t.
- Can be designed according to customers requirements. (degree of automation, degree of precision, load weight and moving speed).

Capacity: 80-300ton
Lifting Height : 1000mm
Max. Operating Pressure: 200-300bar



Model Number	Capacity	Pressure	Lifting Height	Orbital width	Running whee diameter	Speed of movementwith full loading	Speed of movement with empty loading	Input voltage	Walking conditions
	(ton)	(bar)	(mm)	(mm)	(mm)	m/min	m/min		
SVS-XD-80T	80	200-300	1000	1000	750	5-10	10-20	220-576V 3Ph	Orbital
SVS-XD-150T	150	200-300	1000	1000	750	5-10	10-20	220-576V 3Ph	Orbital

HPA Series, Clamp Rail Hydraulic Synchronous Pushing System



Capacity: 60-110 ton
Stroke: 300-600 mm
Pushing Speed: 8-20 m/h
Max. Pressure: 315 bar



Features

- Self-locking clamping device, save the reinforcement of the reaction force frame, save time and effort.
- The push cylinder is rigidly connected with the pushed member, high synchronization control accuracy.
- Multi point simultaneous pushing can be used to reduce local stress of multi-component and prevent component damage.
- By changing the shape and size of wedges, various specifications and models of tracks can be realized.
- Installation is convenient & quick, and the construction process is followed automatically to reduce the construction period.
- The cylinder is slowly loaded and pushed at a uniform speed.
- During the construction process, the displacement and pressure of each pushing point can be displayed and controlled in real time to ensure the safety of site construction.
- Used for synchronous push-slide construction of large components.
- The innovative hydraulic push-slide construction system offers superior control and efficiency compared to traditional methods. It utilizes a hydraulic pushing pump station, cylinder, self-locking crawler, wedge block, and sliding shoe to ensure precise synchronization and stability during the construction of large components. Key advantages include self-locking clamping, high synchronization control, multi-point pushing, adaptability, easy installation, stable operation, and real-time monitoring.

Model	Capacity (T)	Working Pressure (bar)	Stroke (mm)	Applicable Track	Pushing Speed (m/h)
HPA-60	60	315	300/600	P43、QU70、QU80、QU100、QU120	8-20
HPA-120	110	315	300/600	P43、QU70、QU80、QU100、QU120	8-20

HPB Series, Walking Synchronous Pushing Hydraulic System



Capacity: 50-1000 ton
Stroke: 150-500 mm
Cylinder Area: 78.5-1250 cm ²
Max. Pressure: 700 bar

Features

- The innovative walking type synchronous pushing hydraulic equipment offers advanced features, including high-speed, stable pushing, ultra-high pressure hydraulic technology, and precise speed control.
- Its ability to adjust the vertical supporting force and bridge attitude ensures safe and reliable construction of composite structure bridges.
- The equipment's integrated design & versatile functions make it well-suited for pushing types of steel structures, meeting the demands of modern bridge construction.
- In the construction process, it can realize multiple reciprocating lifting, pushing, deviation correction and other actions.



Model	Capacity(T)	Stroke(mm)	Working Pressure(bar)	Cylinder Area(cm2)
HPB-250	Vertical(Z)	250	200	363
	Horizontal(X)	50	150	78.5
	Longitudinal(Y)	50	500	78.5
HPB-400	Vertical(Z)	400	200	572.3
	Horizontal(X)	60	150	95
	Longitudinal(Y)	60	400	95
HPB-600	Vertical(Z)	600	200	855
	Horizontal(X)	100	150	133
	Longitudinal(Y)	100	400	133
HPB-1000	Vertical(Z)	1000	200	1250
	Horizontal(X)	200	150	283
	Longitudinal(Y)	200	400	283

HPC Series, 3D Hydraulic Adjustment Equipment



Capacity: 100-600 ton
Stroke: 150-250 mm
Moving Speed: 6 m/min
Max. Pressure: 700 bar



