



aerospace
climate control
electromechanical
filtration
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hydraulics
pneumatics
process control
sealing & shielding



DC Drives and Motors

Product Catalogue



ENGINEERING YOUR SUCCESS.

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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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Parker Hannifin

The global leader in motion and control technologies and systems

Global Partnerships Global Support

Parker is committed to helping make our customers more productive and more profitable through our global offering of motion and control products and systems. In an increasingly competitive global economy, we seek to develop customer relationships as technology partnerships. Working closely with our customers, we can ensure the best selection of technologies to suit the needs of our customers' applications.



Electromechanical Technologies for High Dynamic Performance and Precision Motion

Parker electromechanical technologies form an important part of Parker's global motion and control offering. Electromechanical systems combine high performance speed and position control with the flexibility to adapt the systems to the rapidly changing needs of the industries we serve.



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Parker Hannifin Corporation

With annual sales of \$10 billion in fiscal year 2010, 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 55,000 people in 46 countries around the world.

Parker has increased its annual dividends paid to shareholders for 54 consecutive years, among the top five longest-running dividend-increase records in the S&P 500 index. For more information, visit the company's web site at <http://www.parker.com>, or its investor information site at <http://www.phstock.com>.



Electromechanical Automation

Global products with local manufacturing and support

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. Parker's engineering resources also extend to the development and manufacture of complete systems for continuous process and motion control applications.

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. This allows us to minimize transportation time and cost and to be able to respond more quickly to customer needs.

Worldwide Electromechanical Automation Manufacturing Locations

Europe

Littlehampton, United Kingdom
Dijon, France
Offenburg, Germany
Milan, Italy

Asia

Shanghai, China
Chennai, India

North America

Rohnert Park, California
Irwin, Pennsylvania
Wadsworth, Ohio
New Ulm, Minnesota
Charlotte, North Carolina



Offenburg, Germany



Littlehampton, UK

Local Manufacturing and support in Europe

Parker provides sales assistance and local technical support through a group of dedicated sales teams and a network of authorized technical distributors

throughout Europe. For contact information, please refer to the Sales Offices listed on the back cover of this document or visit www.parker.com



● Manufacturing ○ Parker Sales Office ● Distributors



Milan, Italy

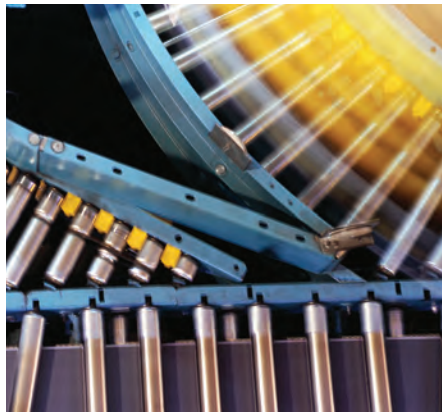


Dijon, France

Solutions to Improve Productivity, Increase Flexibility and Save Energy

Process Productivity and Reliability

Parker brings together the technology and experience required for continuous process applications across many industries. AC and DC variable speed drive products combined with application-specific function block-based configuration software ensure precise speed control and reliable performance. Parker combines more than 30 years of application experience with a global sales and support network to help you increase your machine and equipment availability.



Converting machinery

	AC Drives	DC Drives	Direct Drive Motors	Servo Drives and Motors
Folding, gluing, stitching and collating	✓	✓		✓
Coating, laminating and foil stamping	✓	✓	✓	✓
Slitting, cutting and rewinding	✓	✓	✓	✓

Plastics processing machinery

Plastic extrusion	✓		✓	
Injection moulding	✓		✓	✓
Thermal forming	✓		✓	✓

Wire and cable

Wire and cable manufacturing	✓	✓		✓
Winding/unwinding	✓	✓	✓	
Extrusion for wire and cable	✓	✓	✓	

Printing machinery

Web/sheetfed offset	✓		✓	✓
Flexo printing	✓		✓	✓
Gravure printing	✓		✓	✓
Shaftless printing	✓		✓	✓

Other industries

Paper machinery	✓		✓	
Sugar processing	✓	✓		
Steel production	✓	✓	✓	
Construction materials	✓	✓		
Automotive test rigs	✓	✓	✓	

Energy Efficiency and Clean Power

Parker has developed the technology to maximize the efficient use of energy in industrial, mobile and infrastructure environments.

Hybrid Vehicle Technology

Parker has adapted its electric drive technologies for use in hybrid electric vehicles, including utility vehicles and passenger vehicles. Examples include inverters and motor drives, as well as electric drive motors.

Energy Savings for Pumps, Fans and Compressors

Parker has the drive technology to help you make significant energy savings in the operation of pumps, fans and compressors in both industrial and infrastructure applications, including:

- Commercial refrigeration
- Water and wastewater treatment
- Building automation
- Industrial processes
- Hydraulic systems



Power Generation and Conversion

Using proven inverter technology, Parker has developed numerous solutions for the conversion of energy for commercial use from a variety of sources, including wind, wave, PV solar and energy storage devices.

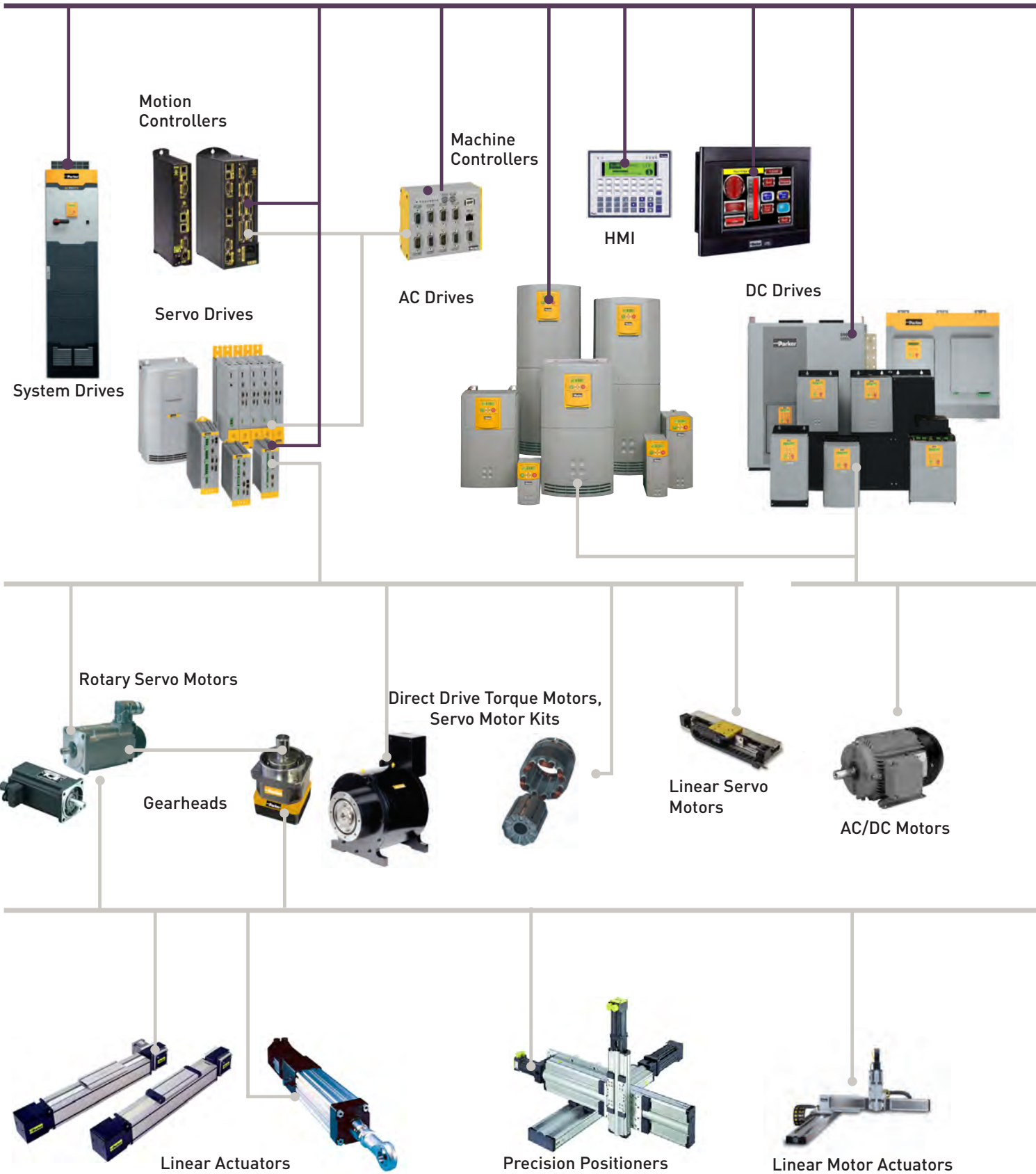
Motion Control Systems for Total Production Flexibility

Parker's electromechanical automation customers enjoy total production flexibility in their general and precision motion control applications. Complete packaged linear positioning systems, coupled to servo and stepper drives and control, enable our customers to develop a complete motion solution with one partner. Parker provides the products for a wide range of motion needs - power, speed, travel, force - with easy to use controls designed to work on multiple control and communication platforms. Additionally Parker's products can be easily customized to suit specific applications.

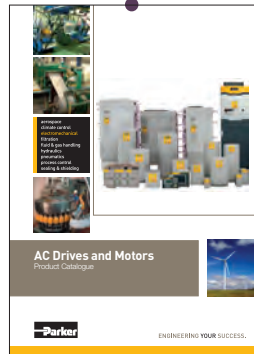


	Mechanical Actuators	Motors and Gearheads	Drives	Controls	HMI
Assembly machinery					
Pick and place	√	√	√	√	√
Lifting	√	√	√	√	
Transfer machinery	√	√	√	√	√
Automotive assembly					
Resistance welding	√	√	√	√	
Painting applications	√	√	√	√	√
Transfer machinery	√	√	√	√	√
Packaging machinery					
Primary, secondary, tertiary	√	√	√	√	√
Handling machinery	√	√	√	√	√
Food processing machinery					
Processing machinery	√	√	√	√	
Packaging machinery	√	√	√	√	
Handling machinery	√	√	√	√	√
Material handling systems					
Transfer systems	√	√	√	√	√
Pick and place systems	√	√	√	√	√
Metal forming machinery					
Presses	√	√	√	√	√
Tube bending	√	√	√	√	√
Handling machinery	√	√	√	√	√
Machine Tools					
Spindles		√	√		
Ancillary axes		√	√		
Semiconductor machinery					
Front end processes	√	√	√	√	√
Inspection machinery	√	√	√	√	√
Packaging machinery	√	√	√	√	√
Lithography	√	√	√	√	
Medical devices					
Device manufacture	√	√	√	√	√
Product packaging and dispensing	√	√	√	√	√
Scanning equipment	√	√	√		
Pumps and analyzers		√	√		
Entertainment					
Theatre and studio automation	√	√	√	√	
Simulation and amusement rides	√	√	√		

Complete Range of Motion and Control Solutions



Additional Information



For more information on **AC Drives** products, please request:

Catalogue : HA501078



For more information on **motion controllers, servo drives, motors and stepper** products, please request:

Catalogue : AU01-9102/UK

Literature downloads available at www.parker.com

For more information on **mechanical actuator** products, please request:

Catalogue : 190-490023N5
(Linear Actuator)

or

Catalogue : 192-591011N1
(Precision Products)



Parker SSD Drives Service and Support

Call +44 (0) 1903 737000

Preventative maintenance

Improve plant reliability and minimise production losses with Parker SSD.

With over 30 years experience of designing, manufacturing and supporting our extensive range of Parker SSD drives and motors, we are ideally placed to offer the best possible levels of support to our customers.

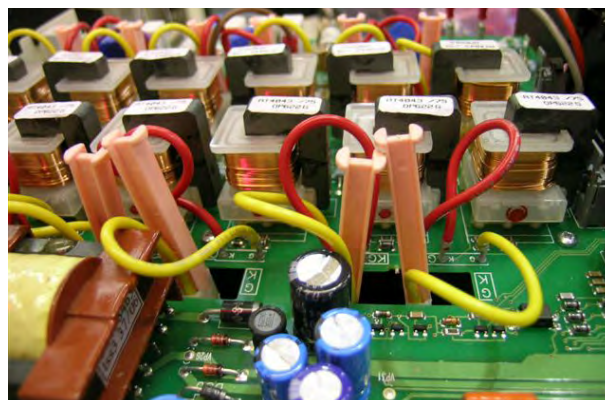
With a variety of service and maintenance contracts available to choose from, it is possible to create a custom service package that meets your production needs and ensures that costly downtime is kept to a minimum and plant efficiency is kept at its optimum.



Product Repairs

Any product returned to the dedicated repair facility at our Littlehampton manufacturing facility undergoes a full visual inspection, professional repair and thorough test. In addition the equipment is updated to the latest relevant build standard and all repairs carry a 12 month warranty.

- **Repair using production parts**
- **Build standard update**
- **Standard or optional full diagnostic report**
- **Rapid guaranteed turn around options from 8 hours**



Training

Helping our customers become self-sufficient

With a number of different classroom and web-based courses running throughout the year covering all aspects of our drives range and meeting the specific needs of designers, programmers and maintenance staff, Parker SSD Drives provides its customers with the necessary skills to enable them to support their own equipment without the need of external assistance.

Of course if help is required, we are only a phone call or email away.

For a full list of currently available courses, please contact your local sales office or representative.

Please Note: Service and support offers vary by country. Please contact your local sales office shown on the back cover to check if a particular service is available in your country.

Parker SSD Drives Service and Support

Call +44 (0) 1903 737000

Power Quality Surveys

The quality of your site's electrical supply is a major factor in determining both long term product reliability and compliance with supply authority contractual requirements. Our Power Quality Survey provides a full analysis of your site supply in accordance with power quality standard EN50160 and harmonic standard G5/4. The survey includes;

- Current harmonics from fundamental to 50th
- Voltage harmonics from fundamental to 50th
- Average and peak current and voltage
- Power factor



24 Hour+ services

Access to qualified service personnel 24 hours per day, 365 days of the year is provided by the 24 Hour+ service product. 24 Hour+ goes beyond a round the clock call out service offering customers:

- 24 Hour telephone and call-out assistance
- Site audits
- Obsolescence and spares report
- Annual preventive maintenance visit
- Service, commissioning and spares discount
- Off-site software configuration storage

On-line Resources

Delivering information whenever you need it, the parker.com website is a valuable source of additional information and provides access to a wide range of documentation at anytime

- Technical documentation, datasheets
- Product manuals
- Application notes and case studies

For more information visit us at

www.parker.com/ssd



Please Note: Service and support offers vary by country. Please contact your local sales office shown on the back cover to check if a particular service is available in your country.

Parker SSD Drive Systems Capabilities

Engineered Solutions

Systems Build Capabilities

For customers requiring more support in the design and implementation of their control systems, Parker SSD Drives offers a complete in-house design and build service, enabling you to focus on your core competencies.

Based on the fundamental principles of application expertise, quality, reliability and safety, Parker's systems team are able to undertake all aspects of an electrical control system project, from pre-design specification to on-site installation and cabling services.

By allowing Parker to undertake the design, build, programming and commissioning of your motor control system, you can be assured that every aspect of the design, from environmental considerations through component

selection to mounting of products has been carefully considered and allowed for.

Fully documenting a complete control system can be a daunting task for many equipment manufacturers, again Parker are on hand to help by providing complete electrical schematic and single line drawings as well as installation, maintenance and operating instructions.

As an accredited systems builder, Parker SSD Drives are also able to undertake the certification process required to enable systems to be put into service in any number of industrial markets.



Total Project Support

From concept to installation and beyond, Parker SSD Drives has a full range of complimentary capabilities to provide as much or as little support to your own team's expertise as you need. With a team of highly qualified and experienced design, build and service engineers, we take the risk out of any capital project by ensuring that all stages of the project are managed and executed precisely to your requirements.

Holding certification to the latest quality standards (ISO 9001 - 2008) means that as a customer, you can be assured of reliable, repeatable quality of design, build and documentation.



Please Note: Service and support offers vary by country. Please contact your local sales office shown on the back cover to check if a particular service is available in your country.





Together, we can take control of your applications. As well as your costs, design, quality, delivery, installation, after-sales support ...



Whether you're looking for a single drive in an enclosure for basic speed control, or a multi-bay automated drive system for complex control of a dockyard crane, high-speed printing machine or steel rolling mill, Parker Hannifin's Littlehampton based SSD Drives Division has the expertise to deliver. Partnering with Parker SSD provides you with access to a host of additional services, all supplied to the same exacting standards as our AC, DC, systems and servo drive products. So relax and let Parker SSD take control of your panel-build, installation, commissioning and aftersales needs.

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ENGINEERING YOUR SUCCESS.

www.parker.com call: 00800 27 27 5374
email: epic@parker.com

Variable Speed DC Drives

Range Overview 1A - 2,700A

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. Parker DC drive products are easy to configure and commission, with simple but flexible function block-based configuration tools and connectivity with all major industrial fieldbus networks.

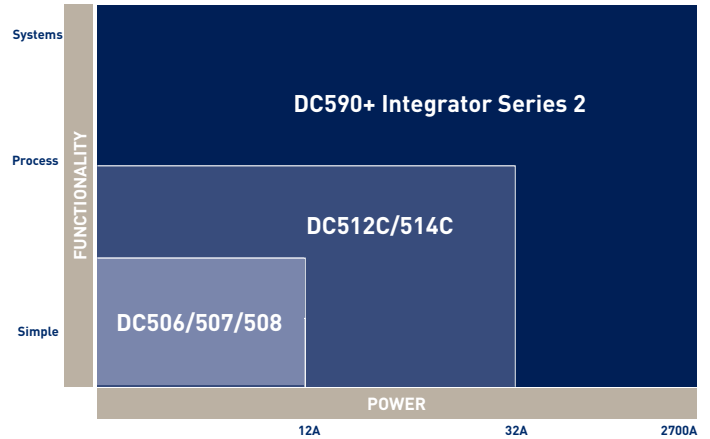
Digital DC Drives Maximise Flexibility and Functionality

Using the same 32-bit control architecture as our current range of AC drive products, Parker’s range of digital DC drives provides the same high level of functionality - and with it flexibility and performance - as comparable AC drive systems, while simultaneously allowing the user to integrate both AC and DC drive systems in a single machine with the same interface and software.

Retrofit Existing Applications with the Latest Technology

By retrofitting existing DC motor applications with Parker digital DC drives, the user can avoid the cost of replacing an existing functioning, DC motor with a similar AC drive system, while still enjoying the benefits of a flexible control platform and high performance drive.

