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Compact EHA

Electro-Hydraulic Actuators for
high power density applications



ENGINEERING YOUR SUCCESS.

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 noise level and a 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
- Armoured vehicle attachments

Construction

- Attachment locks
- Skid steer bucket levelling
- 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 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 robust hydraulic cylinder, which can be powered in both directions, delivers up to 21kN of force on extension, with 16kN on retraction – and can achieve speeds of up to 84mm 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 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.

Custom mountings are available to special order. The piston rod end can be machined or threaded to your specification while, at the base end, different pin sizes and angles, a female flange or a threaded stud are among the options available.

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.

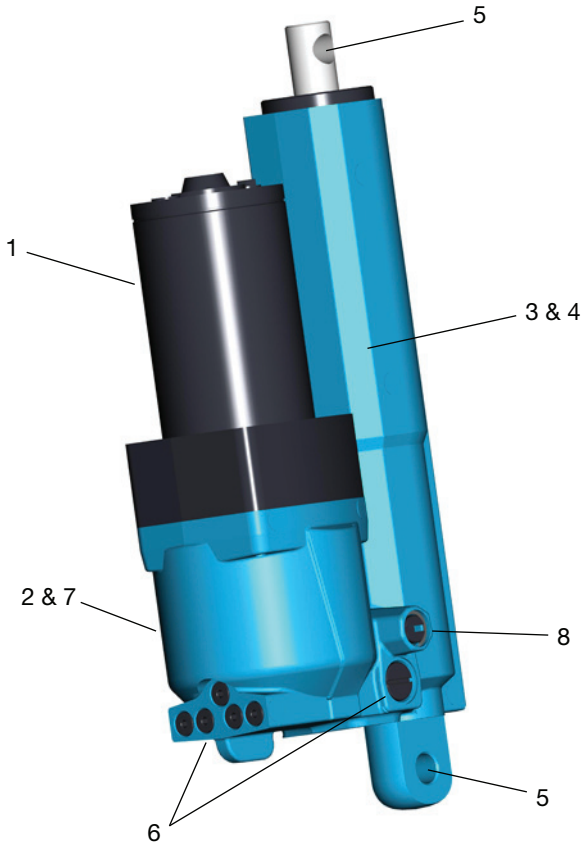
Specification

7 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.

8 Manual Release

The optional manual release allows the operator to manually move the rod as needed under emergency conditions.



Easy to Install and Connect

Compact EHA is designed to make commissioning as simple as possible. The motor is connected to a suitable power supply and switching circuit, and the rod or base end is secured with a pivot pin. The unit is then actuated to align the opposite pivot pin connection, and the pin inserted to secure. And that's it – your Compact EHA is ready for use.

Maintenance

Because the Compact EHA is flushed, filled and sealed for life, there is virtually no maintenance required. This, in combination with the anodized housing, stainless steel rod and rugged seals and components, provides a long service life with reduced warranty costs.

Electro-Hydraulic Actuators Compact EHA

Complete Compact EHA Solutions

Our engineers are expert in the design of complete actuation systems. Where your requirement includes custom actuators, cable harnesses, switchgear and power supplies, please contact us.

Specification

Actuator

Type	hydraulic, double-acting
Bore sizes	25.4mm, 31.8mm, 36.5mm
Standard stroke lengths	102mm, 152mm, 203mm
Piston rod diameters	14.2mm, 15.9mm, 19.1mm
Standard mounting pin diameters	6.4mm, 9.5mm, 12.7mm

Motor

Motor types	12V DC, 245W (motor A) 12V DC, 560W (motor B) 24V DC, 245W (motor C) 24V DC, 560W (motor D)
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Leads – length	1.5m
Leads – cross section	2.5mm ² (motors A & C) 4mm ² (motors B & D)
Connector type	ring terminals, 6.6mm I/D

Pump

Pump type	gear, reversible
Pump capacities	.100 gear = .16cc/rev .190 gear = .31cc/rev .250 gear = .41cc/rev .327 gear = .53cc/rev
Fluid medium	automatic transmission fluid (ATF)

Circuit

Sealed 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 2006/42/EC

For other application-specific approvals, please consult factory.

