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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 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, 16.00kNf (3600 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 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.

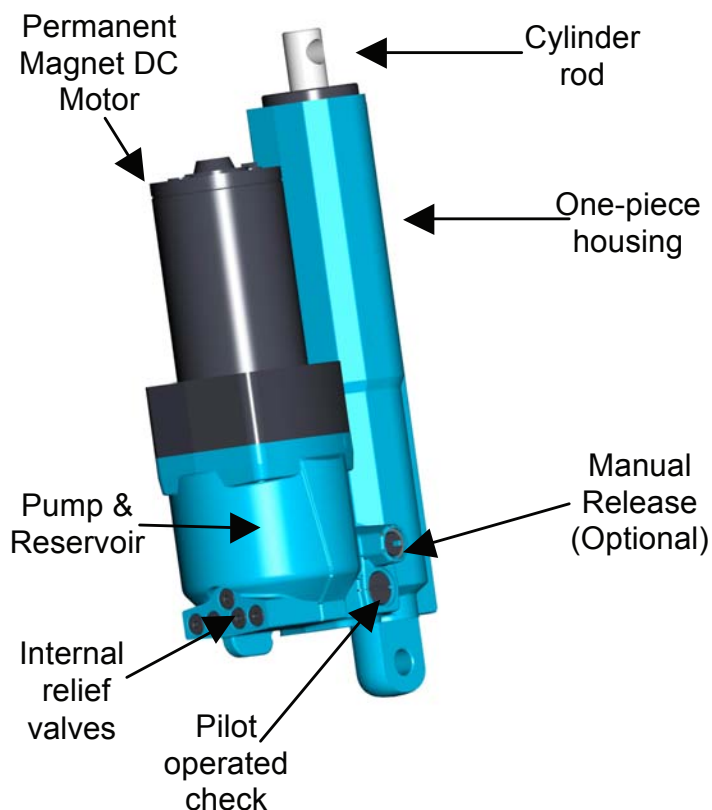
6 Integrated Control Valves

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.

Specifications

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.



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 longer service life with reduced warranty costs.

Complete Compact EHA Solutions

In addition to custom actuators, our engineers are experienced in the design of complete actuation systems. Where your requirement includes cable harnesses, switchgear and power supplies, please contact us for the further information.

Electro-Hydraulic Actuators Compact EHA

Specifications

Actuator

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

Motor

Motor types	12V DC, 245W (motor A) 12V DC, 560W (motor B) 24V DC, 245W (motor C) 24V DC, 560W (motor D)
Leads – length	1.5m (60 in)
Leads – gauge	14 gauge (motors A & C) 12 gauge (motors B & D)
Connector type	ring terminals, 6.6mm (.26 in) I/D

Pump

Pump type	gear, reversible
Pump capacities	.100 gear = .16cc/rev (.010 in ³ /rev) .190 gear = .31cc/rev (.019 in ³ /rev) .250 gear = .41cc/rev (.025 in ³ /rev) .327 gear = .53cc/rev (.032 in ³ /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 98/37/EC and 2007/42/EC
For other application-specific approvals, please consult factory.	

