



aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



## Electro-Hydraulic Pumps (EHP) for Mobile Applications



ENGINEERING YOUR SUCCESS.



**WARNING – USER RESPONSIBILITY**

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

- This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.
- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.
- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

<b>Overview .....</b>	<b>5</b>
<b>EHP a New Concept.....</b>	<b>6</b>
System Example in a Reach Stacker Application .....	6
<b>EHP - PMAC motors .....</b>	<b>7</b>
Technical Characteristics .....	7
Pressure/Flow Curves for Low Voltage EHP .....	8
Pressure/Flow Curves for High Voltage EHP .....	11
<b>Dimensions .....</b>	<b>13</b>
<b>EHP - Induction Motors .....</b>	<b>16</b>
Technical Characteristics .....	16
Pressure/Flow Curves .....	16
Dimensions .....	16
<b>EHP - Helical Gear Pump .....</b>	<b>17</b>
Technical Characteristics .....	17
Pressure/Flow Curves .....	17
Dimensions .....	17
<b>EHP Component Descriptions .....</b>	<b>18</b>
Low Voltage Drives - MC Drives.....	18
High Voltage Drives - MD Drives.....	18
Global Vehicle Motor - GVM Series.....	19
Low Voltage Induction Motor - CFR Series .....	19
Vane Pump - T7 Exx Series.....	20
Helical Gear Pump - HGP Series.....	20
<b>Order Code.....</b>	<b>21</b>
<b>Motor Pumps - MP .....</b>	<b>22</b>

# Parker Hannifin

## The global leader in motion and control technologies

### A world class player on a local stage

#### Global Product Design

Parker Hannifin has more than 40 years experience in the design and manufacturing of drives, controls, motors and mechanical products. With dedicated global product development teams, Parker draws on industry-leading technological leadership and experience from engineering teams in Europe, North America and Asia.

#### Local Application Expertise

Parker has local engineering resources committed to adapting and applying our current products and technologies to best fit our customers' needs.

#### Manufacturing to Meet Our Customers' Needs

Parker is committed to meeting the increasing service demands that our customers require to succeed in the global industrial market. Parker's manufacturing teams seek continuous improvement through the implementation of lean manufacturing methods throughout the process. We measure ourselves on meeting our customers' expectations of quality and delivery, not just our own. In order to meet these expectations, Parker operates and continues to invest in our manufacturing facilities in Europe, North America and Asia.

#### Electromechanical Worldwide Manufacturing Locations

##### Europe

Littlehampton, United Kingdom  
Dijon, France  
Offenburg, Germany  
Filderstadt, Germany  
Milan, Italy

##### Asia

Wuxi, China  
Jangan, Korea  
Chennai, India

##### North America

Rohnert Park, California  
Irwin, Pennsylvania  
Charlotte, North Carolina  
New Ulm, Minnesota



Offenburg, Germany

#### Local Manufacturing and Support in Europe

Parker provides sales assistance and local technical support through a network of dedicated sales teams and authorized technical distributors throughout Europe.

For contact information, please refer to the Sales Offices on the back cover of this document or visit [www.parker.com](http://www.parker.com)



Milan, Italy



Littlehampton, UK



Filderstadt, Germany



Dijon, France

# Electro-Hydraulic Pumps - EHP

## Overview

### Description

The Electro-Hydraulic Pump (EHP) kits are designed for hybrid electric and all electric mobile applications. EHP systems consist of an **electric motor** directly coupled to an **hydraulic pump** controlled by a high performance mobile **hardened drive**.

Parker's global expertise in hydraulic, electric motor, and drive technologies is brought together in the EHP to create a system that has been optimally adapted to the customer requirements.

Selecting the required EHP could not be simpler. In fact, just three parameters are required to select the right EHP specification for the application.

These are:

- **Battery Voltage**
- **Flow**
- **Pressure**

They are part of the order code (page 21)

The standard system consist of a:

Low voltage drive (MC) or High voltage drive (MD) + Synchronous motor (GVM) or Low voltage induction motor + Hydraulic pump.

The EHP range benefits from high level of expertise in all of the different technologies.

### Features

- **Complete Electro-Hydraulic Pump solutions**
- **Pre engineered system with fully validated pressure, flow and voltage characteristics**
- **Wide range of motor/pump combinations with large voltage ranges to adapt to every battery pack**
- **Drives, Motors and Pumps perfectly mechanically matched (no need for extra adaptors)**
- **High efficiency and low inertia PMAC motors**

### Applications

- **Electric power steering**
  - Buses and Coaches
  - Vocational vehicles
- **Electro-Hydraulic systems and circuits**
  - Street sweepers
  - Construction
  - Material handling
  - Refuse trucks
  - Agricultural equipments

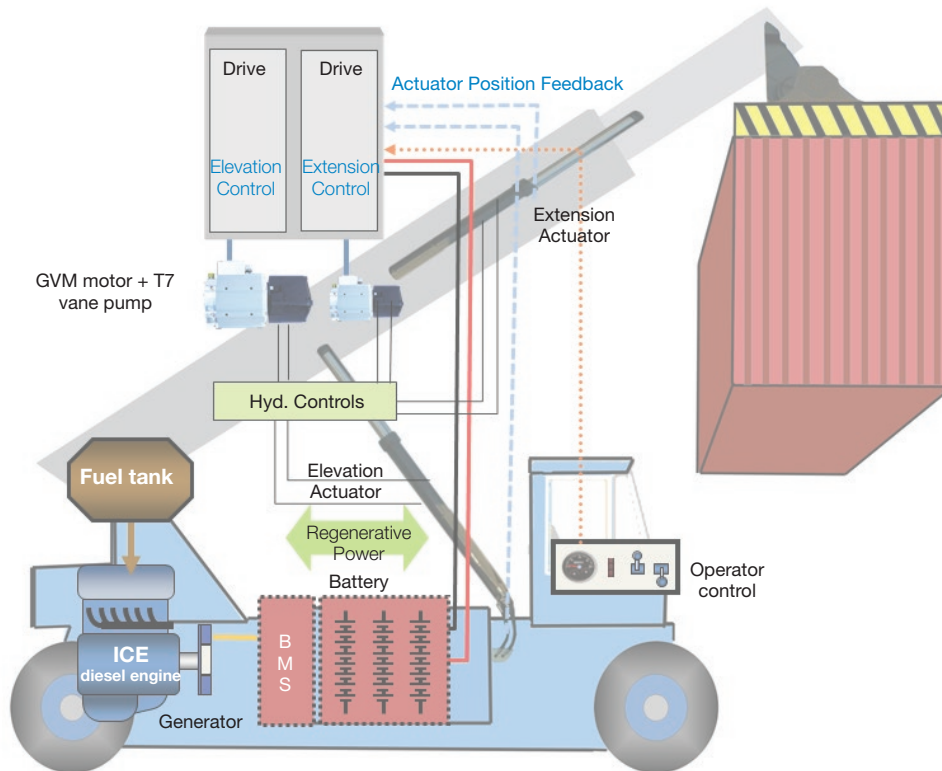


### Technical Characteristics

Model	EHP
<b>Motor type</b>	GVM Permanent Magnet AC synchronous motor (PMAC) or low voltage induction motors
<b>Pump type</b>	Parker Hydraulic Vane pumps (axial piston, bent axis, gear pumps on request) or Helical Gear pumps
<b>Rated voltage</b>	24 to 800 VDC
<b>Hydraulic power</b>	2 kW to 145 kW
<b>Flow range</b>	up to 300 l/min
<b>Pressure range</b>	up to 310 bar
<b>Protection (motor + pump)</b>	IP6K9K as standard with GVM servomotors Up to IP65 with induction motors
<b>Marking</b>	CE

## EHP a New Concept

### System Example in a Reach Stacker Application



This illustration shows a typical EHP system that is used to power hydraulic implements.

In this case, the electronics are not used for the main traction drive, but to facilitate energy savings in the elevation and extension lift and lower cycle. Using two variable speed PMAC servo motors coupled to fixed displacement hydraulic pumps, the system controls the elevation and extension movements of the arm under load. The ICE is producing electric power through a generator to charge the battery. When the battery is charged (ensured by the Battery Management System), moving the container becomes independent from the ICE.

When lowering, the EHP converts the energy, storing it in the battery, where it will be used to assist the next lift operation without ICE intervention.

The EHP systems manage the regeneration and charging functions. The net result is a very efficient vehicle that recovers considerable energy amount that would previously have been dissipated as heat.

The maximum power level required on the ICE side is lower as part of it is averaged (no more peak power to manage the hydraulics as the battery provide power as well) and because of regenerative mode, so that it allows the ICE size to be reduced, the fuel consumption and the emission level too.

By decoupling mechanical and hydraulic power through EHP concept it is possible to comply with the ever more stringent emission and noise level directives.

When comparing the fixed displacement pump technology with variable speed electric motors, to the usual load

sensing (LS) variable displacement pump technology fitted on the ICE, there is significant saving of 20 to 30 bars during movements and stand-by, and no more hydraulic lines.

