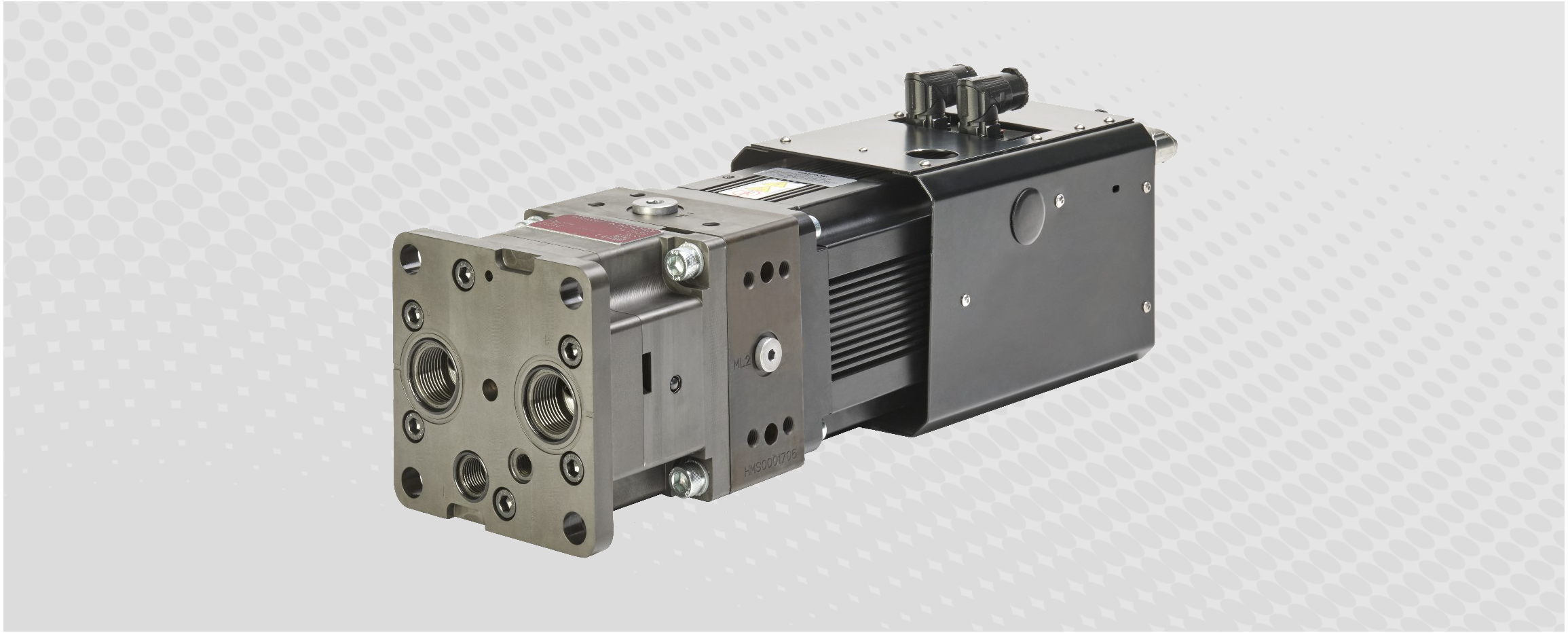


MOOG

Shaping the way our world moves™

ELECTROHYDROSTATIC PUMP UNIT

MOOG EPU-G

V1.3, OCT 2024

TODAY‘S CHALLENGES

OUR SOLUTION

PRODUCT FEATURES

APPLICATIONS

LEARN MORE

TODAY‘S CHALLENGES

MACHINE BUILDERS NEED FOR ADAPTION

SKILLED LABOR SHORTAGE

In the global battle for talent, hydraulic, electronic and software engineers are in demand.

SHORTER MACHINE LIFECYCLES

Driven by legal requirements and global competition, product and machine lifecycles continue to shorten.

INCREASED COMPLEXITY

Machines are becoming more complex with integrated software, sensors, and connectivity, requiring new skillsets and expertise.

