Compact EHA
Electro-Hydraulic Actuators for high power density applications
Introducing Compact EHA ...
The new Compact EHA from Parker delivers powerful, reliable linear movement. Compact EHA is a fully self-contained electro-hydraulic actuator which combines high power density with light weight, low sound level and small envelope. Simple “plug ‘n play” functionality makes Compact EHA the ideal solution for applications where other conventional linear movement technologies lack the power, speed and durability of compact hydraulics.

Available for 12V and 24V DC operation, Compact EHA is suitable for a wide range of mobile, light industrial and domestic applications.

Where Can I Use Compact EHA?

**Turf Care/Lawn & Garden**
- Deck lifts
- Mower blade lifts
- Golf course sprayer/sweeper

**Marine**
- Jack plates
- Hatches
- Yacht transom actuators

**Material Handling**
- Pallet lifts
- Lift tables
- Scissors tables
- Light aircraft tug

**Truck & All Terrain/Utility Vehicle**
- Tailgate locks
- Utility vehicle attachments
- Cart/trailer bed lifts

**Military/Security**
- Door opening
- Hatch lifting
- Cab lifts
- Armored vehicle attachments

**Construction**
- Attachment locks
- Skid steer bucket level
- Plough/blade positioning

**Renewable Energy**
- Solar panel positioning
- Wind turbine rotor locks

**Agriculture**
- Chute positioners
- Sprayer arm lifts

**Medical/patient handling**
- Stretchers & beds
- Ambulance cots
- Wheelchair access ramps
- Kneeling handicap vans

Delivering Power with Control

1 **Rugged DC Motor**
A choice of 12V or 24V DC motors, each available in two power ratings, makes it easy to match your power supply and deliver the force your application demands. All versions are supplied with 1.5m (60 in) leads fitted with standard ring terminals, to simplify and speed up connection.

2 **Reversible Gear Pump**
Compact EHA’s electric motor is mated to a robust gear pump, fully enclosed within the fluid reservoir. The fully sealed hydraulic system ensures that the pump operates under ideal conditions, guaranteeing a long, maintenance-free service life. Four different pump capacities allow Compact EHA to be tailored to the precise load and speed demands of your application.

3 **Robust One-Piece Housing**
All Parker Compact EHAs feature a tough, lightweight one-piece housing with integrated base mounting, manufactured from cast aluminium and anodized for durability. The absence of jointing faces minimizes potential leakage points, so Compact EHA is the ideal choice in environments where cleanliness is critical. Innovative design results in an exceptionally small footprint, so integrating Compact EHA into new products, or retro-fitting into existing designs, could not be easier.

4 **Double-Acting Hydraulic Cylinder**
Exceptional power density distinguishes the Parker Compact EHA from other linear actuation solutions. The powerful hydraulic cylinder, which can be powered in both directions, delivers up to 21.35kN (4800 lbf) of extend force, 15.57kN (3500 lbf) in retract – and can achieve speeds of up to 84mm (3.3 in) per second. The precision-machined stainless steel piston rod and micro-finished cylinder bore feature buna-nitrile and polyurethane sealing elements, keeping the hydraulic fluid in and external contaminants out – ensuring smooth control and long service life.

5 **Simple Pivot Pin Mountings**
Installing a Compact EHA could not be quicker – or easier. Both the base and the piston rod are machined to accept standard pivot pin sizes which, for ease of mounting, are commonly the same diameter at both ends. Installation involves securing both ends of the unit with pins, and then connecting the leads to your power supply. In minutes, your Compact EHA is ready for service.

Standard options include varied pin sizes, base end angle or orientation and spherical bearings. Custom mountings are available through special order.

6 **Integrated Control Valves**
To protect the Compact EHA against overload, and to allow loads to be held safely in position, all Parker Compact EHAs feature a built-in locking circuit, pressure relief, thermal and check valves. These features ensure the safety of the equipment – and of those operating it.
Internal Fluid Reservoir

Long working life depends on clean hydraulic fluid. All Parker Compact EHAs are flushed, filled and sealed for life under controlled conditions during manufacture, to ensure that no contaminants enter the hydraulic system. The fluid is contained in an internal reservoir cast into the one-piece housing, so that it remains as clean as the day it was filled.

