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

Compact EHA

Electro-Hydraulic Actuators for high power density applications

Parker

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, 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.

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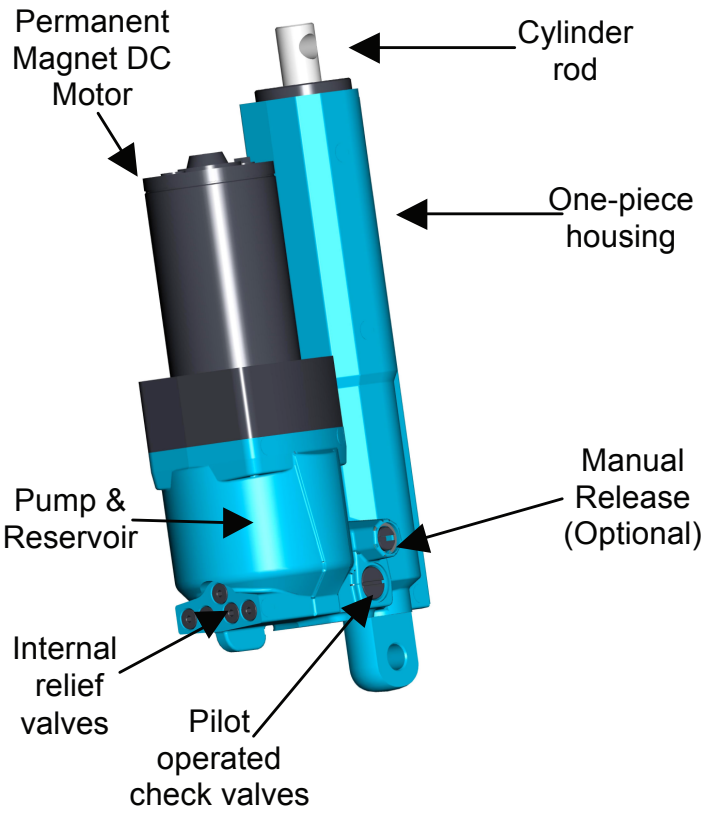
7 Internal Fluid Reservoir

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.

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 – wire size	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 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

Maximum force – extend	21.35kN (4800 lbf)
Maximum force – retract	15.57kN (3500 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 5