OUR SOLUTION

ELECTROHYDROSTATIC ACTUATION

High-force Capability

Viable alternative to EH actuation

Energy Efficiency

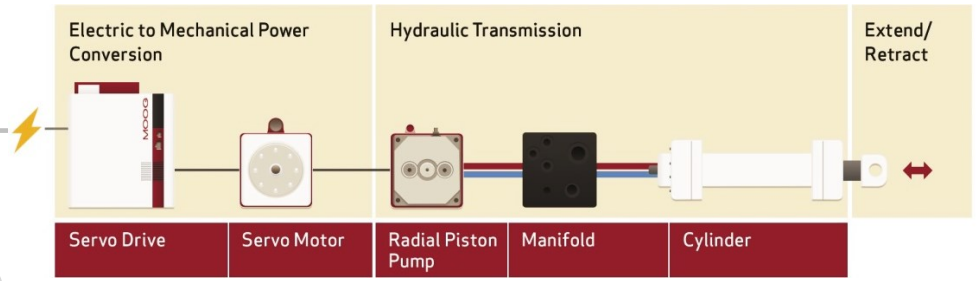
Reduces operating costs due to power-on-demand

Eco-friendly and Clean

Less oil volume and parts reduce leakage and risk of fire

Decentralization

No need for HPU leads to reduced machine footprint



Low Noise Emission

Quieter machine operation

Hydrostatic Gearbox

Optional functions, fail-safe, reduced installation cost

Less components

Reduced complexity, fewer breakdown, easier maintenance

Offsite Testing

Reduced set-up & commissioning

OUR SOLUTION

Portfolio

MOOG ELECTROHYDROSTATIC PUMP UNIT

- EASY TO HANDLE AND INTEGRATE
- REDUCED SYSTEM COMPLEXITY
- INCREASED PERFORMANCE
- REDUCED OPERATING COSTS
- LOW MAINTENANCE AND INCREASED SAFETY

- Electrification of Motion Control
- High Energy Efficiency
  - Power-on-Demand
  - 4Q Internal Gear Pump
- Reduced Footprint
  - Extrem compact design
  - Decentralized actuation
- High Dynamic
  - HD Servomotor
  - Low inertia and pulsation
- High force capability and power density
- High rigidity and low wear operation