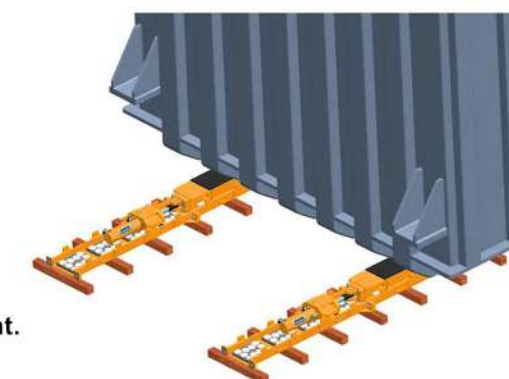
Features

- Operation method: wire-controlled handle (standard), the console (optional).
- Transportation: self-powered walking (hydraulic motor), crane lifting (with hooks), forklift trucking (with a shovel hole).
- Specially designed for the hull segment closure three-dimensional adjustment of positioning, hull segmentation can be precisely positioned in three dimensions, six directions.
- The equipment adopts a 70MPa high-pressure hydraulic system with a compact structure and light weight. Mechanical-electrical-hydraulic integration design, flexible operation. Standard with line control handle can realize segmental adjustment, continuous or point operation, also can be equipped with linkage master console to improve work efficiency. Hydraulic lock, lifting valve group, mechanical lock triple security to ensure the safety of equipment and personnel.
- Hydraulic motor-driven traveling, easy to position, the top 5° can be tilted saddle to adapt to uneven working conditions.
- Modularized design is convenient for maintenance and upgrading.

HPD Series, Lightweight Sliding Hydraulic System



Capacity: 100-200 ton
Stroke: 450 mm
Moving Speed: 30 m/h
Single Track Length: 3 m



Features

- Ultra-high pressure design, structure design is simple, light and easy to assemble on site.
- Both ends of the hydraulic cylinder are plug-in type with a simple structure.
- Ratchet buckle design to realize push-pull force support point.
- The slide is an assembled module, which can be assembled repeatedly to achieve long-distance push and pull.
- Equipped with multi-point synchronous hydraulic system to ensure high-precision position synchronization during sliding movement.
- The light weight sliding hydraulic system is mainly composed of slides, sliding shoes, friction-reducing sliding blocks, push-pull hydraulic cylinders and control pump stations.
- The moving object is placed on the sliding shoe. The sliding shoe and the friction-reducing sliding block on the slide form a sliding pair, which drives the object forward and backward by controlling the expansion and contraction of the hydraulic cylinder.
- It uses ratchet buckles for push-pull force points and a built-in sliding shoe and friction-reducing block for smooth movement.
- The system is ideal for small spaces and can be used without lifting tools.

Model	Vertical (Z)		Horizontal (X/Y)			Working Pressure(bar)		Moving Speed (m/min)	Flow(L/min)		Power	Oil Tank Capacity (L)	Dimensions(mm)	Weight (Kg)
	Capacity (T)	Stroke (mm)	Pushing (T)	Pulling (T)	Stroke (mm)	Lifting System	Walking System		Lifting System	Walking System				
HPC-100	100	250	63	33.3	150	700	200	6	2	4	AC 380V/50Hz	\	2220x1240x1300	\
HPC-200	200	250	63	33.3	150	700	200	6	2	4	AC 380V/50Hz	130	2220x1250x1300	2945
HPC-300	300	250	60	60	150	700	160	6	2	6	AC 380V/50Hz	120	2180x1500x1540	4560
HPC-400	400	250	60	60	150	700	160	6	2	6	AC 380V/50Hz	120	\	\
HPC-500	500	250	60	60	150	700	160	6	2	6	AC 380V/50Hz	\	\	\
HPC-600	600	250	60	60	150	700	160	6	2	6	AC 380V/50Hz	\	\	\

Model	Capacity (T)	Single Push-Pull Stroke (mm)	Assembled Combination	Single Track Length (m)	Moving Speed (m/h)
HPD-100	100	450	Yes	3	30
HPD-200	200	450	Yes	3	30

HLA Series, Double Acting Synchronous Hydraulic Lifting System



Control Voltage: DC24V
 Working Voltage: AC380V/50Hz (3Ph)
 Displacement Precision: $\cong \pm 0.2\text{mm}$
 Max. Pressure: 700 bar