Performance

Maximum force – extend	21.35kN
Maximum force – retract	16.00kN
Maximum speed	84mm/s
Duty cycle	see page 5

General

Construction – body	anodized cast aluminium, one-piece
– piston rod	stainless steel
Orientation	universal
Manual release option	retained, for emergency use only
Operating temperature range	-34°C to +65°C
Noise level	< 70dBA
Weight	see page 6

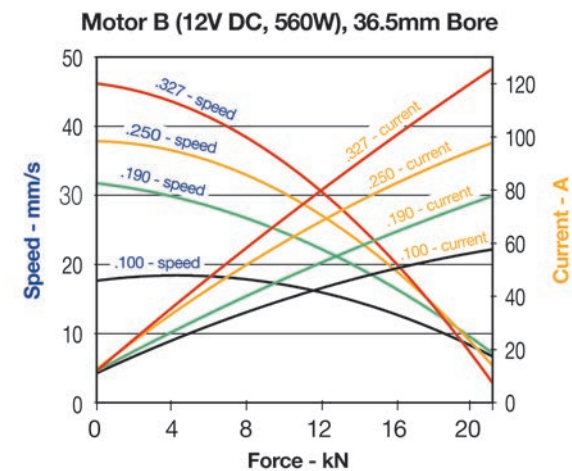
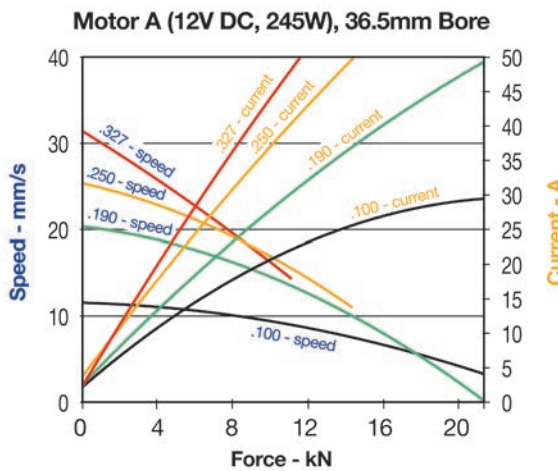
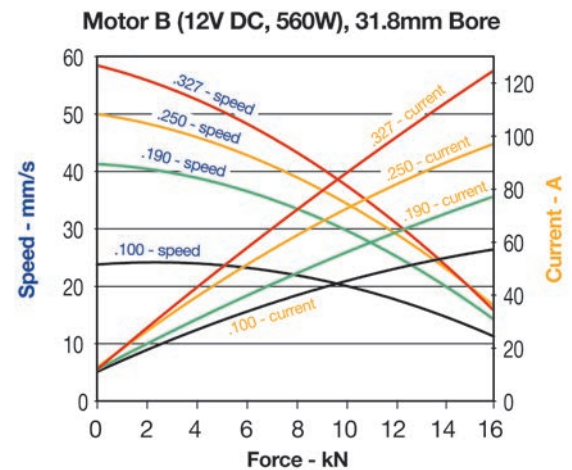
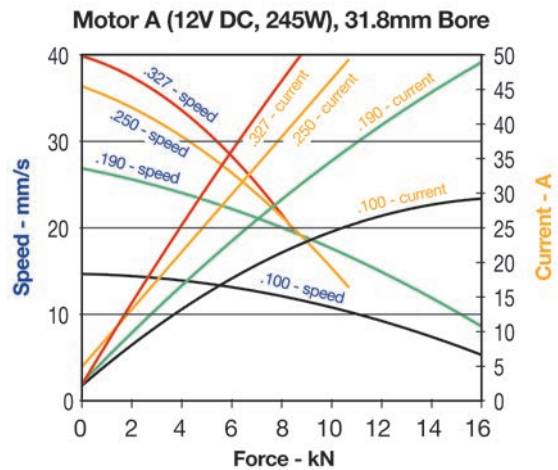
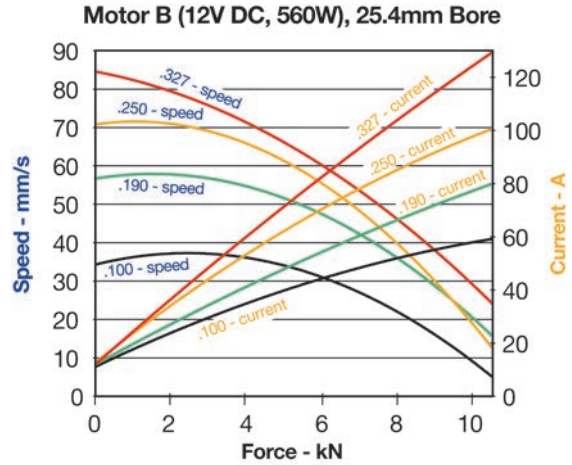
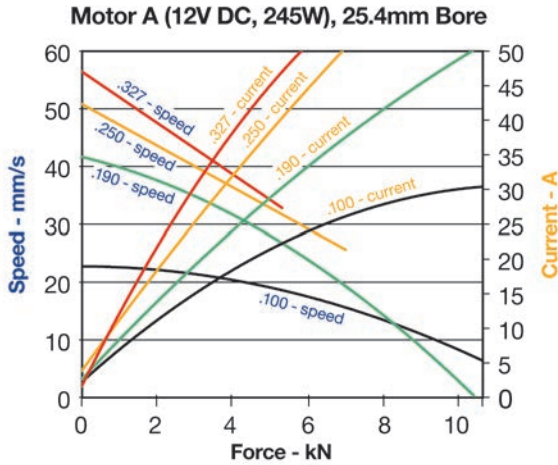
Actuator Forces and Speeds

