HENGLI HYDRAULICS

Setting the standard for highly reliable hydraulic power and control solutions for the global market, Hengli Hydraulic is devoted to the continuous innovation of new product development, manufacturing processes, quality control and management systems. We are focused on investments into intelligent manufacturing systems that employing efficiency improvements to reduce and offset energy consumption.

To meet the needs of your business, our team is ready to review your mobile equipment design specifications and market potential. A partnership with Hengli Hydraulic will deliver robust product design with the product supply chain consistency enjoyed by the top names in mobile industry.

What we provide

- Hydraulic Cylinder
- Hydraulic Piston Pump & Motor
- Hydraulic Control Valve for Mobile Machinery
- Industrial Valve
- Hydraulic Pump Unit and System
- Threaded Cartridge Valve
- Orbital Motor and Brake
- Control Components
- High-precision Casting
- Pneumatic Components and integrated System
- Cold-drawn Seamless Steel Pipe
- Surface Coating-Thermal Spray Treatment

For more detailed information, please visit our website at
www.henglihydraulics.com

We are looking forward to working with you!

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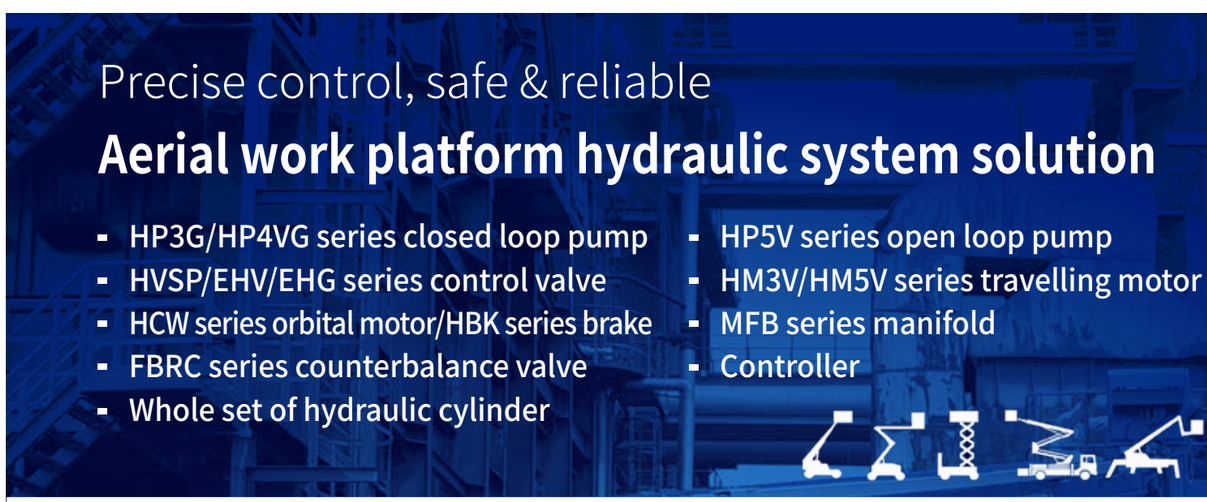
EN | Print date 202212

HENGLI HYDRAULICS

Precise control, safe & reliable

Aerial work platform hydraulic system solution

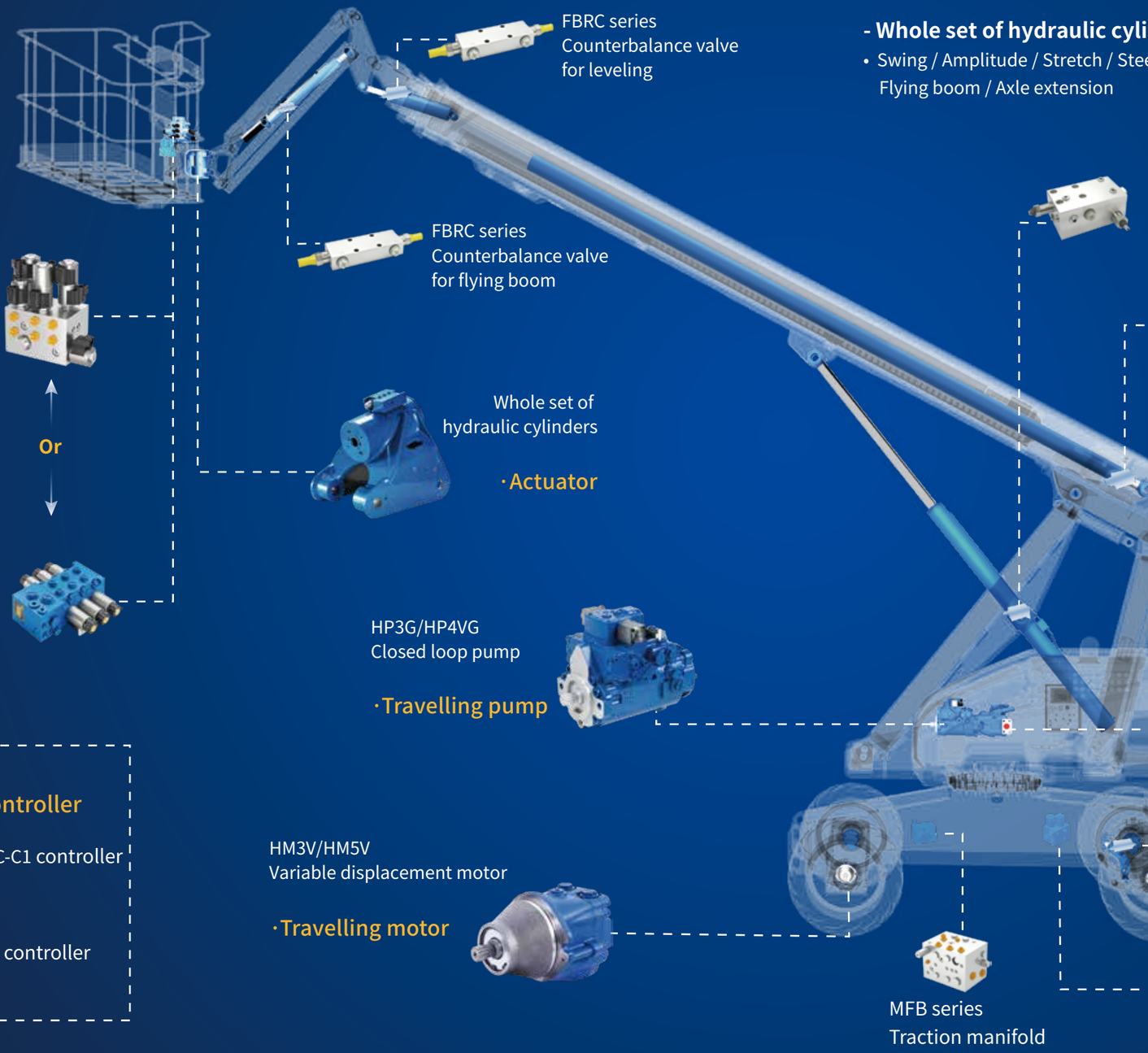
- HP3G/HP4VG series closed loop pump
- HVSP/EHV/EHG series control valve
- HCW series orbital motor/HBK series brake
- FBRC series counterbalance valve
- Whole set of hydraulic cylinder
- HP5V series open loop pump
- HM3V/HM5V series travelling motor
- MFB series manifold
- Controller



