

SYNCHRONIZED POSITIONING SYSTEM



COMPUTER-CONTROLLED SYSTEMS HEAVY LOADS

Mastering power

Holmatro products are all about the principle that only controlled power can be deployed effectively. We have expressed this vision in the slogan 'Mastering Power'. Still, for over 50 years after the foundation in 1967, we keep honoring our traditional Dutch roots and represent innovation, quality and support. That is why we design, develop, manufacture, and test our tools in-house. Our experience with high-pressure hydraulics enables us to seek out the boundaries of what is technically possible. This has made our tools lighter, compacter, more durable, and easier to use.

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SYNCHRONIZED POSITIONING OF DS WITH A HIGH DAMAGE RISK





SYNCHRONIZED POSITIONING SYSTEM

**Simple, safe and
extremely precise**

The synchronized positioning of heavy loads using multiple hydraulic lifting points is often considered to be a very difficult task. It does not only cost a lot of time and manpower, the work must also be performed by an operator with a high degree of expertise. This task should be easier, Holmatro engineers thought. After extensive research and considerable discussions with customers and IT specialists they developed SyncPos. Revolutionary software - specifically designed to operate Holmatro's Synchronized positioning systems – that is able to position the most complex loads with extreme precision in a simple and extremely safe manner. Controlled by just one person!

Pump control determines the magnitude of accuracy

When you decide to use a hydraulic system to synchronously position heavy loads, you can choose from various types of cylinders, pumps, and control mechanisms. In general, two types of pumps are available; single-flow pumps and split-flow pumps. Single-flow pumps supply their own individual oil flow to one lifting point.* Split-flow pumps supply multiple lifting points with individual equal oil flows. Both types of pumps can be operated mechanically (hand operated) or electrically (wired or wireless remote control). The choice of pump control determines the system accuracy and possible system features.

Use SyncPos when a deviation of a few millimeters is not acceptable

It is almost impossible to have accurate synchronized and identical control of a pump using a control handles or remote control. Different variables have an effect, such as small deviations in the pump output capacity, actual output yield, and friction loss. Also the different hose lengths within a system cause deviations. For many applications, a deviation of a few millimeters or sometimes centimeters is acceptable. But this is absolutely not the case for loads with a high risk of damage. For these kind of situations Holmatro supplies SyncPos. This revolutionary software is specially developed for loads with a high risk of damage and also specifically designed to operate a Holmatro Synchronized positioning system.

Extremely safe due to intelligent detection and signaling

SyncPos checks the set-up of the hydraulic system before it initiates a positioning action by the Holmatro Synchronized positioning system. System errors or deviations in the specified parameters are detected and signaled during operation.

During the entire process, SyncPos continuously monitors the situation. The software uses feedback from multiple sensors, including a linear position sensor, to control the process regardless of the load's weight distribution. Continuous adjustment of the oil supply to each lifting point allows SyncPos to accurately control the positioning of the

load down to 1 mm.** During this completely automated process, the structural integrity of the load is maintained. And, if the load unexpectedly shifts, something in the area blocks the load, or a sudden malfunction occurs in one of the system components, the system stops automatically and immediately generates an alert.

Less manpower and materials needed

SyncPos was developed with the utmost care to allow a single user to control the entire positioning process. The advanced yet extremely user-friendly software is run by a PLC based control unit fitted with a 12-inch touch screen. The interface is designed to be easily understood with its icons, symbols, and color scheme. The result is a relatively simple control device for which the operator does not need intensive training. As the entire positioning actions are controlled at one central point and the operator can trust the software, significantly less communication and thus manpower and materials are needed during the process. In addition to registration and monitoring, SyncPos can also provide reports and data logging.

Modular composition has many advantages

It's not just the unique features of SyncPos that make the Holmatro Synchronized positioning system a must have item for every company that positions complex structures. The modular composition of the system also provides many advantages. For example, system components can be used when needed and these are easy to extend or link together. The pumps that are used remain relatively small and compact, which makes them easy to move for a single person. There is no need for heavy transport resources. The use of multiple connectable split-flow pumps makes it possible to place the pumps as close as possible to the lifting points. This reduces the need for a complex web of hoses and cables around the load. The risk of damage to the hoses is reduced and the reaction time of the system is increased.

* A single lifting point can consist of one or more cylinders.

** The actual accuracy achieved strongly depends on cylinder capacity and the selected pump output. As a general guideline, you can expect positioning accuracy in the centimeter range with a system without HMI PLC control and an accuracy in the millimeter range with HMI PLC control.

SYNCHRONIZED POSITIONING SYSTEM

Which Synchronized positioning system fits your application best?

Each positioning application is different and not all system features are pertinent for all applications. This is why it is important to be sure of certain details beforehand, such as the weight and size of the load, the total lifting height, the application, and the area surrounding the load. But also the number of lifting points you believe will be needed and how accurate your synchronized positioning system must be.

Selecting cylinders

The type, capacity, stroke length, and number of cylinders is dependent on the load. Holmatro has over 170 different hydraulic cylinders in 15 different types and 3 different return types in its product range.

