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

AC Drives and Motors

Product Catalogue

Parker

ENGINEERING YOUR SUCCESS.

⚠ WARNING - USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

OFFER OF SALE

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance by the provisions stated in the detailed 'Offer of Sale' which is available upon request.

We reserve the right to change the content and product specification without notice.

Contents

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 exceeding $10 billion in fiscal 2009, Parker Hannifin is the world's leading diversified manufacturer of motion and control technologies and systems, providing precision-engineered solutions for a wide variety of mobile, industrial and aerospace markets. The company employs approximately 52,000 people in 48 countries around the world.

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

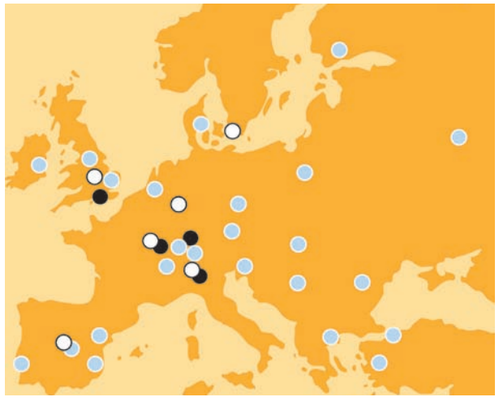
North America
Rohnert Park, California
Irwin, Pennsylvania
Wadsworth, Ohio
New Ulm, Minnesota
Charlotte, North Carolina

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

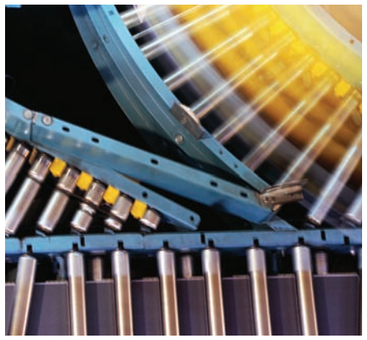
Milan, Italy

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.



	AC Drives	DC Drives	Direct Drive Motors	Servo Drives and Motors
Converting machinery				
Folding, gluing, stiching 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

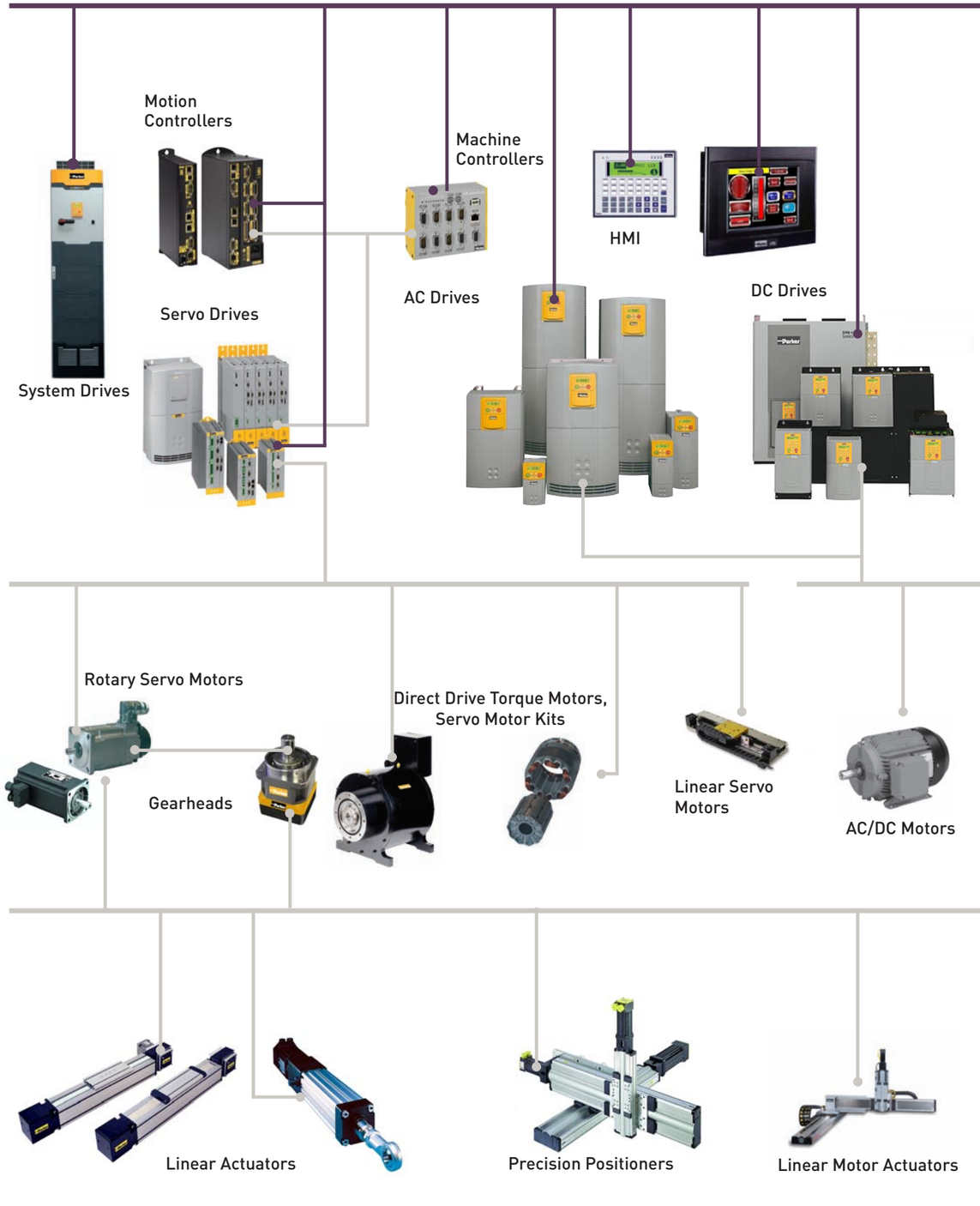
Using proven inverter technology, Parker has developed numerous solutions for the conversion of energy for commercial use from a variety of sources, including wind, wave, PV solar and energy storage devices.

