POWER TEAM
HYDRAULIC TECHNOLOGIES

MOTION CONTROL SYSTEM

Hydraulic multi-point motion control system (MCS)
Synchronous lifting, lowering, or leveling for heavy objects

MULTI-POINT MOTION CONTROL SYSTEM

Motion Control System

Whether it is a bridge, a building or any kind of heavy load, with the SPX Power Team Motion Control System, lifting, lowering, pushing, pulling, tilting or positioning loads can be carried out automatically with a high degree of accuracy.

The PLC-controlled system is a combination of digital actuation and digital control providing significant advantages such as time savings, repeatability, and extremely low internal stress in the object one is moving. The system also provides documentation for the movement performed.

Easy setup and supporting options

The MCS is available from 4 to 128-points, with a tilt function that uses the X-Plane with one reference to level an object through an easy-to-use touch screen HMI (human machine interface). Systems can also a include a VPN Router using a 3G or 4G sim card where, remote troubleshooting and system upgrade is possible. Many options are available for pump sizes with flows up to 120 cubic inches per minute. Weatherproofing options are available with some models including a thermostat temperature-controlled enclosure. There is also a data logging feature within the system settings, plug in your USB drive, and capture the lift data for post review.

Model Shown 24 Point MCS

The Power Team Motion Control System (MCS) can be used in many hydraulic applications where load position is critical, requiring cylinder synchronization.

Model Shown 8 Point MCS

Key Features

1. HMI touch screen provides great visibility and easy access to system controls.
2. 4 to 128 point systems with tether linking up to 8 hydraulic skids.
3. PLC control includes; synchronous lifting / lowering / tilting, manual operation, feedback errors, data logging and optional remote support.
4. Pressure transducers at every point for digital pressure monitoring, load weighing and overload alerts.
5. Electrically controlled valves meter the distribution of oil into the hydraulic circuts in precise increments.
6. Custom reservoir sizes available for greater project versatility with cylinder size, stroke and quantity.
7. Multiple motor/pump sizes and 50/60hz voltages available from 1.125HP-10HP for each hydraulic skid.
8. Integrated lift and fork points with optional casters for easy transportation and positioning.
9. Linear position sensors up to 39.4” (1000mm) give feedback to the PLC for load location and allow synchronous movement accuracy to .040” (1mm).

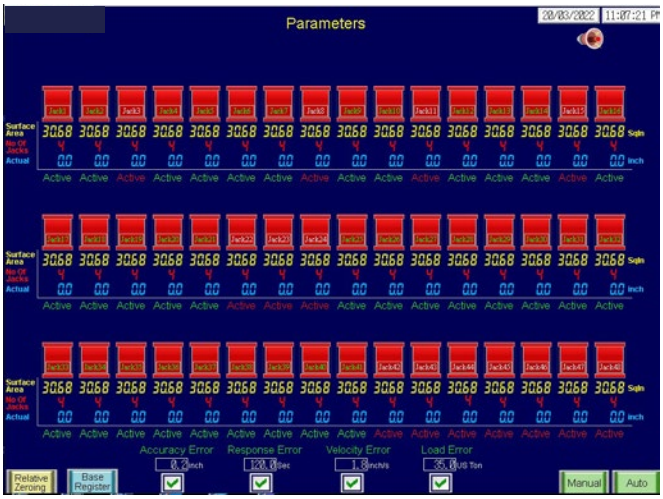
BENEFITS OF A MOTION CONTROL SYSTEM (MCS)

MCS System

The Power Team MCS digitally controls the movement of an object, keeping it level within the user specified parameters to reduce internal stress. When a large object is stationary, internal stresses are normalized and when moved stresses are induced. The MCS controlled positioning minimizes the stresses created by lifting or lowering the object helping to increase safety for your

Easy to Use HMI Touch Screen Interface

Control is as easy as inputting the height you want to move the object and start the cycle by selecting auto, up and hitting go. The MCS does the work while displaying the feedback you need to monitor a safe successful lift like; pressure per cylinder and distance traveled. The system has the capability to warn you of many potential hazards like, over pressure on a cylinder, line breaks, or out of tolerance warnings.



Safety Features

The Power Team Motion Control System (MCS) has numerous safety features built into the digital controller which safely stop the movement in the event of an alarm In addition, there are backup mechanical features which function even in the event of a power loss.

Digitally Controlled Safety Features		Mechanical Back-up Safety Features
Max load exceeded	Hydraulic pump overload	Posi-Check® load lowering valve to hold load and provide a mechanical backup to safely control the lowering of the load.
Max pressure exceeded	E-Stop button activation	
Max displacement exceeded	Pressure sensor wire break	
Datalog error	Displacement sensor wire break	Manual lowering override to safely lower load in event of power loss.
System	Accuracy, response, velocity and load alerts	

Training Provided

Every MCS includes one day of on-site training at one of SPX's Regional Headquarters (Rockford, IL USA, Singapore or the Netherlands).

Training includes both classroom and hands-on instruction. Travel & lodging not included.