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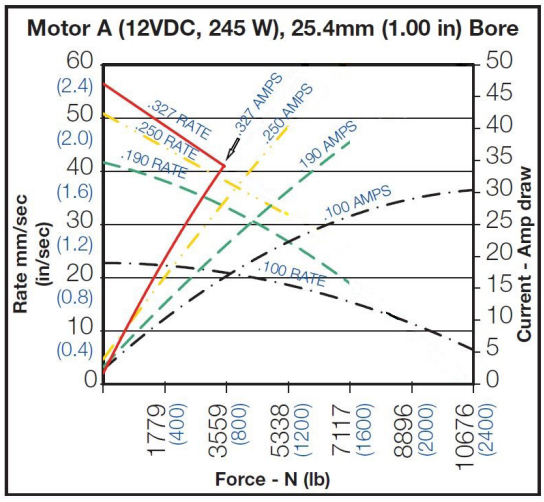
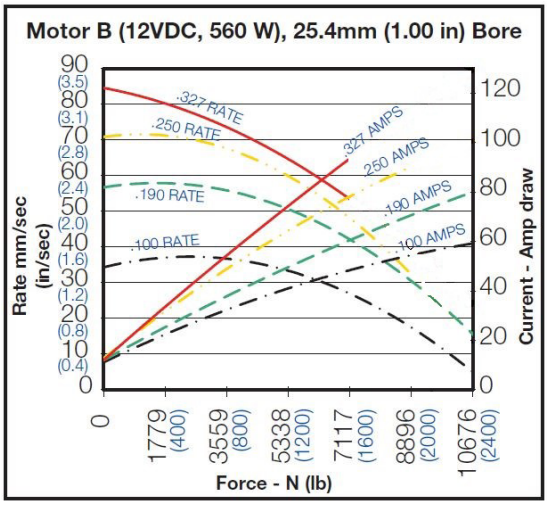
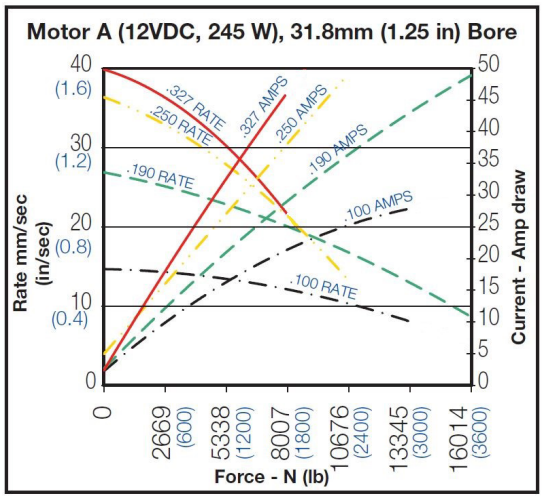
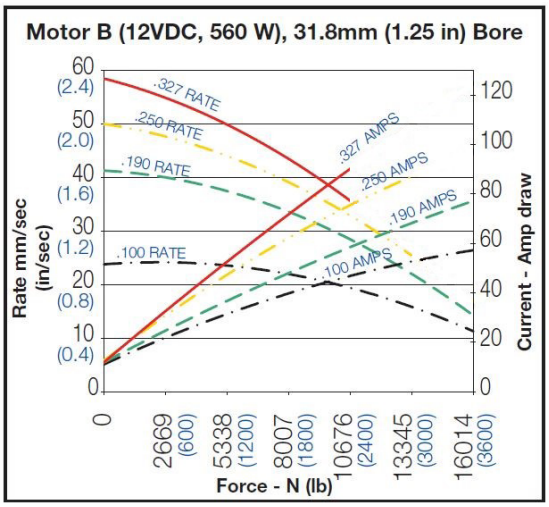
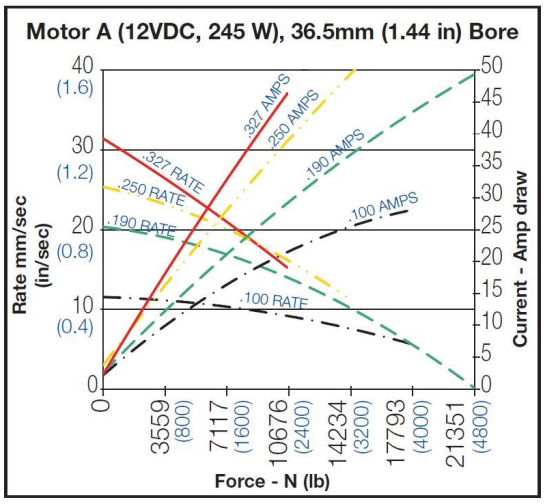
The maximum force available and Amperage draw on rod extend for different combinations of motor, pump and cylinder bore can be determined from the tables below:

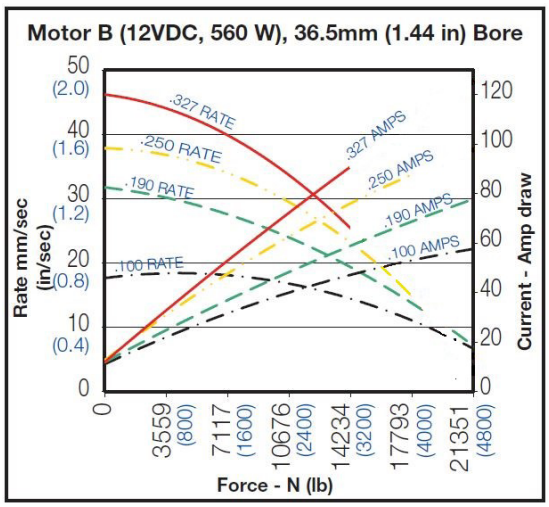










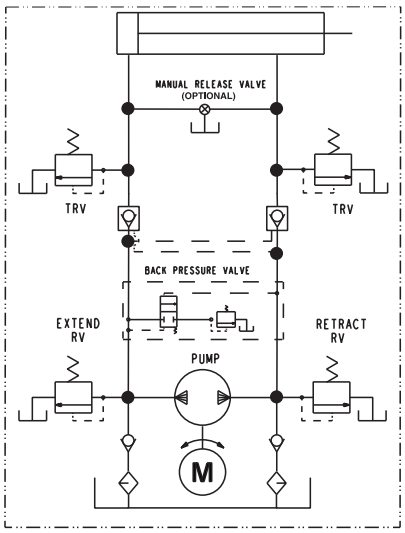


Current draw for Motor C (24VDC, 245 W) and Motor D (24VDC, 560 W) will be approximately ½ of Amp draw shown above.