#### Benefits:

- Quick and easy product selection (complete system fully determined through pressure, flow and voltage values)
- Highly reliable components giving peace of mind (drives, motors and pumps perfectly matched, no need for extra adaptors)
- Single supplier making sourcing simple (EHP kit is a multi-technology Parker solution)
- High Flexibility (wide range of motor/pump combinations adapted to every battery pack)
- High reliability (specific performing area determined through drive configuration)
- Reduced fuel consumption and emissions
- Dynamic performance delivers instantly available hydraulic power (low inertia PMAC motors and vane pumps)
- Quiet operation
- Downsizing of the power system (ICE)
- Higher global efficiency (regenerative system)

# EHP - PMAC motors

## Technical Characteristics

Part Number	Max. pressure [bar]	Max. flow [l/min]	Cont. pressure [bar]	Cont. flow [l/min]	Battery Voltage [VDC]	Motor Cooling	Water Glycol min flow [l/min]	Length A [mm]	see figure	Weight [kg] (motor+pump)
EHP-002V190-013-PM024-001	190	13	73	8	24	Air	-	363.5	1	25.5
EHP-003V210-015-PM024-001	210	15	75	8.5	24	Air	-	413.5	1	30
EHP-004V100-033-PM024-001	100	33	35	25	24	Air	-	363.5	1	25.5
EHP-005V285-019-PM024-001	285	19	90	11	24	Air	-	372.5	2	47.5
EHP-006V200-025-PM024-001	200	25	90	20	24	Air	-	372.5	2	47.5
EHP-008V200-025-PM024-001	200	25	68	25	24	Air	-	372.5	2	47.5
EHP-008V270-025-PM024-001	270	25	90	18	24	Air	-	423.5	2	56.5
EHP-009V210-030-PM024-001	210	30	67	25	24	Air	-	423.5	2	56.5
EHP-006V190-023-PM048-001	190	23	30	20	48	Air	-	363.5	1	25.5
EHP-007V225-023-PM048-001	225	23	75	20	48	Air	-	413.5	1	30
EHP-010V270-030-PM048-001	270	30	85	22	48	Air	-	372.5	2	47.5
EHP-016V300-044-PM048-001	300	44	75	33	48	Air	-	423.5	2	56.5
EHP-013V275-040-PM072-001	275	40	130	29	72	Water	1.65	413.5	1	30
EHP-029V195-135-PM096-001	195	135	64	90	96	Water	2.75	521	4	82
EHP-029V235-110-PM096-001	235	110	78	75	96	Water	2.75	521	4	82
EHP-034V290-090-PM096-001	290	90	92	70	96	Water	2.75	504.5	3	79
EHP-036V095-280-PM096-001	95	280	31	230	96	Water	2.75	521	4	82
EHP-015V212-050-PM320-001	212	50	96	40	320	Water	1.2	372.5	2	47.5
EHP-016V267-040-PM320-001	267	40	122	30	320	Water	1.2	372.5	2	47.5
EHP-027V310-060-PM320-001	310	60	175	50	320	Water	2	453.5	3	70
EHP-030V075-330-PM320-001	75	330	37	210	320	Water	2	470	4	73
EHP-029V204-120-PM320-001	204	120	100	80	320	Water	2	453.5	3	70
EHP-028V310-075-PM320-001	310	75	156	45	320	Water	2	453.5	3	70
EHP-044V220-150-PM320-001	220	150	119	115	320	Water	3	521	4	82
EHP-047V130-270-PM320-001	130	270	70	220	320	Water	3	521	4	82
EHP-070V300-140-PM640-001	300	140	200	140	640	Water	5.5	674	4	109
EHP-091V300-220-PM640-001	300	220	144	165	640	Water	5.5	674	4	109
EHP-145V290-300-PM640-001	290	300	155	300	640	Water	7.37	776	4	127

Cooling: IEC34-6 Maximum temperature: 65 °C Maximum pressure: 5 bars  
Not all listed here, other combinations on request

## Calculation of the RMS Pressure

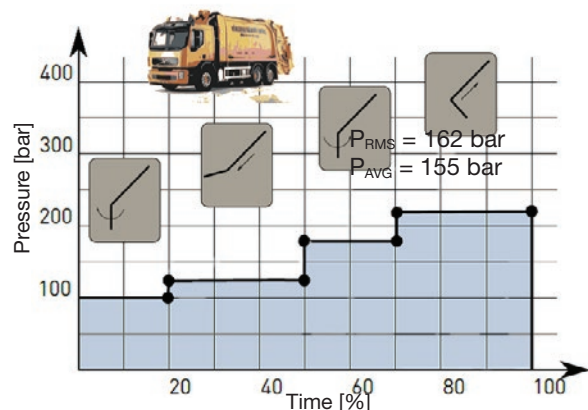
Select the correct EHP as follows:

- Identify the EHP which meets PEAK demand
- Ensure that the RMS pressure is lower than the continuous rating

Confirm the suitability of the selected EHP by calculating the required RMS pressure which the system will attain during the chosen cycle (see example asides).

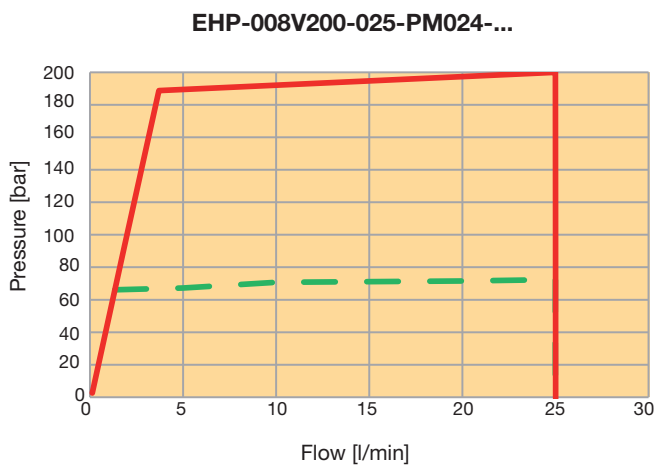
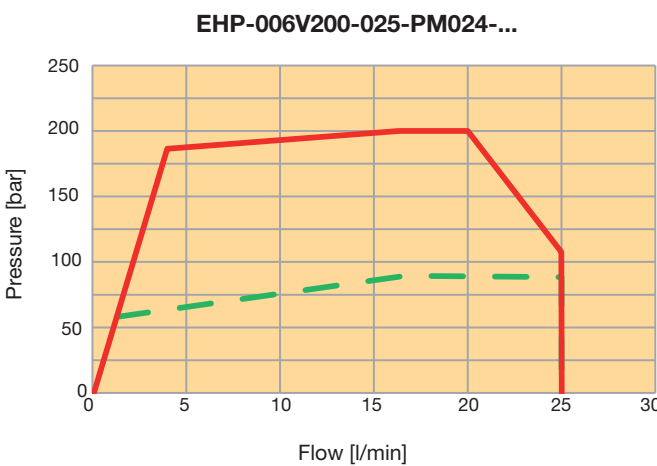
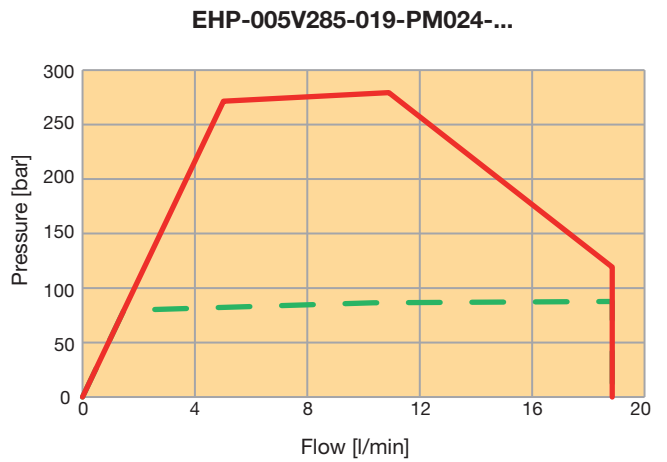
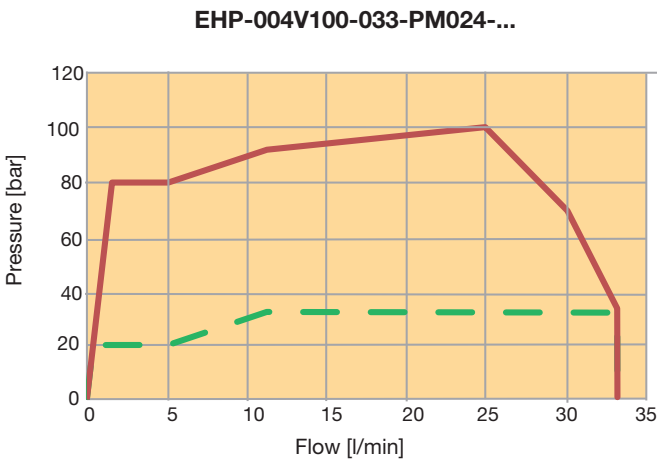
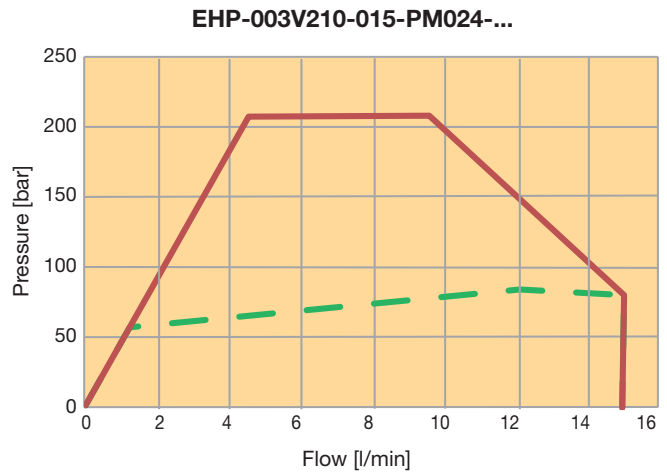
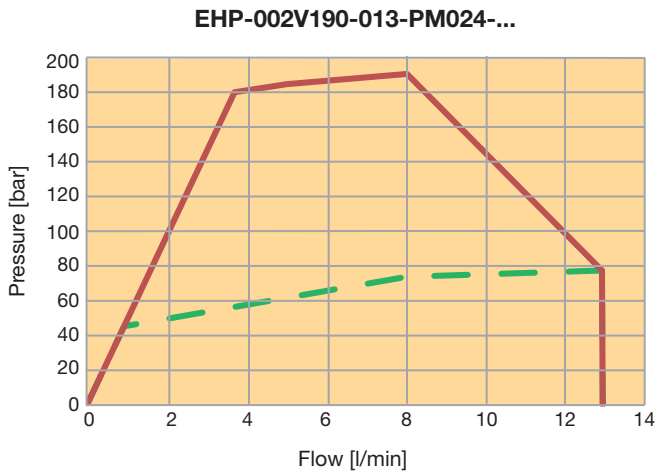
$$P_{RMS} = \sqrt{\frac{1}{100}(P_1^2 T_1 + P_2^2 T_2 + P_3^2 T_3 + P_4^2 T_4)}$$

For thermal reasons (motor overheating), the RMS pressure value must be lower than the given EHP continuous value, even if the maximum instantaneous value can reach the maximum pressure value. In any case, the max pressure value possibly provided by the EHP must not be maintained for more than 10 seconds to avoid overheating.