Features

- Control Pattern: frequency conversion speed regulating.
- Alarm device: Alarm running light.
- Pressure sensor: input DC24V, range: 0-700bar, output 4-20mA.
- Displacement sensor: input DC24V, range: 0-1000mm, Push-pull output (A, B phrase).
- Continuous flow regulation control ensures smooth lifting and lowering of heavy loads.
- The process protection function of the flat load valve avoids cylinder expansion accidents during multi cylinder jacking.
- It can be extended to multi-point synchronization of 32 points or more on the basis of two-point synchronous lifting, up to a maximum of 99 points.
- Precise lifting: a load cell unit and high-precision displacement sensor that are completely independent of the jack.
- Synchronous lifting: dual control of force & displacement synchronization, automatically called at different stages.
- Safety: Multiple hydraulic valves and intelligent programs ensure the safety of lifting and data.
- Multi point control can be used for functions such as heavy load weighing, synchronous pushing, synchronous lifting, synchronous landing, proportional synchronous lifting, attitude leveling, and automatic voltage stabilization.

HLB Series, Single Acting Synchronous Hydraulic Lifting System



Oil Tank Capacity: 130-200L
 Working Voltage: AC380V/50Hz (3Ph)
 Displacement Precision: $\cong \pm 0.5\text{mm}$
 Max. Pressure: 700 bar



Features

- Control Mode: Pulse-Width-Modulation.
- Operating Interface: Human-computer interface
- Alarm device: Alarm lamp.
- Supporting the use of various types of low height hydraulic cylinders, applied to synchronous lifting and replacement of highway bridge rubber bearings.
- The synchronous hydraulic lifting system uses an on-off valve in the pump station to regulate flow continuously. It ensures precise synchronization and load balancing of hydraulic cylinders through closed-loop control of pressure and displacement, suitable for lifting and replacing highway bridge rubber bearings.
- This system is composed of high pressure pump station, control valve group, hydraulic cylinders, stroke monitoring devices, pressure monitoring devices and 1 set of electrical control system.



Model	Lifting Points	Synchronous Precision (mm)	Motor Power (KW)	Voltage (AC/V)	Working Pressure (bar)	Flow (L)	Oil Tank Capacity (L)	Dimensions (mm)	Weight (kg)
HLA-2A	2	$\leq \pm 0.2$	1.1	380	700	2x1	130	750x810x1140	175
HLA-2B	2	$\leq \pm 0.2$	2.2	380	700	2x2	130	750x810x1140	235
HLA-2C	2	$\leq \pm 0.2$	5.5	380	700	2x5	250	950x870x1160	295
HLA-4A	4	$\leq \pm 0.2$	1.1	380	700	4x1	200	1100x870x1150	345
HLA-4B	4	$\leq \pm 0.2$	2.2	380	700	4x2	250	1200x810x1110	425
HLA-4C	4	$\leq \pm 0.2$	5.5	380	700	4x5	500	1100x950x1120	545

Model	Lifting Points	Synchronous Precision (mm)	Motor Power (KW)	Voltage (AC/V)	Working Pressure (bar)	Flow (L)	Oil Tank Capacity (L)	Dimensions (mm)	Weight (kg)
HLB-4	4	$\leq \pm 0.5$	2.2	380	700	2	130	750x860x1200	215
HLB-8	8	$\leq \pm 0.5$	2.2	380	700	2	130	750x860x1200	235
HLB-12	12	$\leq \pm 0.5$	2.2	380	700	2	130	750x860x1200	255
HLB-16	16	$\leq \pm 0.5$	5.5	380	700	5	200	1090x950x1120	375
HLB-24	24	$\leq \pm 0.5$	5.5	380	700	5	200	1090x950x1120	428

HLC Series, Double Acting Synchronous Hydraulic Lifting System



- Oil Tank Capacity: 130-200L
- Working Voltage: AC380V/50Hz (3Ph)
- Displacement Precision: $\leq \pm 0.5\text{mm}$
- Max. Pressure: 700 bar



Features

- Control Mode: Pulse-Width-Modulation
- Operating Interface: Human-computer interface
- Alarm device: Alarm lamp
- The system uses a plunger pump with a balance valve to control the oil feeding speed for cylinders during both lifting and lowering.
- This valve minimizes synchronization issues caused by hydraulic impacts and prevents cylinder leakage during power failures.
- Pressure and displacement sensors provide real-time measurements of cylinder load and movement.
- PLC controls the system, receiving data from these sensors to adjust the valve groups and hydraulic oil output, ensuring accurate lifting and load balancing.
- The synchronous lifting system uses hydraulic driving, pressure and displacement closed-loop automatic control mode to realize multi-point control, widely used in replacement of highway bridge rubber bearings, overpass lifting, synchronous lifting of inland river bridge, equipment lifting and rectification etc.

