

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



## Analogue DC Drives

506/507/508, 512C and 514C Series



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.
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## **Analogue DC Drives**

**Analogue DC Drives - 506/507/508 Series**

**Analogue DC Drives - 512C Series**

**Analogue DC Drives - 514C Series**

# 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  
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



- Electromechanical Manufacturing
- Parker Sales Offices
- Distributors



Dijon, France

# Analogue DC Drives

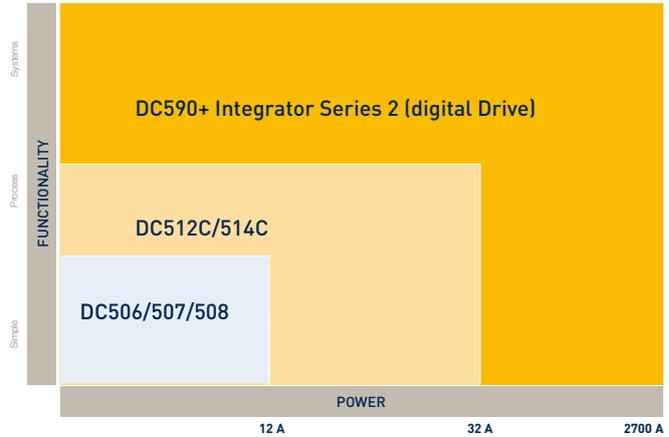
Up to 9 kW

## Overview

### Global DC Drive Solutions to Maximise Flexibility and Increase performance

With more than 30 years of worldwide application experience, Parker assists its customers in improving productivity and reducing energy consumption with a comprehensive, robust range of DC drives and drive systems. Parker DC drive products are sold, supported and serviced worldwide, with solutions from simple speed control to complex multi-motor coordinated process control.

### DC Drives Product Range Overview

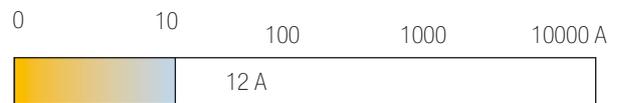


### Single Phase Analogue Non-Isolated Converter: 506/507/508

Economical, compact torque and speed control of permanent magnet or shunt wound DC motors. Selectable between 110 VAC or 230 VAC single phase supply. Tachometer or armature voltage feedback, 3, 6, or 12 A armature options.

Typical applications include:

- Conveyors, basic speed control
- Packaging machinery

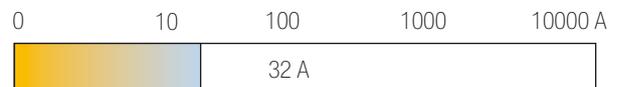


### Single Phase Two Quadrant Analogue Isolated Converter: 512C

The 512C provides effective torque and speed control of permanent magnet or wound field DC motors. Extremely linear speed and current loops in an isolated package, ideal for single or multiple motor applications up to 32 A, 9 kW.

Typical applications include:

- Centrifugal fans and pumps
- Extruders and mixers
- Small paper converting machines

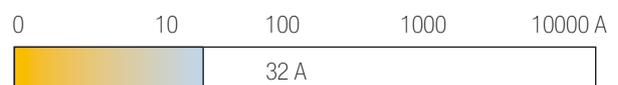


### Single Phase Four Quadrant Analogue Isolated Converter: 514C

The 514C offers full four quadrant regenerative control of permanent magnet or wound field DC motors. Ideal for applications requiring accurate or rapid deceleration of high inertia loads. Effective for single or multiple motor applications to 32 A, 9 kW.

Typical applications include:

- Machine tool spindles
- Wire drawing machines
- Winders/Reelers



# Analogue DC Drives - 506/507/508 Series

Up to 2 kW

## Description

The 506, 507 and 508 series drives break new ground in cost-effective DC motor control. Available in 3, 6 or 12 A armature ratings, the feature packed minimum footprint design is ideal for speed or torque control of permanent magnet or shunt wound DC motors fed from single phase supplies.