RMS: Root Mean Square  
AVG: Average

**Pressure/Flow Curves for Low Voltage EHP**

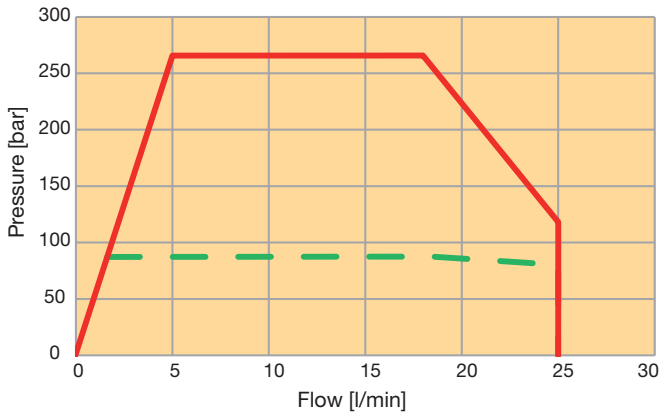


- Max. pressure value (intermittent duty)
- - - Continuous pressure value or max. rms pressure value

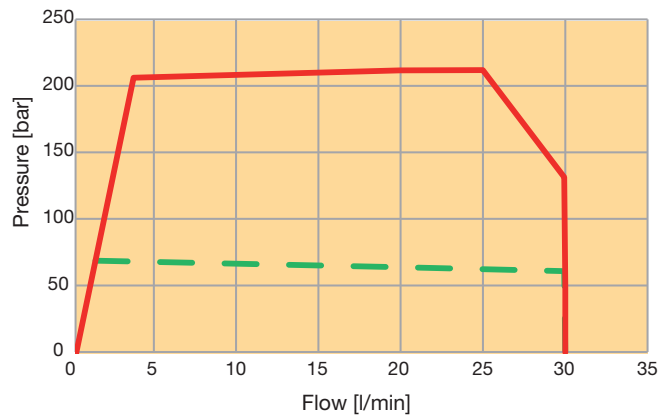
Data obtained with a pump internal leakage value calculated with 10 cSt (1 St = 1 cm<sup>2</sup>/s) oil viscosity (most severe operating conditions)



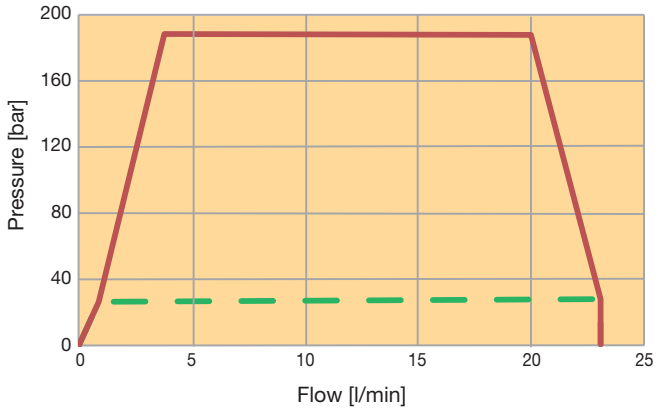
**EHP-008V270-025-PM024-...**



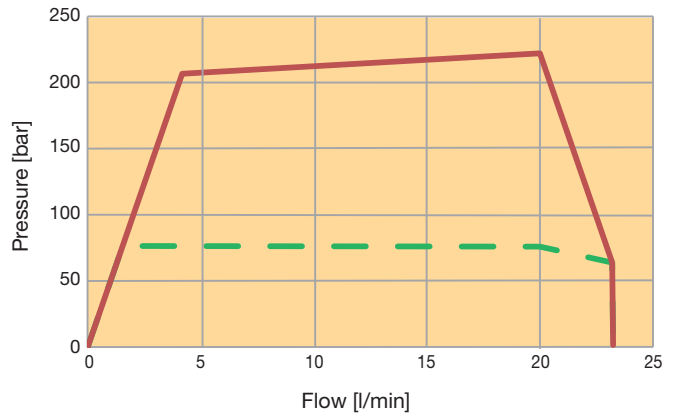
**EHP-009V210-030-PM024-...**



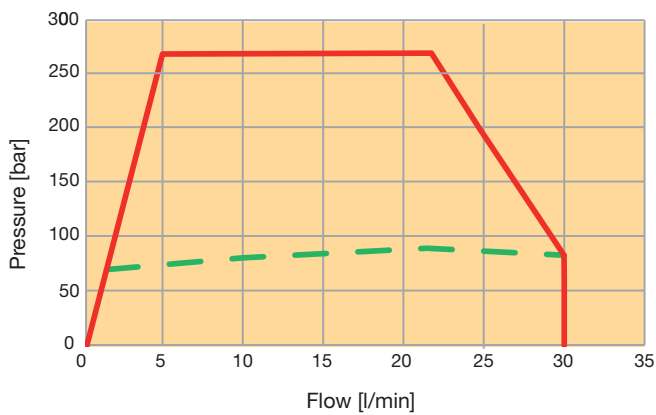
**EHP-006V190-023-PM048-...**



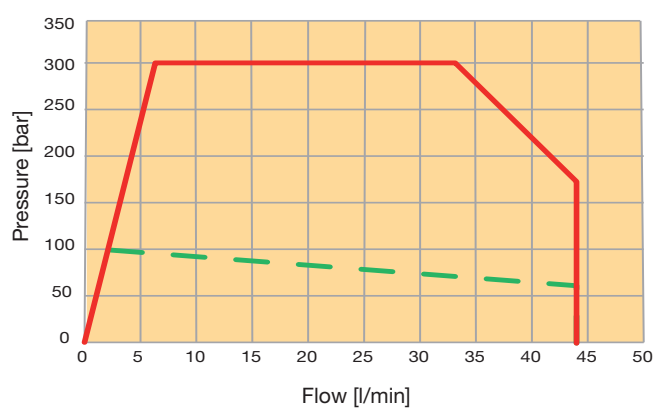
**EHP-007V225-023-PM048-...**



**EHP-010V270-030-PM048-...**



**EHP-016V300-044-PM048-...**

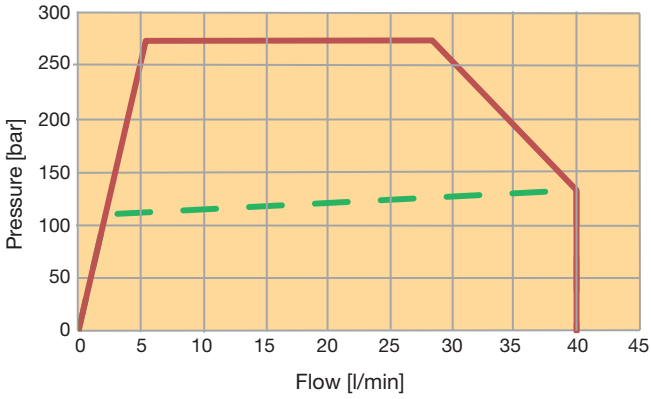


- Max. pressure value (intermittent duty)
- - - Continuous pressure value or max. rms pressure value

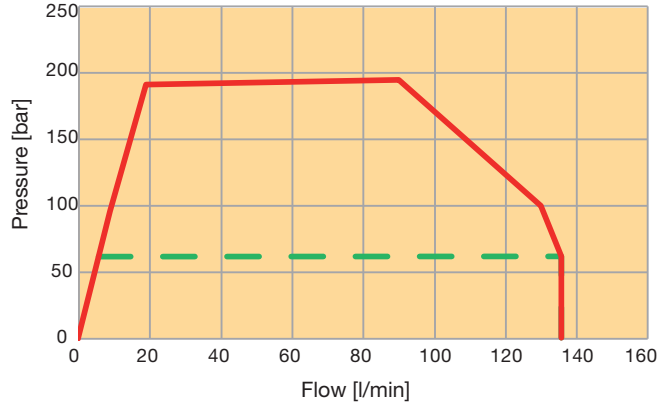
Data obtained with a pump internal leakage value calculated with 10 cSt (1 St = 1 cm<sup>2</sup>/s) oil viscosity (most severe operating conditions)