OUR SOLUTION

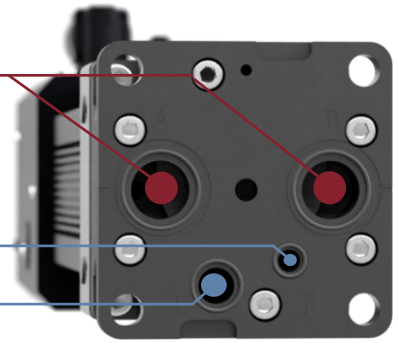
Functional concept

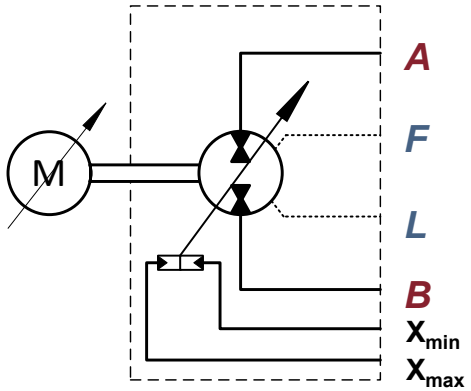
PRODUCT OVERVIEW

Two operational ports ***A + B***

Flushing port ***F***

Leakage port ***L***





4-Quadrant Internal Gear Pump

- Direct manifold connection
- Flushing capability
- Low noise operation

High Dynamic Servomotor

- No flange modification
- Established electrical interface

PRODUCT FEATURES

Hydraulic concept

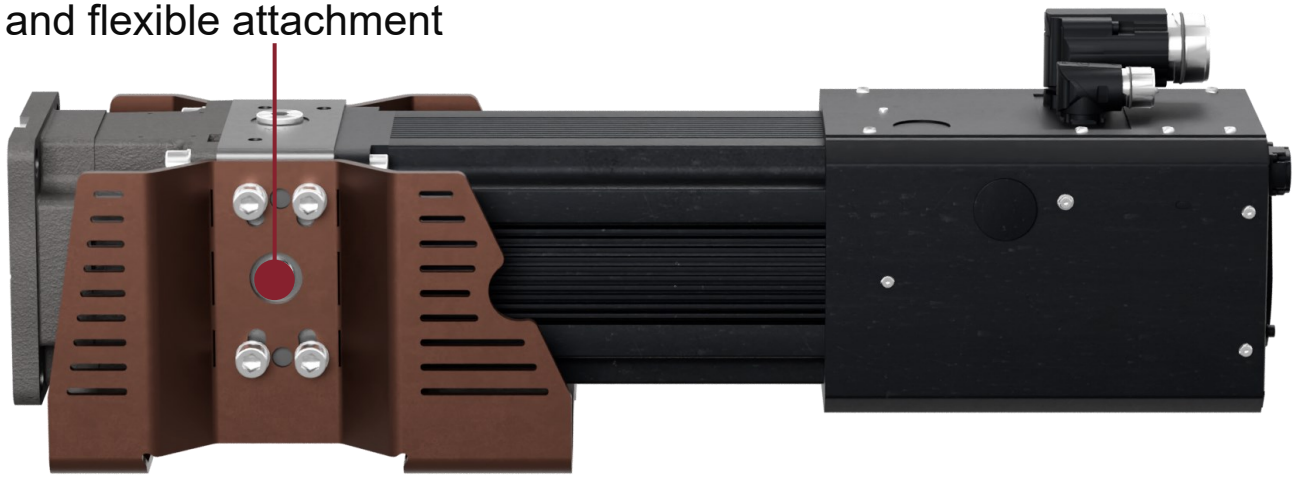
EASY HANDLING AND FLEXIBLE INTEGRATION

- 4x sizes (5, 8, 13, 20 cm³)
- 2x variants (closed or half-open)
- 3x cooling options (natural, fan, water)

EPU-G is suitable for both half-open and self-contained (closed) circuits

All hydraulic ports can be fitted with pipe connectors without adapter

Footbracket for independent and flexible attachment



PRODUCT FEATURES

GENERAL TECHNICAL DATA

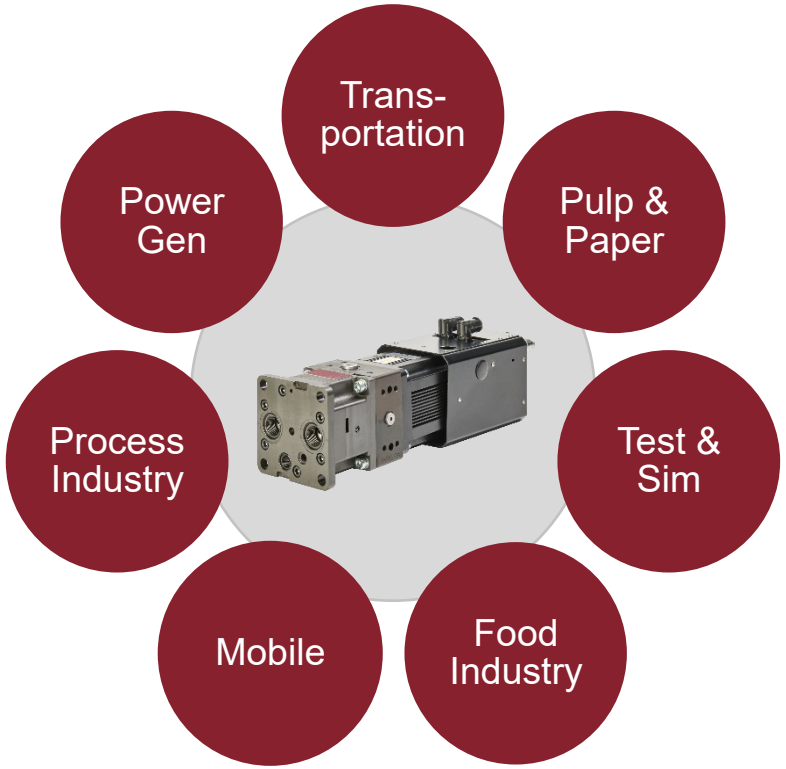
Size		005	008	013	020
Max. pump flow		23.9 l/min (6.3 gpm)	37,7 l/min (10.0 gpm)	57.2 l/min (15.1 gpm)	83.0 l/min (21.9 gpm)
Max. system pressure		345 bar (5,004 psi)			
Max. housing pressure		10 bar (145 psi) up to 1,500 rpm; for details refer to speed/pressure curve			
Max. preload pressure		4 bar (58 psi), absolute			
Motor pump unit	**Pump**	Internal Gear Pump, fixed displacement			
	Motor	Brushless servo motor: natural, fan or liquid cooled (oil/water)			
Temperature range	**Ambient**	-20 to +60 °C (-4 to 140 °F)			
	Fluid	-20 to +80 °C (-4 to 176 °F) (leakage oil on port L)			