### Typical applications include:

- Conveyors, Basic speed control
- Packaging machinery

### Features

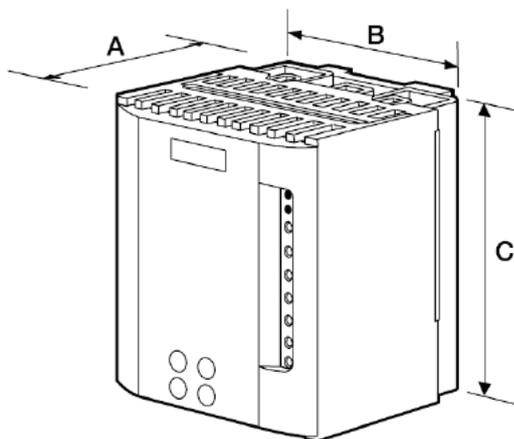
- Low cost high featured design
- IP20 protected covers
- Compact footprint and DIN rail mounting
- Selectable 110 VAC or 230 VAC supply
- Selectable tacho or armature voltage feedback

### Standards

- CE Marked to EN50178 (Safety, Low Voltage Directive)
- CE Marked to EN61800-3 (EMC Directive) with external filter
- NRTL Listed to US Standard UL508C
- NRTL listed to Canadian standard C22.2#14

### Dimensions

Type	A	B	C	Weight [kg]
506	80	105	140	0.59
507	80	105	140	0.59
508	90	105	140	0.70



Dimensions [mm]



### Technical Characteristics - Overview

<b>Supply voltage</b>	110...120 VAC, or 220...240 VAC $\pm 10\%$ single phase 50...60 Hz $\pm 5\%$
<b>Ambient</b>	0...45 °C, Altitude 1000 m
<b>Installation/diagnostics</b>	
<b>Environment</b>	IP20 Protection
<b>Mounting</b>	DIN rail
<b>Control</b>	Speed or torque
<b>Output</b>	2 A VDC field control
<b>Detection</b>	15 s stall detect
<b>Protection</b>	Electronic overcurrent protection
<b>Signal</b>	Drive healthy and zero speed
<b>Inputs</b>	Main and trim setpoint inputs
<b>Ramps</b>	Independent acceleration and deceleration ramps
<b>Diagnostics</b>	Via LED
<b>Potentiometer adjustments</b>	
<b>Speed</b>	
<b>Current limit</b>	maximum / minimum
<b>Speed stability</b>	
<b>Time</b>	acceleration (1...15 s) deceleration (1...15 s)
<b>IR compensation</b>	
<b>Switch selectable</b>	
<b>Supply voltage</b>	110/120 VAC or 220/240 VAC
<b>Speed Feedback</b>	Tachogenerator / armature voltage feedback
<b>Calibration</b>	Speed and Current

Order Code	Armature Current [ADC]	Supply Voltage [VAC]	Armature Voltage [VDC]	Field Voltage [VDC]
506-00-20-00	0...3	110...120	90	100
	0...3	220...240	180	210
507-00-20-00	0...6	110...120	90	100
	0...6	220...240	180	210
508-00-20-00	0...12	110...120	90	100
	0...12	220...240	180	210

# Analogue DC Drives - 512C Series

Up to 9 kW

## Description

Isolated control circuitry, a host of user facilities and extremely linear control loop make the 512C ideal for single motor or multi-drive low power applications. Designed for use on single phase supplies, the 512C is suitable for controlling permanent magnet or field wound DC motors in speed or torque control.

### Typical applications include:

- Centrifugal fans and pumps
- Extruders and mixers
- Small paper converting machines

### Features

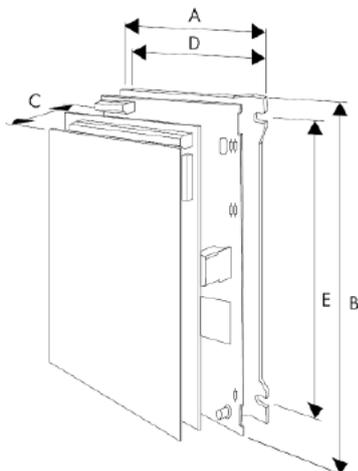
- Fully isolated control circuits
- 110 V ... 415 V supply selection by jumpers
- CE marked and EMC compliant
- Multiple input speed and current setpoints
- Zero speed and drive healthy outputs
- Extremely linear control loops

### Standards

- CE Marked to EN50178 (Safety, Low Voltage Directive)
- CE Marked to EN61800-3 (EMC Directive) with external filter
- NRTL Listed to US Standard UL508C
- NRTL listed to Canadian standard C22.2#14

### Dimensions

Type	A	B	C	D	E	Weight [kg]
512C-04, -08 or -16	160	240	85	148	210	1.5/1.6/1.6
512C-32	160	240	123	148	210	2.9



Dimensions [mm]