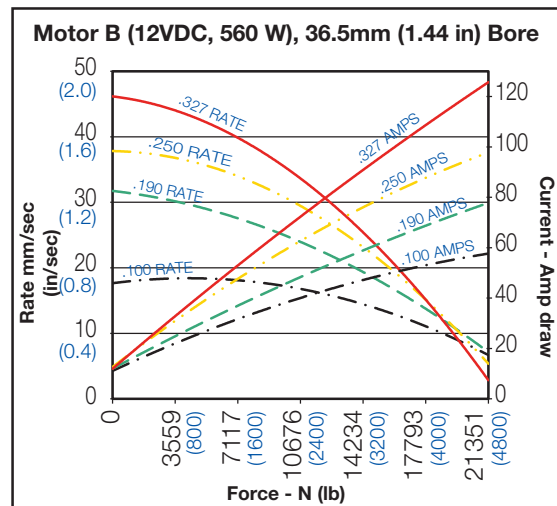
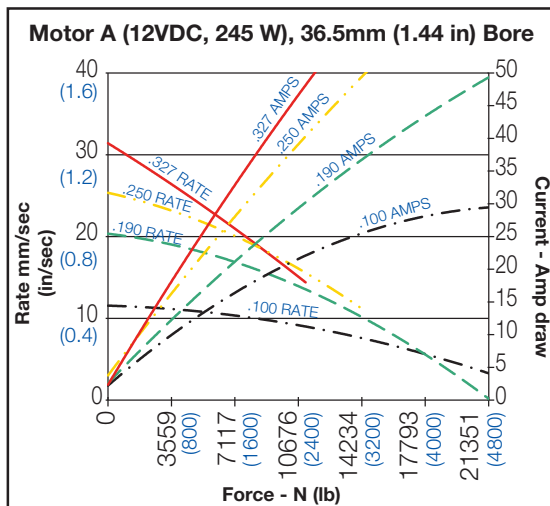
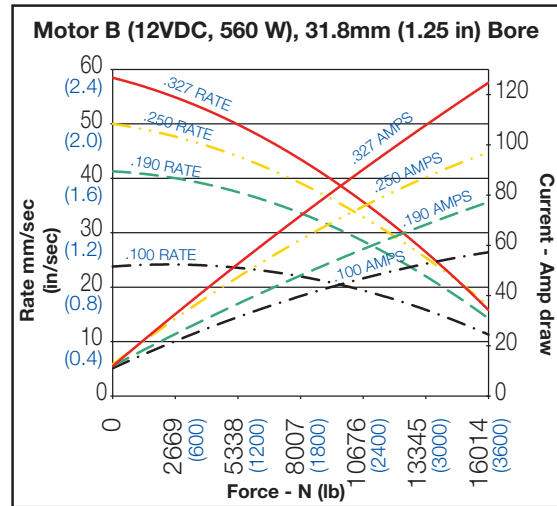
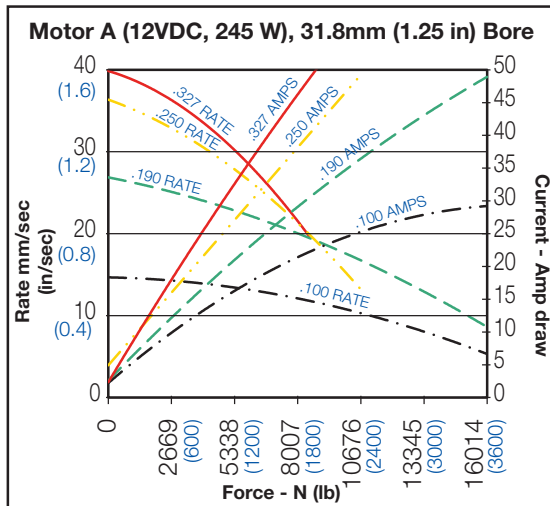
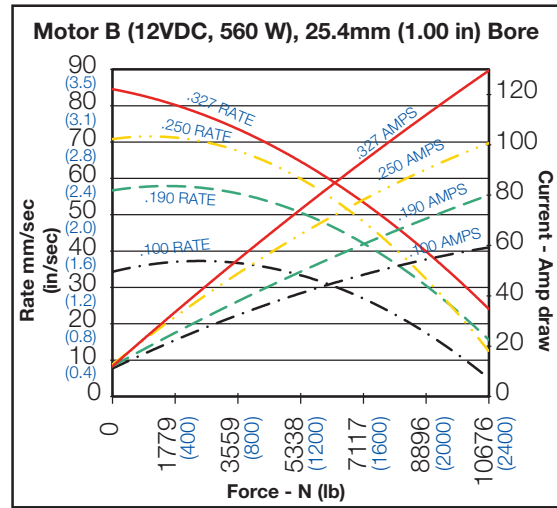
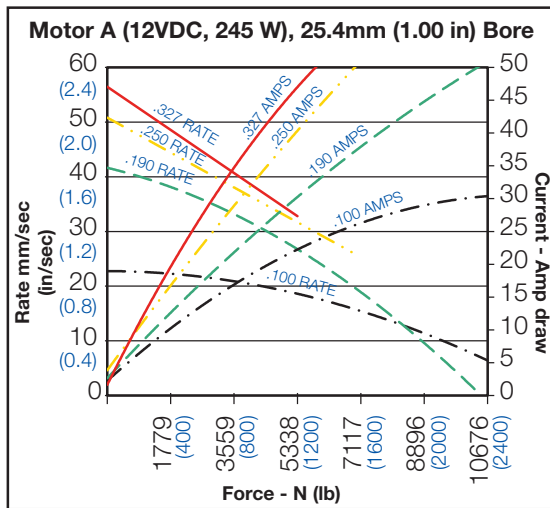
Performance

Maximum force – extend	21.35kN (4800 lbf)
Maximum force – retract	16.00kN (3600 lbf)
Maximum speed	84mm/sec (3.3 in/sec)
Duty cycle	see page 6

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 (-30°F) to +65°C (150°F)
Sound Level	< 70dBA
Weight	see page 6

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:

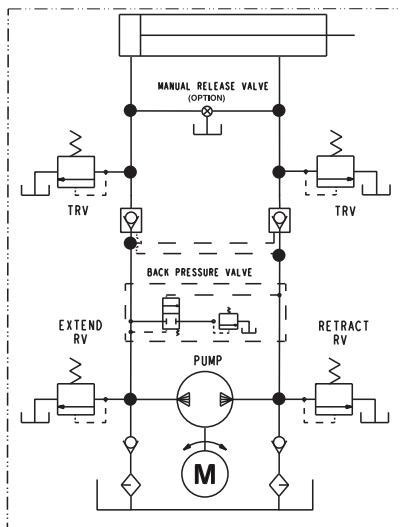


Current draw for Motor C (24VDC, 245 W) and Motor D (24VDC, 560 W) will be approximately ½ of Amp draw shown above.