APPLICATIONS

IN-DEPTH MOTION CONTROL EXPERIENCE

The Moog EPU-G enables fixed displacement with significant speed and force phases and offers high performance and robustness for demanding applications.

- We **support your transition** from conventional Electrohydraulic or Electromechanical to energy efficient Electrohydrostatic Actuation.
- We offer products, modules and **complete solutions** including Drives, Controllers, Software and Energy Management.
- We are **proven experts** in Electrohydrostatic Actuation technology with decades of experience in aerospace and industrial applications

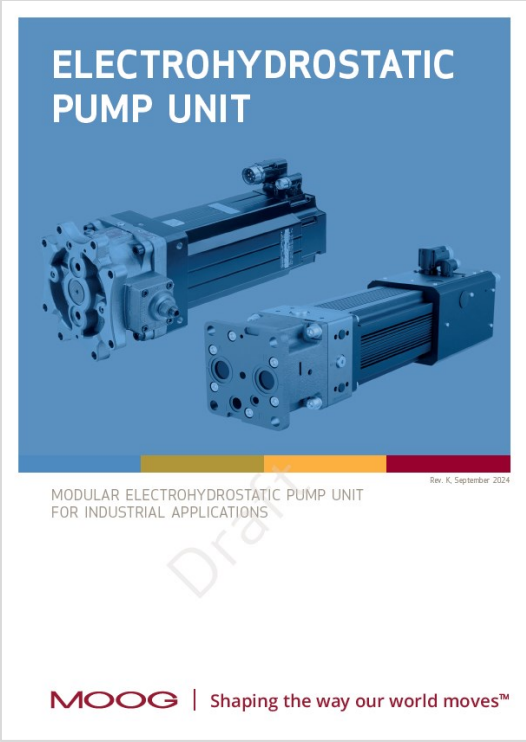


ADDITIONAL RESOURCES

Tab to open

WANT TO LEARN MORE?

Product Catalog - EPU



Moog Website – EPU

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Shaping the way our world moves™

THANK YOU

LETS MAKE THE IMPOSSIBLE POSSIBLE TOGETHER

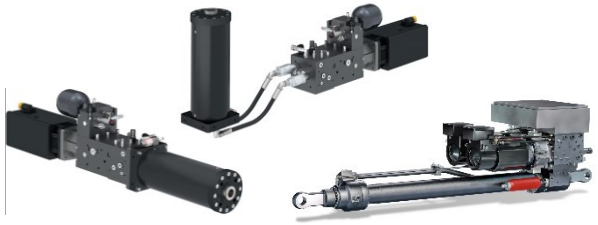
click to connect

BACKUP / EXTENDED CONTENT

ELECTROHYDROSTATIC PORTFOLIO

Back

SOLUTION LEVEL PYRAMIDE



EPU + Manifold + Cylinder
Compact axis (linear/orthogonal)
Customized in split/distributed design

EPU + Manifold
(in axial/radial position)

EPU
(based on 4Q RKP/IGP)

SYSTEM

EAS (Electrohydrostatic Actuation System)

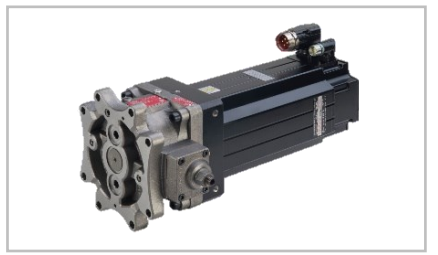
MODULE

EPS (Electrohydrostatic Pump System)