Efficient - Quality - Reliable
www.henglihydraulics.com

AERIAL WORK PLATFORM HYDRAULIC SYSTEM SOLUTION - 01

—— TELESCOPIC BOOM LIFT



FBRC series
Counterbalance valve
for leveling

FBRC series
Counterbalance valve
for flying boom

MFB series
Platform Manifold
·Platform valve

Or

EHG04/EHV06
Electromagnetic
multi-way valve
·Platform valve

Whole set of
hydraulic cylinders
·Actuator

HP3G/HP4VG
Closed loop pump
·Travelling pump

·Controller

HLEC-C1 controller

HL-C controller

HM3V/HM5V
Variable displacement motor
·Travelling motor

MFB series
Traction manifold

FBRC series
Counterbalance valve for boom

FBRC series
Counterbalance valve
for telescopes

EHV06/EHG04
Electromagnetic
multi-way valve

MFB series
Swing manifold

HVSP12
CAN bus/electrohydraulic
multi-way valve

Or

·Swivel table valve

FBRC series
Counterbalance valve
for axle

HP5V 45/S28
Open loop pump
·Working pump

MFB series
Brake / Tow-Speed manifold

Product solutions

- Travelling system:

- HP3G (closed loop pump) ×1/ HP4VG60/100 (closed loop pump) ×1
- HM3V (variable displacement motor) ×4/ HM5V (variable displacement motor) ×4
- MFB series traction manifold×1
- MFB series brake / tow-speed manifold×1

- Whole set of hydraulic cylinders:

- Swing / Amplitude / Stretch / Steering / Flying boom / Axle extension

- Working system:

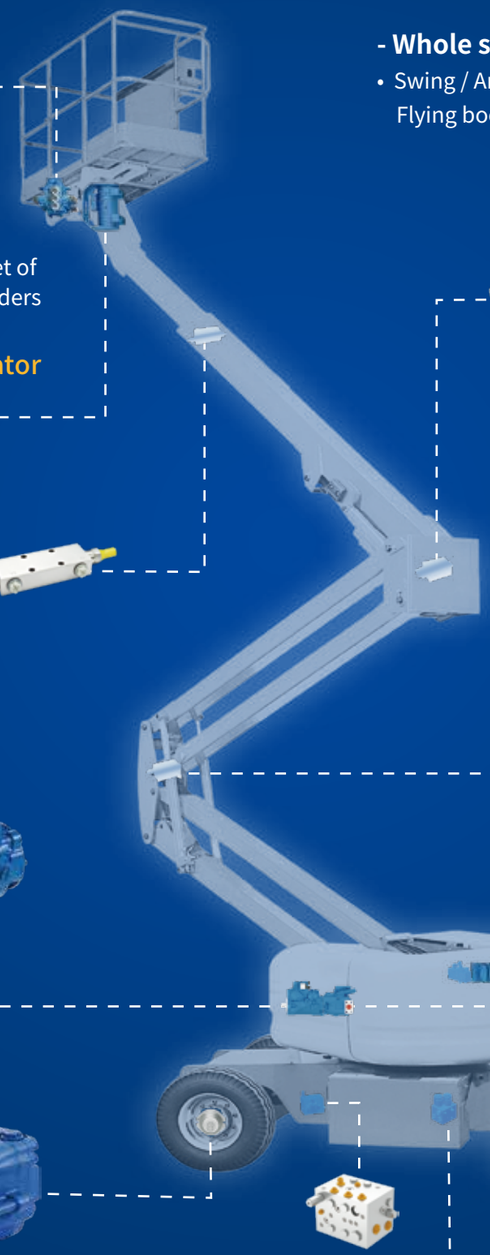
- HP5V45/S28 (open loop pump) ×1
- HVSP12 (CAN bus/electrohydraulic multi-way valve) ×1/ EHV06 (electromagnetic multi-way valve) ×1 EHG04 (load sensing proportional control valve) ×1
- MFB series swing manifold×1
- MFB series platform manifold