**Pressure/Flow Curves for Low Voltage EHP**

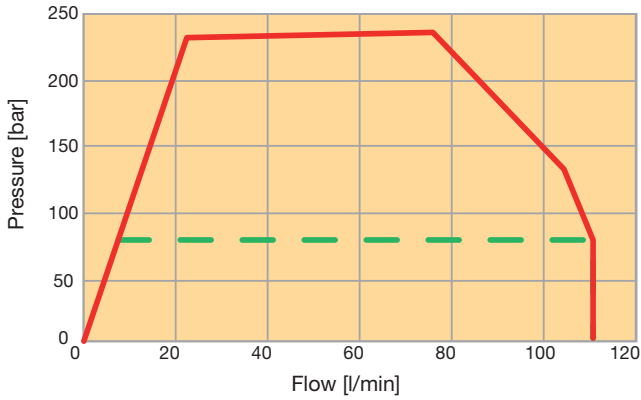
**EHP-013V275-040-PM072-...**



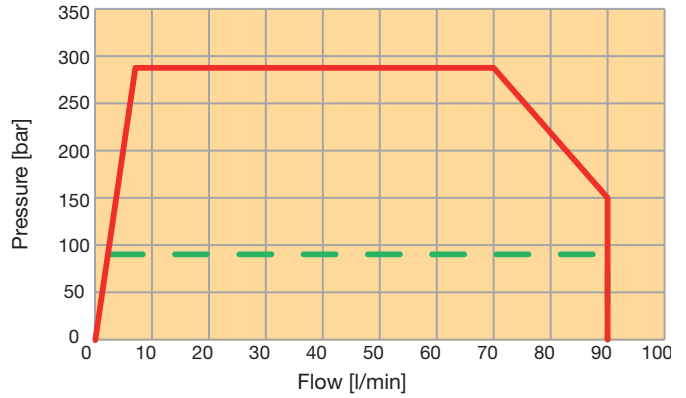
**EHP-029V195-135-PM096-...**



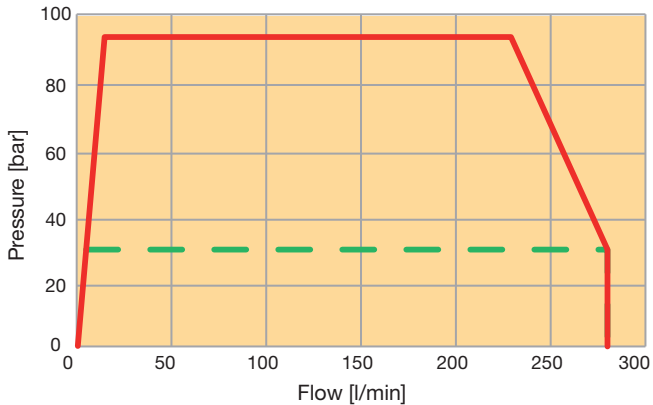
**EHP-029V235-110-PM096-...**



**EHP-034V290-090-PM096-...**



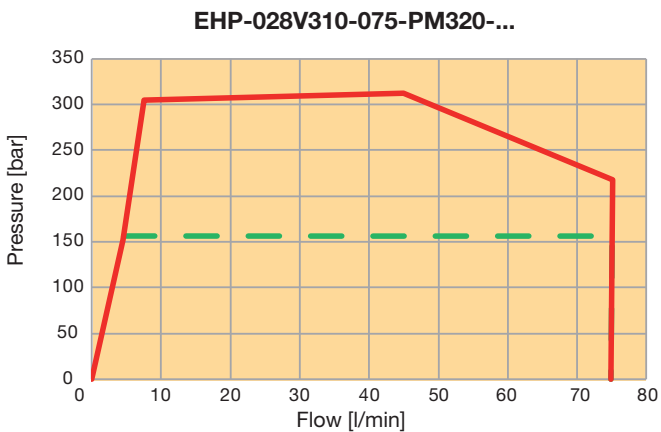
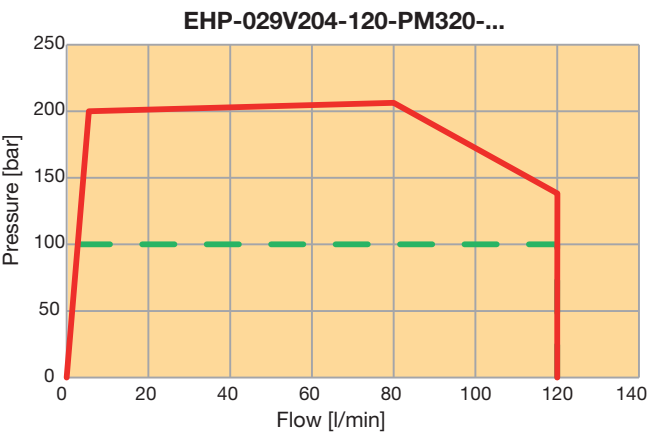
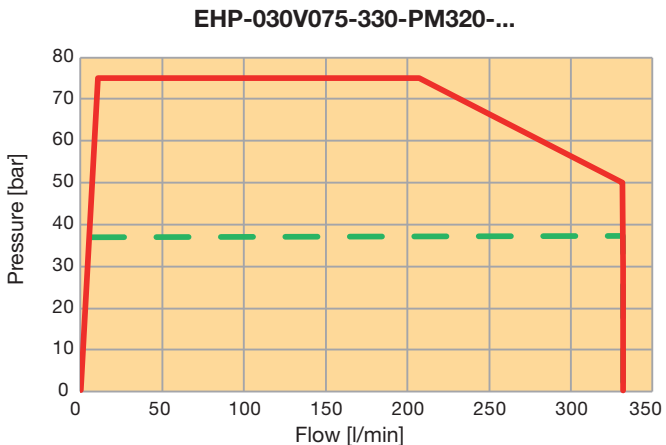
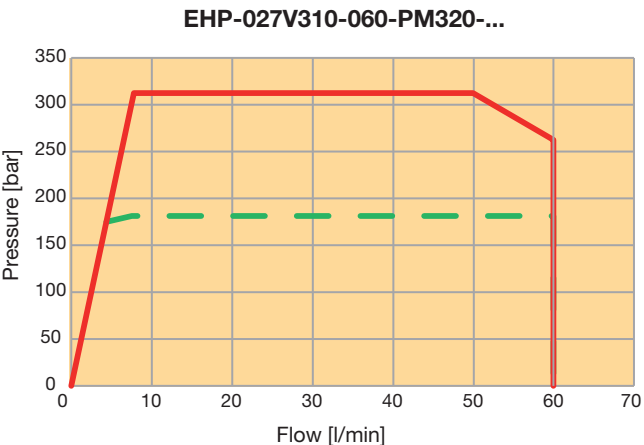
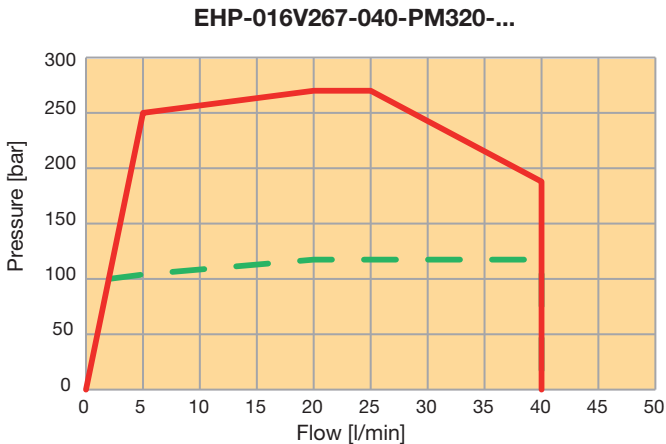
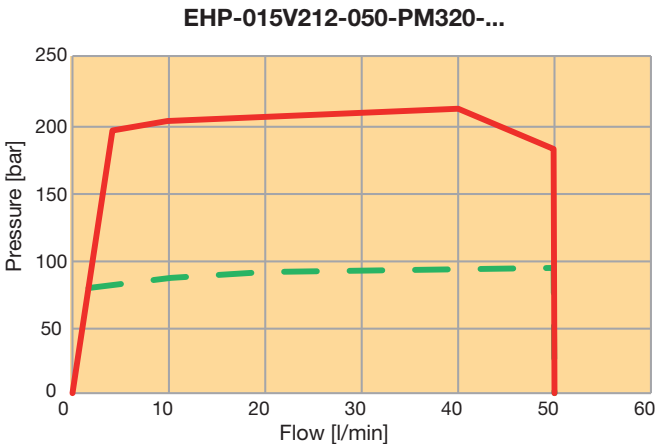
**EHP-036V095-280-PM096-...**



- Max. pressure value (intermittent duty)
- - - Continuous pressure value or max. rms pressure value

Data obtained with a pump internal leakage value calculated with 10 cSt (1 St = 1 cm<sup>2</sup>/s) oil viscosity (most severe operating conditions)

Pressure/Flow Curves for High Voltage EHP

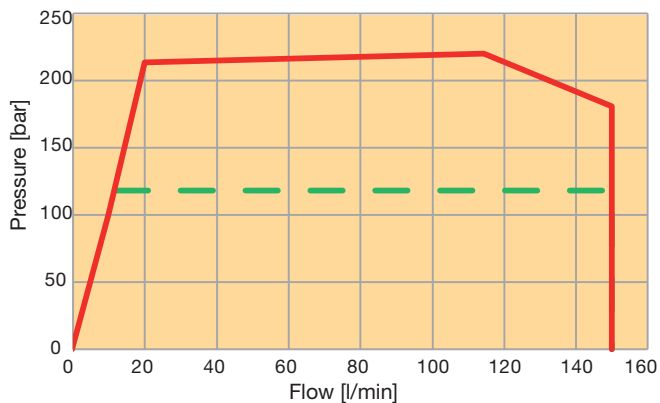


- Max. pressure value (intermittent duty)
- - - Continuous pressure value or max. rms pressure value

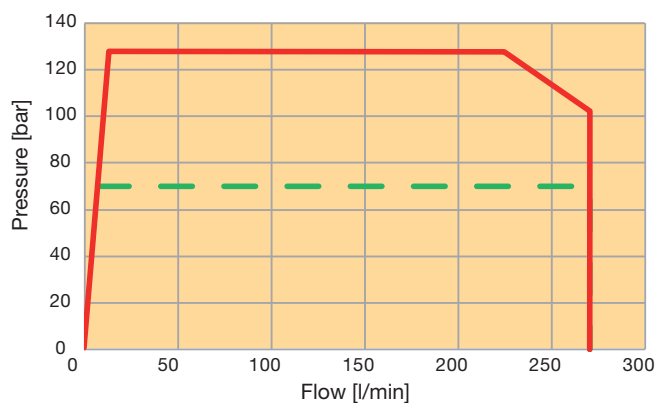
Data obtained with a pump internal leakage value calculated with 10 cSt (1 St = 1 cm<sup>2</sup>/s) oil viscosity (most severe operating conditions)

Electro-Hydraulic Pumps - EHP  
 Pressure/Flow Curves for High Voltage EHP

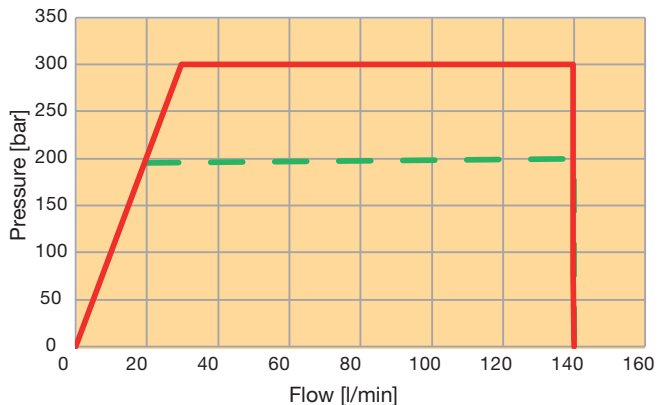
**EHP-044V220-150-PM320-...**



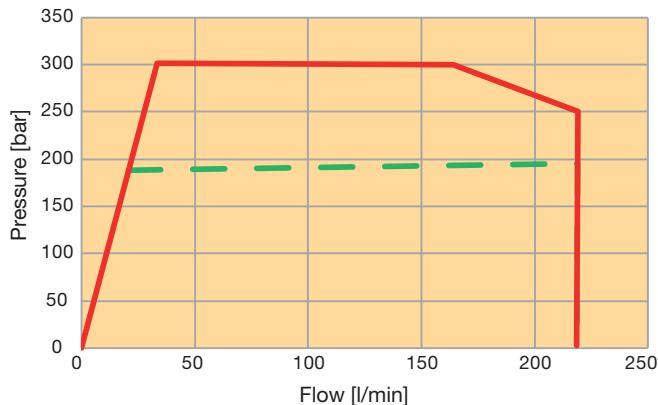
**EHP-047V130-270-PM320-...**



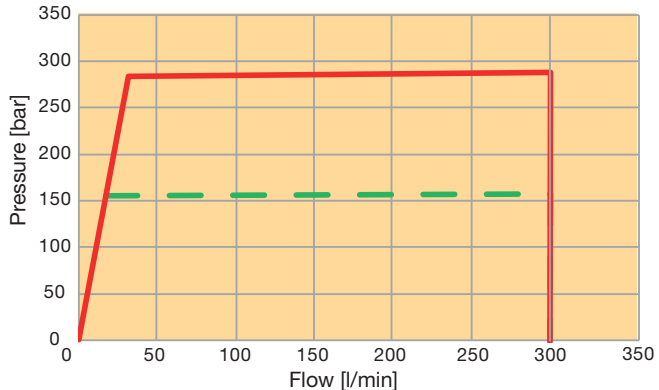
**EHP-070V300-140-PM640-...**



**EHP-091V300-200-PM640-...**



**EHP-145V290-300-PM640-...**



- Max. pressure value (intermittent duty)
- - - Continuous pressure value or max. rms pressure value