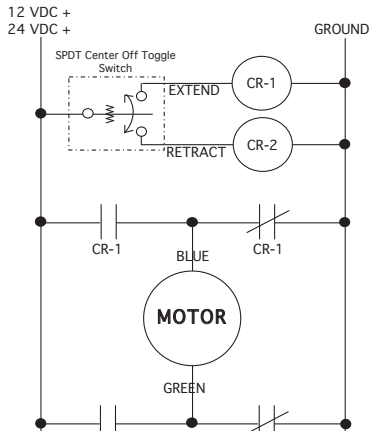
Retract Forces: The maximum force available on **rod retract** is lower than on extend due to the presence of the piston rod which reduces the effective surface area of the piston. When the force required to retract the piston rod approaches that required for extend, please contact the factory.

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

Hydraulic Schematic

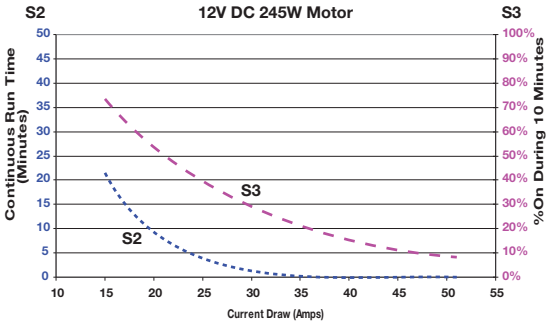


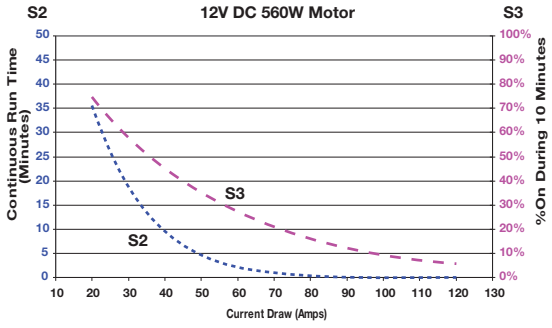
Suggested Diagram for Wiring



Function	Positive	Ground
Extend	Blue	Green
Retract	Green	Blue

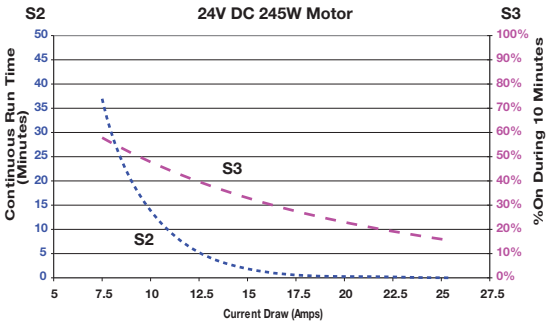
STANDARD MOTOR DUTY CYCLE CHARACTERISTICS

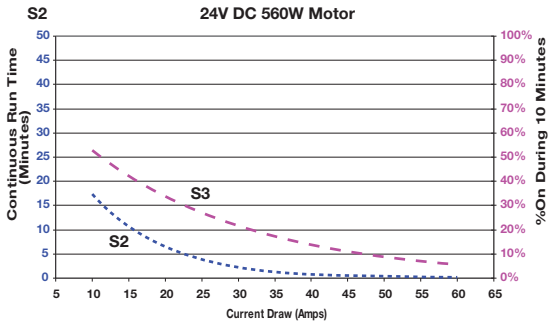




S2
Time at constant load followed by "off" time to allow the motor to cool to ambient temperature

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





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		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)		