The maximum forces and speeds available on rod extension, with corresponding current draw, are shown below for different combinations of motor, pump and cylinder bore. The curves relate to the different pump sizes available – see page 3.

Motors C and D

Current draw for Motor C (24V DC, 245 W) and Motor D (24V DC, 560 W) will be approximately half of the current draws shown for motors A and B respectively.

Note: this performance data is based on rod extension, not retraction, and is supplied for guidance only.

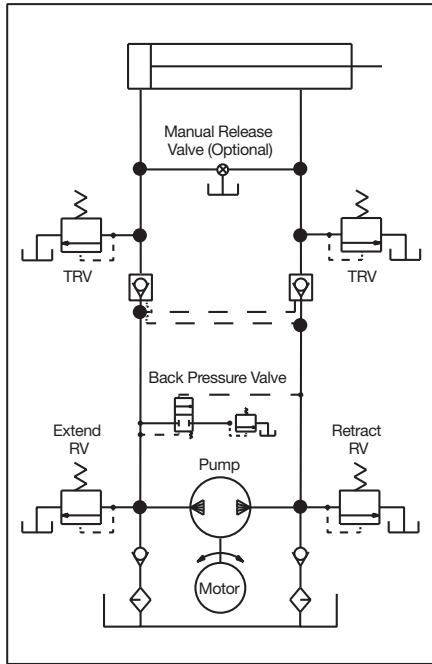


Retraction Forces

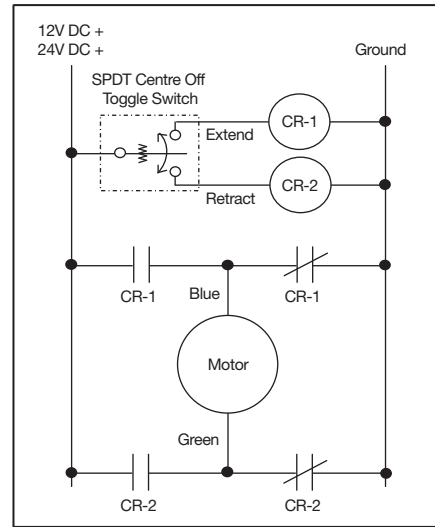
The maximum force available on rod retraction is lower than the extension force due to the presence of the piston rod, which

reduces the effective surface area of the piston. When the force required to retract the piston rod approaches that required for extension, please contact the factory.