Specifications

**Actuator**

<table>
<thead>
<tr>
<th>Type</th>
<th>hydraulic, double-acting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bore sizes</td>
<td>25.4mm (1.0 in), 31.8mm (1.25 in), 36.5mm (1.44 in)</td>
</tr>
<tr>
<td>Standard stroke lengths</td>
<td>102mm (4 in), 152mm (6 in), 203mm (8 in)</td>
</tr>
<tr>
<td>Piston rod diameters</td>
<td>14.2mm (.561 in), 15.9mm (.625 in), 19.1mm (.750 in)</td>
</tr>
<tr>
<td>Standard mounting pin diameters</td>
<td>6.4mm (.250 in), 9.5mm (.375 in), 12.7mm (.500 in)</td>
</tr>
</tbody>
</table>

**Motor**

<table>
<thead>
<tr>
<th>Motor types</th>
<th>12V DC, 245W (motor A)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12V DC, 560W (motor B)</td>
</tr>
<tr>
<td></td>
<td>24V DC, 245W (motor C)</td>
</tr>
<tr>
<td></td>
<td>24V DC, 560W (motor D)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Leads – length</th>
<th>1.5m (60 in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leads – wire size</td>
<td>14 gauge (motors A &amp; C)</td>
</tr>
<tr>
<td></td>
<td>12 gauge (motors B &amp; D)</td>
</tr>
</tbody>
</table>

**Pump**

<table>
<thead>
<tr>
<th>Pump type</th>
<th>gear, reversible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump capacities</td>
<td>.100 gear = .16cc/rev (.010 in³/rev)</td>
</tr>
<tr>
<td></td>
<td>.190 gear = .31cc/rev (.019 in³/rev)</td>
</tr>
<tr>
<td></td>
<td>.250 gear = .41cc/rev (.025 in³/rev)</td>
</tr>
<tr>
<td></td>
<td>.327 gear = .53cc/rev (.032 in³/rev)</td>
</tr>
</tbody>
</table>

**Circuit**

Sealed locking hydraulic circuit with integrated pump, motor, actuator and reservoir, relief, thermal, check and back pressure valves.

**Certification and Testing**

Vibration (minimum integrity test) MIL-STD-810F
Sealing IP65 and IP67
Salt spray 1000 hours per ASTM B117
CE marked in conformity with Machinery Directive 98/37/EC and 2007/42/EC

For other application-specific approvals, please consult factory.

**Performance**

<table>
<thead>
<tr>
<th>Maximum force – extend</th>
<th>21.35kN (4800 lbf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum force – retract</td>
<td>15.75kN (3500 lbf)</td>
</tr>
<tr>
<td>Maximum speed</td>
<td>84mm/sec(3.3 in/sec)</td>
</tr>
<tr>
<td>Duty cycle</td>
<td>see page 6</td>
</tr>
</tbody>
</table>

**General**

<table>
<thead>
<tr>
<th>Construction – body</th>
<th>anodized cast aluminium, one-piece</th>
</tr>
</thead>
<tbody>
<tr>
<td>– piston rod</td>
<td>stainless steel</td>
</tr>
<tr>
<td>Orientation</td>
<td>universal</td>
</tr>
<tr>
<td>Manual release option</td>
<td>retained, for emergency use only</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>-34°C (-30°F) to +65°C (150°F)</td>
</tr>
<tr>
<td>Sound Level</td>
<td>&lt; 70dBA</td>
</tr>
<tr>
<td>Weight</td>
<td>see page 5</td>
</tr>
</tbody>
</table>
The maximum force available and Amperage draw on rod extend for different combinations of motor, pump and cylinder bore can be determined from the tables below:

Current draw for Motor C (24VDC, 245 W) and Motor D (24VDC, 560 W) will be approximately ½ of Amp draw shown above.

Retract Forces: The maximum force available on rod retract is lower than on extend due to the presence of the piston rod which reduces the effective surface area of the piston. When the force required to retract the piston rod approaches that required for extend, please contact the factory.

Note: Performance data is based on rod extend, not retract, and is for reference only.
**Hydraulic Schematic**

**Suggested Diagram for Wiring**

**STANDARD MOTOR DUTY CYCLE CHARACTERISTICS**

**Weights**

To calculate the weight of a standard Compact EHA, identify the weight of the basic unit from the left hand columns, then add the corresponding weight for the motor required.

<table>
<thead>
<tr>
<th>Stroke Length</th>
<th>Weight</th>
<th>Add for Motor</th>
<th>Add for Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>102mm (4 in)</td>
<td>14.2mm (.561 in)</td>
<td>2.1kg (4.7 lb)</td>
<td>1.5kg (3.3 lb)</td>
</tr>
<tr>
<td>152mm (6 in)</td>
<td>15.9mm (.625 in)</td>
<td>2.8kg (6.5 lb)</td>
<td>2.0kg (4.3 lb)</td>
</tr>
<tr>
<td>203mm (8 in)</td>
<td>19.1mm (.750 in)</td>
<td>3.5kg (7.6 lb)</td>
<td></td>
</tr>
</tbody>
</table>
Dimensions

Pin to Pin Dimensions for Units with Spherical Bearings

<table>
<thead>
<tr>
<th>Stroke Length</th>
<th>Spherical on Rod End</th>
<th>Spherical on Base End</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In Extend</td>
<td>In Retract</td>
</tr>
<tr>
<td>102mm (4 in)</td>
<td>250.57mm (9.865 in)</td>
<td>351.79mm (13.85 in)</td>
</tr>
<tr>
<td>152mm (6 in)</td>
<td>301.37mm (11.865 in)</td>
<td>402.59mm (15.85 in)</td>
</tr>
<tr>
<td>203mm (8 in)</td>
<td>352.17mm (13.865 in)</td>
<td>453.39mm (17.85 in)</td>
</tr>
</tbody>
</table>

For further detail, tolerances or information on these drawings, contact the division.