DC Drives Product Range Overview



DRV Package - “Ready to Install” DC Drives

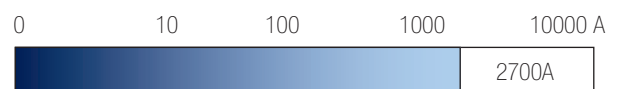
Save design time, panel space and the time and cost of component sourcing and installation with Parker’s unique DRV drive format. DRV drives include all peripheral power components typically required in a DC drive system, integrated in a self-contained package. This package contains the additional components within the footprint of the standard drive module and saves significant panel space while reducing complexity and improving the appearance.

DC590+ Integrator Series 2 Digital DC Drive

The DC590+ uses an advanced control platform to provide high levels of flexibility and performance for a wide range of applications. Designed for machine integrators, the DC590+ features function block programming, multiple communications and feedback options and support worldwide. Available as non-regenerative or full four quadrant regenerative. Available from 1-2700A maximum. Fieldbus options include Profibus-DP, CANopen, Modbus RTU, Ethernet and DeviceNet.

Typical applications include

- Converting machinery
- Plastics processing machinery
- Wire and cable manufacturing
- Automotive test stands

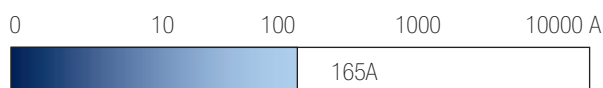


Variable Speed DC Drives

Range Overview 1A - 2,700A

DC590+ DRV - "Ready to Install" Series

The DC590+ DRV Series version is a complete packaged drive solution, including AC line contactor, AC line fuses, DC fuse, control / field fuse and provisions for a motor blower startwte. The DRV series reduces panel complexity while saving on panel space. Available to 165A maximum.



Analogue DC Drives Range

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 110VAC or 230VAC single phase supply. Tachometer or armature voltage feedback, 3, 6, or 12A armature options.

Typical applications include:

- Conveyors, basic speed control
- Packaging machinery

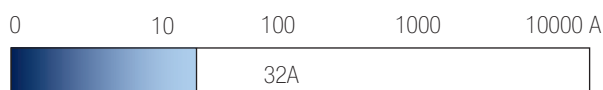


Single Phase Two Quadrant Analogue Isolated Converter: 512C

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 32A, 9kW.

Typical applications include:

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

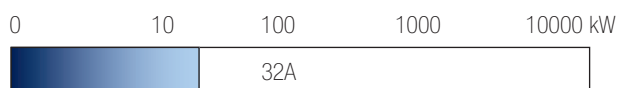


Single Phase Four Quadrant Analogue Isolated Converter: 514C

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 32A, 9kW.

Typical applications include:

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



DC Drives - Integrator Series

DC590+ Series 2

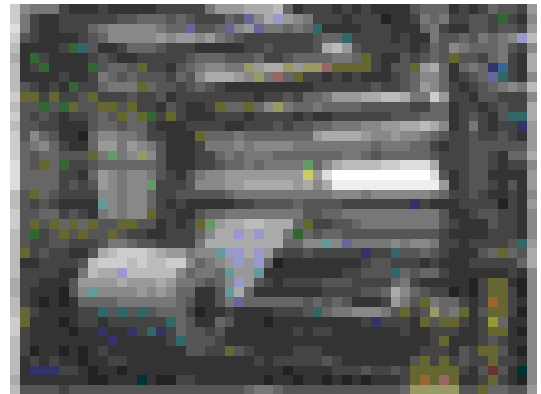
1A – 2700A

Description

The DC590+ Integrator Series 2 DC drive is the latest development of the range which also includes the AC690+ AC drives. It benefits from 30 years experience of designing and manufacturing drives for process line control with dedicated function blocks which simplify the implementation of applications such as sectional drive reels, winder control etc. The function block capabilities offer unparalleled

flexibility in both new installations and retrofit applications. A number of common fieldbus communications options enable connectivity to a wide range of popular control networks allowing the DC590+ to be integrated in larger control systems. The DC590+ is also available as a “ready to install” drive package called the DRV. This is a single integrated module that includes all associated power

components within the package. This innovative approach radically reduces design time, panel space, wiring time and cost. In addition the DRV minimises the risk of error associated with installing the drive. The DRV concept is unique and comes from the experience gained from thousands of successful applications across a diverse range of industries.



Common programming, set-up and communications platform with AC690+ AC Integrator Series

Ratings up to 2700A and supply voltages to 690V

Internal controlled field supply

Function blocks programming, including open and closed-loop winder control as standard

DRV option with built-in contactor, fuses and blower starter

Standards

The DC590+ series meets the following standards when installed in accordance with the relevant product manual.

CE marked to EN50178 (Safety, Low Voltage Directive) EN61800-3 (EMC Directive) with integral filters. External supply capacitors are required up to 110A for compliance.

- Supply Voltage 220-500V as standard
- CE marked
- UL an cUL approved up to 830A



DC Drives - Integrator Series

DC590+ Series 2

1A – 2700A

Next Generation Technology

Building upon the highly successful DC590+ drive used in thousands of applications world-wide, the DC590+ Integrator Series 2 drive takes DC motor control to the next level. With its state-of-the-art advanced 32-bit control architecture, the DC590+ drive delivers highly functional and flexible control suited to a whole host of industrial applications.

Typical Applications

- Converting machinery
- Plastics and rubber processing machinery
- Wire and cable
- Material handling systems
- Automotive

Function Block Programming

Function Block Programming is a tremendously flexible control structure that allows an almost infinite combination of user functions to be realised with ease. Each control function (an input, output, process PID for example) is represented as a software block that can be freely interconnected to all other blocks to provide any desired action.

The drive is despatched with the function blocks pre-configured as a standard DC drive so you can operate it straight from the box without further adjustments. Alternatively you can pick pre-defined Macros or even create your own control strategy, often alleviating the need for an external PLC and therefore reducing cost.

Feedback Options

The DC590+ has a range of interface options which are compatible with the most common feedback devices enabling simple

motor control through to the most sophisticated multi-motor system. Armature voltage feedback is standard without the need for any interface option.

- Analogue tachogenerator
- Encoder
- Optical fibre microtach encoder

Interface Options

Designed with connectivity in mind, the DC590+ has a number of communications and I/O options that allow the drive to take control of the application, or be integrated into a larger system. When combined with function programming, custom functions and control can be easily created offering the user a highly flexible and versatile platform for DC motor control.

Programming/Operator Controls

Featuring an intuitive menu structure, the ergonomically designed operator panel allows quick and easy access to all parameters and functions of the drive via a bright, easy to read backlit display and tactile keypad. Additionally, it provides local control of start/stop, speed demand and rotation direction to greatly assist with machine commissioning.

- Multi-Lingual alpha-numeric display
- Customised parameter values and legends
- On drive or remote mounting
- Local control of start/stop, speed and direction
- Quick set-up menu

Connectivity

Whatever the complexity of your control scheme, the DC590+ has the interface to suit. As standard there's enough analogue and digital I/O for the most complex applications. Alternatively, add the relevant 'technology box' for immediate access to serial communications and Fieldbus networks. The DC590+ has been designed to fit seamlessly, and without compromise, into any control environment.

Analogue/Digital Control

- 5 Analogue Inputs (12bit + sign)
- 3 Analogue Outputs
- 9 Digital Inputs
- 3 Digital Outputs

Serial Communications and Fieldbus Options

- Profibus
- Canopen
- Lonworks
- RS422/RS485
- Controlnet
- Ei Bisynch
- Link
- Devicenet
- Modbus
- Ethernet



6901 Programming/Operator Controls

DC Drives - Integrator Series

DC590+ Series 2

Technical Specifications



Power configuration	DC590+ 4 quadrant regenerative; 2 fully controlled 3 phase thyristor bridges DC591+ 2 quadrant; 1 fully controlled 3 phase thyristor bridge
Armature rating (Adc)	Frame 1 15, 35A Frame 2 40, 70, 110, 165A Frame 3 180, 270A Frame 4 380, 500, 725, 830A Frame 5 1580A Frame 6 1250, 1600, 1950A Frame H 1200, 1700, 2200, 2700A DRV versions are only available in Frame sizes 1 and 2
Overload	15- 450A; 200% for 10 seconds 150% for 30 seconds - from 700A : several overload choices are available
Supply voltage (Vac) 50/60Hz	220-500V (±10%) Frame 1-5 110-220V (±10%) Option Frame 1-5 500-600V (±10%) Option Frame 4-5 380-600V (±10%) Frame 6 380-690V (±10%) Frame 6 500-690V (±10%) Frame H
Field current max	4A Frame 1 30A Frame 4 and 5 10A Frame 2 and 3 60A Frame H
Field voltage max	$V_{field} = V_{ac} \times 0.82$
Operating Environment	
Operating temperature	0-45°C (15-165A) 0-35°C (180-270A) 0-40°C (current ≥1200A) derate by 1%/°C up to 55°C max
Altitude	500m above sea level Derate by 1%/200m above 500m to 5000m max

DC Drives - Integrator Series

DC590+ Series 2

Features and Benefits

Easy to use operator controls

- Detailed diagnostics
- Multi-language display

Advanced autotuning

Standard open fieldbuses



Configurable input-output terminal blocks

- 5 analogue inputs
- 3 analogue outputs
- 9 digital inputs
- 3 digital outputs



Macro function blocks

- Open-loop winder control
- Winder control - loadcell/dancer
- Section control
- Maths functions
- Embedded controller functions

Worldwide product support

The DC590+ DC Drive is available with full application and service support in over fifty countries worldwide. So wherever you are, you can be confident of full back up and support.



Rapid Commissioning, optimal control performance and easy maintenance

With its self-tuning algorithm, the DC590+ can be configured and commissioned within minutes, without turning the motor and without the need for high levels of engineering know-how. The operator interface allows easy monitoring of machine operation and simplifies maintenance.

Easy integration into existing control networks

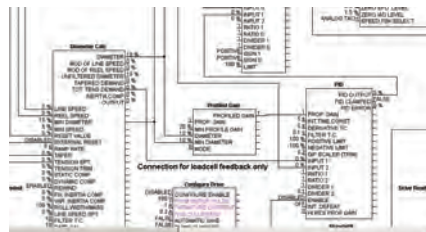
The DC590+ has a wide choice of common industry fieldbus communication options allowing seamless integration into existing factory control networks.

Interfacing with existing external control equipment (Dancer, gauge, etc...)

A number of input / output options gives the DC590+ the flexibility needed for integration into any variable speed system. Combined with its embedded automation functions, its input-output configurations can in many instances remove the need for an external PLC.

Years of applications expertise at your service

The DC590+ macro function blocks are the result of over 30 years of experience gained by Parker SSD of installing drives in variable speed and sectional drive systems. This unique application experience is included in the drive in the form of dedicated function blocks at no extra cost, thereby reducing the design costs of your machinery.



DC Drives - Integrator Series

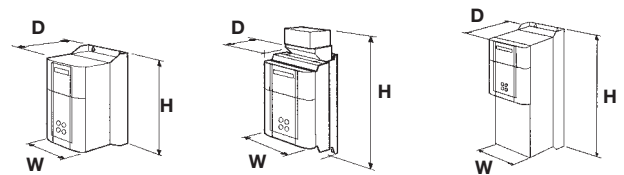
DC590+ Series 2

Technical Specifications

Protection	High energy MOV's Heatsink overtemperature Instantaneous overcurrent Thyristor trigger failure Inverse time overcurrent Interline snubber network Field Failure Zero speed detection Speed feedback failure Stall protection Motor overtemperature
Inputs/Outputs	
Analogue inputs	(5 Total - 1 x 12 bit plus sign, 4 x 10 bit plus sign) 1 - Speed demand setpoint (-10/0/+10V) 4 - Configurable
Analogue outputs	(3 Total - 10 bit) 1 - Armature current output (-10/0/+10V or 0-10V) 2 - Configurable
Digital inputs	(9 Total - 24V, max 15mA) 1 - Program stop 1 - Coast stop 1 - External stop 1 - Start/Run 5 - Configurable
Digital outputs	(3 Total - 24V(max 30V) 100mA) 3 - Configurable
Reference Supplies	1 - +10V dc 1 - -10V dc 1 - +24V dc

Dimensions

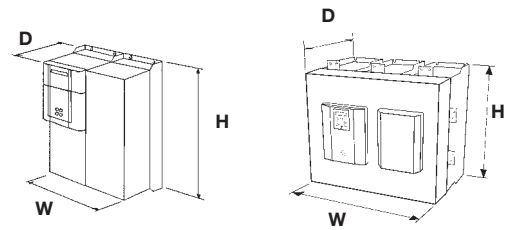
Current (A)	Frame	Dimensions (mm)			Weight (kg)
		W	H	D	
15/35	1	200	375	220	6.4
40/165	2	200	546	292	10.5
180/270	3	250	485	234	20
380/500	4	253	700	358	32
725/830					44
1580	5	506	700	358	90
1250/1950	6 2Q	686	715	378	95
	6 4Q				110
1200/1700	H 2Q	850	1406	417	270
2200/2700	H 4Q	850	956	417	160



Frame 1/2

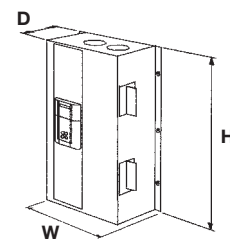
Frame 3

Frame 4



Frame 5

Frame 6



Frame H

DC Drives - Integrator Series

590DRV Series - Ready to install

1A - 165A

The 590DRV is a ready to install version of the DC590+ DC Drive.

The DC590+ is available in either module, or alternatively "DRV" format up to 165A. The DRV includes all the peripheral power components associated with a DC drive system integrally fitted within the footprint of the drive.

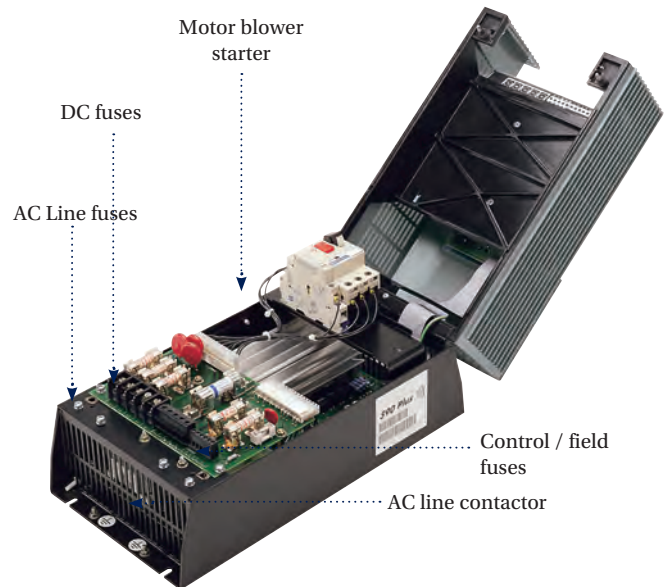
DRV options include the following integrally mounted within the drive:

- AC line contactor
- AC line fuses
- DC fuse (4 Quadrant regenerative version)
- Control / field fuses
- Motor blower starter

All of these options can be supplied pre-wired within the drive.

Advantages

- Simplified panel design
- Reduced component mounting and wiring
- Reduced design time
- Reduction of purchasing costs of individual components



Traditional DC drive section



DC590+ DRV equivalent illustrating panel space saving

DC590+ External Stack Controller

DC598+, DC599+ Series

The economical solution for retrofit applications

When upgrading machines equipped with older high power DC drives, the most cost-effective and quickest way is often to reuse the existing thyristor power stack, which in most cases will be in perfect working order.

To preserve your investment, Parker SSD Drives has developed a DC598+ / DC599+ power stack controller offer specially aimed at retrofit applications and based on the DC590+ controller.

Available in 2 versions, the DC599+ two quadrant non-regenerative and DC598+ four quadrant full-regenerative versions, can be used to drive the power stacks of existing DC drives manufactured by Parker SSD or other manufacturers, delivering the benefits of the recent technological innovations of the DC590+ Series 2 drive.

The DC598+ and DC599+ offer the ability to upgrade your equipment quickly and easily and integrates with your existing control equipment or SCADA package.

The DC598+ and DC599+ retrofit solutions are recommended for currents above 800A.