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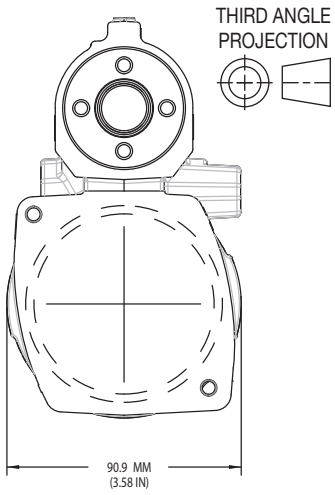
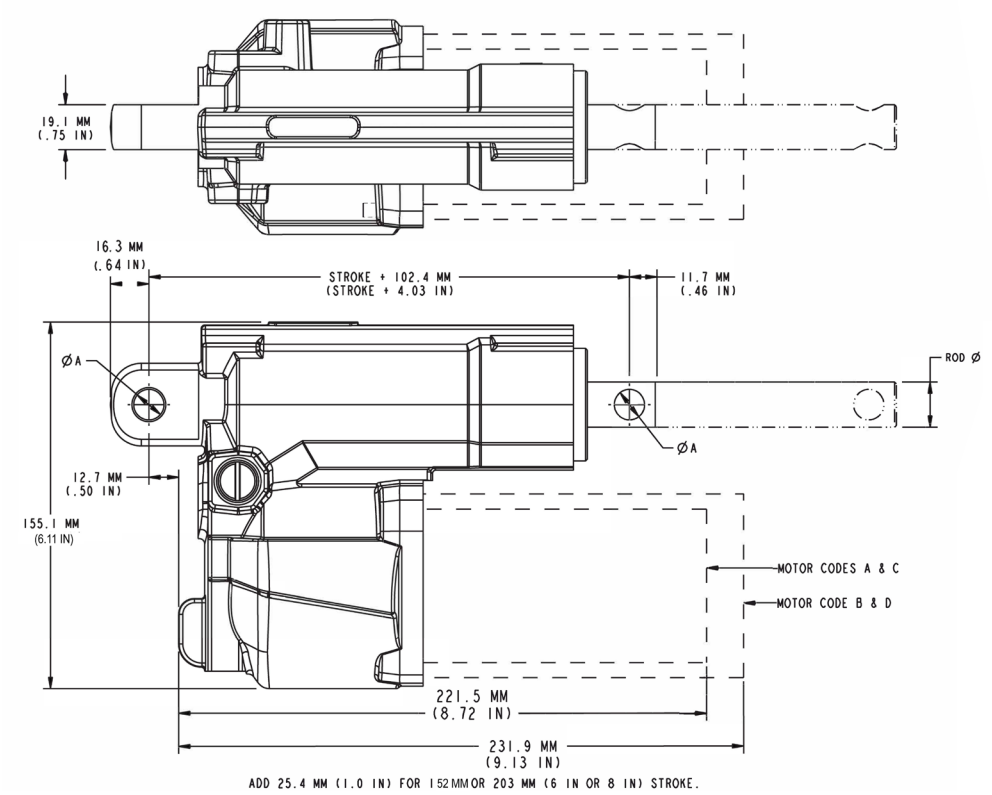
Dimensions





Pin to Pin Dimensions for Units with Spherical Bearings	Spherical on Base End		Spherical on Rod End	
Stroke Length	Retracted	Extended	Retracted	Extended
102 mm (4 in)	260.6 mm (10.26 in)	362.2 mm (14.26 in)	250.6 mm (9.87 in)	352.2 mm (13.87 in)
152 mm (6 in)	311.4 mm (12.26 in)	463.8 mm (18.26 in)	301.4 mm (11.87 in)	453.8 mm (17.87 in)
203 mm (8 in)	362.2 mm (14.26 in)	565.4 mm (22.26 in)	352.2 mm (13.87 in)	555.4 mm (21.87 in)

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 a Fortune 250 global leader in motion and control technologies. For more than a century the company has been enabling engineering breakthroughs that lead to a better tomorrow. **Visit us at www.parker.com/hps**

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PARKER HPS COMPACT EHA (Electro-Hydraulic Actuator) APPLICATION / DATA SHEET

Company: _____ **Date**: _____

Contact: _____ **Phone**: _____

Email: _____ **Fax**: _____

End Customer and Location: _____ **Government/Military customer?** **Yes** or **No** (Circle one)

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** or **inch**/sec (Circle one)

In RETRACT: **Operating Force** _____ **N or LBS** (Circle one) **Operating Rate:** _____ **mm** or **inch**/sec (Circle one)

Is the load Pushing or Pulling the rod? **PUSHING** **PULLING** **Both** (Circle one) **Is the direction of motion the same as the load?** **Yes** or **No** (Circle one)

DUTY CYCLE: **Cycles/day:** _____ **Time between cycles:** _____ **Product Life Requirement:** _____