- Whole set of counterbalance valves

- Controller

AERIAL WORK PLATFORM HYDRAULIC SYSTEM SOLUTION - 02

—— ARTICULATING BOOM LIFT



MFB series
Platform manifold
·Platform valve

Or

EHG04/EHV06
Electromagnetic
multi-way valve
·Platform valve

Whole set of
hydraulic cylinders
·Actuator

FBRC series
Counterbalance valve
for flying boom/ leveling

FBRC series
Counterbalance valve
for second boom

FBRC series
Counterbalance valve
for first boom

EHV06/EHG04
Electromagnetic
multi-way valve

MFB series
Swing manifold

HVSP12
CAN bus/electrohydraulic
multi-way valve

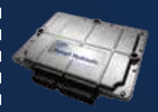
Or

·Swivel table valve

HP3G/HP4VG
Closed loop pump
·Travelling pump

·Controller

HLEC-C1 controller



HL-C controller

HM3V/HM5V
Variable displacement motor
·Travelling motor

MFB series
Traction manifold

FBRC series
Counterbalance valve
for axle

MFB series
Brake / Tow-Speed manifold

HP5V 45/S28
Open loop pump
·Working pump

Product solutions

- Travelling system:

- HP3G (closed loop pump) ×1/ HP4VG60/100 (closed loop pump) ×1
- HM3V (variable displacement motor) ×4/ HM5V (variable displacement motor) ×4
- MFB series traction manifold×1
- MFB series brake / tow-speed manifold×1

- Whole set of hydraulic cylinders:

- Swing / Amplitude / Stretch / Steering / Flying boom / Axle extension

- Working system:

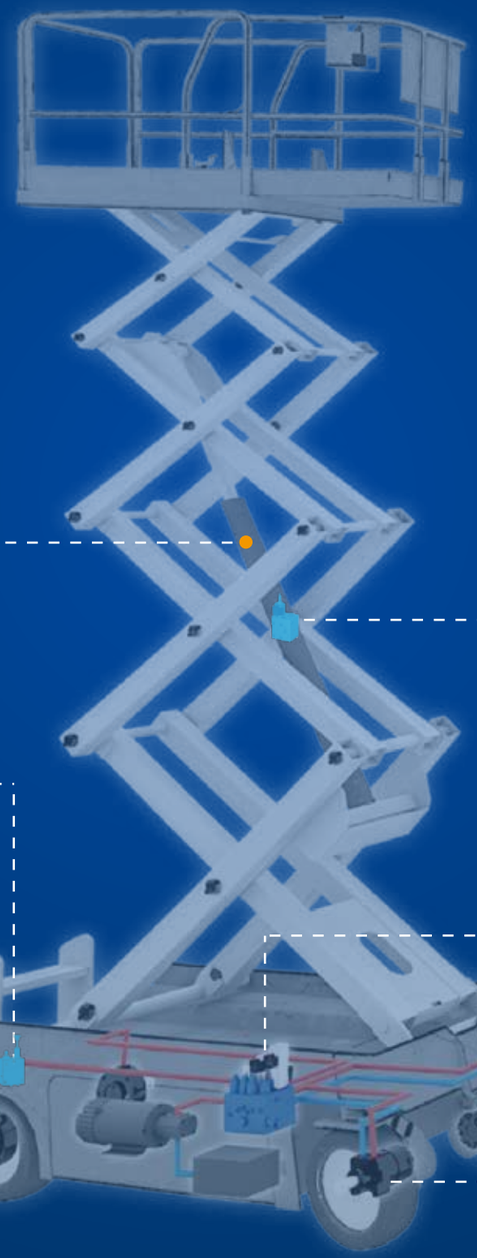
- HP5V45/S28 (open loop pump) ×1
- HVSP12 (CAN bus/electrohydraulic multi-way valve) ×1/ EHV06 (electromagnetic multi-way valve) ×1 EHG04 (load sensing proportional control valve) ×1
- MFB series swing manifold×1
- MFB series platform manifold

- Whole set of counterbalance valves

- Controller

AERIAL WORK PLATFORM HYDRAULIC SYSTEM SOLUTION - 03

—— SCISSOR LIFT



Product solutions

- Travelling system:
- HCW (orbital motor) ×2
- HBK (brake) ×2

- Working system:
- MFB series platform control manifold×1
- MFB series lifting manifold×1
- MFB series upper lifting manifold×1
- Manual pump×1

- Hydraulic cylinder:
- Lifting

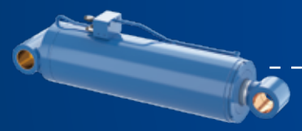
- Controller

·Controller

HLEC-AC
Low-voltage
motor controller

Lifting cylinder

·Actuator



Manual pump

HBK series
Brake

·Brake

MFB series
Upper lifting manifold
(Suitable for large scissor lift)