APPLICATIONS

Common Applications

- Bridge lifting, repositioning, maintenance & launching
- Controlled movement and positioning of heavy equipment, buildings, concrete segments and other construction components
- Structural testing in civil engineering
- Lifting, weighing and/or determining center of gravity
- Structure raising, leveling & shoring
- Power plant rotor maintenance and separation.
- Tilting and leveling heavy objects

Lifting buildings or heavy construction projects

Synchronous separating, lifting and lowering for heavy equipment maintenance.

Lowering and positioning heavy equipment

The MCS synchronous motion control system has the ability to manage the action within 1mm accuracy between many hydraulic cylinders to lift or lower a heavy object to preset parameters while using one operator. This is accomplished through a PLC (Programable Logic Controller) that receives feedback from various sensors to fire valves at millisecond speeds with a primary focus that's safe for the object and the team.

MULTI-POINT MOTION CONTROL SYSTEM

Features

- Systems include 4, 8, 12, 16, 24 jacking points, contact Power Team for larger MCS requirements up to 128 points and manifold systems up to 512 points.
- Positioning, lifting or lowering accuracy of +/- .040” (1 mm).
- Safety features included: full stop due to power failure, sensor failure, pressure overload, tolerance error, uncontrolled load movement, etc.
- Intuitive graphic, touch screen control.
- Displayed information included: startup diagnostics, position of lift points relative to starting position, pressure at each lift point, status of each cylinder and status of alarms.
- MCS works with a wide range of cylinder types, tonnages and strokes to meet your application requirements.
- Operating pressure (up to) 10,000 psi (700 bar).

Optional Features

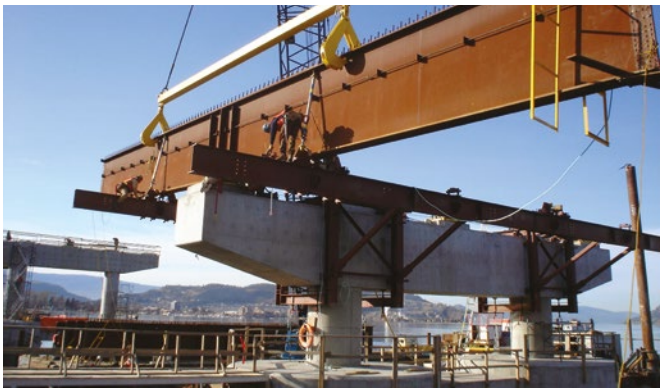
- Lockable enclosure
- Tool shelves
- Motor/pump sizes
- Distance sensor sizes
- Weather proofing
- Tilt feature
- Modem/router
- Custom HMI and functions

Cylinder Selection

Always choose a cylinder with a tonnage rating of 25%-100% more than what is required to lift or position the load. Working pressure of 5,000-8,000 PSI is recommended for MCS applications.

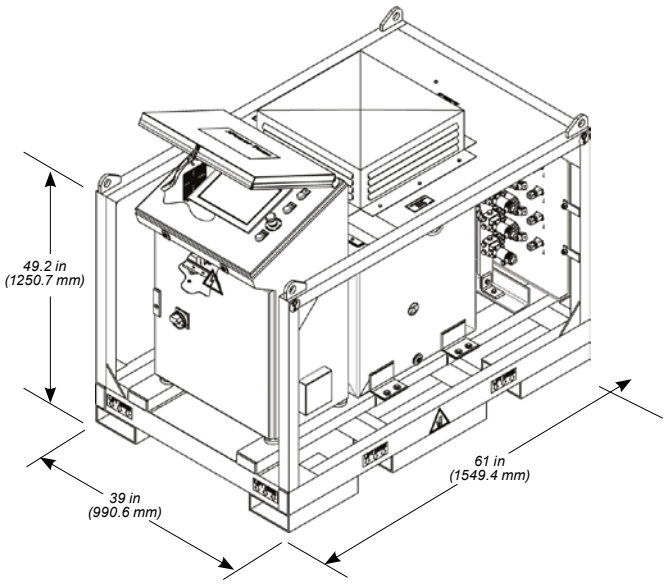
Optional Cylinders

Power Team offers a wide variety of single acting, double acting, lock nut, pancake and center hole cylinders to meet your requirements.



ORDERING INFORMATION

Model Shown: 8 Point MCS



Hardware Included

Crate

Motion Control System (MCS) is protected with a robust cage and reusable shipping container.

Sensors

Linear Displacement Sensors have a range of 19.7” (500 mm) to 39.4” (1000 mm). (Provided in cases with 4 sensors each).

Cables

Standard cables for sensors are 100’ (30.5 m) in length, contact for custom sizes.

Plug

Electrical plug female connector allows for quick attachment to your line cord.

Ordering Information

Order No.	Max. lift points	Pump flow	Reservoir size	Motor voltage	Control voltage	Max. pressure	Valves included	Transducers included	Weight w/oil
			gal (L)	hp (VAC)	VDC	psi (bar)			lb (kg)
Contact for order no.	128	55 in³ /min to 420 in³ / min @10,000 psi (0.9 L/min to 6.9 L/min @ 700 bar)	40 (150) to 100 (378.5)	1.125 (230) to 10 (230/460)	24	10,000 (700)	3P-4W and 2P-2W	Pressure and Linear Position	Varies per model

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