### Technical Characteristics - Overview

<b>Supply Voltage</b>	110...115 V, 220...240 V or 380...415 V ±10 %; 50...60 Hz ±5 %; single phase; selection by switch	
<b>Ambient</b>	0...40°C, Altitude max 1000 m	
<b>Overload</b>	150 % for 60 s	
<b>Installation/diagnostics</b>		
<b>Voltage selection</b>	Jumper selection of supply voltage	
<b>Control</b>	Speed or torque	
<b>Output</b>	3A DC field control	
<b>Diagnostics</b>	Power on, stall detect and overcurrent LEDs	
<b>Protection</b>	Electronic overcurrent protection	
<b>Speed output</b>	Buffered 10 V, 10 mA	
<b>Current output</b>	Buffered 7.5 V, 10 mA	
<b>Ramp output</b>	Buffered (master/slave)	
<b>Reference supply</b>	10 Vcc (10 mA)	
<b>Inputs</b>	Total setpoint Off	
<b>Drive Outputs</b>	Drive Healthy	
<b>Output speed / setpoint</b>	Zero Speed / zero setpoint	
<b>Potentiometer adjustments</b>		
<b>Speed</b>		
<b>Current Limit</b>	maximum / minimum	
<b>Speed stability</b>		
<b>Time</b>	acceleration (1...15 s) deceleration (1...15 s)	
<b>IR Compensation</b>		
<b>Supply Voltage [VAC]</b>	<b>Armature Voltage [VDC]</b>	<b>Field Voltage [VDC]</b>
110	90	100
240	180	210
415	320	360
<b>Order Code</b>	<b>Armature Current [ADC]</b>	
512C-04-00-00	4	
512C-08-00-00	8	
512C-16-00-00	16	
512C-32-00-00	32	

# Analogue DC Drives - 514C Series

Up to 9 kW

## Description

The regenerative 514C DC thyristor drive offers full four quadrant control of DC motors from single phase supplies. As such it is ideal for applications involving overhauling loads or where rapid and accurate deceleration is required. Together with the non-regenerative 512C they offer the perfect solution for lower power single motor and multi-drive applications.

### Typical applications include:

- Machine tool spindles
- Wire drawing machines
- Winders/Reelers

### Features

- Four quadrant regenerative control
- 110...500 VAC AC supply selection by jumpers
- CE marked and EMC compliant
- AC power contactor logic and supply
- Many system features
- Extremely linear control loops

### User Facilities

- Four quadrant regenerative control
- Separate AC auxiliary supply
- AC supply contactor logic
- Torque or speed control
- Three setpoint and torque limit inputs
- Buffered analogue current output (10 V, 10 mA)
- +10 V and -10 V analogue reference supplies
- +24 V digital reference supply
- Drive healthy output
- Buffered speed & ramp output (10 V, 10 mA)
- Buffered total setpoint output (10 V, 10 mA)
- Zero speed / zero setpoint output

### Potentiometer Adjustments

- Maximum speed / Current limit
- Acceleration time and Deceleration time (0...40 s)
- IR Compensation
- Speed loop gain - proportional and integral
- Current gain - proportional and integral
- Zero speed offset or threshold

### Standards

- CE Marked to EN50178 (Safety, Low Voltage Directive)
- CE Marked to EN61800-3 (EMC Directive) with external filter
- NRTL Listed to US Standard UL508C
- NRTL listed to Canadian standard C22.2#14



## Technical Characteristics - Overview

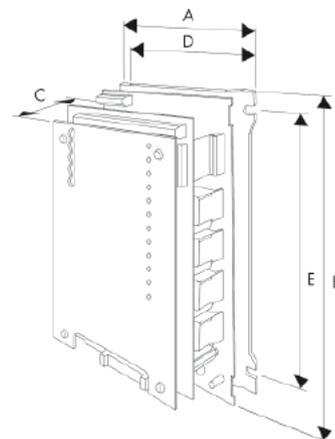
<b>Supply voltage</b>	110...500 V +10 % user selectable
<b>Auxiliary supply</b>	110/120 or 220/240 V +10 % user selectable Single phase 50...60 Hz +10 %
<b>Ambient</b>	0...40 °C - Altitude: up to 1000 m without derating
<b>Overload</b>	150 % for 60 s

Supply Voltage [VAC]	Armature Voltage [VDC]	Field Voltage [VDC]
110	80	100
240	180	210
415-500	320	360

Order Code	Armature Current [ADC]
514C-04-00-00	4
514C-08-00-00	8
514C-16-00-00	16
514C-32-00-00	32

## Dimensions

Type	A	B	C	D	E	Weight [kg]
514C-04, -08	160	240	90	148	210	1.6
514C-16, -32	160	240	130	148	210	3.0



Dimensions [mm]







# 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

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### 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

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