MFB series
Lifting manifold

MFB series
Platform control manifold

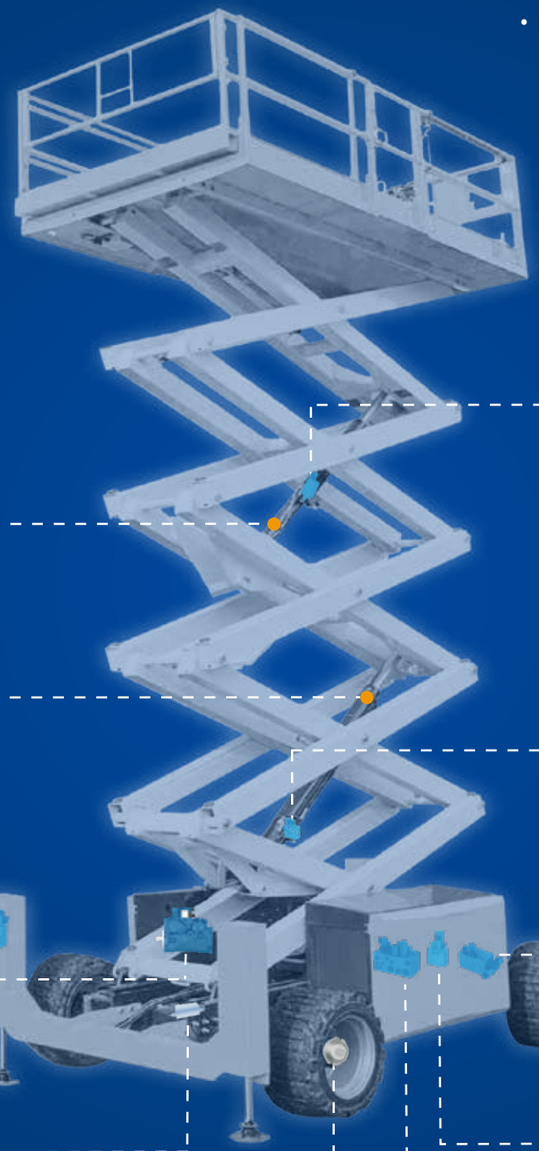
·Main control valve

HCW series
Orbital motor

·Travelling motor

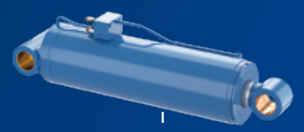
AERIAL WORK PLATFORM HYDRAULIC SYSTEM SOLUTION - 04

—— ROUGH TERRAIN SCISSOR LIFT



Lifting cylinder

·Actuator



MFB series
Upper lifting manifold

MFB series
Lower lifting manifold

MFB series
Outrigger manifold

HP3G/HP4VG
Closed loop pump

·Travelling pump

MFB series
Traction manifold

FBRC series
Counterbalance valve
for axle

MFB series
Outrigger control manifold

HM3V25/38
Variable displacement motor

·Travelling motor

MFB series
Platform control manifold

·Main control valve

Product solutions

- Travelling system:

- HP3G (closed loop pump) ×1
- HM3V (variable displacement motor) ×4
- MFB series traction manifold×1
- FBRC series counterbalance valve for axle×1

- Working system:

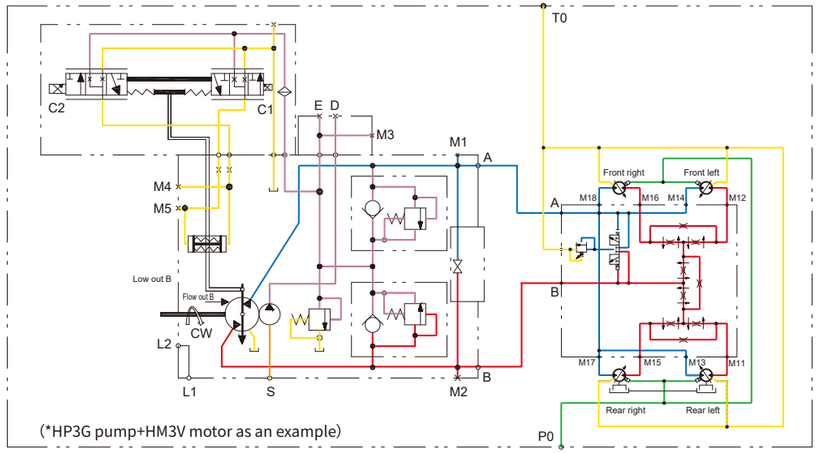
- MFB series platform control manifold×1
- MFB series upper lifting manifold×1
- MFB series lower lifting manifold×1
- MFB series outrigger control manifold×1
- MFB series outrigger manifold×4

- Hydraulic cylinder:

- Lifting

Closed loop hydrostatic travelling drive system

Accurate control, excellent fine-movement performance, compact design, low power consumption



HP3G series
Closed loop axial piston pump

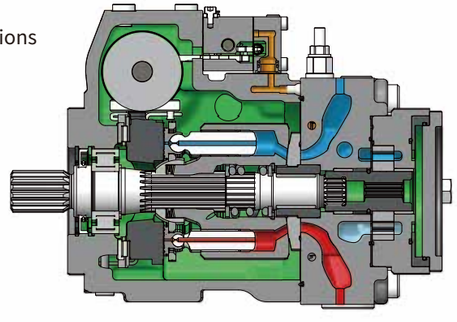
The closed loop hydrostatic transmission is applied in the travelling system. The Hengli HP3G series closed loop pump adopts electric proportional displacement control to realize stepless adjustable displacement with good proportional linearity, low hysteresis and high repeatability. In addition, this series of pumps also features compact design, light weight and low running noise.