PRODUCT

EPU (Electrohydrostatic Pump Unit)

EPU



EPU-G based on 4Q IGP				EPU based on 4Q RKP					
5	8	13	20	19	32	40	80	140	250

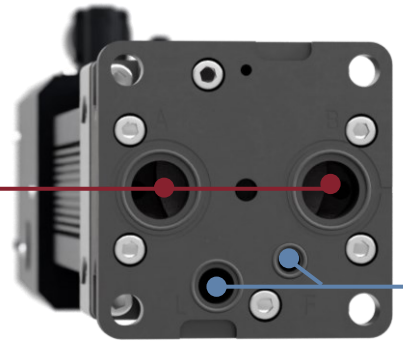
› Max. freedom/flexibility in system design and machine integration

› Heart of Moog's EHA technology

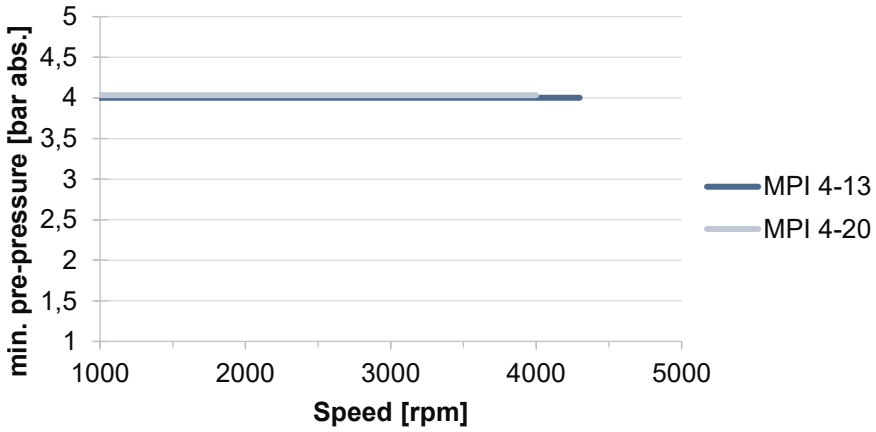
FUNCTIONAL CONCEPT

Back

PRESSURE CURVES

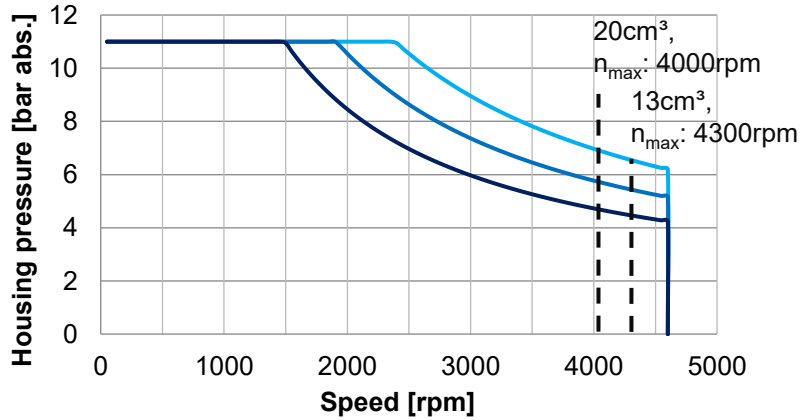


Minimum pre-pressure (suction)



5cm³	S0C	S0F	-
	M0C	M0F	M0W
	H0C	H0F	H0W
8cm³	S0C	S0F	S0W
	M0C	M0F	M0W
	H0C	H0F	H0W
13cm³	S0C	S0F	S0W
	M0C	M0F	M0W
	H0C	H0F	H0W
20cm³	S0C	S0F	S0W
	M0C	M0F	M0W
	H0C	H0F	H0W