Warning

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.

Offer of Sale

Please contact your local Parker representative for a detailed offer of sale.

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Parker Hannifin is the world’s leading diversified manufacturer of motion and control technologies and systems, providing precision-engineered solutions for a wide variety of mobile, industrial and aerospace markets.

The company employs approximately 52,000 people in 48 countries around the world.

Visit us at www.parker.com/oildyne
COMPACT EHA (Electro-Hydraulic Actuator) APPLICATION/DATA SHEET

Company: ____________________________ Date: ____________________________
Contact: ____________________________ Phone: ____________________________
Email: ____________________________ Fax: ____________________________
End Customer & Location: ____________________________ Government Customer? □ Yes □ No

Application:

What is the specific task to be performed by the Compact EHA?

In EXTEND: Operating Force: ___________ N or lbs (circle one) Operating Rate: ___________ mm/sec or in/sec (circle one)
In RETRACT: Operating Force: ___________ N or lbs (circle one) Operating Rate: ___________ mm/sec or in/sec (circle one)

Is the load pushing or pulling the rod? □ PUSHING □ PULLING □ BOTH Is the direction of motion the same as the load? □ YES □ No

DUTY CYCLE: Cycles per Day: ___________ Time Between Cycles: ___________ Product Life Requirement: ___________

Maximum allowable amperage: ___________ Operating Temperature Range: ___________ °C or °F (circle one)

Potential for Side-Loading: □ YES ** □ No
Exposure to Vibration? □ YES ** □ No
Shock Loading? □ YES ** □ No
** If YES, explain:

Unit Code: ____________________________
If you can’t code out what you need with options below, contact your sales representative.

EHA - A B - B - N

STROKE
400 102 mm (4.00 in)
600 152 mm (6.00 in)
800 203 mm (8.00 in)

PUMP
1 .100 GEAR
2 .190 GEAR
3 .250 GEAR
4 .327 GEAR

PUMP END
6.4mm (.25 in)
9.5mm (.375 in)
12.7mm (.50 in)

MAXIMUM RETRACT FORCE REQUIRED
A, B & C Bore
C Bore Only

MAXIMUM EXTEND FORCE REQUIRED
A, B & C Bore
C Bore Only

If you can’t code out what you need with options below, contact your sales representative.

EHA - A B - B - N

A 25.4 mm (1.00 in)
B 31.8 mm (1.25 in)
C 36.5 mm (1.44 in)

STROKE
400 102 mm (4.00 in)
600 152 mm (6.00 in)
800 203 mm (8.00 in)

CIRCUIT
B STANDARD
If possibility of runaway condition exists, call Division for proper choice of L or M

MANUAL RELEASE
N NO A YES

BASE END
With A Bore
25.4mm (1.00 in)
With B Bore
31.8mm (1.25 in)
With C Bore
36.5mm (1.44 in)

Pivot Hole Diameter
6.4mm (.250 in)
9.5mm (.375 in)
12.7mm (.500 in)

Spherical Bearing
BAA BAJ BAA BAJ
BCA BCA BCJ BCJ
BEA BEJ
EOA

MAXIMUM EXTEND FORCE REQUIRED
Code
0-1780 N (0-400 lbs)
1781-3560 N (401-800 lbs)
3561-5340 N (801-1200 lbs)
5341-7120 N (1201-1600 lbs)
7121-8900 N (1601-2000 lbs)
8901-10675 N (2001-2400 lbs)
10676-12455 N (2401-2800 lbs)
12456-14235 N (2801-3200 lbs)
14236-16000 N (3201-3600 lbs)
16001-17800 N (3601-4000 lbs)
17801-19570 N (4001-4400 lbs)
19571-21350 N (4401-4800 lbs)

MAXIMUM RETRACT FORCE REQUIRED
Code
0-1780 N (0-400 lbs)
1781-3560 N (401-800 lbs)
3561-5340 N (801-1200 lbs)
5341-7120 N (1201-1600 lbs)
7121-8900 N (1601-2000 lbs)
8901-10675 N (2001-2400 lbs)
10676-12455 N (2401-2800 lbs)
12456-14235 N (2801-3200 lbs)
14236-15970 N (3201-3500 lbs)

** See drawing on page 4 for standard orientation.

Please provide drawings/diagrams of the application and any other helpful information.

Your Parker sales specialist will work with you to develop an accurate unit configuration which incorporates all the features required for your application. Please contact us for further information.