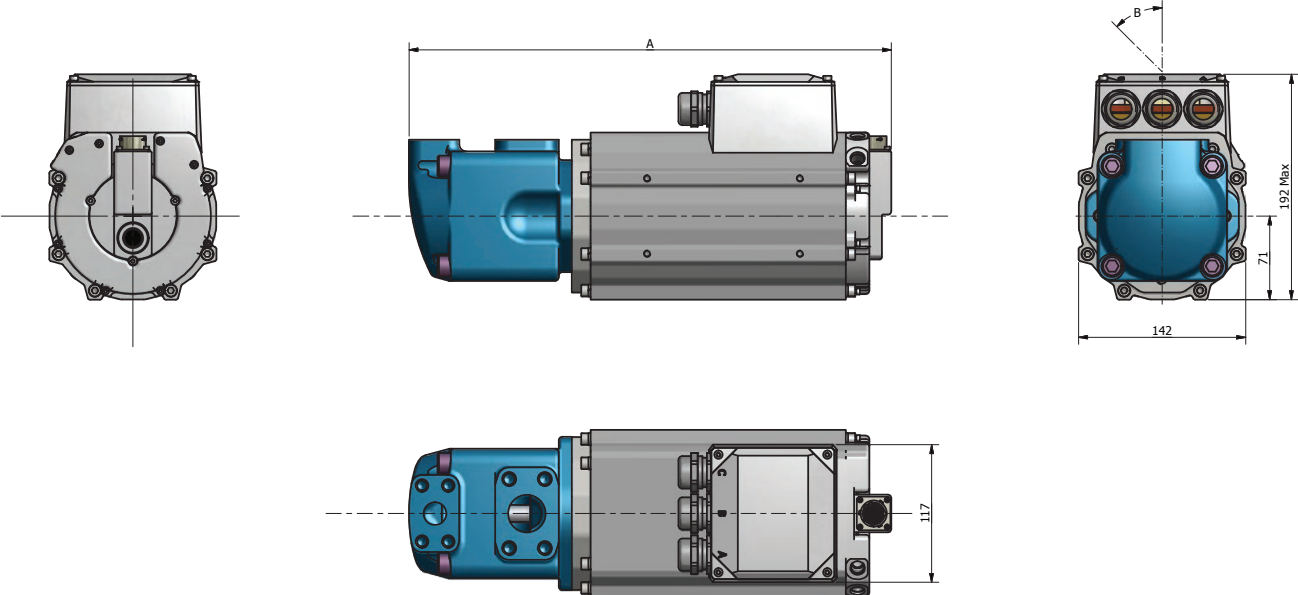
Data obtained with a pump internal leakage value calculated with 10 cSt (1 St = 1 cm<sup>2</sup>/s) oil viscosity (most severe operating conditions)

# Dimensions

GVM142

Figure 1: GVM142\_WC\_T7AS

Dimensions [mm]



# Dimensions

GVM210

Figure 2: GVM210\_WC\_T7AS

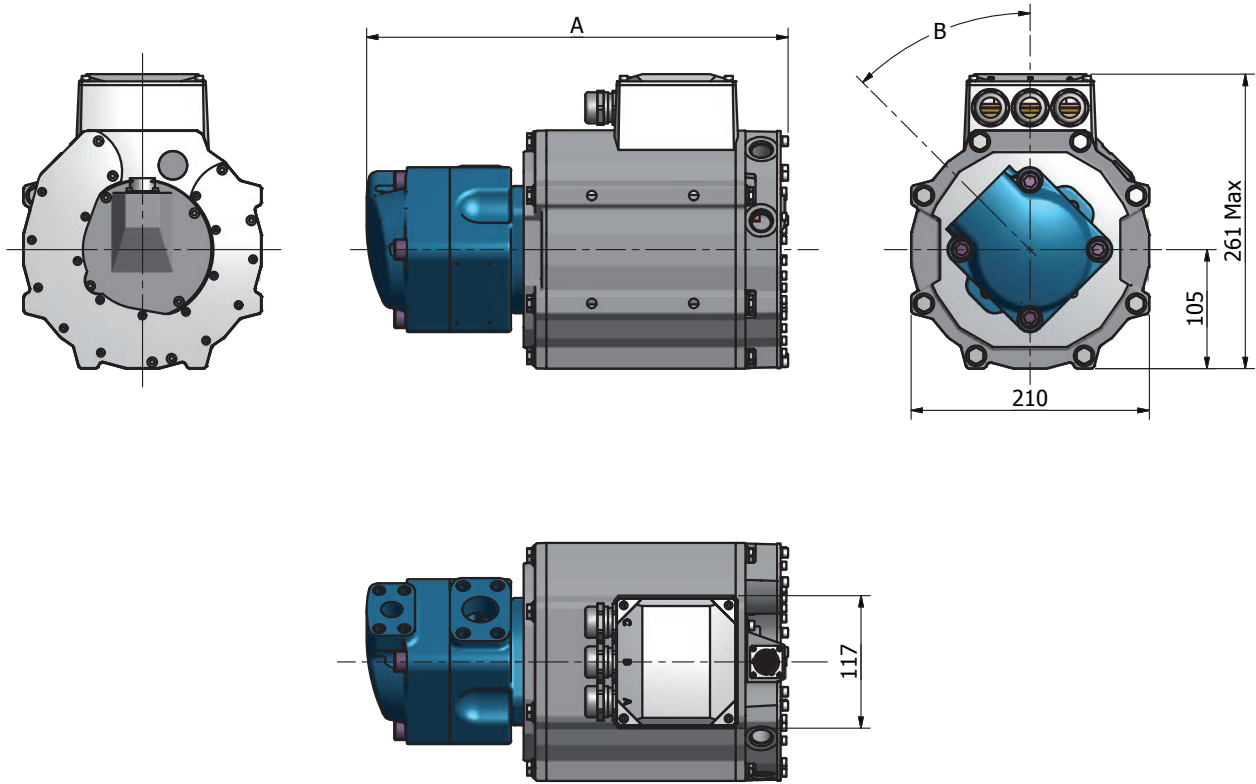


Figure 3: GVM210\_WC\_T7BS

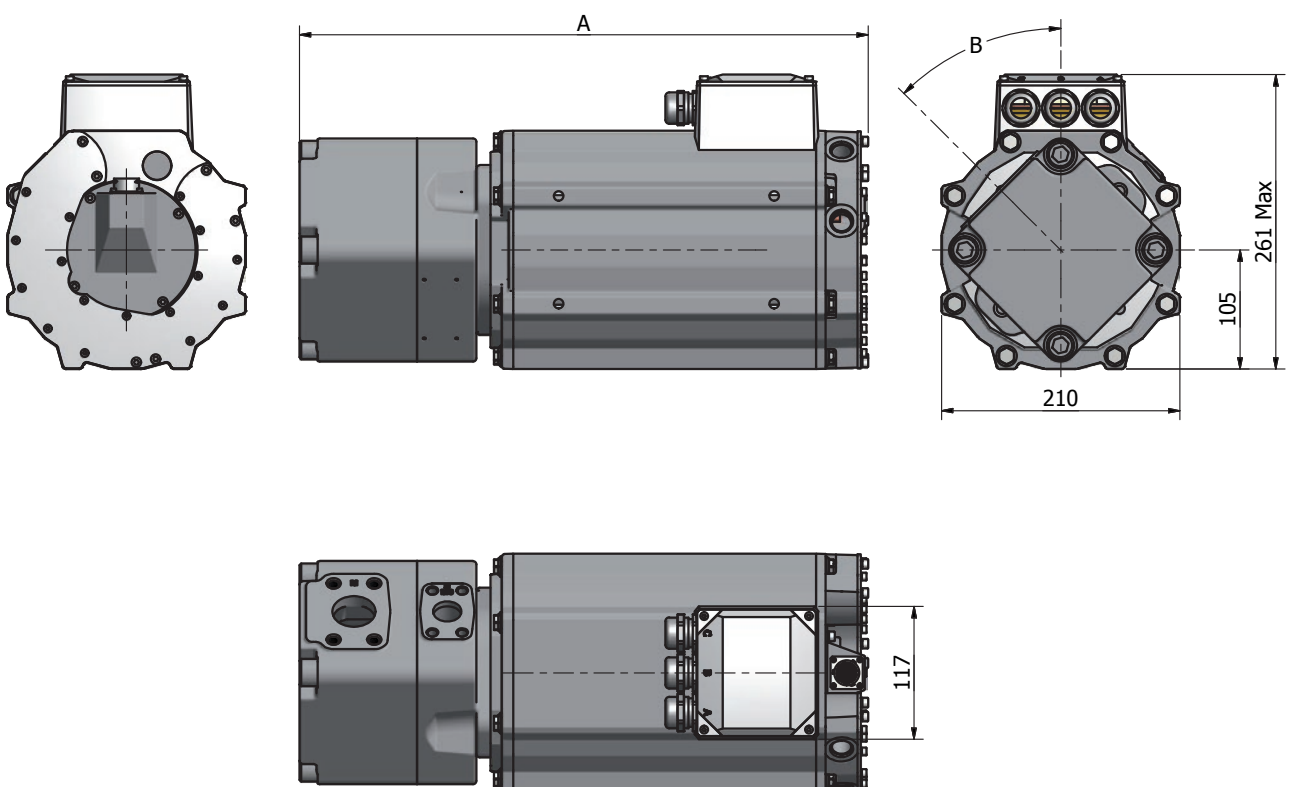
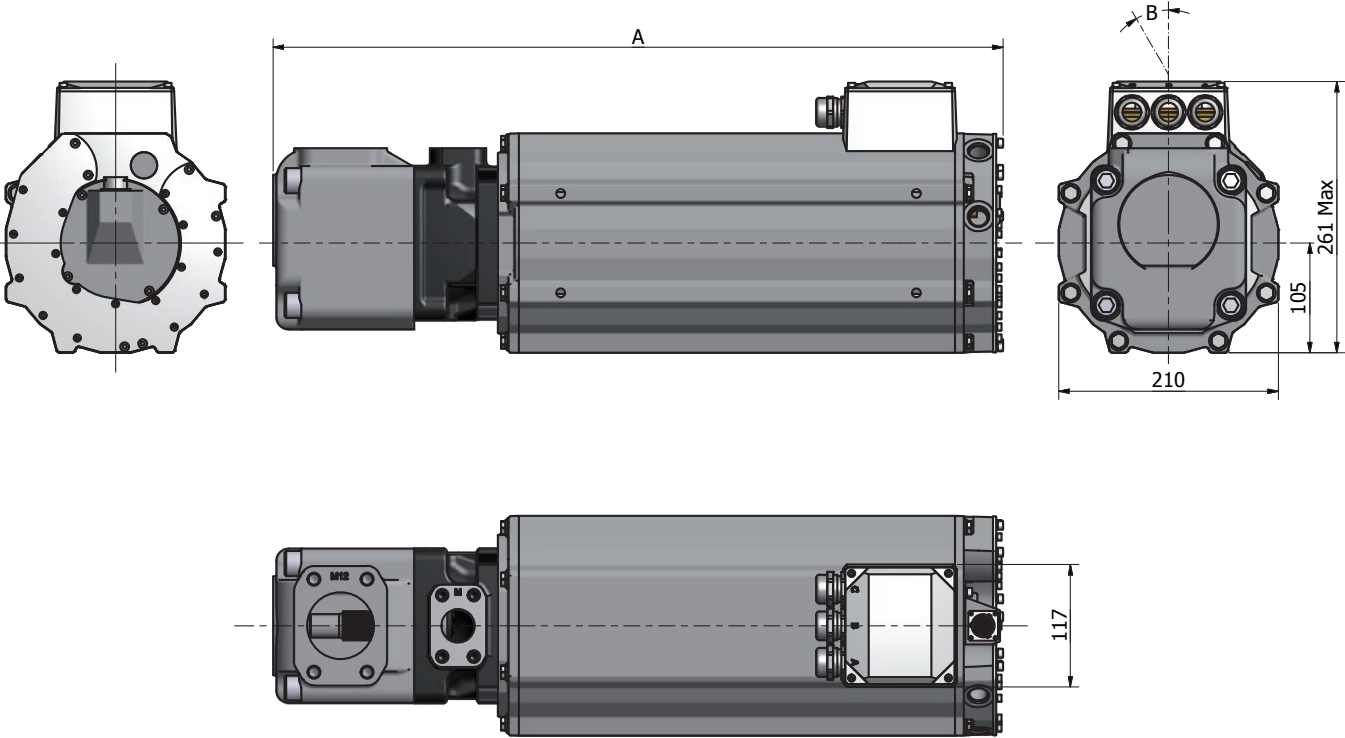