Technical data		28	32	46
Displacement (cc/rev)		28	32	45.9
System pressure	Rated (bar)	345	345	345
	Max. (bar)	380	380	385
Speed	Rated (rpm)	3400	3400	3000
	Max. (rpm)	4000	4000	4100

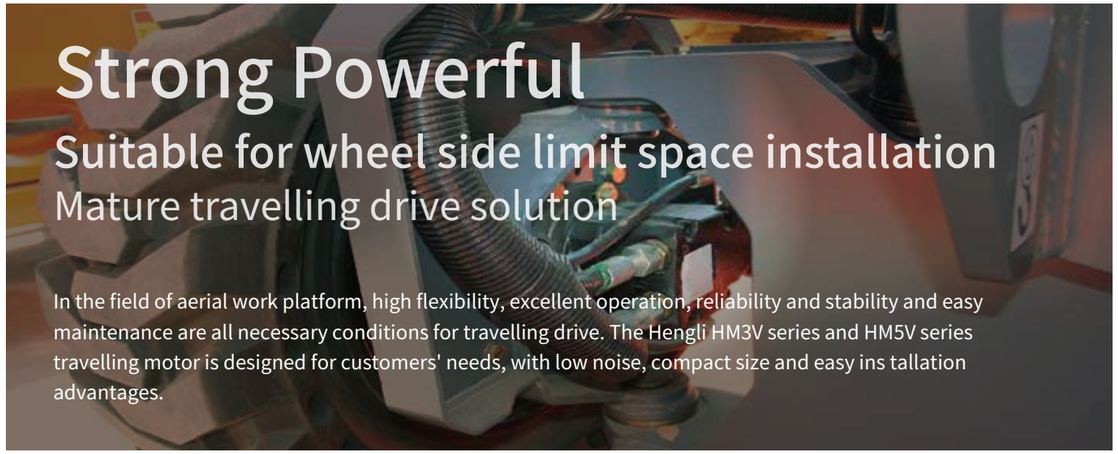
HP4VG series
High pressure closed loop piston pump

With rated pressure up to 400 bar and peak pressure up to 450 bar, this pump can fully meet the customer's applications under working conditions requiring such as ultra-high pressure, high speed and frequent impact.

Technical data		60	100
Displacement (cc/rev)		60	100
System pressure	Rated (bar)	400	400
	Max. (bar)	450	450
Speed	Rated (rpm)	3600	3000
	Max. (rpm)	3900	3300



HP4VG60 section view



HM3V series
Variable displacement motor (disassembling type design)

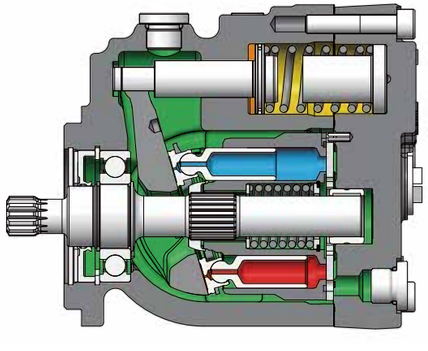
With Superior power density and low noise emissions the repairable HM3V wheel motor exceeds the requirements of the aerial work platform equipment industry.

Technical data		25	38	45
Maximum displacement (cc/rev)		25	38	45
System pressure (bar)		210	210	175
Maximum system pressure (bar)		415	415	350
Rotation speed at max. displacement	Rated (rpm)	3400	3600	3500
	Max. (rpm)	3950	4000	3900
Rotation speed at min. displacement	Rated (rpm)	4400	4650	4500
	Max. (rpm)	5000	5200	5050

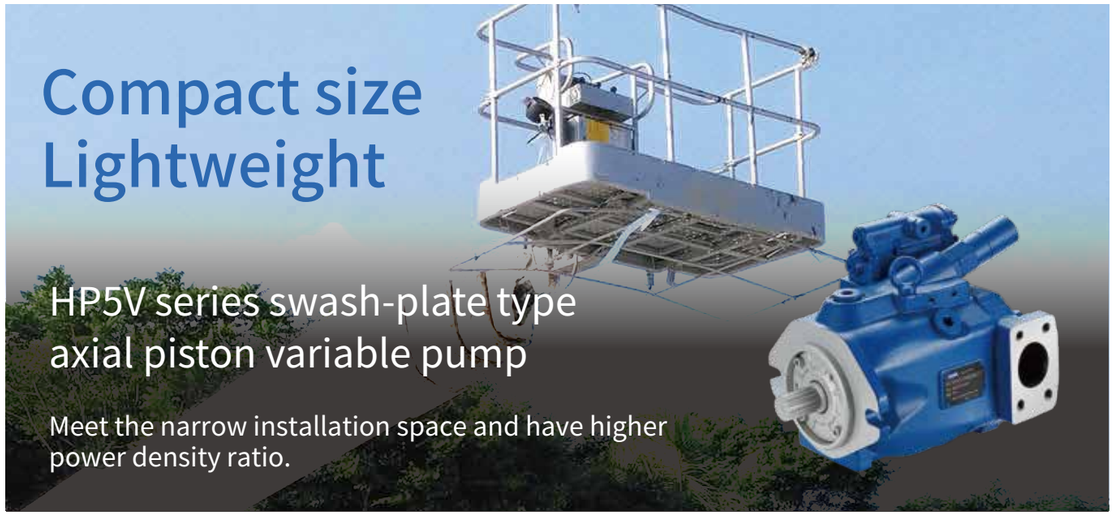
HM5V series
Variable displacement motor (flange type design)

The newly released HM5V wheel motor is integrated with an oversized servo-piston control to allow smooth acceleration and deceleration.