Hydraulic Schematic



Suggested Diagram for Wiring

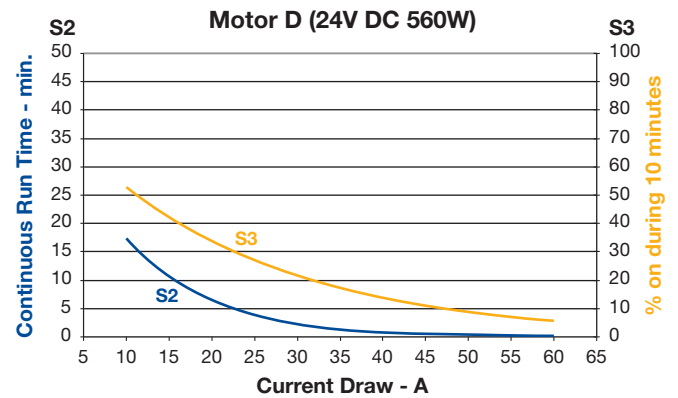
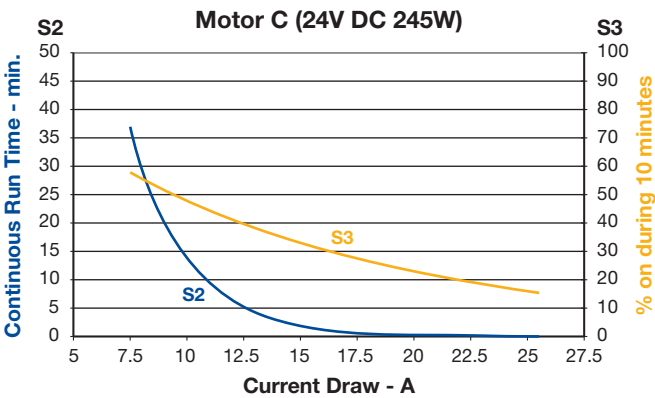
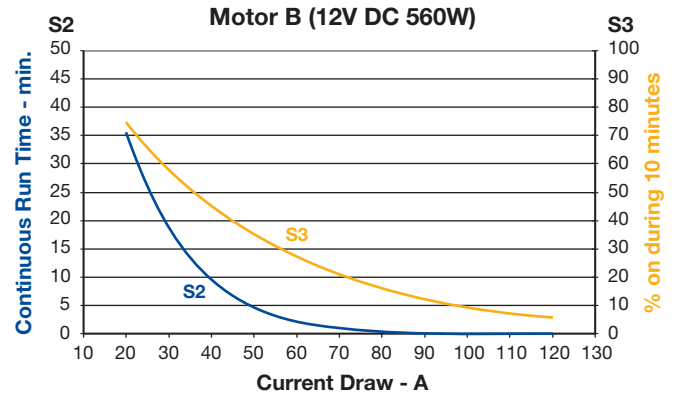
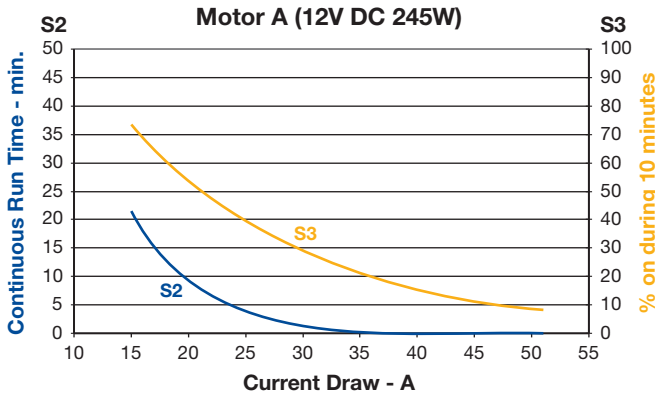


Function	Positive	Ground
Extend	Blue	Green
Retract	Green	Blue

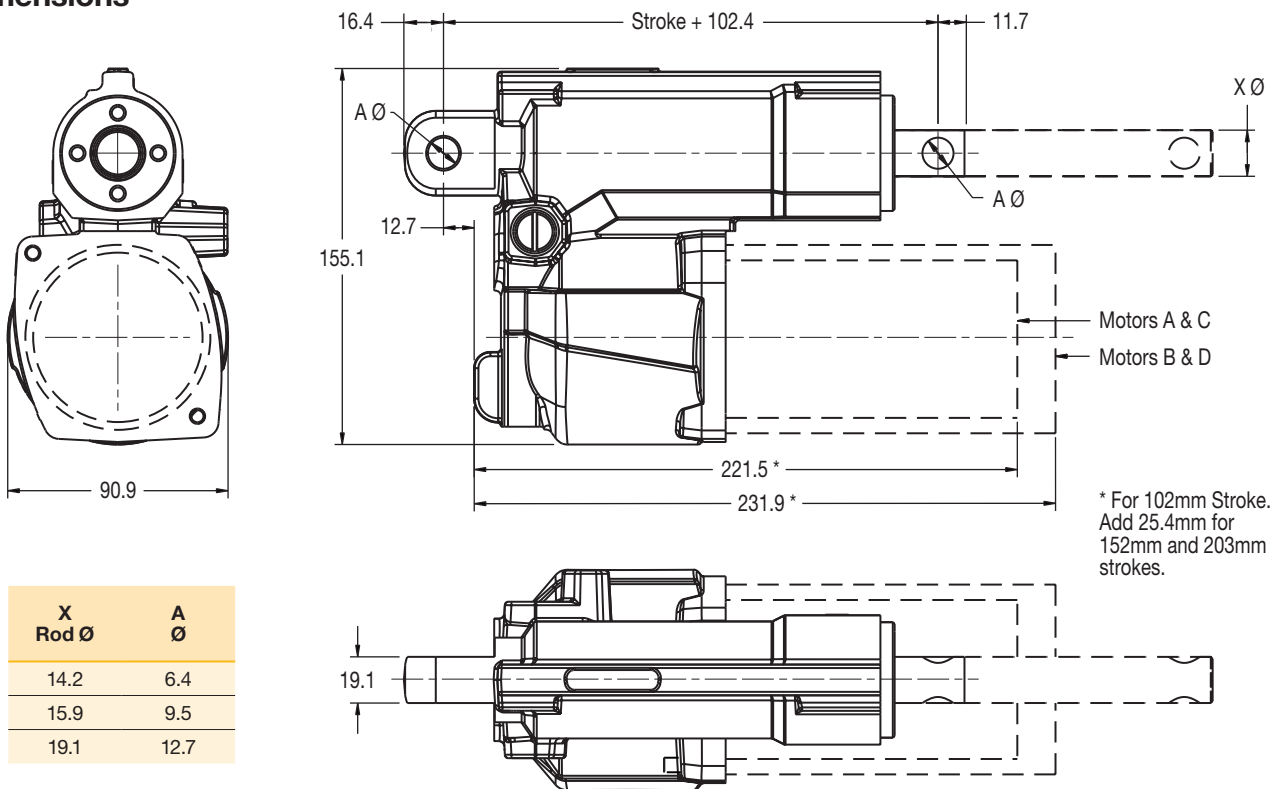
Standard Motor Duty Cycle Characteristics