Benefits

- Reuse existing DC power stacks**
- Connectivity over standard common fieldbuses (Including Profibus, Ethernet, Devicenet, CANopen)**
- Easy to use operator interface**
- Flexible common Integrator Series programming environment.**
- Suitable for currents up to 2700A**



DC590+ External Stack Controller

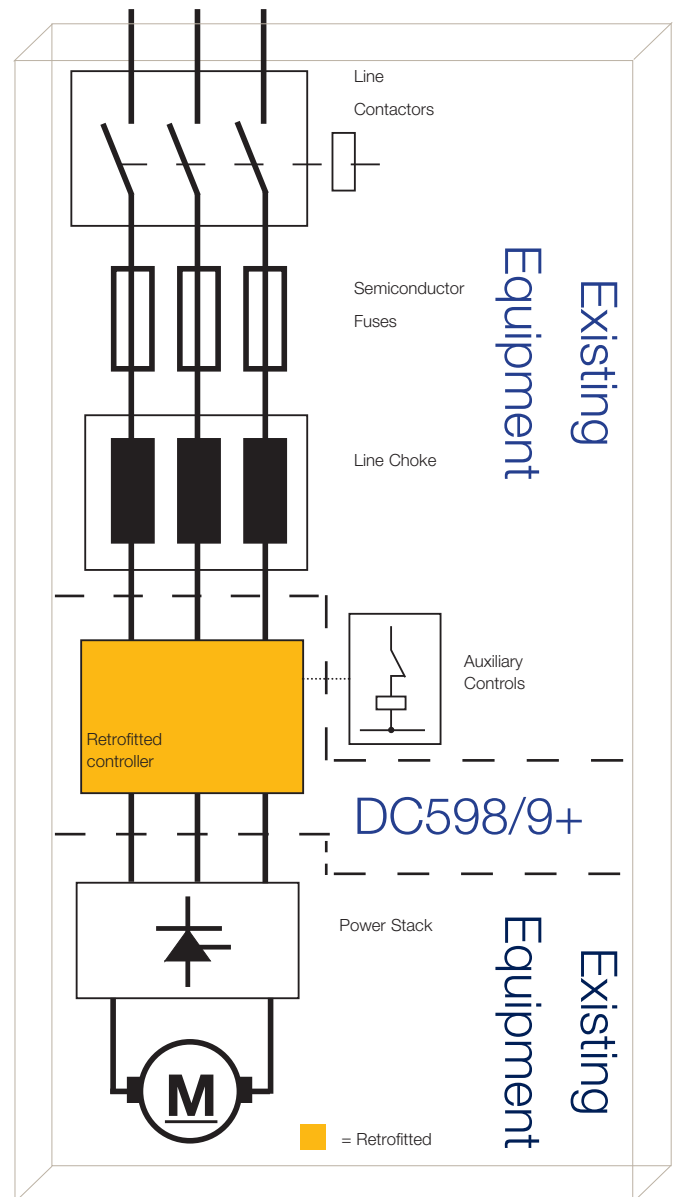
DC598+, DC599+ Series

The DC598/9+ external stack controllers provide the following:

- Thyristor firing signals
- Thyristor firing pulse transformers
- AC current transformer feedback rectification and scaling
- Armature voltage feedback interface
- Coding and phase rotation interface
- Mains present monitoring
- Heatsink over-temperature input
- Field power modules and input/output terminals
- Field current monitoring and scaling
- All standard DC590+ I/O terminals

Technical Specifications

Supply Voltage	110-240Vac $\pm 10\%$ 3ph coding or 1ph power 220-500Vac $\pm 10\%$ 3ph coding or 1ph power 380-690Vac $\pm 10\%$ 3ph coding or 1ph power
Supply Frequency	50/60Hz $\pm 10\%$
Output Field Current	60A DC naturally cooled - 120A DC force cooled (1 x Field Current DC value) Amps 1ph. AC Nominal 3ph AC
Field Output Voltage	(0.9 x 1ph Supply Voltage) V DC
Total Losses	(3 x idc out) Watts.
Auxiliary Supply	110-240Vac $\pm 10\%$ 1ph - Naturally cooled 110-120Vac $\pm 10\%$ 1ph - Force cooled 115V fan 220-240Vac $\pm 10\%$ 1ph - Force cooled 230V fan
Auxiliary Supply Current	SMPS Quiescent Current = 500mA 115Vac or 250mA 230Vac ie 50VA. Fan current - 270mA @ 115Vac or 135mA @ 230Vac
Auxiliary Supply Fuse	3 Amps
Operating Temp.	0 to +45°C
Storage Temp.	-25 to +55°C
Shipping Temp.	-25 to +70°C
Enclosure Rating	IP20
Altitude Rating	Maximum Altitude 500m De-rate the output at 1% per 200 meters
Humidity	Maximum 85% relative humidity at 45% non- condensing
Atmosphere	Non flammable, non-corrosive and dust free
Climatic	Class 3k3 as defined by EN60721-3-3 (1995)



Standards

The DC598+ and DC599+ external stack controllers meet the requirements of EN50178 when mounted in an enclosure and also UL508C.

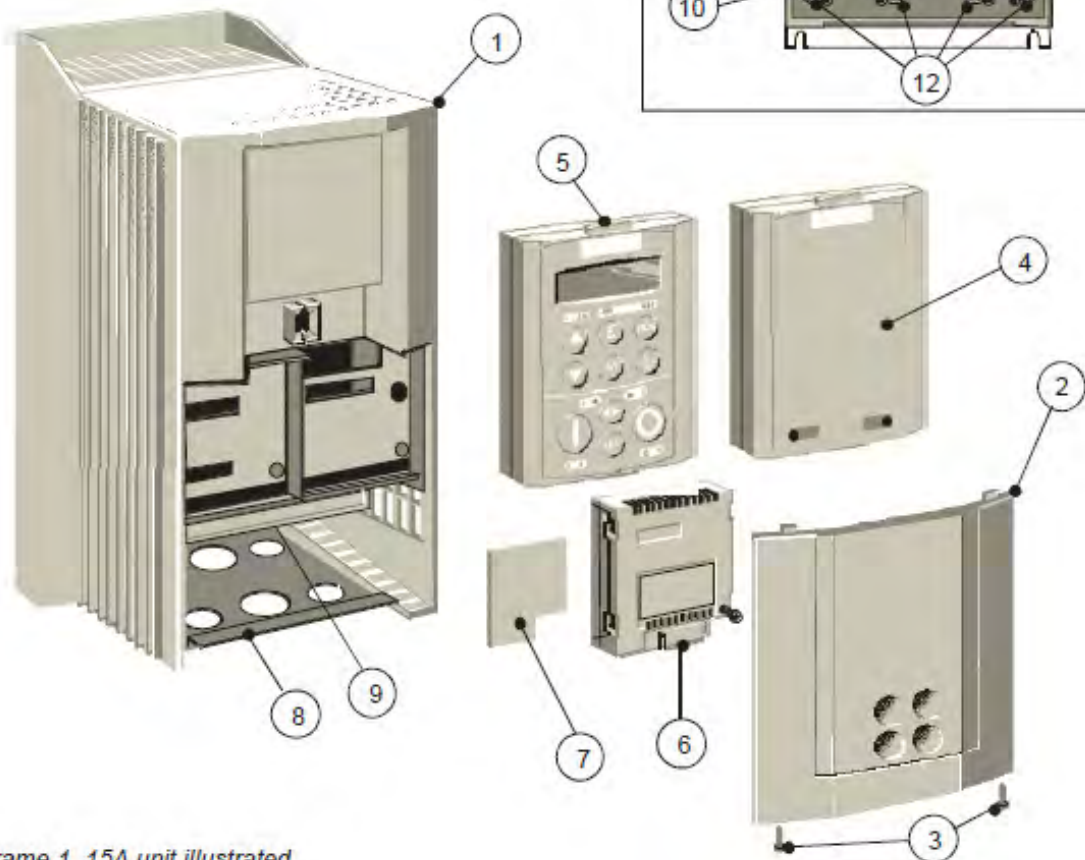
It is designed to meet Overvoltage category III and Pollution Degree 2

DC Drives - Integrator Series

DC590+ Integrator Series 2

Overview of Frames 1,2 and 3

1	Main drive assembly
2	Terminal cover
3	Terminal cover retaining screws
4	Blank cover
5	6901 keypad (optional)
6	COMMS technology box (optional)
7	Speed feedback technology card (optional)
8	Gland plate
9	Power terminal shield
10	Power terminals
11	Control terminals
12	Earthing points
13	Keypad port
14	RS232 programming port
15	Auxiliary power, external contactor and isolated thermistor terminals



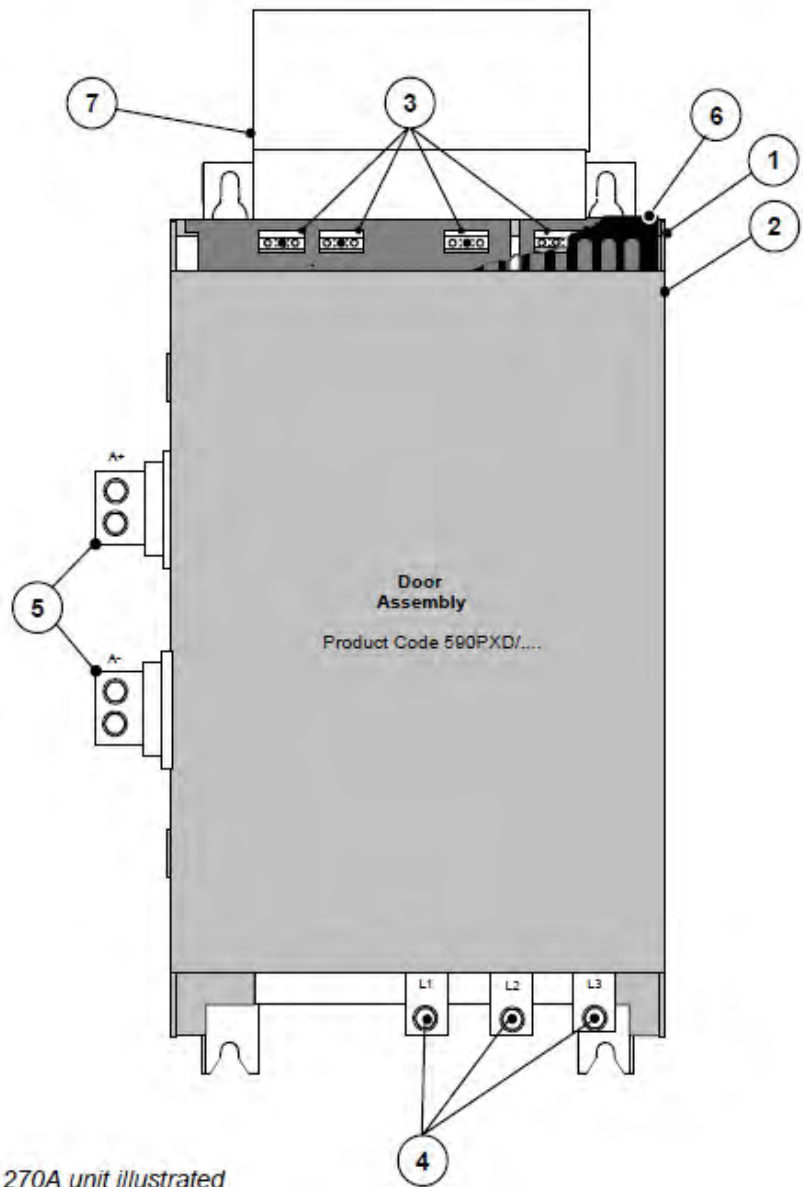
Frame 1, 15A unit illustrated

DC Drives - Integrator Series

DC590+ Integrator Series 2

Overview of Frame 3

1	Main drive assembly
2	Door assembly
3	Field wiring terminals
4	Busbars - main power input
5	Busbars - main power output
6	IP20 Top cover
7	IP20 Fan housing (where fitted)

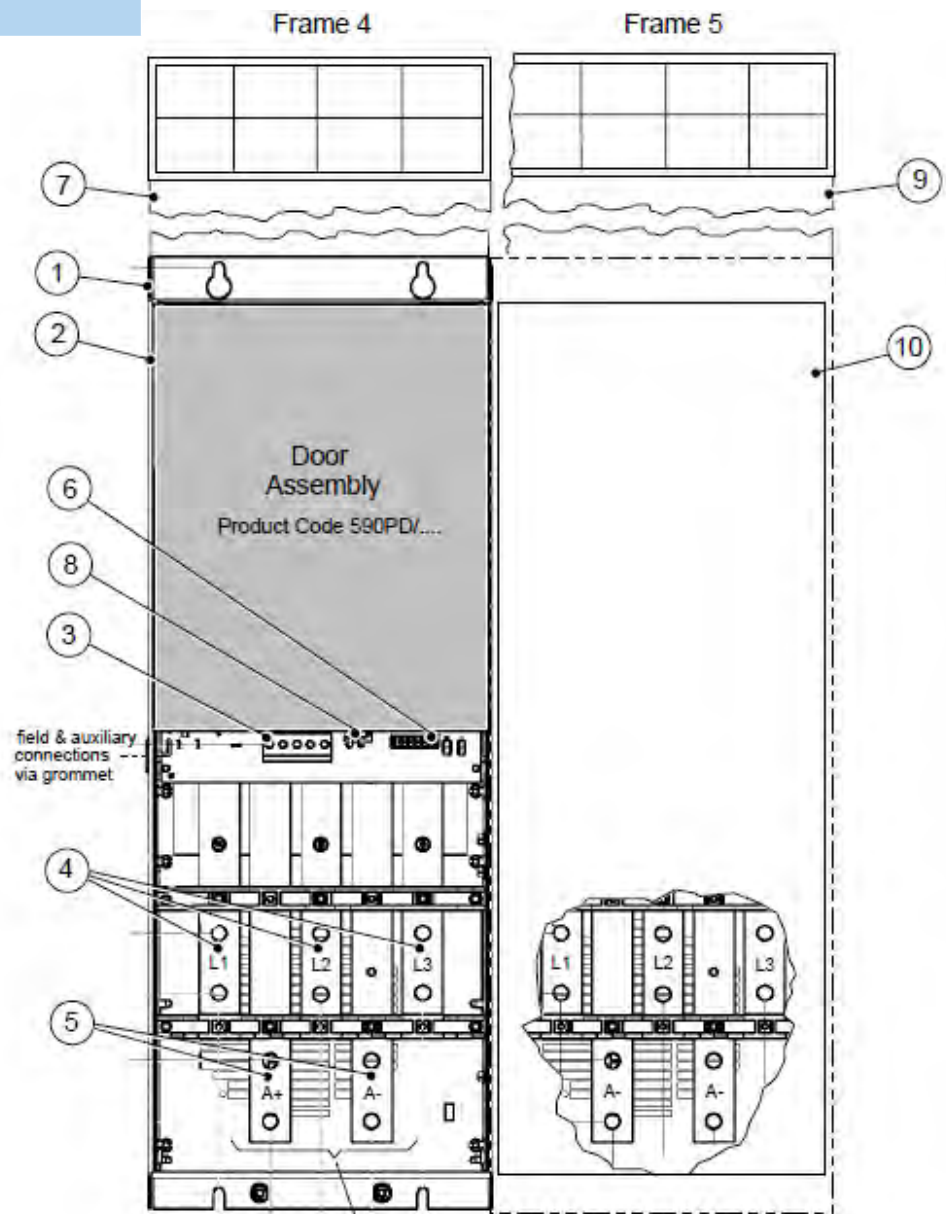


DC Drives - Integrator Series

DC590+ Integrator Series 2

Overview of Frames 4 and 5

1	Main drive assembly
2	Standard door assembly
3	Motor field terminals
4	Busbars - main power input
5	Busbars - main power output
6	Auxiliary supply, contactor and motor thermostat terminals
7	Frame 4 external vent (where fitted)
8	Contactor control select
9	Frame 5 External vent (where fitted)
10	Terminal cover (frame 5)



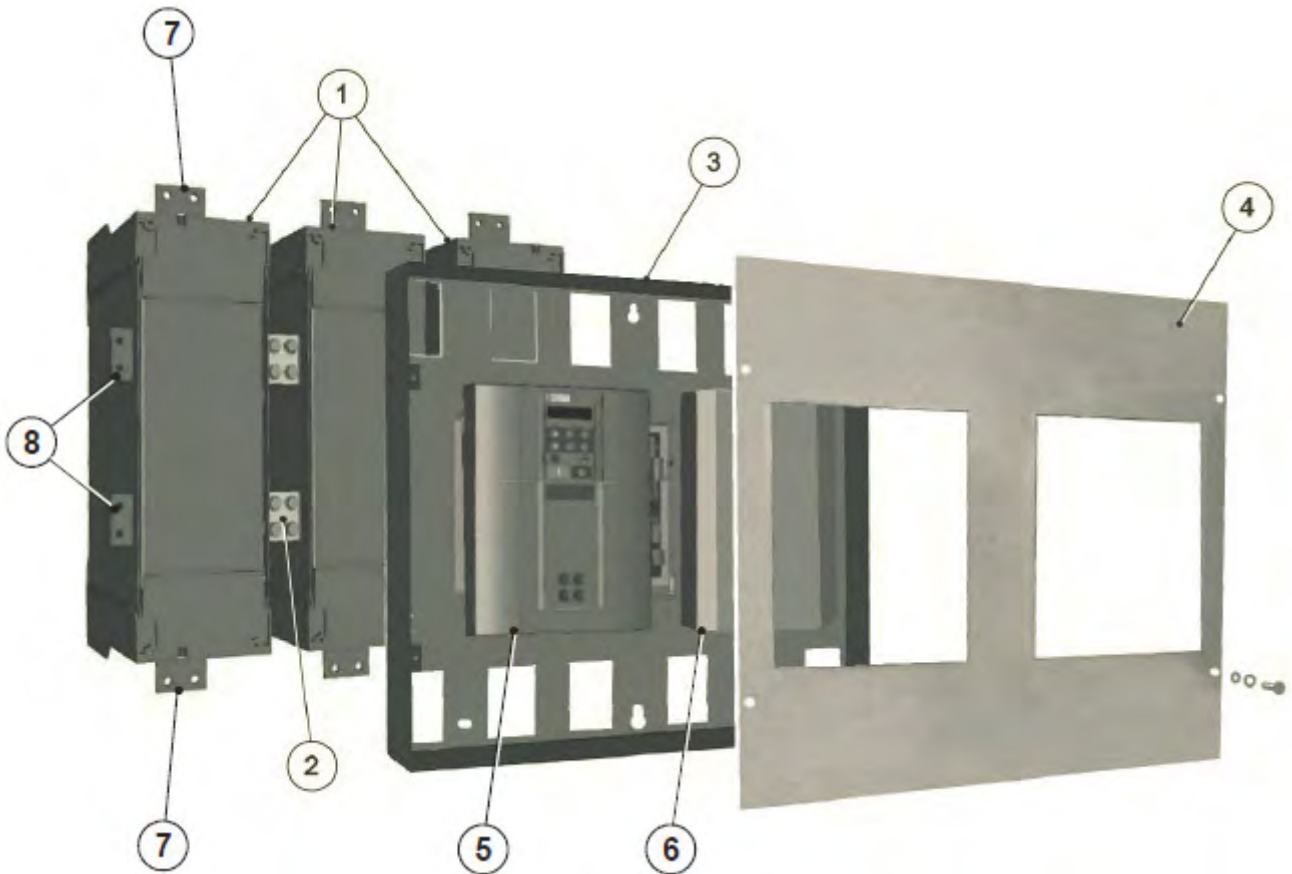
When Frame 5, both terminals are for A+ connections

DC Drives - Integrator Series

DC590+ Integrator Series 2

Overview of Frame 6

1	Phase assemblies - L1, L2, L3
2	Fishplate
3	Control panel assembly
4	Front cover
5	Standard door assembly
6	Field controller
7	Busbars - main power input
8	Busbars - main power output



DC Drives - Integrator Series

DC590+/DC591+ and DRV Series

Electrical characteristics



DC590+/DC591+ DC Drives

Voltage	Output current (A)		Field current max (A)	Frame	New order code (1)	Old reference (1)
	Continuous 100% without overload	Overload 150% x 30sec				
110V - 220V	15	15	4	1	590P-2321501...	590P-0015-...
	35	35	4	1	590P-2323501...	590P-0035-...
	40	40	10	2	590P-2324002...	590P-0040-...
	70	70	10	2	590P-2327002...	590P-0070-...
	110	110	10	2	590P-2331102...	590P-0110-...
	165	165	10	2	590P-2331652...	590P-0165-...
	180	180	10	3	590P-2331803...	590P-0180-...
	270	270	10	3	590P-2332703...	590P-0270-...
	420	380	30	4	590P-2333804...	590P-0380-...
	550	500	30	4	590P-2335004...	590P-0500-...
	800	725	30	4	590P-2337254...	590P-0725-...
	910	830	30	4	590P-2338304...	590P-0830-...
	1740	1580	30	5	590P-2341585...	590P-1580-...
220V - 500V	15	15	4	1	590P-5321501...	590P-0015-...
	35	35	4	1	590P-5323501...	590P-0035-...
	40	40	10	2	590P-5324002...	590P-0040-...
	70	70	10	2	590P-5327002...	590P-0070-...
	110	110	10	2	590P-5331102...	590P-0110-...
	165	165	10	2	590P-5331652...	590P-0165-...
	180	180	10	3	590P-5331803...	590P-0180-...
	270	270	10	3	590P-5332703...	590P-0270-...
	420	380	30	4	590P-5333804...	590P-0380-...
	550	500	30	4	590P-5335004...	590P-0500-...
	800	725	30	4	590P-5337254...	590P-0725-...
	910	830	30	4	590P-5338304...	590P-0830-...
	1200	1050	60	H	590P-534120H...	590P-1200-...
	1350	1250	60	6	590P-5341256...	
	1700	1450	60	H	590P-534170H...	590P-1700-...
	1740	1580	30	5	590P-5341585...	590P-1580-...
	1750	1600	60	6	590P-5341606...	
	2150	1950	60	6	590P-5341956...	
2200	2000	60	H	590P-534220H...	590P-2200-...	
2700	2400	60	H	590P-534270H...	590P-2700-...	