Maximum housing pressure $pL_{max} = f(n)$

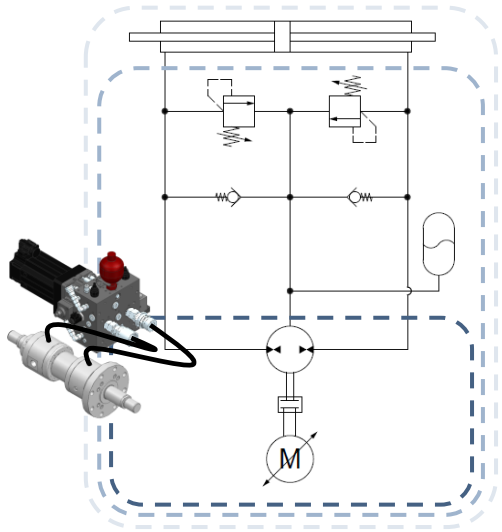


HYDRAULIC CONCEPT

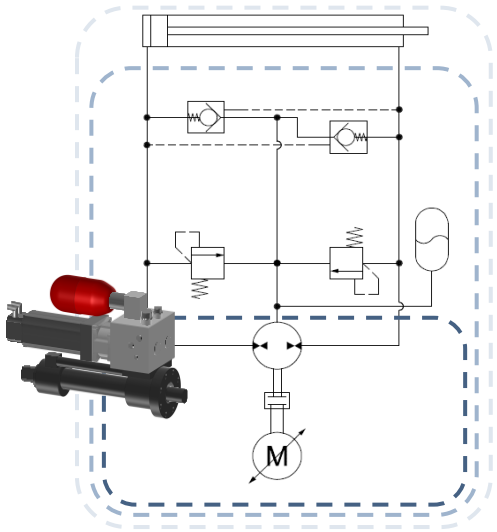
Back

HYDRAULIC CIRCUITS BASED ON CYLINDER

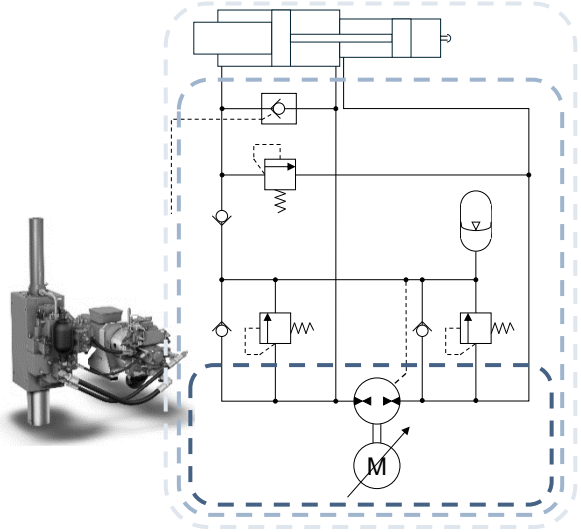
Synchronous cylinder



Differential cylinder



Multi-Chamber cylinder



EPU-G improves the ability to meet customer requirements mostly independent of the cylinder in use

EPU (Motor-pump unit)
EPS (EPU + Manifold)
EAS (EOU + Manifold + Cylinder)

MOOG

MOTOR OPTIONS

Back

PRESURE CLASSES AND COOLING OPTIONS

- 3x motor classes
- 3x cooling options

Pump [cm³]	Pressure class	Natural cooled	Fan cooled	Water cooled
5	small	HDN115 Length D	HDF115 Length B	x
	medium	HDN140 Length B	HDF115 Length D	HDW115 Length B
	large	HDN140 Length C	HDF140 Length B	HDW115 Length D
8	small	HDN140 Length B	HDF115 Length D	HDW115 Length B
	medium	HDN140 Length C	HDF140 Length B	HDW115 Length D
	large	HDN140 Length E	HDF140 Length C	HDW140 Length B
13	small	HDN140 Length C	HDF140 Length B	HDW115 Length D
	medium	HDN140 Length E	HDF140 Length C	HDW140 Length B
	large	HDN200 Length D	HDF140 Length E	HDW140 Length C
20	small	HDN140 Length E	HDF140 Length C	HDW140 Length B
	medium	HDN200 Length D	HDF140 Length E	HDW140 Length C
	large	HDN200 Length F	HDF200 Length D	HDW140 Length E