Figure 4: GVM210\_WC\_T7DS



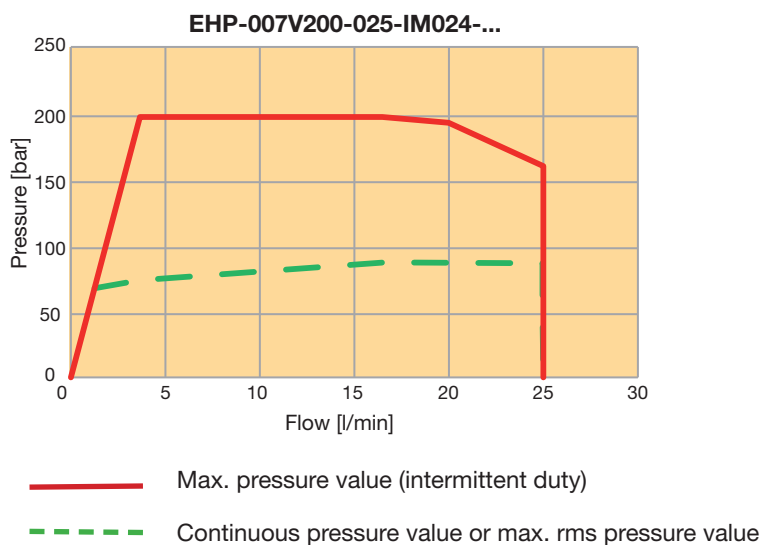
# EHP - Induction Motors

## Technical Characteristics

Part Number	Max. pressure [bar]	Max. flow [l/min]	Cont. pressure [bar]	Cont. flow [l/min]	Voltage [VDC]	Motor Cooling	Length A [mm]	Weight [kg] (motor+pump)
EHP-007V200-025-IM024-001	200	25	90	25	24	Air	558.5	59.5

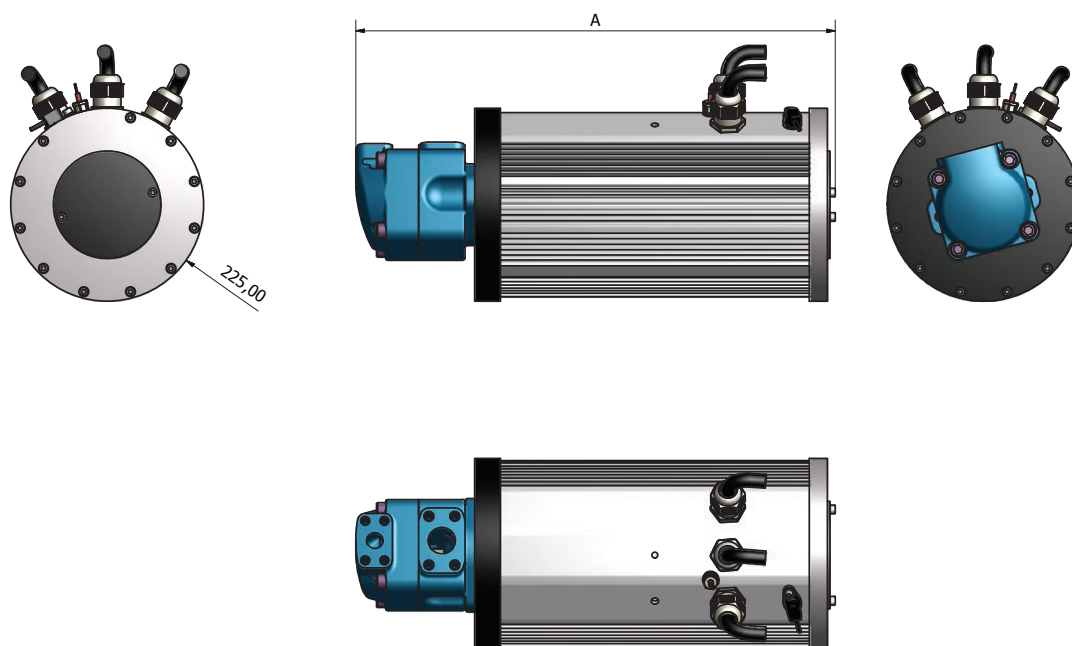
This EHP feature an IP65 induction motor.  
 Other combinations on request.

## Pressure/Flow Curves



Data obtained with a pump internal leakage value calculated with 10 cSt (1 St = 1 cm<sup>2</sup>/s) oil viscosity (most severe operating conditions)

## Dimensions





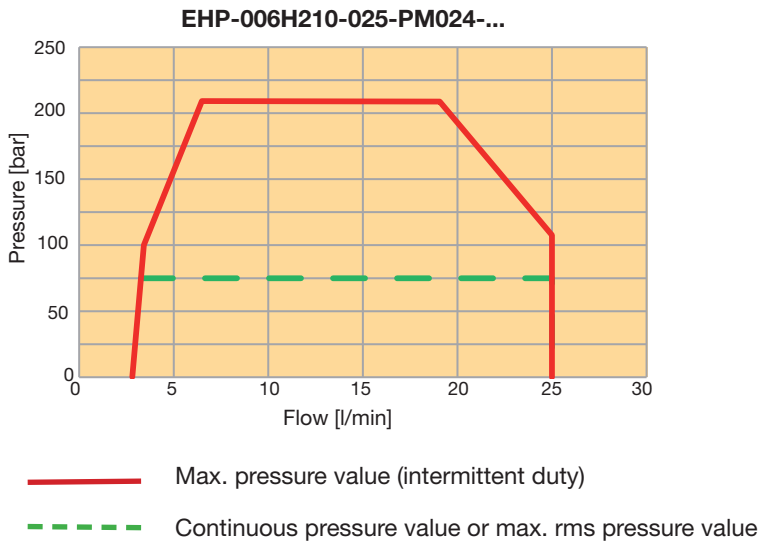
# EHP - Helical Gear Pump

## Technical Characteristics

Part Number	Max. pressure [bar]	Max. flow [l/min]	Cont. pressure [bar]	Cont. flow [l/min]	Voltage [VDC]	Motor Cooling	Length A [mm]	Weight [kg] (motor+pump)
EHP-006H210-025-PM024-001	210	25	75	25	24	Air	385	25.5

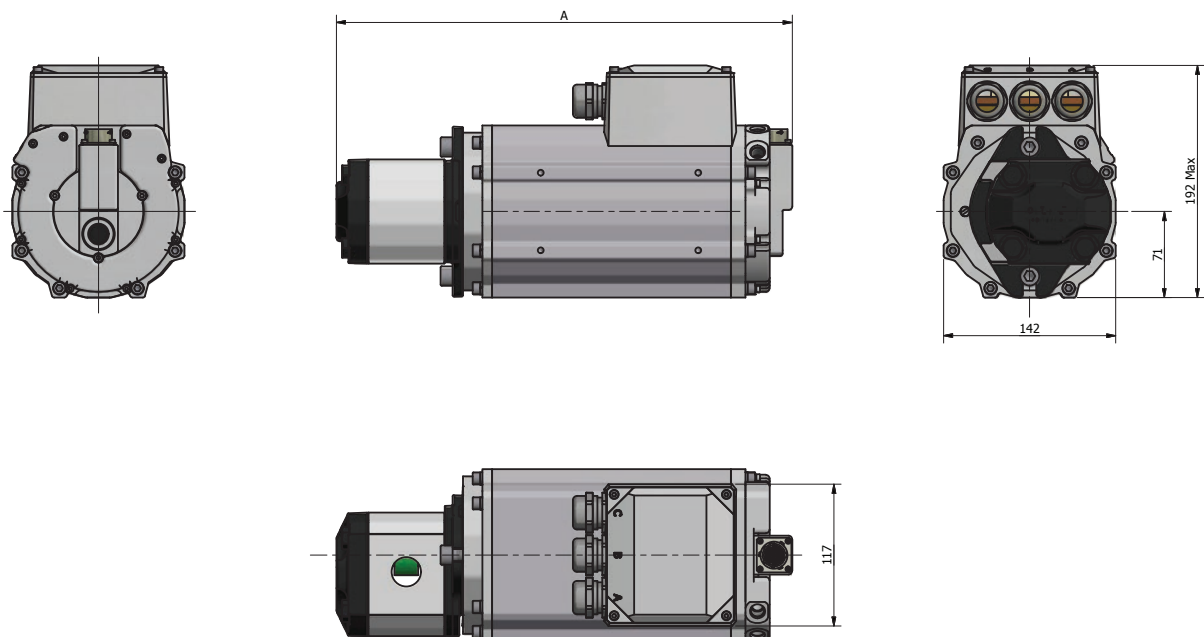
This EHP feature a helical gear pump and a PMAC motor.  
Other combinations on request.