(1) The references are for 4Q drives

For 2Q drives, replace "590P" for "591P" and "955R" for "955N" respectively

DC Drives - Integrator Series

DC590+/DC591+ and DRV Series

Electrical characteristics



DC590+/DC591+ DC Drives

Voltage	Output current (A)		Field current max (A)	Frame	New order code (1)	Old reference (1)
	Continuous 100% without overload	Overload 150% x 30sec 200% x 10sec				
500V - 600V	420	380	30	4	590P-6333804...	590P-0380-...
	550	500	30	4	590P-6335004...	590P-0500-...
	800	725	30	4	590P-6337254...	590P-0725-...
	910	830	30	4	590P-6338304...	590P-0830-...
	1740	1580	30	5	590P-6341585...	590P-1580-...
500V - 690V	1200	1050	60	H	590P-734120H...	590P-1200-...
	1350	1250	60	6	590P-7341256...	
	1700	1450	60	H	590P-734170H...	590P-1700-...
	1750	1600	60	6	590P-7341606...	
	1950	1850	60	6	590P-7341956...	
	2200	2000	60	H	590P-734220H...	590P-2200-...
	2700	2400	60	H	590P-734270H...	590P-2700-...

DRV Drives

Voltage	Output current (A)		Field current max (A)	Frame	New order code (1)	Old reference (1)
	Continuous 100% without overload	Overload 150% x 30sec 200% x 10sec				
220V - 500V	15	15	4	1	955R-5321501...	590P-0015-500-011-DRV
	35	35	4	1	955R-5323501...	590P-0035-500-011-DRV
	40	40	10	2	955R-5324002...	590P-0040-500-011-DRV
	70	70	10	2	955R-5327002...	590P-0070-500-011-DRV
	110	110	10	2	955R-5331102...	590P-0110-500-011-DRV
	165	165	10	2	955R-5331652...	590P-0165-500-011-DRV

(1) The references are for 4Q drives

For 2Q drives, replace "590P" for "591P" and "955R" for "955N" respectively

Selection and Order Codes

DC590+ Integrator Series 2, 110V -500V 3 phase

		Block 1	Block 2	Block 3	Block 4	
Example ▶		590P	- 23	2150 1 0	- P 00 - U 0 A 0	
Product Family	DC590+ Series DC Digital Drive - 4 quadrant regenerative	590P				
	DC591+ Series DC Digital Drive - 2 quadrant non-regenerative	591P				
	Supply Voltage	Output current (A)	Frame			
	110-220V 3 phase			23		
Current / Power Rating		15	1	2150	1	
		35	1	2350	1	
		40	2	2400	2	
		70	2	2700	2	
		110	2	3110	2	
		165	2	3165	2	
		180	3	3180	3	
		270	3	3270	3	
		380	4	3380	4	
		500	4	3500	4	
		725	4	3725	4	
		830	4	3830	4	
		1580	5	4158	5	
		220-500V 3 phase			53	
			15	1	2150	1
			35	1	2350	1
			40	2	2400	2
			70	2	2700	2
			110	2	3110	2
			165	2	3165	2
		180	3	3180	3	
		270	3	3270	3	
		380	4	3380	4	
		500	4	3500	4	
		725	4	3725	4	
		830	4	3830	4	
		1580	5	4158	5	
		1250	6	4125	6	
		1600	6	4160	6	
		1950	6	4195	6	
		1200	H	4120	H	
		1700	H	4170	H	
		2200	H	4220	H	
		2700	H	4270	H	
Auxiliary Supply	Universal 115V-230V 1ph (Frames 1, 2, 6 & H)				0	
	115V 1ph (Frames 3 - 5)				1	
	230V 1ph (Frames 3 - 5)				2	
Mounting	Panel mounting				P	
	Panel mounting + Airflow kit (option on Frames 4 & 5 only)				A	
Special Options	None				00	
	Documented special options (01-99) (refer to local sales office)					
Languages	English (50/60Hz)				U	
	German				D	
	Spansih				E	
	French				F	
	Italian				I	
Keypad	None				0	
	6901 keypad fitted				4	
Speed Feedback	Analogue tacho				A	
	Glass fibreoptic encoder				G	
	Plastic fibreoptic encoder				P	
	Armature voltage				V	
	Wire-ended encoder				W	
Communications	None				0	
	ControlNet				C	
	DeviceNet				D	
	Ethernet				E	
	Link				L	
	ModBus +				M	
	CanOpen				N	
	Profibus				P	
	RS485/RS422				R	

Selection and Order Codes

DC590+ Integrator Series 2, 110V -500V 3 phase



500V-690V 3 phase

		Block 1	Block 2	Block 3	Block 4
Example ▶		590P	- 63 3380 4 2	- P 00	- U 0 A 0
Product Family	DC590+ Series DC Digital Drive - 4 quadrant regenerative DC591+ Series DC Digital Drive - 2 quadrant non-regenerative	590P 591P			
Current / Power Rating	Supply voltage				
	500-600V 3ph		63		
		380	4	3380 4	
		500	4	3500 4	
		725	4	3725 4	
		830	4	3830 4	
		1580	5	4158 5	
	500-690V 3ph		73		
		1250	6	4125 6	
		1600	6	4160 6	
	1950	6	4195 6		
	1200	H	4120 H		
	1700	H	4170 H		
	2200	H	4220 H		
	2700	H	4270 H		
Auxiliary Supply	Universal 115V-230V 1ph (Frames 1, 2, 6 & H)			0	
	115V 1ph (Frames 3 - 5)			1	
	230V 1ph (Frames 3 - 5)			2	
Mounting	Panel mounting			P	
	Panel mounting+ Airflow kit (option sur Frames 4 & 5 only)			A	
Special Options	None				00
	Documented special options (01-99) (refer to local sales office)				
Languages	English (50/60Hz)				U
	German				D
	Spanish				E
	French				F
	Italian				I
Clavier	None				0
	6901 keypad fitted				4
Retour vitesse	Analogue tacho				A
	Glass fibreoptic encoder				G
	Plastic fibreoptic encoder				P
	Armature voltage				V
	Wire-ended encoder				W
Communications	None				0
	ControlNet				C
	DeviceNet				D
	Ethernet				E
	Link				L
	ModBus +				M
	CanOpen				N
	Profibus				P
	RS485/RS422				R

Selection and Order Codes

DC590+ Integrator Series 2, Frame 6



DC590+ Series - Frame 6 Phase Assembly

		Block 1	Block 2	Block 3
		Example ▶ 590PL	- 53 4125 6 0	- P 00
Product Family	DC590+ Series DC Digital Drive - 4Q regenerative phase limb DC591+ Series DC Digital Drive - 2Q non-regenerative phase limb	590PL 591PL		
	Supply voltage			
	220-500V 3ph		53	
Ratio courant/ puissance		1250	6	4125 6
		1600	6	4160 6
		1950	6	4195 6
	500-690V 3ph		73	
		1250	6	4125 6
		1600	6	4160 6
		1850	6	4185 6
Auxiliary Supply	None			0
Mounting	Panel mounting			P
Special options	None Documented special options (01-99) (refer to local sales office)			00

DC590+ Series - Frame 6 Control Phase Assembly

		Block 1	Block 2	Block 3	Block 4
		Example ▶ 590PG	- 53 0000 6 0	- P 00	- U 4
Product Family	SC590+ Series DC Digital Drive - Frame 6 Gantry	590P			
	Supply voltage				
	220-500V 3ph		53		
Current / Power Ratings		6		0000 6	
	500-690V 3ph		73		
		6		0000 6	
Auxiliary Supply	Universal 115V-230V 1ph			0	
Mounting	Panel mounting				P
Special Options	None Documented special options (01-99) (refer to local sales office)				00
Languages	English (50/60Hz) German Spanish French Italian				U D E F I
Keypad	6901 keypad installed				4

Selection and Order Codes

DC590PX+ Integrator Series 2



		Block 1	Block 2	Block 3	Block 4
		Example ▶ 590PX	- 23	2350 1 0	- P 00 - U 0 A 0
Product family	DC590PX Series DC Digital Drive - regenerative	590PX			
	DC591PX Series DC Digital Drive - non-regenerative	591PX			
	Supply voltage	Output current (A)	Frame Size		
Current / Power Ratings	110-220V 3ph		23		
		35	1	2350 1	
		70	1	2700 1	
		110	1	3110 1	
		150	1	3150 1	
	220-500V 3ph		53		
		35	1	2350 1	
		70	1	2700 1	
Auxiliary Supply	Universal 115V-230V 1ph (35/70 Amp ratings only)			0	
	115V 1ph (110/150 Amp ratings only)			1	
	230V 1ph (10/150 Amp ratings only)			2	
Mounting	Panel mounting			P	
Special Options	None				00
	Documented special options (01-99) (refer to local sales office)				
Languages	English (50/60Hz)				U
	German				D
	Spanish				E
	French				F
	Italian				I
Keypad	None				0
	6901 keypad installed				4
Speed Feedback	Analogue tachometer				A
	Glass fibreoptic encoder				G
	Plastic fibreoptic encoder				P
	Armature voltage				V
Communications	Wire-ended encoder				W
	None				0
	ControlNet				C
	DeviceNet				D
	Ethernet				E
	Link				L
	ModBus +				M
	CanOpen				N
	Profibus				P
	RS485/RS422				R

Selection and Order Codes

DRV Ready to Install DC Drive



		Block 1		Block 2		Block 3		Block 4	
		Example ▶	955R	- 53	2150 1 1	- P 00	- U 0 A 0 00		
Product Family	DC590+ DRV Series DC Digital Drive - regenerative	955R							
	DC590+ DRV Series DC Digital Drive - non-regenerative	955N							
	Supply voltage	kW	Output Current (A)	HP	Frame Size				
	500V 3ph				53				
Current / Power Ratings		7	15	7.5	1	2150	1		
		15	35	20	1	2350	1		
		18	40	25	2	2400	2		
		22	55	30	2	2550	2		
		30	70	40	2	2700	2		
		37	90	50	2	2900	2		
		45	110	60	2	3110	2		
		55	125	75	2	3125	2		
Auxiliary Supply	115V 1ph	75	165	100	2	3165	2	1	
	230V 1ph							2	
Mounting	Panel mounting (Frames 1 & 2)							P	
Special Options	None								00
	Documented special options (01-99) (refer to local sales office)								
Languages	English (50/60Hz)							U	
	German							D	
	Spanish							E	
	French							F	
	Italian							I	
Keypad	None								0
	6901 keypad installed								4
Speed Feedback	Analogue tachometer								A
	Glass fibreoptic encoder								G
	Plastic fibreoptic encoder								P
	Armature voltage								V
	Wire-ended encoder								W
Communications	None								0
	ControlNet								C
	DeviceNet								D
	Ethernet								E
	Link								L
	ModBus +								M
	CanOpen								N
	Profibus								P
RS485/RS422								R	
Motor Blower Current Overload	No blower overload								00
	0.10 - 0.16A								01
	0.16 - 0.25A								02
	0.25 - 0.4A								04
	0.4 - 0.63A								06
	0.63 - 1.0A								10
	1.0 - 1.6A								16
	1.6 - 2.5A								25
	2.5 - 4.0A								40
	4.0 - 6.3A								63

Selection and Order Codes

DC590+ Series 2 External Stack Controllers



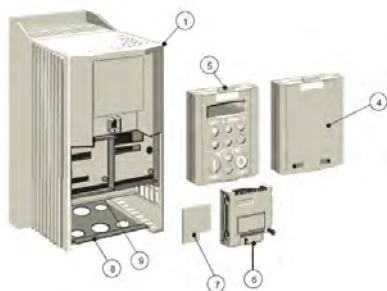
		Block 1	Block 2	Block 3	Block 4
		Example ▶ 598P	- 23 2600 1 0	- A P 00	- U 0 A 0
Product family	DC598+ External Stack Controller - 2Q non-regenerative	598P			
	DC599+ External Stack Controller - 4Q Regenerative	599P			
Current / Power Ratings	Supply Voltage				
	110-220V 3ph		23		
		60	1	2600 1	
		120	1	3120 1	
	220-500V 3ph		53		
		60	1	2600 1	
		120	1	3120 1	
	500-690V 3ph		73		
	60	1	2600 1		
	120	1	3120 1		
Auxiliary Supply	Universal 115V-230V 1ph (60 Amp rating only)			0	
	115V 1ph (120 Amp rating only)			1	
	230V 1ph (120 Amp rating only)			2	
Trigger Option	Amplifiers			A	
	Trigger			T	
Mounting	Panel mounting			P	
Special Options	None				00
	Documented special options (01-99) (refer to local sales office)				
Languages	English (50/60Hz)				U
	German				D
	Spanish				E
	French				F
	Italian				I
Keypad	None				0
	6901 keypad installed				4
Speed Feedback	Analogue tacho				A
	Glass fibreoptic encoder				G
	Plastic fibreoptic encoder				P
	Armature voltage				V
	Wire-ended encoder				W
Communications	None				0
	ControlNet				C
	DeviceNet				D
	Ethernet				E
	Link				L
	ModBus +				M
	CanOpen				N
	Profibus				P
	RS485/RS422				R

Accessories and Options

DC590+ Integrator Series 2 DC Drives



Options	Fitting	Order Reference	Page	
Operator Keypad				
1	DC590+ keypad (removable)	Option	6901-00-G	33
	Advanced operator keypad (removable)	Option	6911-01-00-G	
	Remote mounting kit	Option	6052/00	
2 Communication Cards				
	Ethernet Modbus/TCP and Ethernet IP	Option	6055-ETH-00	31
	ControlNet	Option	6055-CNET-00	
	Modbus Plus	Option	6055-MBP-00	
	DeviceNet	Option	6055-DNET-00	
	RS485 / Modbus	Option	6055-EI00-00	
	Profibus-DP	Option	6055-PROF-00	
	CANopen DS402	Option	6055-CAN-00	
	LonWorks	Option	6055-LON-00	
	Link	Option	6055-LINK-00	
3 Speed Feedback Cards				
	Wire-ended encoder Card	Option	AH387775U001	32
	Analogue Tacho	Option	AH500935U001	
	Glass fibreoptic Microtach encoder	Option	AH386025U001	
	Plastic fibreoptic Microtach encoder	Option	AH386025U00	
4 Drive Doors				
	Door for frames 3 & H (with additional motor thermistor terminals)	Standard	590PXD-0010-UK	
	Door for Frames 4 & 5	Standard	590PD-0010-UK	
Accessories				
	DC Line Chokes			41
	HMI touchscreen displays 3 to 15"			34
	DSI programming software			38
	DSE programming software			48
	Microtach encoder			47
Motors				
	DC motors			42



Accessories and Options

DC590+ Integrator Series 2 DC Drives Communication Cards



The communication cards allow the DC590+ to be connected to the most common industry standard fieldbuses.

Features

- Communication cards can be factory fitted or purchased separately for fitting on-site
- Dimensions H x W D: 127mm x 76.2mm x 25.4mm
- LED indication of network and card status

Ethernet Communications Interface

Order Code: 6055-ETH-00	
Supported Protocols	Modbus/TCP and Ethernet IP
Communication Speed	10/100M bits/s
Station Address	Selectable via switch or Internet Explorer
Suitable for	DC590+ version 7.1+

ControlNet Communications Interface

Order Code: 6055-CNET-00	
Supported Messages	Polled I/O
Station Address	Selectable via software
Suitable for	DC590+ version 5.17+

Devicenet Communications Interface

Order Code: 6055-DNET-00	
Supported Protocols	DeviceNet Drive Profile – Group 2 slave only
Station Address	DeviceNet Drive Profile – Group 2 slave only
Suitable for	DC590+ version 5.x+

Modbus Plus Communications Interface

Order Code: 6055-MBP-00	
Supported Protocols	Modbus Plus
Cabling	RS485 2 or 4 wire
Communication Speed	1 M bits/s
Station Address	Selectable via software
Suitable for	DC590+ version 7.1+

CANopen Communications Interface

Order Code: 6055-CAN-00	
Profile	DS402
Supported Messages	SDO, PDO, NMT, SYNC
Communication Speed	20K, 50K, 125K, 250K, 500K, 1M bits/s selectable
Station Address	Selectable via Switch
Suitable for	DC590+ version 5.x+

Profibus-DP Communications Interface

Order Code: 6055-PROF-00	
Supported Protocols	Profibus-DP
Communication Speed	Automatically detected
Station Address	Selectable via software
Suitable for	DC590+ version 5.x+

RS485/Modbus Communications Interface

Order Code: 6055-EI-00	
Supported Protocols	Modbus RTU, EI Bisynch ASCII
Cabling	RS485 2 or 4 wire
Communication Speed	300 to 115200 bits/s
Station Address	Selectable via software
Suitable for	DC590+ version 5.17+

Accessories and Options

DC590+ Integrator Series 2 DC Drives

Encoder feedback card

Description

The encoder feedback card allows an incremental encoder to be fitted to the drive to provide accurate measurement of motor speed. The card also provides the encoder power supply.