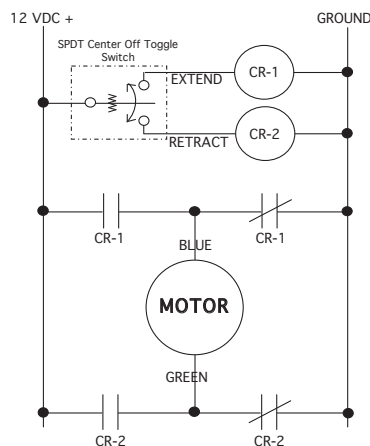
Retract Forces: The maximum force available on **rod retract** is lower than on extend due to the presence of the piston rod which reduces the effective surface area of the piston. When the force required to retract the piston rod approaches that required for extend, please contact the factory.

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

Hydraulic Schematic

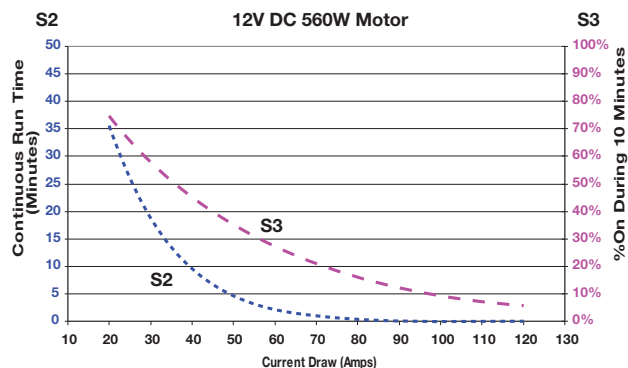
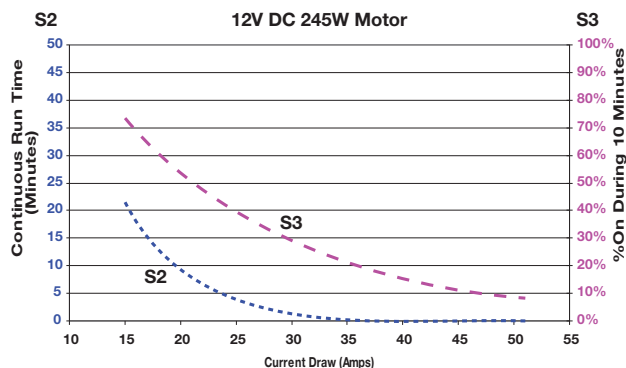


Suggested Diagram for Wiring



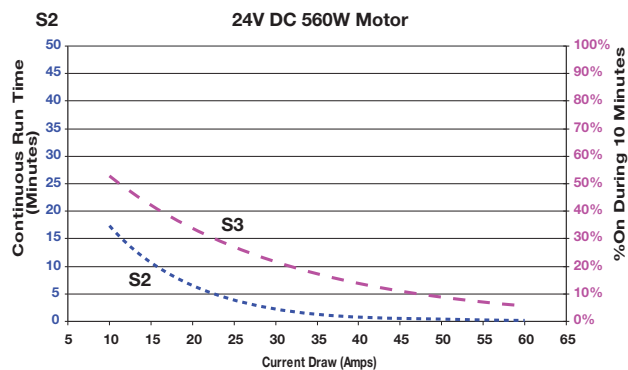
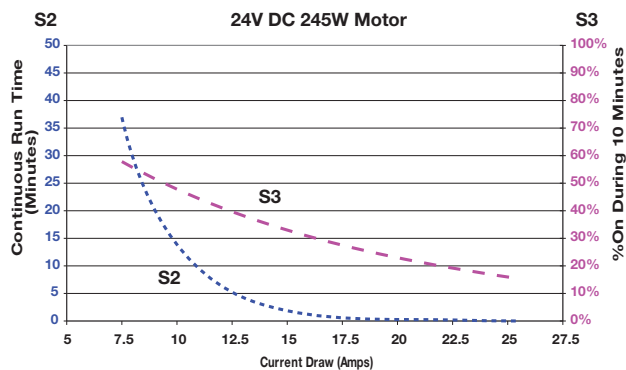
Function	Positive	Ground
Extend	Blue	Green
Retract	Green	Blue