Technical data		35	40
Maximum displacement (cc/rev)		35	40
System pressure (bar)		210	175
Maximum system pressure (bar)		415	350
Rotation speed at max. displacement	Rated (rpm)	3600	3500
	Max. (rpm)	4000	3900
Rotation speed at min. displacement	Rated (rpm)	4650	4500
	Max. (rpm)	5200	5050



HM5V40 section view



HP5V series piston pump is high pressure open circuit axial piston pump specially designed with a new structure, and has lighter weight, higher power density, and longer life compared.

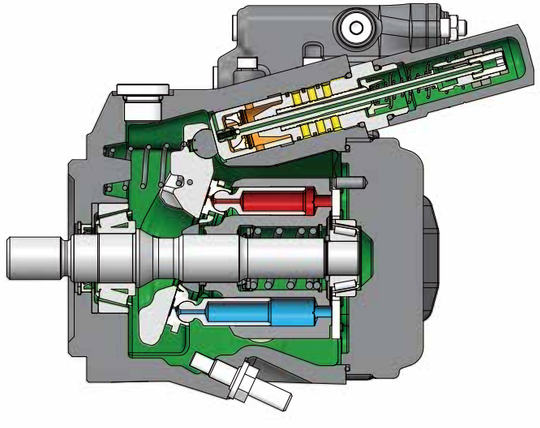
Technical data		S28	45
System pressure	Rated (bar)	250	320
	Max. (bar)	315	350
Speed	Rated (rpm)	3000	2700
	Max. (rpm)	3600	3250

HP5VS28 series
Axial piston variable pump

Smaller volume, better lightweight design, it can meet the needs of narrower installation space of vehicles.

Features

- Variable axial piston pump of swashplate design for hydrostatic drives in open circuit.
- The flow is proportional to the drive speed and the displacement.
- The flow can be infinitely varied by adjusting the swashplate angle.
- Low noise, long service life.
- High permissible drive speed.
- Favorable power to weight ratio–compact dimensions.



HP5VS28 section view

Making the jib system more efficient and safer

The CAN- BUS control feature of the EHV06 or EHG04 multi sectional valve allows the operator to safely position the aerial work platform. As aerial work platform demands greater heights, precision performance control to eliminate unwanted jerk and swing motion becomes imperative for the safety of the operator.

HPSP12 series
Load sense control valve (pre-compensated)

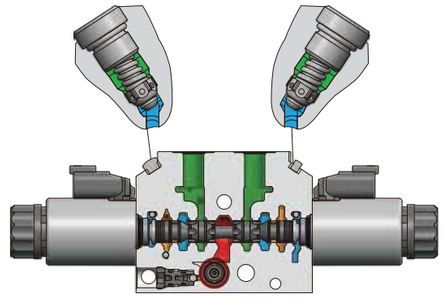
The HVSP12 pre-compensated multi sectional valve integrated with CAN BUS proportional closed loop control allows for multi-functional circuit design for safe and efficient movement of the aerial work platform.

Technical data		12
Size		12
Rated pressure(pump side)	bar	350
Rated pressure (Actuator side)	bar	420
Rated flow L/min		120 - with load holding, without pressure compensator
		100 - without load holding, with pressure compensator
		100 - with load holding, with pressure compensator

EHG04 series
Load sense control valve (pre-compensated)

The direct push EHG04 multi-way valve is a pre-compensated load sensing control valve that is lightweight with modular integration and micro-motion accuracy and control of mobile machinery. It is versatile, resistant to high pressure and has a compact size.

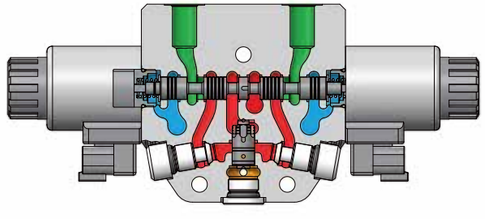
Technical data		04
Size		04
Rated pressure(pump side)	bar	350
Rated pressure (Actuator side)	bar	350
Rated flow L/min		40



EHG04 section view

EHV06 series
Flow sharing valve (post pressure compensated)

The Compact EHV series valve boasts excellent maneuverability and higher control accuracy. Also, lower pressure loss makes the hydraulic control system more energy-efficient, finally enhancing the production efficiency.