Specifications

Maximum input frequency	100KHz
Receiver current consumption	10mA per channel
Input format	2 channel differential and quadrature
Differential input voltage	Minimum 3.5V
Encoder power output	+5V to 24V adjustable (AH387775U001)
Power supply rating	2W maximum
Power supply load	1.4 x output power
Terminal size	16 AWG maximum
Tightening torque	0.4Nm

Order Codes

Order Code	Description
AH387775U001	Encoder Card - Adjustable supply
AH387775U005	Encoder Card +5Vdc
AH387775U012	Encoder Card +12Vdc
AH387775U015	Encoder Card +15Vdc
AH387775U024	Encoder Card +24Vcc

Accessories and Options

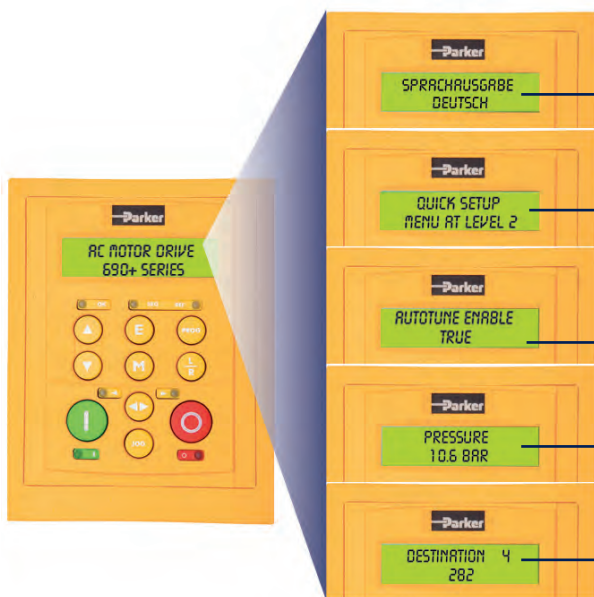
DC590+ Integrator Series 2 DC Drives

Operator Keypads

Standard operator keypad 6901-00-G

Features

- Local motor control : start, speed, direction, diagnostics
- Operator menus and parameter configuration
- Quick setup menu
- Password protection for parameter configuration



Multilingual

English · French · German · Italian · Portuguese · Swedish · Polish

Quick setup menu

Intuitive menus allowing easy and quick setup of the drive

Auto-tuning

Automatic tuning of motor parameters ensures maximum dynamic motor performance

Diagnostics messages

Display input and output parameters as well as drive operating units

Drive configuration

Advanced operator keypad 6911-01-00-G

Features

- 128 x 64 pixels semi-graphical resolution
- RS232 and RS485 ports
- Recording of parameters to keypad and restore to drive (Memory card 256Mb to 2Gb)



Accessories and Options

DC590+ Integrator Series 2 DC Drives

Drive System Explorer Lite (DSE Lite) Software

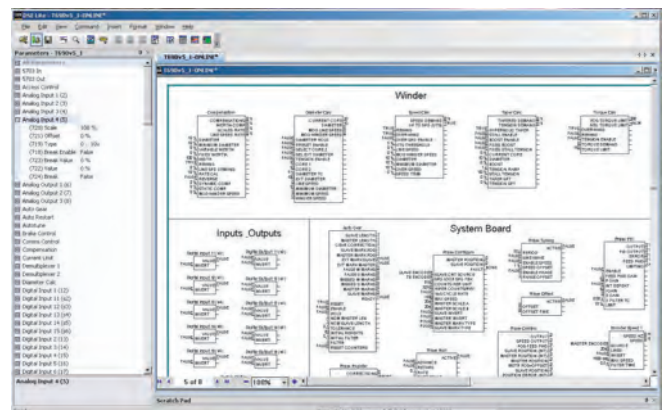
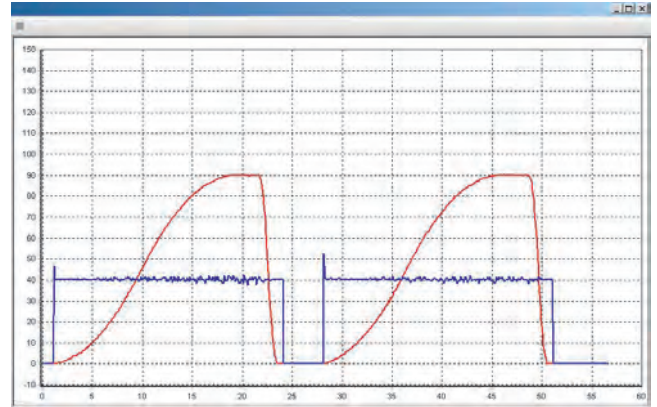
Description

DSE LITE software is an easy to use configuration, commissioning and monitoring tool with graphical interface for the Parker SSD Drives range of AC and DC drives.

While the drive is in running mode the oscilloscope function allows “on-line” monitoring of selected parameters and the recording of trends.

DSE LITE, allows the user to create, parameterize and configure user defined applications thanks to function blocks dedicated to speed control, Winder, PID, Diameter calculator, Shaftless...

DSE LITE is downloadable from our website.
www.parker.com



Accessories and Options

DC590+ Integrator Series 2 DC Drives
TS8000 Series Touchscreens



Description

TS8000 is a high performance HMI touchscreen range with powerful features that would normally only be found in PC-based displays.

The TS8000 is able to communicate with many different pieces of hardware through its 10/100Base-T Ethernet port.

Furthermore a USB programming port allows programs to be downloaded, or access to trending and data logging, while data can be collected and stored on a standard CompactFlash card, freeing up internal memory.

- Multi-lingual graphical interface**
- Built-in symbol library of common objects**
- Built-in web server**
- CompactFlash support**
- Integrated automatic multiple protocol conversion**
- Free programming software**

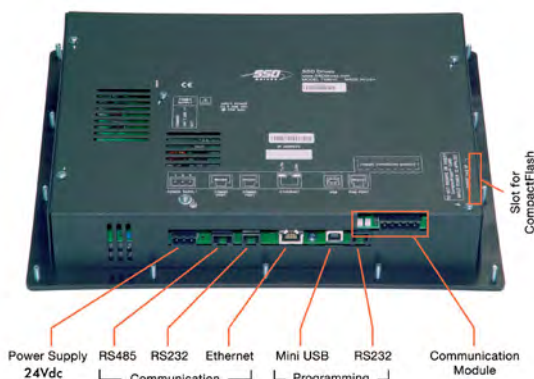
Technical specifications

Power Supply	24Vdc ±20%
Operating Temperature	0-50°C
Relative Humidity	80% non-condensing
Altitude	2000 m
Enclosure	IP66 / Nema 4
Keypads	<p>TS8003 :</p> <ul style="list-style-type: none"> . 8 user assignable keys . 5 navigation keys . 12 numeric keys . 7 dedicated keys <p>TS8006 : 5 keys for on screen menus</p> <p>TS8008 : 7 keys for on screen menus</p> <p>TS8010 : 8 keys for on screen menus</p> <p>TS8015 : 9 keys for on screen menus</p>
Memory	CompactFlash slot
Communication Ports	<p>Programming :</p> <ul style="list-style-type: none"> . USB 1.1 - connector type B . RS232 - via RJ12 <p>Communication :</p> <ul style="list-style-type: none"> . RS232 - via RJ12 . RS485 - via RJ45 . Ethernet 10/100 Base T - connector RJ45

TS8000

HMI Specifications

Model	Screen	Colour	Number of Pixels
TS8003	32"/FSTN	2	128 x 64
TS8006	5.7"/TFT	256 QVGA	320 x 240
TS8008	7.7"/TFT	256 VGA	640 x 480
TS8010	10.4"/TFT		
TS8015	15"/TFT	32,000 XGA	1024 x 768

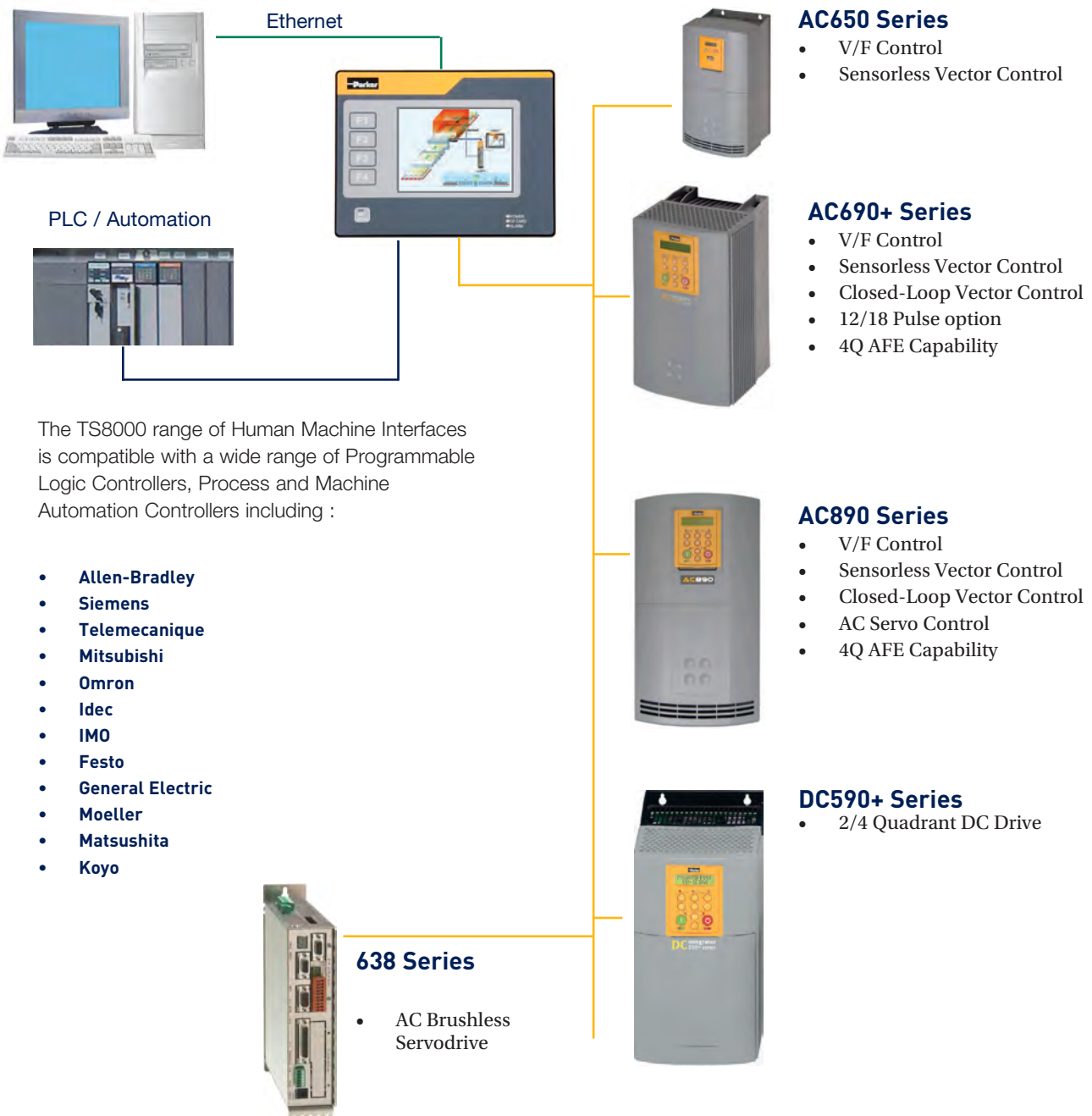


Accessories and Options

DC590+ Integrator Series 2 DC Drives
TS8000 Series Touchscreens



Application Example



Accessories and Options

DC590+ Integrator Series 2 DC Drives
TS8000 Series Touchscreens



HMI Features

Pre-Engineered Projects

- Library with over 4000 symbols
- Support for BMP, JPG, WMF graphic files
- Database functionality
- Graphical Trend
- Alarm Logs
- Machine Drawings

Multilingual Interface

Programming and Display in :

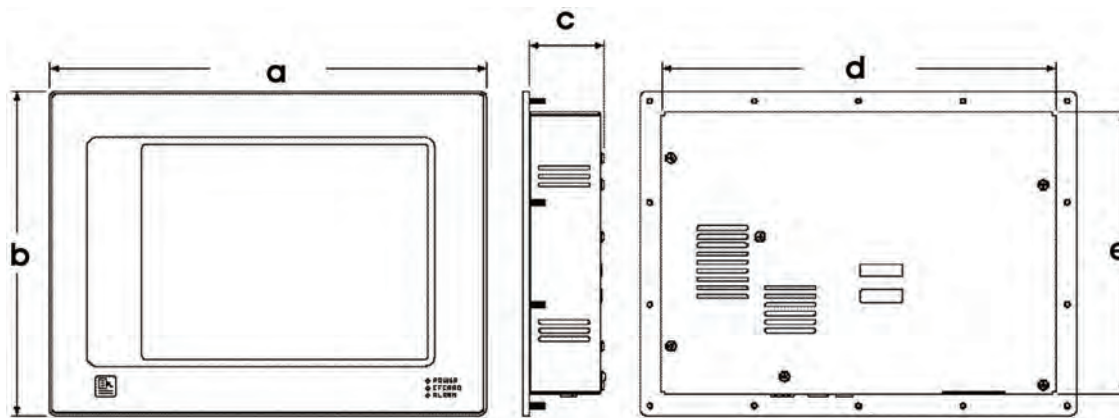
Italian	German
English	Spanish
French	Dutch

Unicode Support for :

Japanese	Chinese (traditional)
Thai	Chinese (simplified)
Korean	Other languages available

Dimensions and Weights

Model	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	Weight (kg)
TS8003	189.2	148.6	52	153.4	112.8	0.89
TS8006	224.3	179.8	58.4	188.5	144	1.36
TS8008	262	207.8	56	226.3	172	1.74
TS8010	325.8	241.3	56	293.3	210.1	2.51
TS8015	406.4	330.2	78.6	370.6	294.4	5.17



Options

Model	Description
8000/CB/00	CanOpen fieldbus option card (master)
8000/DN/00	DeviceNet option card
8000/PB/00	Profibus option card
8000/LK/00	LINK fieldbus option card
8000/FA/00	FireWire fieldbus option card

International Standards

Complies with standards:

- EN61010-1
- EN61326
- EN55011 Class A

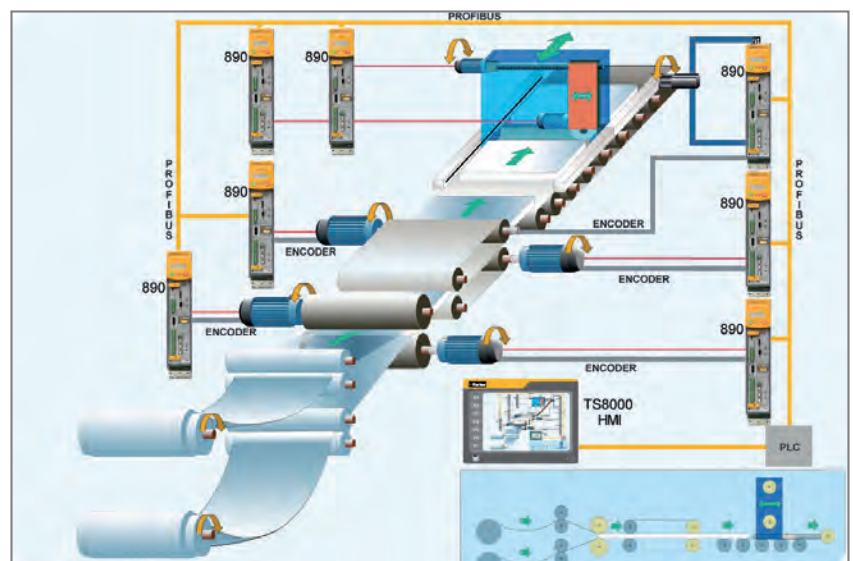
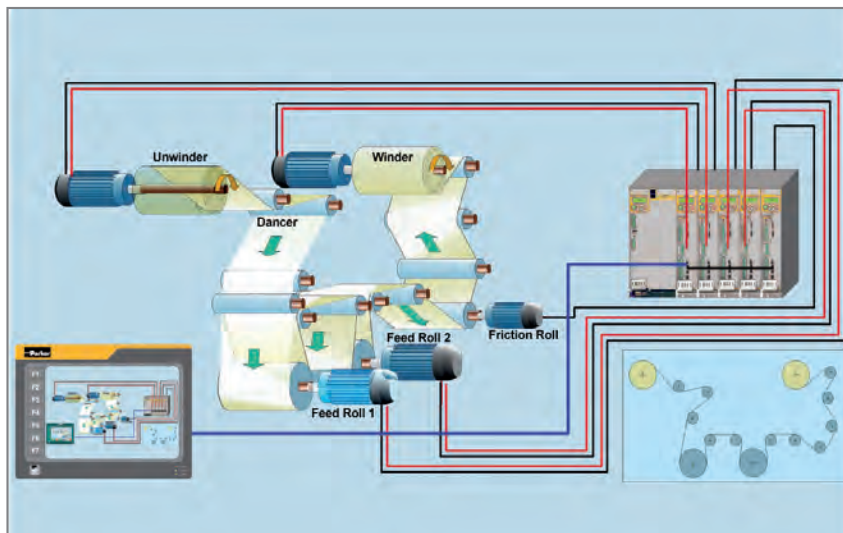
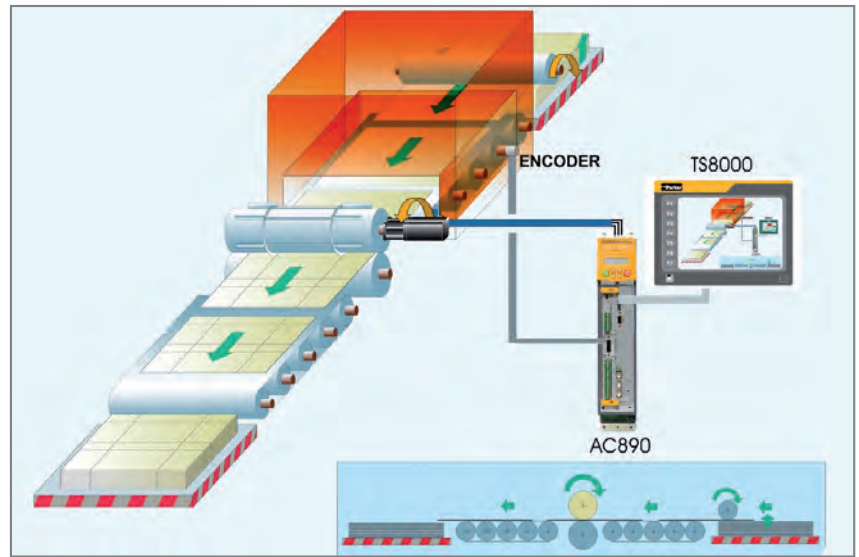
CE Marked

Accessories and Options

DC590+ Integrator Series 2 DC Drives
TS8000 Series Touchscreen



HMI Applications



Accessories and Options

DC590+ Integrator Series 2 DC Drives TS8000 Communications Cards



Description

The TS8000 communication cards allow connection and integration of the TS800 into many popular fieldbus communication networks.