Maximum Allowable Current? _____ Amperes **Operating Temperature Range:** _____ To _____ **C** or **F** (Circle one)

Potential for Side Loading? **Yes** or **No** (Circle one) **Exposure to Vibration?** **Yes** or **No** (Circle one) **Shock Loading?** **Yes** or **No** (Circle one)

If YES, explain _____

EHA	BORE	STROKE	CIRCUIT	MAN. REL.		BASE MOUNT		PUMP	MOTOR	EXT. FORCE	RET. FORCE		ROD END	
E					-		-					-		N

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

STROKE
- **4** 102 mm (4.00 in)
- **6** 152 mm (6.00 in)
- **8** 203 mm (8.00 in)

CIRCUIT
- **B** LOCKING WITH BACK PRESSURE
- **L** REVERSIBLE LOCKING

(L may provide limited overrunning load protection)

MANUAL RELEASE
- **N** NO
- **A** YES

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

MOTOR
- **A** 12 VDC MOTOR, 245 WATTS
- **B** 12 VDC MOTOR, 560 WATTS
- **C** 24 VDC MOTOR, 245 WATTS
- **D** 24 VDC MOTOR, 560 WATTS

ROD END	Pivot Hole Diameter			
	6.4mm (.25 in)	9.5mm (.375 in)	12.7mm (.50 in)	Spherical Bearing
A Bore 25.4mm (1.00 in)	ACA 14.2mm (.561 in) diameter rod			
B Bore 31.8mm (1.25 in)	ACA 14.2mm (.561 in) diameter rod	BCC 15.9mm (.625 in) diameter rod		
C Bore 36.5mm (1.44 in)	ACA 14.2mm (.561 in) diameter rod	BCC 15.9mm (.625 in) diameter rod	CCE 19.1mm (.750 in) diameter rod	CBX 19.1mm (.750 in) diameter rod

For other rod diameter/pivot hole size combinations, contact Parker HPS.

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		90° from Std*		90° from Std*		90° from Std*
6.4mm (.250 in)	BAA	BAJ	BAA	BAJ	BAA	BAJ
9.5mm (.375 in)			BCA	BCJ	BCA	BCJ
12.7mm (.500 in)					BEA	BEJ
Spherical Bearing					EOA	

*See drawing on Page 6 for standard orientation

MAXIMUM EXTEND FORCE REQUIRED			CODE	MAXIMUM RETRACT FORCE REQUIRED		
A, B & C Bore	0-1780 N	(0-400 lbs)	04	0-1780 N	(0-400 lbs)	A, B & C Bore
	1781-3560 N	(401-800 lbs)	08	1781-3560 N	(401-800 lbs)	
	3561-5340 N	(801-1200 lbs)	12	3561-5340 N	(801-1200 lbs)	
	5341-7120 N	(1201-1600 lbs)	16	5341-7120 N	(1201-1600 lbs)	
	7121-8900 N	(1601-2000 lbs)	20	7121-8900 N	(1601-2000 lbs)	B & C Bore Only
	8901-10675 N	(2001-2400 lbs)	24	8901-10675 N	(2001-2400 lbs)	
	10676-12455 N	(2401-2800 lbs)	28	10676-12455 N	(2401-2800 lbs)	
B & C Bore Only	12456-14235 N	(2801-3200 lbs)	32	12456-14235 N	(2801-3200 lbs)	C Bore Only
	14236-16000 N	(3200-3600 lbs)	36 | 35	14236-15570 N	(3200-3500 lbs)	
	16001-17800 N	(3601-4000 lbs)	40	Refer to performance graphs for maximum values		
C Bore Only	17801-19570 N	(4001-4400 lbs)	44			
	19571-21350 N	(4401-4800 lbs)	48			

ADDITIONAL INFORMATION

Annual Usage: _____ Prototype Date: _____ Production Start Date: _____ Target Price: _____

Components Being Replaced: _____ New Design: **Yes or No** (Circle one)

Comments: _____

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.

Parker Hannifin
HPS Division
New Hope, MN 55428 USA

Catalog HY22-3101E 7/13

Parker Hannifin Corporation
Hydraulic Pump and Power Systems Division
Oildyne Business Unit
5520 Highway 169 North
New Hope, MN 55428-3502 USA
Ph: 937-644-3915
Fax: 937-642-3738
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