STANDARD MOTOR DUTY CYCLE CHARACTERISTICS

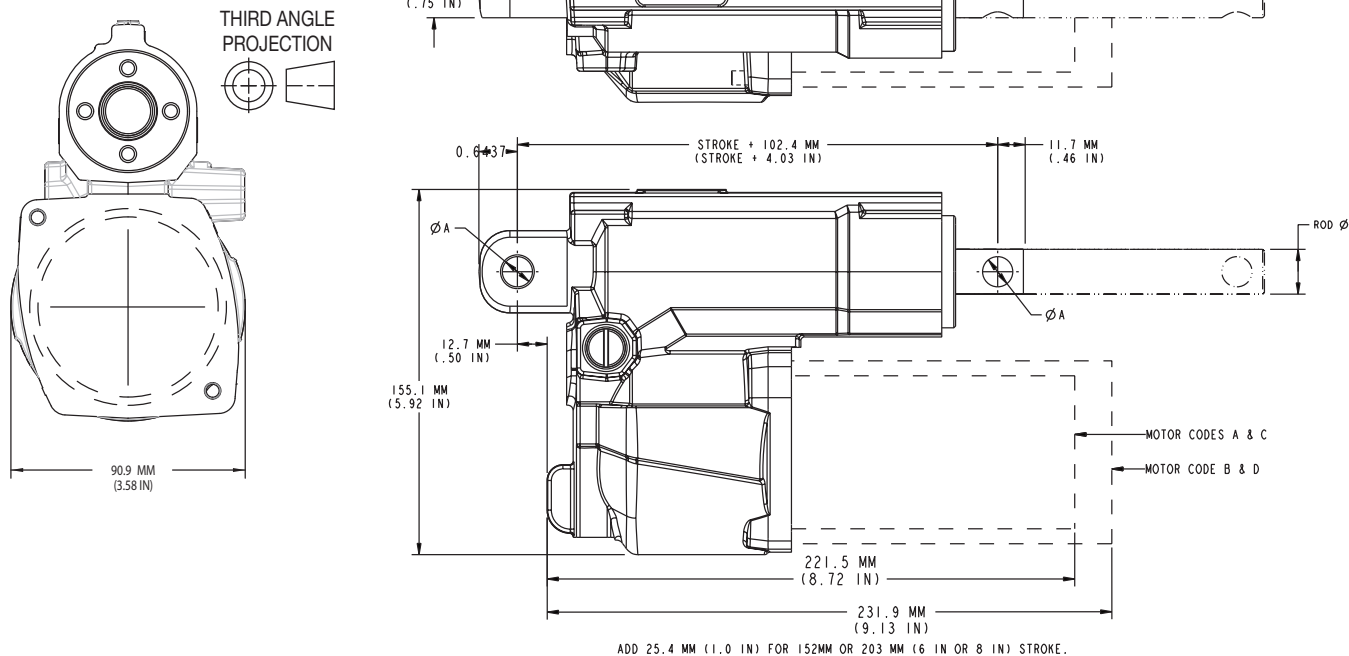


S2
Time at constant load followed by "off" time to allow the motor to cool to ambient temperature

S3
Percentage of "on" time in a repetitive 10 minute cycle



Dimensions



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.

EHA - basic unit without motor		Weight		Add for	
Stroke Length	with Rod Ø			Motor A or C	Motor B or D
102mm (4 in)	14.2mm (.561 in)	2.1kg (4.7 lb)			
152mm (6 in)	15.9mm (.625 in)	2.8kg (6.5 lb)	1.5kg (3.3 lb)		2.0kg (4.3 lb)
203mm (8 in)	19.1mm (.750 in)	3.5kg (7.6 lb)			

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/oildyne

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.

About your Application		
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 – in extend		kN or lb (circle one)
– in retract		kN or lb (circle one)
What is the maximum anticipated force on the unit?		kN or lb (circle one)
Distance		<i>see page 3</i>
What is the distance to be moved – 102mm (4 in) (standard)		
– 152mm (6 in) (standard)		
– 203mm (8 in) (standard)		
– other stroke length		mm or in (circle one)
Speed		<i>see page 4</i>
What is the speed required – in extend		mm/sec or in/sec (circle one)
– in retract		mm/sec or in/sec (circle one)
Mounting		<i>see page 6</i>
Distance between standard pin centers (fully retracted)		mm or in (circle one)
Other mounting types – base end		
– rod end		
Environment		<i>see page 3</i>
What is the operating temperature range?		C° or F° (circle one)
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)	
If intermittent, 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)		

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.

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