Model	Lifting Points	Synchronous Precision (mm)	Motor Power (KW)	Voltage (AC/V)	Working Pressure (bar)	Flow (L)	Oil Tank Capacity (L)	Dimensions (mm)	Weight (kg)
HLC-4	4	$\leq \pm 0.5$	2.2	380	700	2	130	755x865x1205	215
HLC-8	8	$\leq \pm 0.5$	2.2	380	700	2	130	755x865x1205	235
HLC-12	12	$\leq \pm 0.5$	2.2	380	700	2	130	755x865x1205	255
HLC-16	16	$\leq \pm 0.5$	2.2	380	700	2	200	1090x950x1120	375
HLC-24	24	$\leq \pm 0.5$	2.2	380	700	2	200	1090x950x1120	428

HLD Series, Synchronous Hydraulic Lifting System



- Control Points: 4,8
- Working Voltage: AC380V/50Hz (3Ph)
- Displacement Precision: $\leq \pm 0.5\text{mm}$
- Max. Pressure: 700 bar



Features

- The Multi-Point Synchronous Hydraulic Lifting System employs hydraulic power and closed-loop automatic control for pressure and displacement to achieve multi-point control.
- This Synchronous Hydraulic Lifting System is designed based on our application experience with earlier hydraulic products used in highways and bridges, making it highly suitable for the maintenance needs of highways and bridges.
- It is commonly used for tasks such as replacing highway bridge rubber bearings, lifting overpasses, synchronously lifting inland river bridges, and for equipment lifting and alignment etc.



Model	Synchronous Precision(mm)	Voltage	Max.Working Pressure(bar)	Operating Mode	Control Model	Control Points	Points Extended
HLD-4	$\leq \pm 0.5$	AC380V 50Hz 3Ph	350	Button & Touch Screen	Pulse Width-Modulation	4	Network Communication and Points Extended
HLD-8	$\leq \pm 0.5$	AC380V 50Hz 3Ph	700	Button & Touch Screen	Pulse Width-Modulation	8	Network Communication and Points Extended

HLE Series, Quantitative Synchronous Lifting Hydraulic System



- Oil Tank Capacity: 40-150L
- Shunt Outlet: 2, 4, or 6 outlets
- Flow at Rated Pressure: 0.45-4.2L/min
- Max. Pressure: 700 bar



Features

- Valves operate individually or synchronously, with functions for rising, holding and falling.
- Control: 24V Electromagnetic Valve.
- Suitable for both single-acting and double-acting cylinders.
- Each circuit is equipped with an adjustable pressure relief valve.
- This hydraulic system achieves precise quantitative synchronization using synchronous pumps. It operates with a single motor that drives a hydraulic pump equipped with multiple outlets. The synchronous pump ensures that the same volume of hydraulic oil is delivered to each hydraulic line, facilitating the operation of multiple hydraulic jacks.
- The synchronization of the hydraulic jacks relies on the accurate flow rate of each pump head. It is particularly effective for hydraulic jacks of the same tonnage, as the system's design minimizes the impact of varying loads on synchronization.
- Its ability to control the flow equally across all outputs, which ensures that all connected hydraulic jacks operate in perfect harmony, meeting the synchronization requirements for all points.

Model	Export Quantity	Oil Tank Capacity (L)	Flow (L/min)	Motor Power	Weight (kg)
				(kW)	
HLE-213	2	40	1.3	5.5	235
HLE-228	2	150	2.8	7.5	483
HLE-442	4	150	4.2	11	521
HLE-404	4	40	0.45	5.5	235
HLE-409	4	150	0.9	5.5	470
HLE-414	4	150	1.4	5.5	483
HLE-421	4	150	2.1	7.5	521
HLE-604	6	40	0.45	5.5	235
HLE-805	8	40	0.55	7.5	275