EHV06 section view

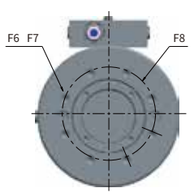
Technical data		06
Size		06
Rated pressure(pump side)	bar	310
Rated pressure (Actuator side)	bar	310
Rated flow L/min		60

HBM series rotary actuator

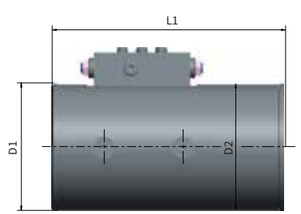
- Low friction coefficient
- High output torque
- Long service life
- Customization service

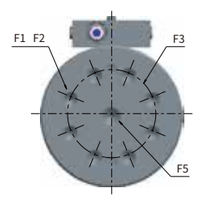
Size and specification

Size and specification	80	95	120	140	160
Maximum output torque （Nm）	626	1034	2074	3337	5063
Maximum moment capacity straddle mounting （Nm）	2540	4520	10170	22600	31640
Maximum moment capacity cantilever mounting （Nm）	1360	2490	5420	11300	15820
Radial force （kg）	1380	2130	4190	5580	9520
Axial force （kg）	500	680	1000	1400	1770
Rotation （°）	180	180	180	180	180
Displacement （cc）	155	256	513	827	1253

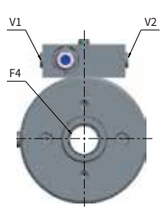


HBM140/160 cover side

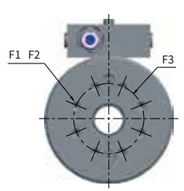




HBM140/160 output shaft



HBM80/95/120 cover side



HBM80/95/120 output shaft

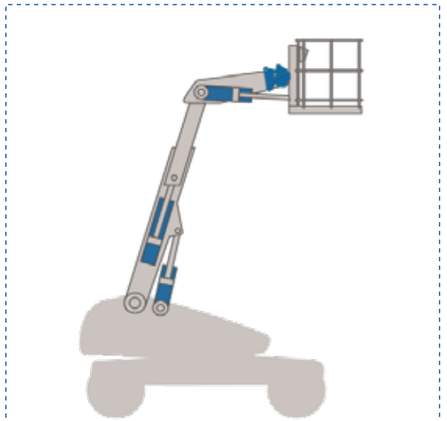
Ordering code

HBM _ 95 / 180

- 180 — Rotation
- 95 — Size
- HBM — Series code

Note:
the ordering code above refers only the basic specification and rotary angle. Valve, bushings and other accessories can be customized according to corresponding requirements.

Hydraulic Cylinder



Reliable performance and excellent quality

We can provide a complete set of hydraulic cylinders for the aerial work platform

Advantages

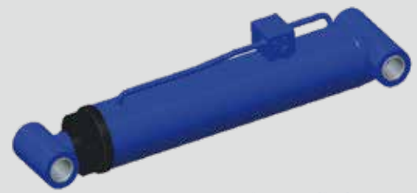
- More lightweight.
- Wide designed temperature range.
- Long service life.
- A mature sealing system.
- Special anti-corrosion technology, full resistance to rust.

Cylinder detail

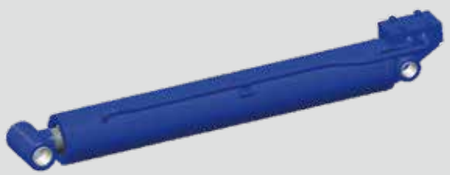
Electric cylinder
Thrust force:1-1000KN
Stroke: 0-2000mm
Voltage:24V,48V,
220V,380V...

Telescopic cylinder
Bore diameter: 45mm～200mm
Rod diameter: 32mm～180mm
Stroke≤15000mm

Luffing cylinder
Bore diameter: 50mm～350mm
Rod diameter: 30mm～300mm
Stroke≤3000 mm



Outrigger cylinder
Bore diameter: 45mm～200mm
Rod diameter: 30mm～180mm
Stroke≤2000mm



Leveling cylinder
Bore diameter: 85mm～180mm
Rod diameter: 50mm～100mm
Stroke≤300mm

Steering cylinder
Bore diameter: 63mm～200mm
Rod diameter: 36mm～140mm
Stroke≤1000mm

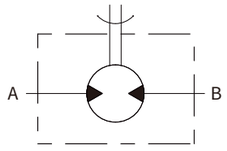
HCW Series Orbital Hydraulic Motor with Disc Valve

The HCW series orbital hydraulic motor, which boasts superior mass-to-power ratio, has been extensively used in all kinds of mobile and rotary conditions, particularly for low flow and large torque load starting conditions.

During the working process, the unique balance plate design bends to the rotor under the effect of oil pressure, greatly reducing the end clearance of the fixed rotor and realizing higher volume efficiency; when the oil pressure reaches the working pressure, the deflection and oil pressure of the balance plate will achieve a dynamic balance, allowing for easy, mechanically-efficient rotor operation. This perfect exchange of efficiency maximizes the steady performance of the system and enables the whole machine to consume less energy.

Advantages

- The optimized high-pressure combined seal design ensures excellent sealing performance and reliability.
- The needle roller bearing structure makes it bear axial and radial loads better.
- The unique balance plate design ensures stable operation at low speeds and high pressures.
- The full flow cooling treatment of its linkage mechanism prolongs its service life.
- The advanced flow distribution system design greatly improves efficiency and makes the motor more compact.
- A variety of flange connection sizes are provided, facilitating installation.