Features

Configuration	by means of DSI8000 configuration software
Power Supply	Connection by pluggable 3-pin terminals
Operating Temperature	0 to 50°C
Storage Temperature	-20 to 80°C
Humidity	80% max. relative humidity (non-condensing) from 0 to 50°C
Altitude	2000 metres Max.

CANopen Communications Interface

Order Code: 8000-CB-00	
Supported Protocols	<ul style="list-style-type: none"> CANopen SDO Master
Communication Speed	<ul style="list-style-type: none"> Selectable by software up to 1 Mbits/s
Communication	<ul style="list-style-type: none"> With Drive System Explorer software using RTNX protocol
Suitable for drives	<ul style="list-style-type: none"> AC890 version 3.2+

DeviceNet Communications Interface

Order Code: 8000-DN-00	
Supported Protocols	<ul style="list-style-type: none"> DeviceNet – Slave Group 2 only
Communication Speed	<ul style="list-style-type: none"> Selectable by software up to 500 kbits/s

Firewire Communications Interface

Order Code: 8000-FA-00	
This card allows data exchange between the TS8000 and an AC890 fitted with an 8903-FA-00 Interface	
Communication Ports	Port A : IEEE 1394A Port B : IEEE 1394B
Note : The TS8000 must use a Class 2 or SELV rated power supply	

Link Communications Interface

Order Code: 8000-LK-00	
Supported Protocols	LINK
Communication Speed	2.7Mbits/s
Allows data exchange between TS8000 and SSD LINK fibre optic network	

Profibus-DP Communications Interface

Order Code: 8000-PB-00	
Supported Protocols	EN50 170, 1
Communication Speed	Up to 12 Mbits/s

Analogue DC Drives

506/507/508 Series

Up to 2kW



Description

The 506, 507 and 508 series drives break new ground in cost-effective DC motor control. Available in 3, 6 or 12A 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

Low cost high featured design

IP20 protected covers

Compact footprint and DIN rail mounting

Selectable 110V or 230V supply

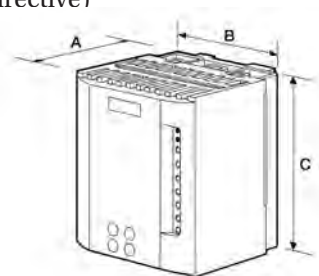
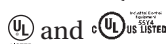
Selectable tacho or armature voltage feedback

Standards

CE Marked

EN61800-3 (EMC) with external filter

EN50178 (safety, low voltage directive)



Technical Specification

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

Characteristics

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

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

Note: Product will ship in Blue livery and not Grey as shown until further notice

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.

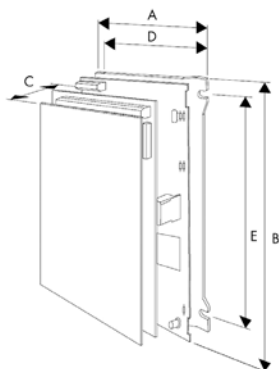
Typical applications include:

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

- Fully isolated control circuits
- 110V – 415V AC 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 EN61800-3 (EMC) with external filter
EN50178 (safety, low voltage directive)  and 



Technical Specifications

Supply Voltage	110-115V, 220-240V or 380-415V ±10% ; 50-60Hz ±5%; single phase; selection by switch
Ambient	0-40°C, Altitude max 1000m
Overload	150% for 60 seconds
Installation/diagnostics	Jumper selection of supply voltage
• Voltage selection	
• Control	Speed or torque
• Output	Speed or torque
• Output	3A DC field control
• Diagnostics	Power on, stall detect and overcurrent LEDs
• Protection	Electronic overcurrent protection
• Speed output	Buffered 10V, 10mA
• Current output	Buffered 7.5V, 10mA
• Ramp output	Buffered (master/slave)
• Reference supply	10Vcc (10mA)
• Inputs	Total setpoint Off
• Drive Outputs	Drive Healthy
• Output speed / setpoint	Zero Speed / zero setpoint
Potentiometer Adjustments	maximum / minimum
• Speed	
• Current Limit	
• Speed stability	
• Time	. acceleration (1-15 seconds) . deceleration (1-15 seconds)
• IR Compensation	

Supply Voltage Vac	Armature Voltage Vdc	Field Voltage Vdc
110	90	100
240	180	210
415	320	360

Order Code	Armature Current
512C-04-00-00	4
512C-08-00-00	8
512C-16-00-00	16
512C-32-00-00	32

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

Note: Product will ship in Blue livery and not Grey as shown until further notice



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

Four quadrant regenerative control

110-500Vac AC supply selection by jumpers

CE marked and EMC compliant

AC power contactor logic and supply

Many system features

Extremely linear control loops



Technical Specification

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

Features

User Facilities

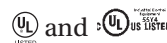
- Four quadrant regenerative control
- Separate AC auxiliary supply
- AC supply contactor logic
- Torque or speed control
- Three setpoint inputs
- Torque limit input
- Buffered analogue current output (10V, 10mA)
- +10V and -10V analogue reference supplies
- +24V digital reference supply
- Drive healthy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

Potentiometer Adjustments

- Maximum speed
- Current limit
- Acceleration time (0-40 seconds)
- Deceleration time (0-40 seconds)
- IR Compensation
- Speed loop gain - Proportional
- Speed loop gain - Integral
- Current gain - proportional
- Current gain - integral
- Zero speed offset
- Zero speed threshold

Standards

- CE Marked
- EN61800-3 (EMC) with external filter
- EN50178 (safety, low voltage directive)



Note: Product will ship in Blue livery and not Grey as shown until further notice

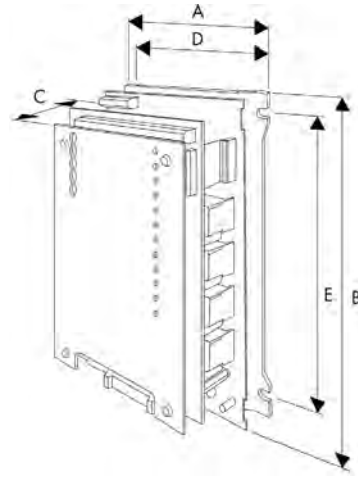
Analogue DC Drives

514C Series

Up to 9 kW

Supply Voltage Vac	Armature Voltage Vdc	Field Voltage Vdc
110	80	100
240	180	210
415-500	320	360

Order Code	Armature Current
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

EMC Filters

for DC Drives

Description

A range of custom designed optional EMC (Electromagnetic Compatibility) filters are available for use with Parker SSD Drives product range.

They are used to help achieve conformance with the EMC directive BS EN 61800-3:2004 - "Adjustable speed electrical power drive systems - Part 3".

Installation of the drive must be in accordance with the installation guidelines in the product manual. The filters comply with the relevant standards as outlined in the following table.

1st Environment : Drives directly connected without intermediate transformers to a low voltage (<100V rms) supply network that is part of a network that also supplies buildings used for domestic purposes.

2nd Environment : Establishments where there is no direct connection to a low voltage supply network that also supplies buildings used for domestic purpose.

TN Earthing = Grounded neutral AC supply <460V ac
IT Earthing = Ungrounded neutral AC supply <500V ac

Ext. Filter = External filter

Ext. Filter FP = Footprint external filter

EMC Filters

DC Drives	Frame	Current	2 nd Environment (Industrial)	1 st Environment (Domestic)
506,507,508			External FP Filter C0389115	External FP Filter C0389115
512,514C		4, 8, 16A	External FP Filter C0389113	External FP Filter C0389113
		32A	External FP Filter C0389114	External FP Filter C0389114
DC590+	1	15A	Standard with input capacitors	External Filter CO467844U015
		35,40A	Standard with input capacitors	External Filter CO467844U040
	2	70A	Standard with input capacitors	External Filter CO467844U070
		110A	Standard with input capacitors	External Filter CO467844U110
	3	165A	Standard	External Filter CO467844U165
		180A	Standard	External Filter CO467844U180
	4, 5, H	270A	Standard	External Filter CO467844U340
			Standard	Refer to your local sales office

Wall Mounting : Use the mounting kits below

Filter	Mounting Kit
CO467842U020	BA467840U020
CO467842U044	BA467840U044
CO467842U084	BA467840U084
CO467842U105	BA467840U105



Drive mounted on an external footprint filter

Three Phase Line Reactors

for DC Drives

Description

Parker's range of line reactors have been especially selected to match the requirements of the Parker DC drive range. They are used to reduce the harmonic content of the supply current.

As well as helping with compliance with IEEE 519 there are other benefits to using line reactors including:

- Increased drive system reliability
- Reduced harmonics / surge currents
- Improved true power factor

Ordering

Contact your local sales office for more details of Parker's range of three phase line reactors.

DC Motors

Permanent Magnet Motors

Up to 1.5kW

Description

A range of high efficiency permanent magnet DC motors available in either IP22 (drip proof) or IP44 (totally enclosed) format. These are suitable for use with single phase Parker SSD Drives DC drives with a form factor of 1.6 The addition of an armature choke can improve the drive form factor to increase the available kW output.

High integrity permanent magnets
IP22 protection, IC01 cooling (20:1 speed range)
Alternative IP44, IC0041 cooling (100:1 speed range) available
Class F insulation
CSA approved
Foot or foot & flange mounting options



Technical Specifications

IP22-IC01 180Va Foot / Foot and Flange Mounting				
Frame Type	Output kW	Base Speed (rpm)	Flange Type	Armature Full Load Current (A)
MP80075	0.37	2000	F130-1	2.5
MP80115	0.55	2000	F130-1/F165-1	3.8
MP80160	0.75	2000	F130-1/F165-1	4.8
MP80200	1.1	2000	F130-1/F165-1	7.2
MP80200*	1.5	2500	F165-1	10

IP44-IC0041 180Va Foot / Foot and Flange Mounting				
Frame Type	Output kW	Base Speed (rpm)	Flange Type	Armature Full Load Current (A)
MP80075TE	0.25	2000	F130-1	1.8
MP80115TE	0.37	2000	F130-1/F165-1	2.6
MP80160TE	0.55	2000	F130-1/F165-1	3.5
MP80200TE	0.75	2000	F130-1/F165-1	5.4
MP80200TE*	1.1	2500	F165-1	7.2

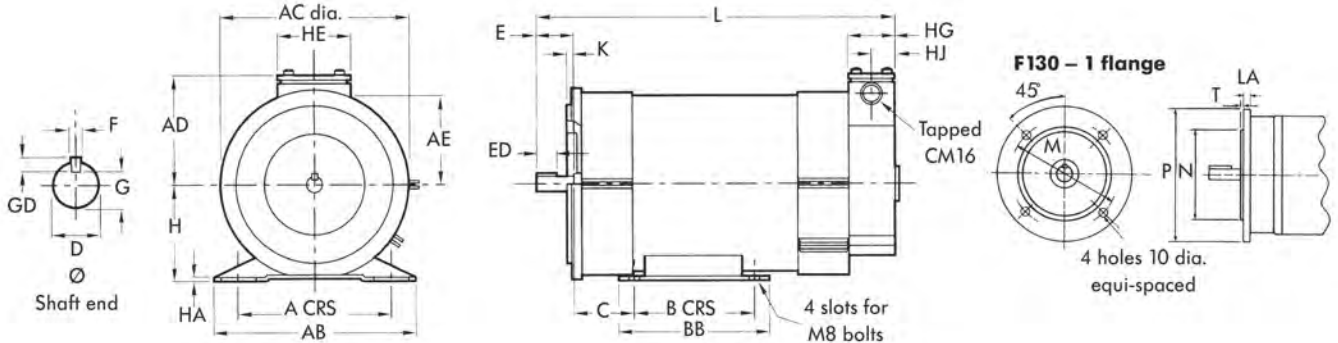
DC Motors

Permanent Magnet Motors

Up to 1.5kW



Dimensions

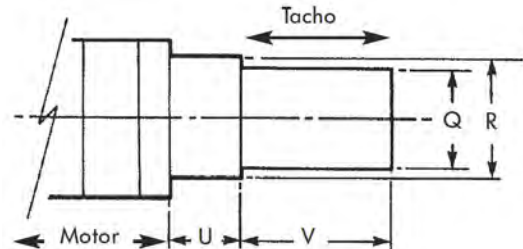


Foot Mounting Motors

Frame Type	A	AB	AC	AD	AE	B	BB	C	E	ED	F	G Nom	GD	H	HA	HE	HG	K	L	Weight (kg)
MP80075	125	165	150	91	72	100	120	50	40	25	6	15.5	6	80	3	59	38	5	307	15
MP80115	125	165	150	91	72	100	120	50	40	25	6	15.5	6	80	3	59	38	5	347	19
MP80160	125	165	150	91	72	100	120	50	40	25	6	15.5	6	80	3	59	38	5	392	23
MP80200	125	165	150	91	72	100	120	50	40	25	6	15.5	6	80	3	59	38	5	432	26

Foot and Flange Mounting Motors

Frame Type	LA	M	N Nom	N Tol	P	T Nom	D
F130-1	8	130	110	-0.054	160	3.5	14
F165-1	10	165	130	-0.063	200	3.5	19



Tachogenerator Encoder Options

Tachogenerator Type	Order Code	U	R	V	Q	Weight (Kg)	Weight Fitted
REO444R1B 60V/1000rpm (flange)	DD059104U004	72	115	136	90	2.8	3.7
REO444N1B 60V/1000rpm (flange)	DD059104U005	72	115	131	75	1.8	2.7
GTL7.16L/460 60V/100rpm	DD059104U013	N/A	114	65	70	0.9	1.0
RAC12D30VCR100 30V/100rpm (rectified AC)	DD387089	9.0	100	26	65	0.3	0.4
SSD Drives Encoder	DD385536U010	72	115	68	64	0.74	1.6
REO444RIS 60V/1000rpm** (foot)	DD059104U021					2.8	
REO444NIS 60V/1000rpm** (foot)	DD059104U022					1.8	

Encoder fitting kits include dry disc coupling. Optional fitting kits are available if required for standard tachogenerators.

**Foot mounting tachogenerator available for applications requiring a separately driven tachogenerator

DC Motors

2 Pole Shunt Wound Motors

2.1 to 11kW

Description

A range of high efficiency shunt wound 2 pole IP23 (drip proof) force ventilated DC motors. These are suitable for use with either single phase Parker DC drives with a form factor of 1.6 (up to 320V armatures) or three phase Parker DC drives with a form factor of 1.1 (400 to 460V armatures). The addition of an armature choke can improve the drive form factor and increase the available kW output.

Features

- High efficiency**
- Shunt wound**
- Fully laminated construction**
- IP23 protection, IC06 cooling**
- 100:1 Speed range**
- All ratings are S1 continuous**
- Class F insulation**
- Thermal protection (Thermistor)**
- Foot or foot & flange mounting**
- Washable filter standard**

Options

- Higher protection rating**
- Alternative cooling arrangements**
- Alternative armature and field voltages**
- Alternative mounting arrangements**
- Motor blower can be adjusted to other orientations**



DC Motors

2 Pole Shunt Wound Motors

2.1 to 11kW



Technical Specifications

Frame Type	Output kW	Base Speed (rpm)	Armature Voltage (V)	Full Load Current (A)	Field Voltage (V)	Field Current (A)	Optional Flange Type
LAK2100A	2.1	2400	180	14	210	0.75	F165
LAK2100A	2.1	2400	320	7.5	360	0.65	F165
LAK2112A	2.1	1750	180	15	210	1.3	F215
LAK2112A	2.1	1750	320	8.2	360	0.85	F215
LAK2112A	3.0	2400	180	20	210	1.4	F215
LAK2112A	3.0	2400	320	11	360	0.80	F215
LAK2112A	3.0	1750	180	21	210	1.3	F215
LAK2112A	3.0	1750	320	12	360	0.85	F215
LAK2112A	4.0	2400	180	26	210	1.4	F215
LAK2112A	4.0	2400	320	15	360	0.80	F215
LAK2112B	4.0	1750	320	15	360	0.45	F215
LAK2112A*	4.8	2170	400	15	360	0.85	F215
LAK2112B	5.5	2400	320	21	360	0.75	F215
LAK2112C	5.5	1750	320	21	360	1.1	F215
LAK2112A*	5.7	2550	460	16	360	0.85	F215
LAK2112B*	6.4	2320	400	19	360	0.45	F215
LAK2112C	7.5	2400	320	27	360	1.0	F215
LAK2112B*	7.5	2750	460	20	360	0.45	F215
LAK2112C*	11	2300	400	31	360	1.1	F215
LAK2132C*	11	1500	460	28	360	1.5	F265

For DC shunt wound motors larger than 11kW, please refer to page 58

* 400/460V armature motors rated for form factor of 1.1

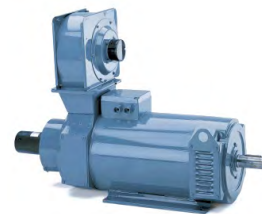
Ordering

Refer to DC motor ordering checklist on page 65 before ordering DC motors.