S2 Time at constant load followed by 'off' time to allow the motor to cool to ambient temperature.

S3 Percentage of 'on' time in a repetitive 10 minute cycle.



Dimensions



X Rod Ø	A Ø
14.2	6.4
15.9	9.5
19.1	12.7

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. For other bore/rod combinations, where weight is critical, please contact the factory.

EHA - basic unit without motor		Weight (kg)	Add for motor (kg)	
Stroke Length	With Rod Ø		A or C	B or D
102	14.2	2.1		
152	15.9	2.8	1.5	2.0
203	19.1	3.5		

All dimensions are in millimetres unless otherwise stated.

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.

About Us

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

Compact EHA Checklist

To ensure that we supply precisely the right Compact EHA for your application, please review the following aspects before contacting your Parker sales specialist.

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.

About your Application	<i>see page 4</i>
What is your application?	
What is the specific task to be performed by the Compact EHA?	
Force	<i>see page 4</i>
What is the force needed – on extension	kN
– on retraction	kN
What is the maximum anticipated force on the unit?	kN
Distance	<i>see page 3</i>
What is the distance to be moved – 102mm (standard)	
– 152mm (standard)	
– 203mm (standard)	
– other stroke length	mm
Speed	<i>see page 4</i>
What is the speed required – on extension	mm/s
– on retraction	mm/s
Mounting	<i>see page 6</i>
Distance between standard pin centres (fully retracted)	mm
Other mounting types – base end	
– rod end	
Environment	<i>see page 3</i>
What is the operating temperature range?	°C
Hostile operating conditions – side loading	
– vibration	
– shock loading	
– other	
Duty Cycle	<i>see page 5</i>
Is the duty cycle continuous or intermittent? (Continuous duty not available)	
What is the – duration of cycles?	
– time between cycles?	
– number of cycles per day?	
What is the product life requirement?	
About your Power Supply	<i>see pages 3-4</i>
12V or 24V DC?	V
What is the maximum allowable current draw?	A
Connector type? (standard leads – ring terminals)	

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

BY – Belarus, Minsk
Tel: +375 17 209 9399
parker.belarus@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, Budapest
Tel: +36 1 220 4155
parker.hungary@parker.com

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

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

KZ – Kazakhstan, Almaty
Tel: +7 7272 505 800
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, Leca da Palmeira
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: +380 44 494 2731
parker.ukraine@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
(industrial)
Tel: +1 216 896 3000

US – USA, Elk Grove Village
(mobile)
Tel: +1 847 258 6200

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, Fujisawa
Tel: +81 (0)4 6635 3050

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: +662 717 8140

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

South America

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

BR – Brazil, Cachoeirinha RS
Tel: +55 51 3470 9144

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

MX – Mexico, Apodaca
Tel: +52 81 8156 6000

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