Hydraulic diagram

Specifications

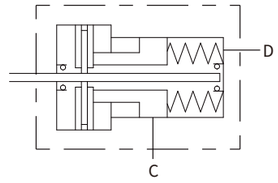
Type		120	160	200	230	260	300	350	375	400	470	540	620
Displacement(cm³/rev.)		116.8	157	198	225	253	291	328	363	400	451	542	618
Max. speed (rpm)	Continuous	360	374	337	294	292	278	241	203	167	162	140	120
	Intermittent	488	466	409	358	349	316	269	241	200	196	170	142
Max. flow (L/min)	Continuous	45	61	68	68	76	83	83	76	76	76	76	76
	Intermittent	61	76	83	83	91	95	95	91	91	91	91	91
Max. torque (Nm)	Continuous	378	480	559	658	726	827	929	1017	1008	1099	997	1014
	Intermittent	387	552	637	726	808	950	1061	1175	1275	1281	1251	1293
Max. differential pressure (bar)	Continuous	207	207	207	207	207	207	207	207	207	173	138	121
	Intermittent	241	241	241	241	241	241	241	241	241	207	173	155
	Peak	276	276	276	276	276	276	276	276	276	241	207	173
Max. no-load starting pressure (bar)		7	8	8	10	10	10	10	10	10	12	12	14
Min. starting torque (Nm)	Max. continuous differential pressure	295	383	483	549	617	710	800	885	976	919	881	881
	Max. intermittent differential pressure	344	446	562	639	718	826	931	1031	1136	1100	1105	1129

HBK Series Hydraulic Brake

The HBK series brakes are normally-off oil wet static hydraulic brakes, which utilize spring action to produce the braking force, while oil pressure is used to release the brake.

Advantages

- A combination of roller bearings and needle roller bearings ensure a high-strength load capacity.
- It features unique friction-resistant materials and a high-strength spring design, allowing for a long service life and high braking reliability.
- All core components are immersed in oil in order to further extend service life and reduce noise.



Hydraulic diagram

Specifications

Type		HBK1150	HBK1500
Min. static torque	Nm	1150	1500
Brake release pressure	bar	28	
Max. bearing capacity	bar	250	
Min. amount of brake release oil	cm³	11.5	
Max. speed	rpm	250	
Volume of lubricating oil in brake cavity	cm³	180	
Max. working oil temperature	°C	82	
Weight	Kg	16.1	17.2

MFB Series Manifold

- Small size, light weight
- External connections are minimized, basically eliminate external leakage
- Custom manifolds consolidate and optimize the many control functions of a machine' s hydraulic circuitry.
- Installation time and maintenance are reduced
- The manifold block is made of anodized high-strength aluminum alloy, also can be provided with ductile iron and steel manifold block.
- All manifolds are 100% circuit logic and function tested

Traction Manifold(Boom lift)

Rated Flow：84 L/min
Rated Pressure：250 bar

Swing Manifold(Boom lift)

Rated Flow：60.8 L/min
Rated Pressure：207 bar

Platform Control Manifold (Scissors lift)

Rated Flow：20 L/min
Rated Pressure：250 bar

Outrigger Control Manifold (Rough terrain scissors lift)

Rated Flow：23 L/min
Rated Pressure：250 bar

★ Notes：We can customize various manifolds according to customer needs.

FBRC Series Counterbalance Valve

- Small size, stable and reliable
- Accurate flow control, small internal leakage, and low pressure loss
- Stable crack pressure, and less impact when crack and reseat
- Enhance the safety of the system. In addition, guarantee the system the stable working.

Counterbalance Valve for Boom (Boom lift)

Flow：⩽ 60 L/min
Pressure：⩽ 250 bar

Counterbalance Valve for Axle (Rough terrain scissors lift)

Flow：20 L/min
Pressure：350 bar

Counterbalance Valve for Flying Boom / Leveling(Boom lift)

Flow：60 L/min
Pressure：280 bar

Counterbalance Valve for Telescopes(Boom lift)

Flow：Valve 1⩽ 60 L/min、
Valve 2⩽ 150 L/min
Pressure：⩽ 350 bar

★ Notes：We can customize various counterbalance valves according to customer needs.

Specifications of the working power supply

Parameters	Specifications
Input voltage range	DC9.0V-36V
Current consumption	Max.30A

Specifications for external sensor on output power supply

Parameters	Specifications
Output voltage range	DC5.0V+/-0.1V
Output current	Max.0.5A

Specifications for intput power supply

Supply voltage	8~32V (MAX 40A)

Specifications for output power supply

Output type	Output voltage range	output current
5V	5 V ± 150 m V	150mA
5V	5 V ± 250 m V	250mA
10V	10 V ± 500 m V	1000mA

Specifications for intput power supply

Supply voltage	9.6~35V

Specifications for output power supply

DC output for pump motor	280A (S2 2min)
AC output for driving motor	2×80A (S2 60min) 2×200A (S2 2min)

HL-C Mobile Machinery Controller

- 300 MHz processor ensures the highest possible performance
- Monitoring function available at input and output to facilitate fault defection
- Flutter frequency and amplitude can be set against the ratio of electromagnetic output to reduce hysteresis

HLEC-C Mobile Machinery Controller

- 4×CAN2.0B bus
- 300MHz high performance processor
- Conforming to Cat-2 Functional-Safety standard (ISO 13849-1) with external monitoring processor supervising main processor for redundant safety control

HLEC-AC Low-voltage Motor Controller

- Support CAN BootLoader update via CANbus
- Multiple integrated proportional valve drivers with highest control precision
- Conforming to Cat-2 Functional-Safety standard (ISO 13849-1) with external monitoring processor supervising main processor for redundant safety control