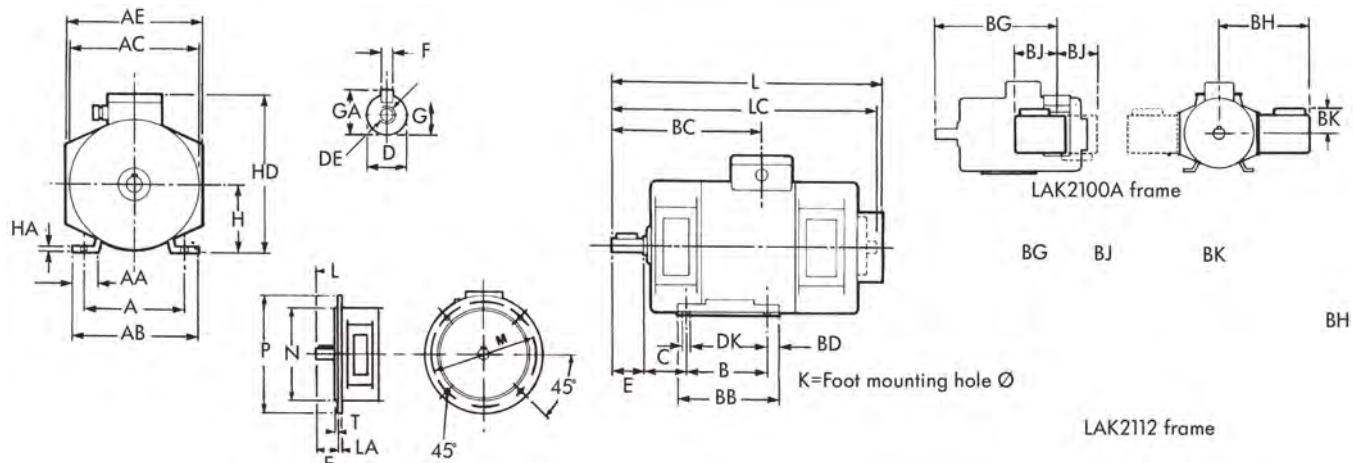
DC Motors

2 Pole Shunt Wound Motors

2.1 to 11kW



Dimensions



Foot Mounting Motors																			
Frame Size	A	AA	AB	AC	AE	B	BB	BC	BD	C	D	DE	E	F	G	GA	H	HA	HD
LAK2100A	160	29	190	197	229	140	170	240	15	63	19j6	M8x16	37	6.0	16	22	100	5.0	254
LAK2112A	190	29	220	220	253	159	190	265	15.5	70	28j6	M10x20	60	8.0	24	31	112	5.0	282
LAK2112B	190	29	220	220	253	229	260	313	15.5	70	28j6	M10x20	60	8.0	24	31	112	5.0	282
LAK2112C	190	29	220	220	253	229	260	376	15.5	70	28j6	M10x20	60	8.0	24	31	112	5.0	282

Foot Mounting Motors				Additional Dimensions - Foot & Flange Data and Motor Blower													
Frame Size	K	L	LC	Weight (kg)	LA	M	N	P	S	T	Weight (kg)	Blower Type	Blower Current	BG	BH	BJ	BK
LAK2100A	12	430	426	40	10	165	130	200	12	3.5	43	1Ph	0.19A	331	304	93	100
LAK2112A	12	483	479	53	11	215	180	250	15	4.0	55	1Ph	0.35A	382	437	115	133
LAK2112B	12	531	527	73	11	215	180	250	15	4.0	77	3Ph	0.65A	430	437	115	133
LAK2112C	12	596	592	91	11	215	180	250	15	4.0	95	3Ph	0.65A	495	437	115	133

* For dimensions of frame sizes 132 to 200, please refer to your local sales office

Tachogenerator Options						
Tachogenerator Type	Order Code	Motor / Tacho Overall Length				Weight (Kg)
		LAK2100A	LAK2112A	LAK2112B	LAK2112C	
REO444R1B 60V/1000rpm	DD059104U004	595	658	706	771	3.3
REO444NIB 60V/1000rpm	DD059104U005	585	648	696	761	2.7
Parker SSD Drives Encoder	DD385536U010	528	581	629	694	1.5

Encoder fitting kits include dry disc coupling. Optional fitting kits are available if required for standard tachogenerators.

DC Motors

4 Pole Shunt Wound Motors

11 to 98kW

Description

A range of high efficiency shunt wound 4 pole IP23 (drip proof) force ventilated DC motors. These are suitable for use with three phase Parker DC drives with a form factor of 1.1 (400 to 460V armatures). The addition of an armature choke can improve the drive form factor and increase the available kW output.

Features

- High efficiency**
- Shunt wound**
- Fully laminated construction**
- IP23 protection, IC06 cooling**
- 100:1 Speed range**
- All ratings are S1 continuous**
- Class F insulation**
- Thermal protection (Thermistor)**
- Foot or foot & flange mounting**
- Washable filter standard**

Options

- Higher protection rating**
- Alternative cooling arrangements**
- Alternative armature and field voltages**
- Alternative mounting arrangements**
- Motor blower can be adjusted to other orientations**



DC Motors

4 Pole Shunt Wound Motors

11 to 98kW

Technical Specifications



Frame Type	Output kW	Base Speed (rpm)	Armature Voltage (V)	Full Load Current (A)	Field Voltage (V)	Field Current (A)	Optional Flange Type
LAK4112B	11.5	1712	460	30	360	2.06	F215/F265
LAK4112B	17.5	2373	460	44	360	2.06	F215/F265
LAK4132A	19	1693	460	49	360	2.08	F265/F300
LAK4132A	24.9	2251	460	62	360	2.08	F265/F300
LAK4132C	25.7	1639	460	65	360	2.78	F265/F300
LAK4132B	27.5	1997	460	69	360	2.31	F265/F300
LAK4132C	31.2	2016	460	77	360	2.78	F265/F300
LAK4132C	40.6	2579	460	98	360	2.78	F265/F300
LAK4160B	41.4	1644	460	102	360	3.47	F350
LAK4132B	41.6	3132	460	100	360	2.31	F265/F300
LAK4160A	42	2134	460	102	360	2.92	F350
LAK4160C	52	1590	460	127	360	3.89	F350
LAK4160C	69.4	2168	460	166	360	3.89	F350
LAK4160B	70	2848	460	166	360	3.47	F350
LAK4160C	84.9	2579	460	200	360	3.89	F350
LAK4160D	88.8	1791	460	210	360	5.56	F350
LAK4160C	98.1	3259	460	234	360	3.89	F350
For DC shunt wound motors larger than 98kW, please contact your local sales office							

* 400/460V armature motors rated for form factor of 1.1

Ordering

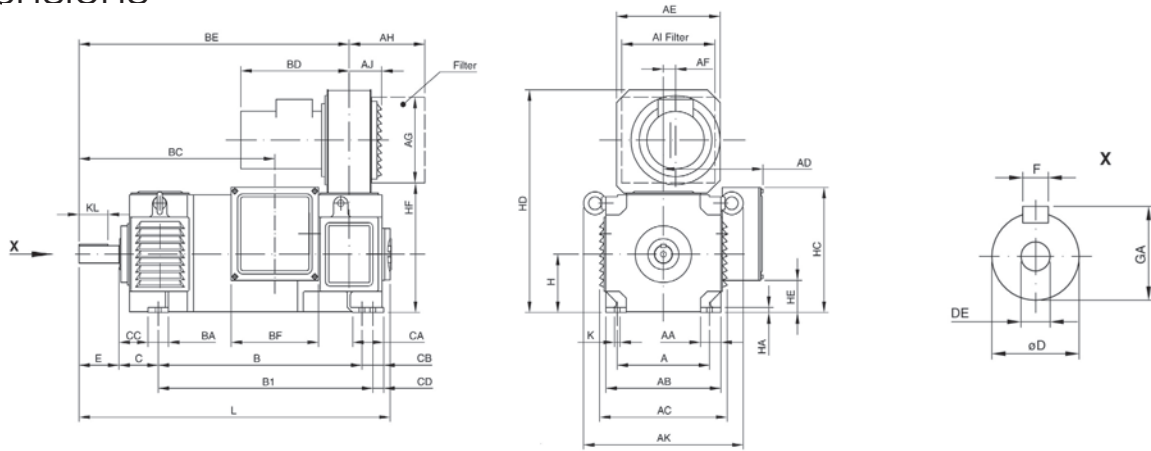
Refer to DC motor ordering checklist on page 65 before ordering DC motors.

DC Motors

4 Pole Shunt Wound Motors
11 to 98kW



Dimensions



Frames LAK4112B - LAK4132C

Frame Size	A	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	B	BA	BC	BD	BE	BF	B1	CD
LAK4112B	190	45	220	256	203	220	17	195	175	195	77	326	428	50	391	235	569	190	458	11
LAK4132A													437		374	235	545			
LAK4132B	216	47.5	260	295	223	220	17	195	175	195	77	366	482	50	419	235	590	190		
LAK4132C													532		469	235	640			

Frame Size	C	CA	CB	CC	D	DE	E	F	GA	H	HA	HC	HD	HE	HF	K	KL	L	L+REO444R1
LAK4112B	70	71	41	45						112	10	241	451	66	250			649.5	860.5
LAK4132A					38	M10	80	10	41							12	57	650.5	861.5
LAK4132B	89	60	25	64						132	12	261	491	86	290			695.5	906.5
LAK4132C																		745.5	956.5

Frame Size	L+TDP0.2LT	Weight (kg)
LAK4112B	866.5	117
LAK4132A	867.5	122
LAK4132B	912.5	152
LAK4132C	962.5	177

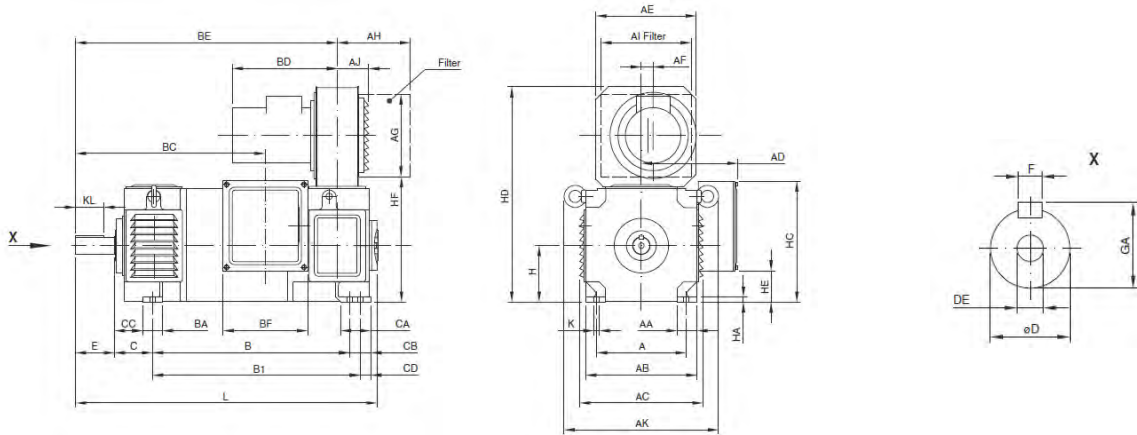
DC Motors

4 Pole Shunt Wound Motors

11 to 98kW



Dimensions



Frames LAK4160A - C

Frame Size	A	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	B	BA	BC	BD	BE	BF	B1	CD
LAK4160A													475		426		631			
LAK4160B	254	56	316	351	274	285	33.5	235	208	235	89	439	522	56	473	298	678	240		
LAK4160C													587		538		743			

Frame Size	C	CA	CB	CC	D	DE	E	F	GA	H	HA	HC	HD	HE	HF	K	KL	L
LAK4160A																		744
LAK4160B	108	65	28	80	48	M16	110	14	51.5	160	14	343.5	611	88.5	356	15	80	791
LAK4160C																		856

Frame Size	L+REO444R1	L+TDP0.2LT	Weight (kg)
LAK4160A	955	961	205
LAK4160B	1002	1008	245
LAK4160C	1067	1073	290

Gearboxes

In-Line Gearboxes

IPC / SPC Series

Description

The IPC and SPC in-line helical range of gearboxes are plug-in type units with the motor shaft fitting directly into the hollow gearbox input shaft and require no special oil seals on the motor. The construction features make them suitable for installation in damp and dusty conditions without degradation of operating efficiency. Detailed classification of this highly efficient range is available upon request.

Totally enclosed construction in Grey cast iron
Chrome-Nickel steel shafts and polished gear teeth

Nitrile Butadine grease seals

Suitable for operation in any orientation

Flange mount variants available

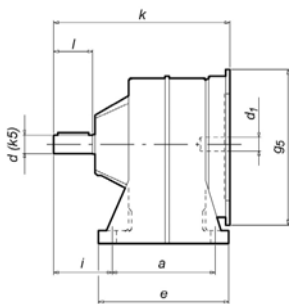
Technical Specifications

Type	Motor Flange Dia. (g5)	Motor Shaft Dia. (d1)	k	p3	h	a	b	i	e	f	s	c
IPC84	160	14	156	143	84	88	78	38	108	112	7	11
IPC102	160/200	14/19	140/184	176	102	106	100	46	134	142	9	13
IPC128	160/200/200	14/19/24	157/175/192	215	128	126	118	57	160	170	11	16
IPC142	200/200/250	19/24/28	193/207/252	237	142	145	130	78	179	186	11	18
IPC162	200/250	19, 24/28	258/261	269	162	205	160	100	245	212	14	21
SPC160	160/200/250/300	14/19, 24/28/38	281/293/299/325	319	160	270	195	117	310	276	13	24
SPC180	160/200/250/300	14/19/28/38	309/323/321/344	357	180	295	220	117	340	310	18	27
SPC195	200/250/300	19/28/38	347/335/363	394	195	320	240	115	365	347	18	30

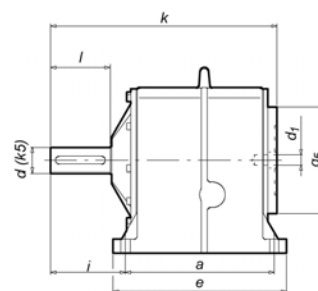
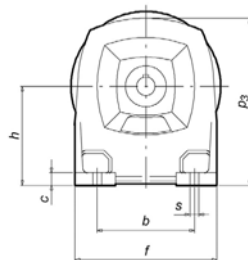
Type	d	l	Weight (Kg)
IPC84	16	34	4.5
IPC102	19	40	8.5
IPC128	24	50	13/15/16
IPC142	28	60	20/21/23
IPC162	38	80	33/34
SPC160	48	110	46/48/48/48
SPC180	50	110	60/63/63/68
SPC195	55	110	88/88/90

Lubrication

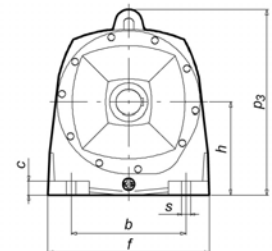
IPC units are grease filled and sealed for life (Shell GPM Silicium R) and are therefore virtually maintenance free. SPC series units are supplied WITHOUT lubrication and should be filled with SAE40 grade oil such as Shell Omala prior to use, with an initial oil change after 500 working hours and every 2500 working hours or six months thereafter. SPC boxes with drain and filler plugs in positions to suit specific requirements can be supplied on short deliveries.



IPC



SPC



Gearboxes

Right Angle Gearboxes

LPC Series

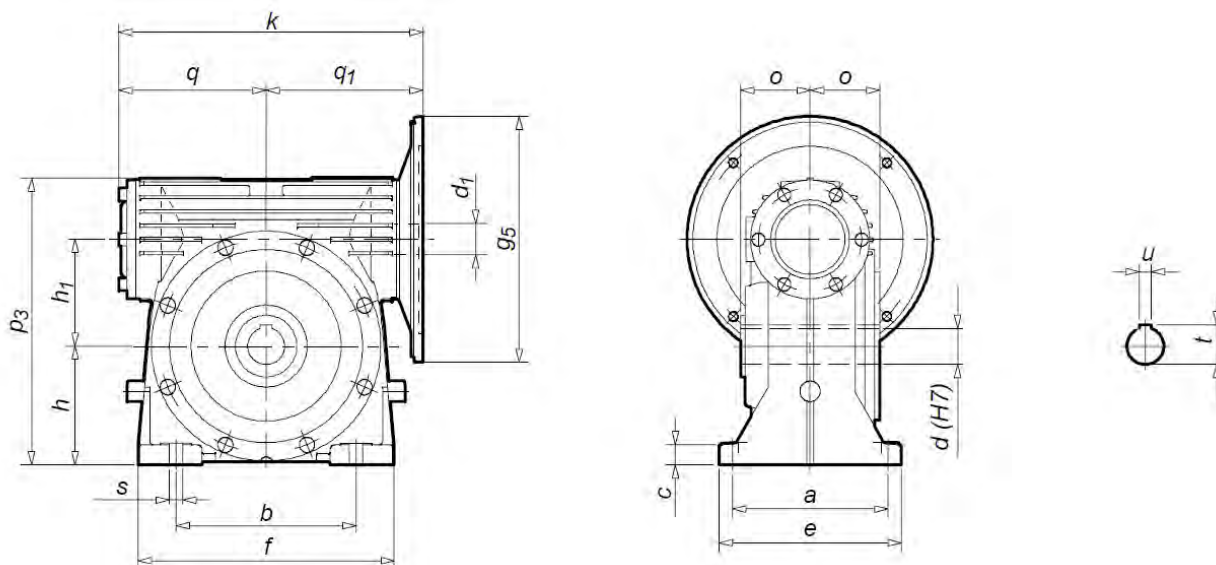
Description

The LPC right angle worm range of gearboxes are plug-in type units with the motor shaft fitting directly into the hollow gearbox input shaft and require no special oil seals on the motor. The construction features make them suitable for installation in damp and dusty conditions without degradation of operating efficiency. Detailed classification is available upon request.

- Totally enclosed construction in Grey cast iron**
- Case-hardened worm and bronze alloy worm wheel**
- Chrome-Nickel steel shafts and polished gear teeth**
- Hollow shaft output with single or double ended shaft**
- Flange mount variants available**

Technical Specifications

Type	q ₁	q	p ₃	h	h ₁	a	b	e	f	s	c	o	d	h	u	t	Weight
LPC40	73	66	132	55	40	106	70	126	106	9.0	13	42	18	-	6.0	21	6.0 kg
LPC49	84	77	152	66	49	116	80	140	125	11	15	43	25	-	8.0	21	7.5 kg
LPC61	98	87	186	78	61	140	102	164	152	11	17	55	30	35	8.0	33	13 kg



Type	g ₅ - Motor Flange Dia.	d ₁ - Motor Shaft Dia.
LPC40	140	11 or 14
	160	14
LPC49	140	11 or 14
	160	14
LPC61	160	14, 19 or 24
	200	19 or 24

Lubrication

LPC units are grease filled and sealed for life (Tivela Compound A) and are therefore virtually maintenance free.

Gearboxes

Right Angle Gearboxes

LXC Series

Description

The LXC right angle worm range of gearboxes are plug-in type units with the motor shaft fitting directly into the hollow gearbox input shaft and require no special oil seals on the motor. The construction features make them suitable for installation in damp and dusty conditions without degradation of operating efficiency. Detailed classification is available upon request.