## Pressure/Flow Curves



Data obtained with a pump internal leakage value calculated with 10 cSt (1 St = 1 cm<sup>2</sup>/s) oil viscosity (most severe operating conditions)

## Dimensions



# EHP Component Descriptions

## Low Voltage Drives - MC Drives

### Description

Providing a motor control solution for battery systems between 24 and 96 VDC, the MC motor controllers provide OEMs with a superb combination of power, performance and functionality.

The compact dimensions and high efficiency of this controller make integration into very tight spaces a reality without sacrificing output performance.

It's design has been optimized to produce the lowest possible installed cost, whilst still maintaining superior reliability even in the most demanding applications.



### Product Features

- IP65 protection class
- Motor temperature sensor input
- Configurable CAN communication
- Parker IQAN compatible
- 5 configurable coil drive outputs
- 2 configurable digital outputs
- 2 Analogue inputs / 6 Digital inputs

For more information see catalogue 192-300107

Model	MC
Motor type	PMAC + ACIM
Nominal voltage	24...96 VDC
Max 2 min current	800 Arms
Max 2 min power	60.6 kVA
Protection	IP65
Efficiency	97 %
Operating Temperature	-40...50 °C
Cooling Options	Air-cooled/cold plate

## High Voltage Drives - MD Drives

### Description

With a compact, rugged and cost effective design these reliable controllers are intended to meet the high performance requirements of on-road and off-road electric vehicles (EV) and Hybrid Electric Vehicles (HEV)

Its high voltage range, up to 800VDC, is well matched to the needs of the automotive and commercial transport markets. The same hardware platform handles both AC Induction and Permanent Magnet AC motor technologies.



### Product Features

- Up to 800 VDC peak supply voltage
- Advanced flux vector control
- Integrated logic circuit
- Includes an additional dedicated safety supervisory processor
- Safety interlock pulsed enable signal
- Autocheck system diagnostic
- Hardware & software failsafe watchdog operation

For more information see catalogue 192-300107

Model	MC
Motor type	PMAC + ACIM
Nominal voltage	up to 800 VDC
Max 10 sec. current	780 Arms
Peak power output *	225 kW
Continuous power output *	90 kW
Protection	IP6K9K and IP67
Operating Temperature	-40...+65 °C
Cooling	Water cooled

\* with a cooling liquid temperature of 65°C

## Global Vehicle Motor - GVM Series

### Description

PMAC servomotors offer the best solution to meet the requirements of vehicle duty performance. The torque density and speed capabilities of Parker Permanent Magnet AC motors (PMAC) combined with a voltage matched drive provide the speed and torque required to achieve breakthrough performance in a variety of vehicle platforms.

The adapted nominal voltage range 24 - 800 VDC depending on the drive. IP6K9K protection when assembled with a pump.

### Product Features

- High efficiency (PMAC servomotor)
- Compact (High power density)
- Can be used either as motor or generator

For more information see catalogue 192-300108



Model	GVM
Magnet materials	Rare earth magnets
Ambient temperature*	liquid cooled: -40...+120 °C natural convection: -40...+65 °C
Random Vibration	0.1 g <sup>2</sup> /Hz in frequency range 5...2000 Hz (12 g rms – 3 x 8h)
Operational Shock	25 g, 11 ms, 3 x 6 (with 2 directions per axis)
Thermal protection	1 PTC probes and 1 KTY84-130 sensor

\* with resolver as feedback

## Low Voltage Induction Motor - CFR Series

### Description

Available for 24 VDC to 96 VDC drive operation voltage, Parker's ruggedised induction motors can be supplied as part of a complete mobile system with a preconfigured and tested mobile drive.

Typically adapted for Electro-Hydraulic-Pump, they are commonly used in steering applications.



### Product Features

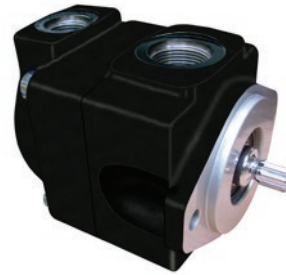
- Low voltage induction motor
- Speed up to 3500 min<sup>-1</sup>
- Torque up to 150 Nm

Model	CFR
Type	Induction motor
Voltage	24 VDC to 96 VDC (MC drive)
Power	Up to 40 kW
Protection	IP20 to IP65

## Vane Pump - T7 Exx Series

### Description

Parker vane pumps are especially suited to variable speed applications. They enable very quick changes in pressure at a very high flow rate reproducibility and at a low noise level. It is particularly modification and service friendly. The wide range of designs (displacement, connections, etc.) offers the best preconditions for individual solutions tailored to a customer's requirements.



### Product Features

- High efficiency (can even be used at low speeds)
- High pressure capabilities up to 300 bar, in a small size envelope, reducing installation costs and delivering an extended service life
- Wide speed range (up to 3000 min<sup>-1</sup>)
- Specially designed to be quiet in operation reducing overall noise levels from the vehicle
- Very long service life with constant performances
- Very low inertia (dynamic response to fit the application demand)

For more information see catalogue HY29-0110

<b>Model</b>	<b>T7</b>
<b>Pump type</b>	Vane pumps
<b>Displacement range</b>	Size A: 5.8...24.9 ml/rev Size B: 5.8...50.0 ml/rev Size D: 44.0...137.5 ml/rev
<b>Pressure range</b>	Size A: up to 300 bar max Size B: up to 320 bar max Size D: up to 300 bar max

An oil filtering system has to be placed on the pump outlet. No filter or strainer is allowed at the inlet side.

## Helical Gear Pump - HGP Series

### Description

New gear pump generation capable to reduce as much as possible the acoustic emissions and the consequent vibration level.



### Product Features

- Low noise
- High volumetrical efficiency
- Wide speed range (up to 3000 min<sup>-1</sup>)
- Intermittent operation at high pressure and low speed
- SAEA mounting interface

<b>Model</b>	<b>GR</b>
<b>Pump type</b>	Helical gear pumps
<b>Displacement range</b>	HGP-GR33: 10...18 ml/rev HGP-GR38: 16...28 ml/rev
<b>Max continuous operating pressure</b>	275 bar

An oil filtering system has to be placed on the pump outlet. No filter or strainer is allowed at the inlet side.

## Order Code

	1		2	3	4		5		6	7		8
Order example	<b>EHP</b>	-	<b>010</b>	<b>V</b>	<b>270</b>	-	<b>030</b>	-	<b>PM</b>	<b>048</b>	-	<b>001</b>

### 1 Series name

**EHP** Electro Hydraulic Pump

### 2 Hydraulic power (max. power in kW)

**010** 10 kW (as an example)

### 3 Pump type (fixed displacement only)

**V** Vane (standard)

**A** Axial piston (on request)

**H** Helical gear pump (esteering)

**B** Bent axis (on request)

**G** Gear (on request)

### 4 Hydraulic pressure (max. pressure in bar)

**270** 270 bar (as an example)

### 5 Hydraulic flow (max. flow in l/min)

**030** 30 l/min (as an example)

@continuous pressure - nmax motor speed x displacement

### 6 Motor type

**IM** Induction Motor

**PM** Permanent magnet Motor (standard)

### 7 Battery Voltage (nominal voltage in VDC)

**048** 48 VDC (as an example)

### 8 Unique Designation

angular position of the input hole = B  
(please see drawing - vane pump side)

	GVM142	GVM210	
	SAE A	SAE A/B	SAE C
<b>xx1</b>	0° trigo	45° trigo	0° trigo
<b>xx2</b>	90° trigo	135° trigo	90° trigo
<b>xx3</b>	180° trigo	225° trigo	180° trigo
<b>xx4</b>	270° trigo	315° trigo	270° trigo

Note:

The three needed parameters determining the EHP characteristics are appearing in the product code:

Pressure (4) Flow (5) Voltage (7)

## Motor Pumps - MP

On request Parker is able to provide an Electro Hydraulic Pump without the drive according to the following part number. Final performances as output pressure/flow will be under the customer responsibility.

### Order Code

	1	2	3	4	5	6		7		8
Order example	<b>MP</b>	<b>142</b>	<b>100</b>	<b>ZQ</b>	<b>W</b>	<b>A</b>	-	<b>T7ASE11</b>	-	<b>001</b>

<b>1</b>	<b>Series</b>	
	<b>MP</b>	Motor Pump
<b>2</b>	<b>Frame</b>	
	<b>142</b>	Outer diameter of GVM motor in millimeter
<b>3</b>	<b>Stack</b>	
	<b>100</b>	Number of magnetic segments in millimeter. See configurable for frame-specific lengths
<b>4</b>	<b>Winding</b>	
	<b>ZQ</b>	Winding
<b>5</b>	<b>Cooling</b>	
	<b>W</b>	Water cooling tubes populated
	<b>N</b>	Natural convection
<b>6</b>	<b>Feedback</b>	
	<b>A</b>	Resolver for HV drives
	<b>L</b>	Sin/Cos for LV drives
<b>7</b>	<b>Pump type</b>	
	<b>T7ASE11</b>	Based on type and displacement
<b>8</b>	<b>Options</b>	
	<b>001</b>	CF EHP



# Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374



## Aerospace Key Markets

Aftermarket services  
Commercial transports  
Engines  
General & business aviation  
Helicopters  
Launch vehicles  
Military aircraft  
Missiles  
Power generation  
Regional transports  
Unmanned aerial vehicles

## Key Products

Control systems & actuation products  
Engine systems & components  
Fluid conveyance systems & components  
Fluid metering, delivery & atomization devices  
Fuel systems & components  
Fuel tank inerting systems  
Hydraulic systems & components  
Thermal management  
Wheels & brakes