Selecting one or more pumps

The number of pumps and number of output ports per pump depends on the type and number of lifting points,

the size and situation of the load Holmatro provides several types of hydraulic pumps, which include electrically-driven pumps.

Selecting a control device

The control device for the lifting points (cylinders) determines the accuracy of the positioning action. Holmatro provides mechanical and electrical controls.



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Construction of the Schuman-Josaphat-rail tunnel in Brussels

Dirk Davidts, Team Leader CEI - De Meyer: "We developed the modular Synchronized Positioning System for this project in collaboration with Holmatro. The intensive partnership and Holmatro's contribution to the engineering process resulted in combining high pressure hydraulics and digital control technology for the first time. We were successful! Thanks to the advanced system, the positioning variance was just one millimeter per cylinder. This meant that no inadmissible stresses occurred in the structure during lifting and lowering."



SCAN THE QR CODE

See Holmatro's synchronized positioning system in action for CEI - De Meyer!



Lifting, lowering and levelling earthquake-damaged properties

Rod Moore, owner House Lifters and Meccanico: "Six years after the Canterbury earthquakes we noticed our work was ramping up for straightening commercial buildings instead of mainly private properties (houses). When I was doing research for a heavier system I discovered most jacking systems available were big and required trucks to bring in all the gear. The Holmatro system on the other hand seemed to be small and I only needed a few guys to do the job, so I decided to invest in a synchronous computer-controlled hydraulic jacking system from the Dutch company. The system was built entirely on my requirements and delivered by two engineers who came out to New Zealand to train my employees and help us get things going. With great success.



SCAN THE QR CODE

See Holmatro's synchronized positioning system in action for Meccanico!

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Lifting components

CYLINDERS

Holmatro offers hydraulic cylinders in many different types, capacities (tonnages), stroke lengths, closed heights (constructed heights) and return types.

cylinders	description	capacity		hose length	return form
		tons	mm		
	High tonnage cylinders	50 - 500	50 - 300		gravity & hydraulic
	Locknut cylinders	10 - 500	50 - 300		gravity & hydraulic
	Multi purpose cylinders	5 - 100	25 - 450		spring
	Aluminium cylinders	20 - 150	50 - 300		spring & hydraulic
	Short stroke cylinders	10 - 100	50		spring

* See our website for a complete overview.

Holmatro is the expert in the development of cylinders for specific applications. If you require a different capacity, stroke length, return form, material or surface treatment, that is no problem.

Operation components

PUMPS

Holmatro Vari pumps are very suitable for your Synchronized positioning system. These hydraulic motor pumps are secured against pressure drop of a pressure-driven check valve, due to which the oil pressure is maintained when the energy source is switched off. Vari pumps are available in various versions and therefore suitable for virtually all applications.

How many output ports are needed?

The number of pumps and the number of output ports per pump depends on the number of lifting points, the size and situation of the load. The most ideal situation is one output port per lifting point. Holmatro standardly offers 1, 2, 4, 6 or 8 output ports per Vari pump.

How much output (liters) is needed?

In addition to the number of output ports, the oil tank volume per pump is also important. Depending on the number of lifting points and the cylinder type, a certain quantity of oil is required to be able to control them. Holmatro standardly offers 25, 50, 100 and 200-liter oil tanks for each Vari pump.

Single or double-acting system?

The return form of the cylinder determines whether the system, and therefore also the pump, is produced as single-acting or double-acting.

4-step plan for selection of pumps

Step 1

Select the power source:

- Electric motor (230 V - 1 ph - 50 Hz)
- Electric motor (400 V - 3 ph - 50 Hz)

Step 2

Select pump type:

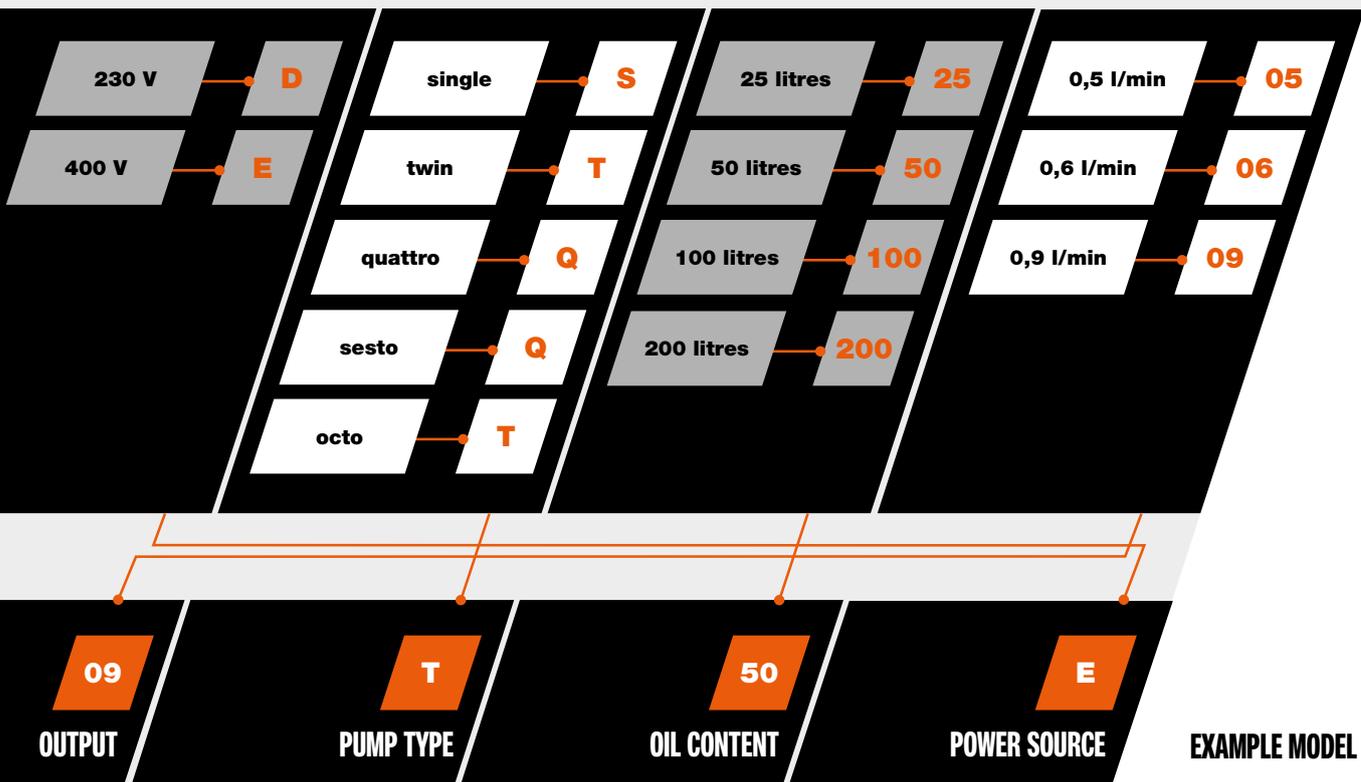
- Single, 1 output port
- Twin, 2 independant outlets
- Quattro, 4 independant outlets
- Sesto, 6 independant outlets
- Octo, 8 independant outlets

Step 3

Select the correct content for the oil tank.

Step 4

Select the correct pump output in litres per minute.





CONTROL

The control device for the lifting points (output ports) determines the accuracy of the positioning action. If you have more than 8 lifting points, or the lifting points are located far away from each other, then we advise you to opt for linking multiple pumps together through a PLC control unit.

Holmatro offers the following forms of control:

control	description
	Mechanical valves with manual operation
	Electric valves* with control: Wired remote control
	Electric valves* with control: Wireless remote control
	Electric valves* with control: PLC control unit

Guide for selecting control based on system functions								
system	single-acting				double-acting			
	valves	mechanical	electric*			mechanical	electric*	
operation	manual	wired remote control	wireless remote control	PLC control unit	manual	wired remote control	wireless remote control	PLC control unit
lifting	•	•	•	•	•	•	•	•
lowering				•	•	•	•	•
levelling				•				•
stage lift function					•**	•**	•**	•
pre-load				•				•
weighing				•				•
center of gravity determination				•				•
retract fast					•	•	•	•
depressurize	•	•	•	•	•	•	•	•
data logging				•				•

* operation of the electric valves via control box on the pump is standard
 ** not a predefined automatic function

ACCESSORIES

accessories	description
	Pump trolley with storage container
	Protective frame
	Linear position sensors / strike sensors, data cables and storage container (only with HMI PLC control)
	T-pieces to combine oil flows
	Y-pieces to combine oil flows

Connection components

HOSES

Holmatro offers various lengths of hydraulic hoses, optionally in various colors for better identification.

hoses	model	length*	max. working pressure	color options**
		m	bar / Mpa	
	VL 5 S*U	5	720 / 72	orange / blue / black / green
	VL 10 S*U	10	720 / 72	orange / blue / black / green
	VL 15 S*U	15	720 / 72	orange / blue / black / green
	VL 20 S*U	20	720 / 72	orange / blue / black / green
	VL 25 S*U	25	720 / 72	orange / blue / black / green
	VL 30 S*U	30	720 / 72	orange / blue / black / green

* Different length sizes are available on request
 ** Different hose colours are available on request

Holmatro is the expert in the development of hoses for specific applications. If you require a different length or color, that is no problem.

ACCESSORIES

accessories	description
	Hose binders

HOLMATRO OFFICES AND DEALERS

Thanks to our worldwide sales and service network there's always a Holmatro representative nearby, ready to assist you!

Find your nearest Holmatro representative on holmatro.com

All over the world



Holmatro Netherlands

Raamsdonksveer,
The Netherlands
T +31 (0) 162 58 92 00
E industry@holmatro.com

Holmatro USA

Glen Burnie MD,
USA
T +1 (0) 410-768-9662
E industrial@holmatro-usa.com

Holmatro China

Suzhou, Jiangsu Province
China
T +86 (512) 6380 7060
E china@holmatro.com

Holmatro Poland

Warszawa,
Poland
T +48 (22) 76 10 404
E info@holmatro.pl

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