Technical Specifications

Type	a	a ₁	a ₂	a ₃	b	b ₀	b ₁	c	e	e ₁	f	f ₀	f ₁	h	h ₁	n	n ₀	o	p ₃	q
LXC87	108	160	19	82	164	172	110	19	135	130	221	121	3.5	97	87	46	46	75	245	118
LXC110	132	200	21.5	75	195	220	130	23.5	165	165	266	154	3.5	120	110	60	58	90	310	142
LXC130	150	250	22	90	245	265	180	27	190	215	330	199	4	145	130	70	70	104	375	174

Type	s	s ₂ x l ₅	z ₇	d	t	u
LXC87	14	M10 x 20	139	35	38.3	10
LXC110	16	M12 x 24	169	40	43.3	12
LXC130	16	M12 x 24	196	45	48.8	14

Type	d ₁	g ₅	k	q ₁
LXC87	14	160	247	130
	14	200		
	14	250		
	19	160		
	19	200		
	19	250		
	24	160		
	24	200		
	24	250		
	28	160		
	28	200		
	28	250		

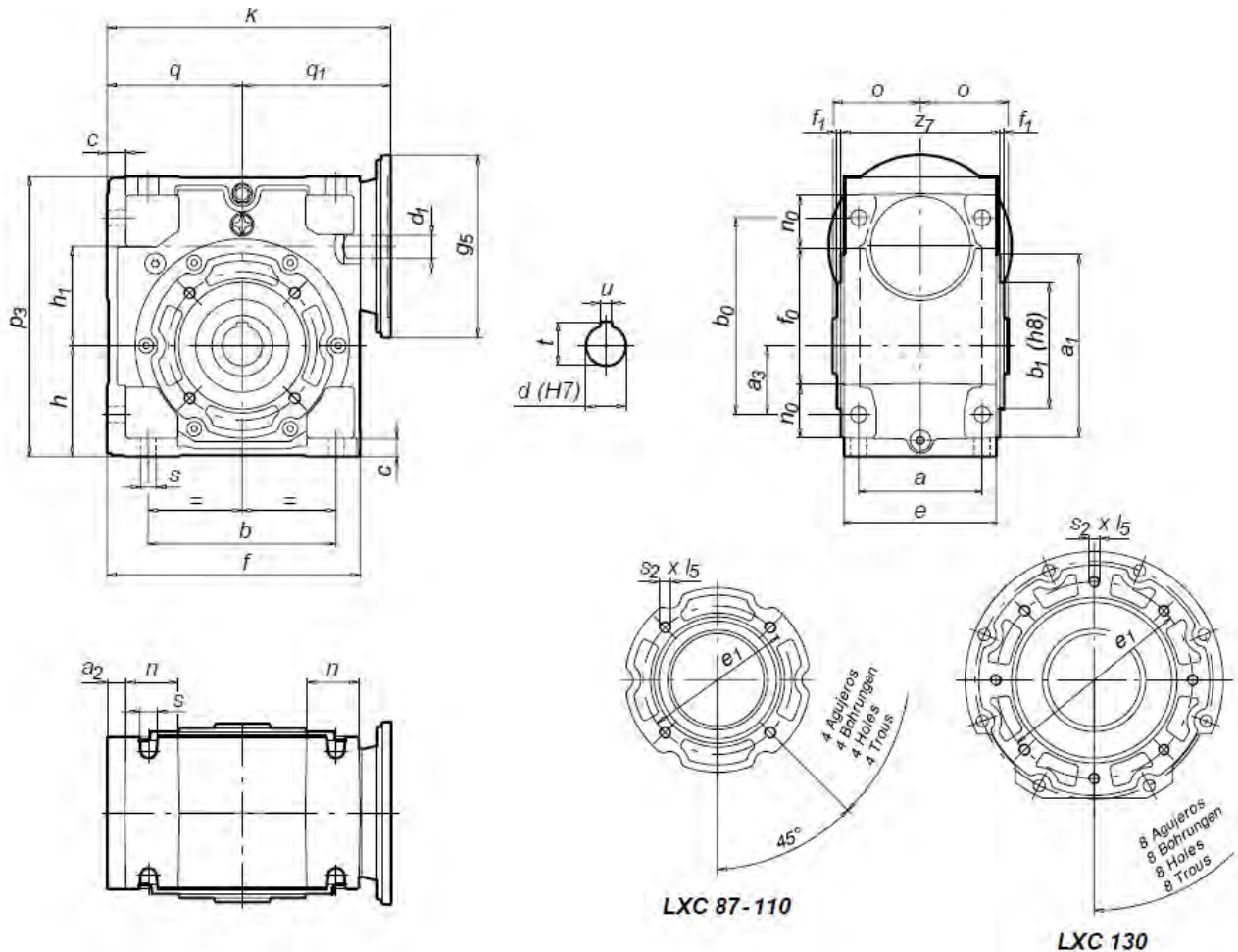
Type	d ₁	g ₅	k	q ₁
LXC110	19	200	299	158
	19	250		
	19	300		
	24	200		
	24	250		
	24	300		
	28	200		
	28	250		
	28	300		
	38	200		
	38	250		
	38	300		

Type	d ₁	g ₅	k	q ₁
LXC130	24	200	365	191
	24	250		
	24	300		
	24	300		
	28	200		
	28	250		
	28	300		
	38	200		
	38	250		
	38	300		
	42	350		
	48	350		

Gearboxes

Right Angle Gearboxes

LXC Series



Lubrication

LXC units are grease filled and sealed for life (Tivela Compound A) and are therefore virtually maintenance free.

- Totally enclosed construction in Grey cast iron**
- Case-hardened worm and bronze alloy worm wheel**
- Chrome-Nickel steel shafts and polished gear teeth**
- Hollow shaft output with single or double ended shaft**
- Flange mount variants available**

Motors and Gearboxes

Ordering Information Checklist

CUSTOMER : _____

APPLICATION: _____

MOTOR DATA:

CONTINUOUS POWER		(kW)
BI-DIRECTIONAL SPEED		(RPM)
ARMATURE VOLTAGE		(V)
ARMATURE CURRENT		(A)
FIELD VOLTAGE		(V)
FIELD CURRENT		(A)

MOUNTING:

- IM1001 HORIZONTAL FOOT MOUNT
- IM2001 HORIZONTAL FOOT/FLANGE MOUNT
- IM3001 HORIZONTAL FLANGE MOUNT
- OTHER

OTHER

TERMINAL BOX:

Viewed from drive end

- TOP MOUNTED
- LHS
- RHS
- STANDARD
- OTHER

OTHER

OVERTEMPERATURE PROTECTION:

- FITTED MAIN POLE + INTERPOLE
- THERMISTORS
- KLIXON
- MICROTHERMS

SUPPLY / DUTY:

- REGEN.
 - NON-REGEN.
- | |
|--|
| |
| |
| |
- NO. OF PULSES
 - NO. OF PHASES
 - FORM FACTOR

ENCLOSURE:

- IP22
- IP23
- IP44
- IP54
- *OTHER

OTHER

COOLING:

- IC06 FORCE VENTILATED
- IC0041 NATURAL VENTILATION
- OTHER

OTHER

COOLING FAN:

Viewed from drive end

- TOP MOUNTED
- LHS
- RHS
- STANDARD

VOLTAGE (V)
FREQUENCY (Hz)
PHASES

- FILTER REQD.
- AIR PROVING SWITCH REQD.

GEARBOX:

- IN-LINE
- RIGHT ANGLE

RATIO
OUTPUT SPEED

TACHO:

- FITTED
- PROVISION ONLY

--

V/1000 RPM

- STANDARD COUPLING
- THOMAS DISC

OTHER INFORMATION

Motors and Gearboxes

Compatibility Chart - In-Line Gearboxes

Description

To simplify motor and gearbox selection, the following table outlines the valid combinations of each to enable a complete package to be specified. Although not listed, other combinations may be possible. For more information or help in selecting the package that is most suited to your application, please contact your local sales office.

DC Motor	In-Line Gearboxes					
MP80075 0.37Kw (2.5A)	IPC102				SPC160	
MP80115 0.55kW (3.8A)	IPC102	IPC128			SPC160	SPC180
MP80160 0.75kW (4.8A)	IPC102	IPC128	IPC142		SPC160	SPC180
MP80200 1.1kW (7.2A)		IPC128	IPC142		SPC160	SPC180
MP80200 1.5kW (10A)		IPC128	IPC142		SPC160	SPC180
MP80075 0.37kW (2.5A)	IPC102				SPC160	
MP80115 0.55kW (3.8A)	IPC102	IPC128			SPC160	SPC180
MP80160 0.75kW (4.8A)	IPC102	IPC128	IPC142		SPC160	SPC180
MP80200 1.1kW (7.2A)		IPC128	IPC142		SPC160	SPC180
MP80200 1.5kW (10A)		IPC128	IPC142		SPC160	SPC180
LAK2100A 2.1kW		IPC128		IPC162	SPC160	
LAK2112A up to 4kW			IPC142	IPC162	SPC160	
LAK2112B up to 7.5kW			IPC142	IPC162	SPC160	SPC180
LAK2112C up to 11kW						

Motors and Gearboxes

Compatibility Chart - Right-Angled Gearboxes

DC Motor	Right-Angled Gearboxes					
MP80075 0.37Kw (2.5A)	LPC40	LPC49	LPC61	LXC87		
MP80115 0.55kW (3.8A)	LPC40	LPC49	LPC61	LXC87		
MP80160 0.75kW (4.8A)			LPC61	LXC87	LXC110	
MP80200 1.1kW (7.2A)			LPC61	LXC87	LXC110	
MP80200 1.5kW (10A)			LPC61	LXC87	LXC110	LXC130
MP80075 0.37kW (2.5A)	LPC40	LPC49	LPC61	LXC87		
MP80115 0.55kW (3.8A)	LPC40	LPC49	LPC61	LXC87		
MP80160 0.75kW (4.8A)			LPC61	LXC87	LXC110	
MP80200 1.1kW (7.2A)			LPC61	LXC87	LXC110	
MP80200 1.5kW (10A)			LPC61	LXC87	LXC110	LXC130
LAK2100A 2.1kW			LPC61	LXC87	LXC110	LXC130
LAK2112A up to 4kW			LPC61	LXC87	LXC110	LXC130
LAK2112B up to 7.5kW					LXC110	LXC130
LAK2112C up to 11kW						LXC130

Reference Information and Explanation of Abbreviations

Degrees of protection

As defined by IEC60529, the code generally consists of 'IP' followed by two digits, the first describing the protection against solid bodies or protection to persons against contact with live or moving parts inside the enclosure, the second describing the protection against ingress of water.

1 st Digit	Meaning (Protection Against)	2 nd Digit	Meaning (Protection Against)
0	Not protected	0	Not protected
1	50mm dia. body	1	Vertical drips
2	12mm dia. body	2	Drips up to 15° from vertical
3	2.5mm dia. body	3	Drips up to 60° from vertical
4	1mm dia. body	4	Splashing from any direction
5	Dust protected	5	Water jets from any direction
6	Dust tight	6	Heavy seas (Does not cover corrosion resistance etc.)
		7	Effects of immersion
		8	Long periods of immersion under pressure

Cooling Forms

As defined by IEC60034-6, the code generally consists of 'IC' followed by two digits, the first describing the cooling circuit arrangements, the second describing the method of supplying power to circulate the coolant. Where more than one cooling circuit is in use, these may be expressed as 'IC' followed by groups of two digits, eg IC0141.

The following forms are used in this catalogue :

- IC01 - Open machine self-ventilated by fan mounted internally on the shaft.
- IC06 - Open machine ventilated by a blower mounted on the machine.
- IC0041 - Totally enclosed, no external fan.
- IC0141 - Totally enclosed, fan ventilated. Surface cooling by external fan mounted on the shaft.
- IC0641 - Totally enclosed, surface cooled by a blower mounted on the machine.
- IC411 - Totally enclosed fan ventilated. Motor cooled by an external fan.
- IC416 - Totally enclosed force cooled. Motor cooled by an independent fan.

Mounting Forms

The arrangements are defined by IEC60034-7. The following forms are used in this catalogue and are for motors with two bearings housed in endshields. When flange mounting they have access to the back of the flange.

- IM1001 (B3) Horizontal foot mounted
- IM1011 (V5) Vertical foot mounted
- IM3001 (B5) Horizontal flange mounted
- IM3011 (V1) Vertical flange mounted
- IM2001 (B35) Horizontal foot and flange mounted
- IM1071 (B8) Horizontal foot, ceiling mounted

Abbreviations

Electrical Data	
Kilowatts	= kW
Volts	= V
Armature Volts	= Va
Field Volts	= Vf
Amperes	= A
Armature Current	= Ia
Field Current	= If
Power Factor	= PF

Useful Conversion Factors

- 1HP = 746W
- 1N.m = 8.851lb.in
- 1mm = 0.3937inch
- 1m² = 35.31ft²
- 1kgm² = 1Nms² = 0.73752 lb.ft²

Useful Formulae

$$1 \text{ Watt} = 1 \text{ Nm/s}$$

$$\text{Torque (lb ft)} = \frac{5250 \times \text{kW}}{\text{speed (rpm)}}$$

$$\text{Torque (Nm)} = \frac{9549 \times \text{kW}}{\text{speed (rpm)}}$$

$$3 \text{ phase AC power (kW)} = \frac{1.732 \times V \times I \times \text{PF}}{1000}$$

$$1 \text{ phase AC power (kW)} = \frac{V \times I \times \text{PF}}{1000}$$

Notes for Gearbox Users - Service Factor

The geared motors covered by this catalogue are rated for driven machines with a uniform load for continuous duty or occasional moderate shock loading on a single-shift operation, being known as a Unity Service Factor. For applications with short-time duty, high inertia or heavy shock loads, advice should be sought on calculating the correct service factor and selecting the most suitable gearbox type.

Useful Servo Drive Calculations

Correctly rating a servo motor and drive application often involved mechanical calculations. Below are typical examples of some of the commonly occurring formula that are often encountered. These are provided for general guidance only and any results may need to be modified to take into account specific application details such as mechanical losses, inclined angles and duty cycles etc. Your local Parker sales office will always be pleased to assist in correctly sizing your application.

Time to accelerate a rotating mass

$M(\text{acc})$ = Acceleration Torque, Nm

$J(\text{tot})$ = Total Inertia, kgm^2

$J(\text{mot})$ = Motor Inertia, kgm^2

$J(\text{load})$ = Load Inertia, kgm^2

Z = Gearbox Ratio (speed reducing)

$t(\text{acc})$ = Acceleration time, sec

α = Angular acceleration, $\text{rad}\cdot\text{sec}^{-2}$

ω = Angular speed, $\text{rad}\cdot\text{sec}^{-1}$

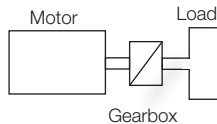
n = Angular speed, rpm

$$M(\text{acc}) = J(\text{tot}) \times \alpha \text{ ou } \alpha = M(\text{acc}) / J(\text{tot})$$

$$\alpha = \omega / t(\text{acc}) \text{ ou } t(\text{acc}) = \omega / \alpha$$

$$\omega = (n/60) \times 2\pi$$

$$J(\text{tot}) = J(\text{mot}) + (J(\text{load})/Z^2)$$



Example

$$J(\text{load}) = 0.50 \text{kgm}^2$$

$$J(\text{mot}) = 5.0 \text{kgcm}^2 (=0.00050 \text{kgm}^2)$$

$$Z = 30:1$$

$$n = 1500 \text{ rpm}$$

$$M(\text{acc}) = 15 \text{Nm}$$

$$J(\text{tot}) = 0.00050 + (0.5 / 30^2)$$

$$J(\text{tot}) = 0.00106 \text{kgm}^2$$

$$\alpha = M(\text{acc})/J(\text{tot})$$

$$\alpha = 15/0.00106$$

$$\alpha = 14150 \text{rad}\cdot\text{sec}^{-2}$$

$$\omega = (1500/60) \times 2\pi$$

$$\omega = 157 \text{rad}\cdot\text{sec}^{-1}$$

$$t(\text{acc}) = \omega / \alpha$$

$$t(\text{acc}) = 157/14150$$

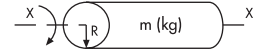
$$t(\text{acc}) = 0.0111 \text{ sec (11.1ms)}$$

Useful Inertia Formula

Servo drives are often employed in highly dynamic applications where rapid and accurate positioning is required. To obtain the ultimate performance in any system, the reflected load inertia (taking into account any gearbox or pulley ratio) should equal the motor inertia. This is often not possible, but ratio mismatches of typically 5:1 are not normally significant. The greater the mismatch between reflected load inertia and motor inertia, the lower will be the dynamic performance of the system.

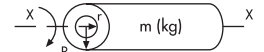
Solid Cylinder Rotating About Axis XX

$$J = (mR^2)/2$$



Hollow Cylinder Rotating About Axis XX

$$J = m(R^2 + r^2)/2$$



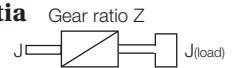
Equivalent Inertia of Slide Mass on a Ballscrew

$$J = m(s/2\pi)^2$$



Effect of Gear Ratio on Reflected Inertia

$$J = J(\text{load}) / Z^2$$



Torque Required to Produce a Force on a Leadscrew

M = Required Torque, Nm

F = Linear Force, N

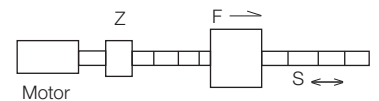
Z = Gearbox Ratio (speed reducing)

($Z = 1$ for direct drive)

s = Ballscrew pitch, m

η = Efficiency

$$M = Fs/2\pi Z\eta$$



Example

$$F = 10000 \text{N}$$

$$s = 10 \text{mm (0.01m)}$$

$$Z = 2:1$$

$$\eta = 0.9$$

Required Motor Torque

$$M = (10000 \times 0.01) / (2\pi \times 2 \times 0.9) = 8.85 \text{Nm}$$

nb: The required force is often provided in kg's or kgf. This implies the force exerted on the mass by gravity (g) and must be multiplied by 9.81 to obtain the force in N (newtons); eg a «force» of 100kg is 981N).

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- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



CLIMATE CONTROL

Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

Key Products

- CO² controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



ELECTROMECHANICAL

Key Markets

- Aerospace
- Factory automation
- Food & beverage
- 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
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives & controls
- Structural extrusions



FILTRATION

Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



FLUID & GAS HANDLING

Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



HYDRAULICS

Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

Key Products

- Diagnostic equipment
- Hydraulic cylinders
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



PNEUMATICS

Key Markets

- Aerospace
- Conveyor & material handling
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

Key Products

- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
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- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
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PROCESS CONTROL

Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



SEALING & SHIELDING

Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

Key Products

- Dynamic seals
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- EMI shielding
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