## Climate Control Key Markets

Agriculture  
Air conditioning  
Construction Machinery  
Food & beverage  
Industrial machinery  
Life sciences  
Oil & gas  
Precision cooling  
Process  
Refrigeration  
Transportation

## Key Products

Accumulators  
Advanced actuators  
CO<sub>2</sub> controls  
Electronic controllers  
Filter driers  
Hand shut-off valves  
Heat exchangers  
Hose & fittings  
Pressure regulating valves  
Refrigerant distributors  
Safety relief valves  
Smart pumps  
Solenoid valves  
Thermostatic expansion valves



## Electromechanical Key Markets

Aerospace  
Factory automation  
Life science & medical  
Machine tools  
Packaging machinery  
Paper machinery  
Plastics machinery & converting  
Primary metals  
Semiconductor & electronics  
Textile  
Wire & cable

## Key Products

AC/DC drives & systems  
Electric actuators, gantry robots & slides  
Electrohydraulic actuation systems  
Electromechanical actuation systems  
Human machine interface  
Linear motors  
Stepper motors, servo motors, drives & controls  
Structural extrusions



## Filtration Key Markets

Aerospace  
Food & beverage  
Industrial plant & equipment  
Life sciences  
Marine  
Mobile equipment  
Oil & gas  
Power generation & renewable energy  
Process  
Transportation  
Water Purification

## Key Products

Analytical gas generators  
Compressed air filters & dryers  
Engine air, coolant, fuel & oil filtration systems  
Fluid condition monitoring systems  
Hydraulic & lubrication filters  
Hydrogen, nitrogen & zero air generators  
Instrumentation filters  
Membrane & fiber filters  
Microfiltration  
Sterile air filtration  
Water desalination & purification filters & systems



## Fluid & Gas Handling

### Key Markets

Aerial lift  
Agriculture  
Bulk chemical handling  
Construction machinery  
Food & beverage  
Fuel & gas delivery  
Industrial machinery  
Life sciences  
Marine  
Mining  
Mobile  
Oil & gas  
Renewable energy  
Transportation

### Key Products

Check valves  
Connectors for low pressure fluid conveyance  
Deep sea umbilicals  
Diagnostic equipment  
Hose couplings  
Industrial hose  
Mooring systems & power cables  
PTFE hose & tubing  
Quick couplings  
Rubber & thermoplastic hose  
Tube fittings & adapters  
Tubing & plastic fittings



## Hydraulics

### Key Markets

Aerial lift  
Agriculture  
Alternative energy  
Construction machinery  
Forestry  
Industrial machinery  
Machine tools  
Marine  
Material handling  
Mining  
Oil & gas  
Power generation  
Refuse vehicles  
Renewable energy  
Truck hydraulics  
Turf equipment

### Key Products

Accumulators  
Cartridge valves  
Electrohydraulic actuators  
Human machine interfaces  
Hybrid drives  
Hydraulic cylinders  
Hydraulic motors & pumps  
Hydraulic systems  
Hydraulic valves & controls  
Hydrostatic steering  
Integrated hydraulic circuits  
Power take-offs  
Power units  
Rotary actuators  
Sensors



## Pneumatics

### Key Markets

Aerospace  
Conveyor & material handling  
Factory automation  
Life science & medical  
Machine tools  
Packaging machinery  
Transportation & automotive

### Key Products

Air preparation  
Brass fittings & valves  
Manifolds  
Pneumatic accessories  
Pneumatic actuators & grippers  
Pneumatic valves & controls  
Quick disconnects  
Rotary actuators  
Rubber & thermoplastic hose & couplings  
Structural extrusions  
Thermoplastic tubing & fittings  
Vacuum generators, cups & sensors



## Process Control

### Key Markets

Alternative fuels  
Biopharmaceuticals  
Chemical & refining  
Food & beverage  
Marine & shipbuilding  
Medical & dental  
Microelectronics  
Nuclear Power  
Offshore oil exploration  
Oil & gas  
Pharmaceuticals  
Power generation  
Pulp & paper  
Steel  
Water/wastewater

### Key Products

Analytical Instruments  
Analytical sample conditioning products & systems  
Chemical injection fittings & valves  
Fluoropolymer chemical delivery fittings, valves & pumps  
High purity gas delivery fittings, valves, regulators & digital flow controllers  
Industrial mass flow meters/ controllers  
Permanent no-weld tube fittings  
Precision industrial regulators & flow controllers  
Process control double block & bleeds  
Process control fittings, valves, regulators & manifold valves



## Sealing & Shielding

### Key Markets

Aerospace  
Chemical processing  
Consumer  
Fluid power  
General industrial  
Information technology  
Life sciences  
Microelectronics  
Military  
Oil & gas  
Power generation  
Renewable energy  
Telecommunications  
Transportation

### Key Products

Dynamic seals  
Elastomeric o-rings  
Electro-medical instrument design & assembly  
EMI shielding  
Extruded & precision-cut, fabricated elastomeric seals  
High temperature metal seals  
Homogeneous & inserted elastomeric shapes  
Medical device fabrication & assembly  
Metal & plastic retained composite seals  
Shielded optical windows  
Silicone tubing & extrusions  
Thermal management  
Vibration dampening

# Parker Worldwide

## Europe, Middle East, Africa

**AE – United Arab Emirates, Dubai**  
Tel: +971 4 8127100  
parker.me@parker.com

**AT – Austria, Wiener Neustadt**  
Tel: +43 (0)2622 23501-0  
parker.austria@parker.com

**AT – Eastern Europe, Wiener Neustadt**  
Tel: +43 (0)2622 23501 900  
parker.easteurope@parker.com

**AZ – Azerbaijan, Baku**  
Tel: +994 50 2233 458  
parker.azerbaijan@parker.com

**BE/LU – Belgium, Nivelles**  
Tel: +32 (0)67 280 900  
parker.belgium@parker.com

**BG – Bulgaria, Sofia**  
Tel: +359 2 980 1344  
parker.bulgaria@parker.com

**BY – Belarus, Minsk**  
Tel: +48 (0)22 573 24 00  
parker.poland@parker.com

**CH – Switzerland, Etoy**  
Tel: +41 (0)21 821 87 00  
parker.switzerland@parker.com

**CZ – Czech Republic, Klecany**  
Tel: +420 284 083 111  
parker.czechrepublic@parker.com

**DE – Germany, Kaarst**  
Tel: +49 (0)2131 4016 0  
parker.germany@parker.com

**DK – Denmark, Ballerup**  
Tel: +45 43 56 04 00  
parker.denmark@parker.com

**ES – Spain, Madrid**  
Tel: +34 902 330 001  
parker.spain@parker.com

**FI – Finland, Vantaa**  
Tel: +358 (0)20 753 2500  
parker.finland@parker.com

**FR – France, Contamine s/Arve**  
Tel: +33 (0)4 50 25 80 25  
parker.france@parker.com

**GR – Greece, Athens**  
Tel: +30 210 933 6450  
parker.greece@parker.com

**HU – Hungary, Budaörs**  
Tel: +36 23 885 470  
parker.hungary@parker.com

**IE – Ireland, Dublin**  
Tel: +353 (0)1 466 6370  
parker.ireland@parker.com

**IL – Israel**  
Tel: +39 02 45 19 21  
parker.israel@parker.com

**IT – Italy, Corsico (MI)**  
Tel: +39 02 45 19 21  
parker.italy@parker.com

**KZ – Kazakhstan, Almaty**  
Tel: +7 7273 561 000  
parker.easteurope@parker.com

**NL – The Netherlands, Oldenzaal**  
Tel: +31 (0)541 585 000  
parker.nl@parker.com

**NO – Norway, Asker**  
Tel: +47 66 75 34 00  
parker.norway@parker.com

**PL – Poland, Warsaw**  
Tel: +48 (0)22 573 24 00  
parker.poland@parker.com

**PT – Portugal**  
Tel: +351 22 999 7360  
parker.portugal@parker.com

**RO – Romania, Bucharest**  
Tel: +40 21 252 1382  
parker.romania@parker.com

**RU – Russia, Moscow**  
Tel: +7 495 645-2156  
parker.russia@parker.com

**SE – Sweden, Spånga**  
Tel: +46 (0)8 59 79 50 00  
parker.sweden@parker.com

**SK – Slovakia, Banská Bystrica**  
Tel: +421 484 162 252  
parker.slovakia@parker.com

**SL – Slovenia, Novo Mesto**  
Tel: +386 7 337 6650  
parker.slovenia@parker.com

**TR – Turkey, Istanbul**  
Tel: +90 216 4997081  
parker.turkey@parker.com

**UA – Ukraine, Kiev**  
Tel: +48 (0)22 573 24 00  
parker.poland@parker.com

**UK – United Kingdom, Warwick**  
Tel: +44 (0)1926 317 878  
parker.uk@parker.com

**ZA – South Africa, Kempton Park**  
Tel: +27 (0)11 961 0700  
parker.southafrica@parker.com

## North America

**CA – Canada, Milton, Ontario**  
Tel: +1 905 693 3000

**US – USA, Cleveland**  
Tel: +1 216 896 3000

## Asia Pacific

**AU – Australia, Castle Hill**  
Tel: +61 (0)2-9634 7777

**CN – China, Shanghai**  
Tel: +86 21 2899 5000

**HK – Hong Kong**  
Tel: +852 2428 8008

**IN – India, Mumbai**  
Tel: +91 22 6513 7081-85

**JP – Japan, Tokyo**  
Tel: +81 (0)3 6408 3901

**KR – South Korea, Seoul**  
Tel: +82 2 559 0400

**MY – Malaysia, Shah Alam**  
Tel: +60 3 7849 0800

**NZ – New Zealand, Mt Wellington**  
Tel: +64 9 574 1744

**SG – Singapore**  
Tel: +65 6887 6300

**TH – Thailand, Bangkok**  
Tel: +662 186 7000

**TW – Taiwan, Taipei**  
Tel: +886 2 2298 8987

## South America

**AR – Argentina, Buenos Aires**  
Tel: +54 3327 44 4129

**BR – Brazil, Sao Jose dos Campos**  
Tel: +55 800 727 5374

**CL – Chile, Santiago**  
Tel: +56 2 623 1216

**MX – Mexico, Toluca**  
Tel: +52 72 2275 4200



### EMEA Product Information Centre

Free phone: 00 800 27 27 5374

(from AT, BE, CH, CZ, DE, DK, EE, ES, FI, FR, IE, IL, IS, IT, LU, MT, NL, NO, PL, PT, RU, SE, SK, UK, ZA)

### US Product Information Centre

Toll-free number: 1-800-27 27 537

www.parker.com