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 **DC Drives** products, please request:

Catalogue : HA501079

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.

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.

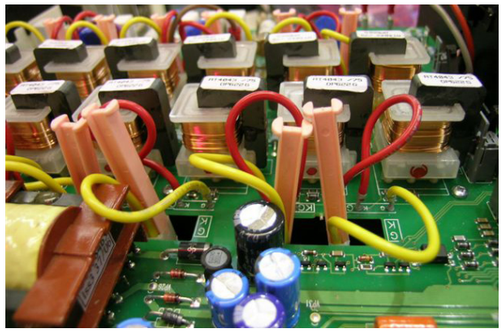
Of course if help is required, we are only a phone call or email away.

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

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**



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.

Variable Speed AC Drives

Range Overview 0.25kW - 2,000kW

Global AC Drive Solutions to Improve Productivity and Save Energy

Parker assists its customers in improving productivity and reducing energy consumption with a comprehensive, range of AC drives and drive systems. Parker AC drive products are sold, supported and serviced worldwide, with solutions from simple speed control to complex coordinated process control. Parker AC 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.

Energy Savings Using Variable Speed Drive Technology

The application of variable speed drives to traditional fixed speed applications, such as in pumps, fans and compressors, can yield up to 30% energy savings. In fact, many power utilities and government agencies provide financial incentives to invest in VSD technology. Parker's AC650 and AC650V General Purpose AC drives make these savings possible.

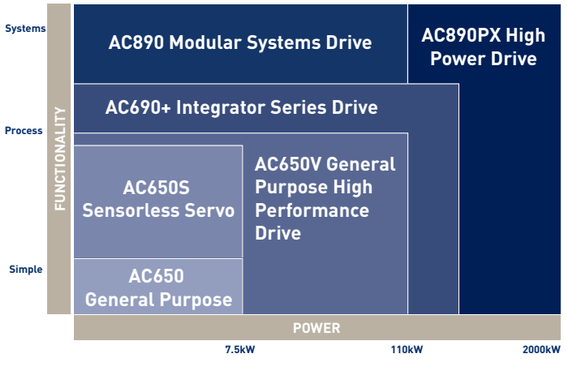
Improving Process Productivity and Reliability

Parker AC drive products also have the functionality, designed and refined from decades of experience, to provide the precise, coordinated speed control, often among multiple motor axes, to ensure process line success. With high speed communication, easy to use configuration tools and HMI control solutions, Parker AC drives can handle the most complex process control applications.

Clean Power for Additional Energy Savings

Parker's AC drive products are frequently to be found at the heart of clean power solutions through Active Front End and line regeneration technology, producing additional energy savings through power factor control.

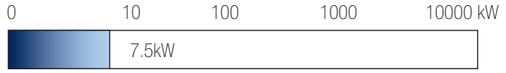
AC Drives Product Range Overview



General Purpose AC Drives : AC 650 Series

The AC650 is a simple, compact, cost effective solution to basic Volts/Hertz open-loop motor speed control applications to 7.5kW, such as:

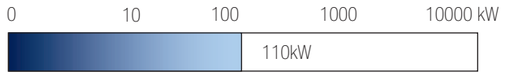
- Conveyors
- Automatic barriers
- Machine spindles



General Purpose / High Performance AC Drives: AC650V Series

The AC650V Expands upon the AC650 and benefits from the addition of sensorless flux vector control. This makes it ideally suited for applications up to 110kW where improved speed regulation of variable loads and higher starting torques for high inertia systems is required.

- Centrifugal pumps
- Industrial blower fans
- Mixers



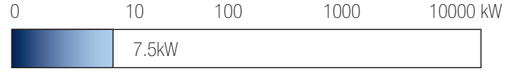
Variable Speed AC Drives

Range Overview 0.25kW - 2,000kW

Compact Drive for Sensorless Servo Control: AC650S Series

The AC650S series is designed to save energy in general purpose applications by replacing induction motors by more efficient permanent-magnet motors. Easy to commission and maintain, it controls the motor without a speed sensor. The AC650S is an effective solution where

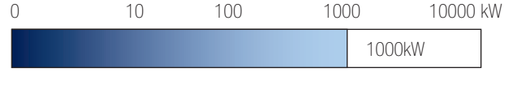
- **Energy savings** are required: pumps, fans, hydraulic systems, compressors
- **Compactness** is required: machine tools, packaging machinery, conveyors, winders/unwinders



High Performance Drives for Integrators: AC 690+ Series

The AC690+ series provides high performance motor control for more complex or demanding applications up to 1,000kW. Available with multiple communications and control options for flexibility. typically applications include:

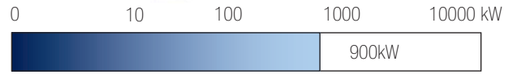
- Multi-motor drive systems for process lines
- Distributed systems with communications
- High performance test equipment



Modular AC Systems Drives: AC890 Series

The AC890 Series is a range of modular AC drives, designed to minimize space and maximize performance in multiple axes applications. This AC890 Series can provide torque, speed and position control and can be configured to control permanent magnet servo motors in addition to induction motors. Available as stand-alone or common bus DC modules. Typical applications include:

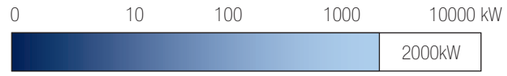
- Printing machinery
- Converting machinery: coating, cutting, laminating
- High performance test equipment

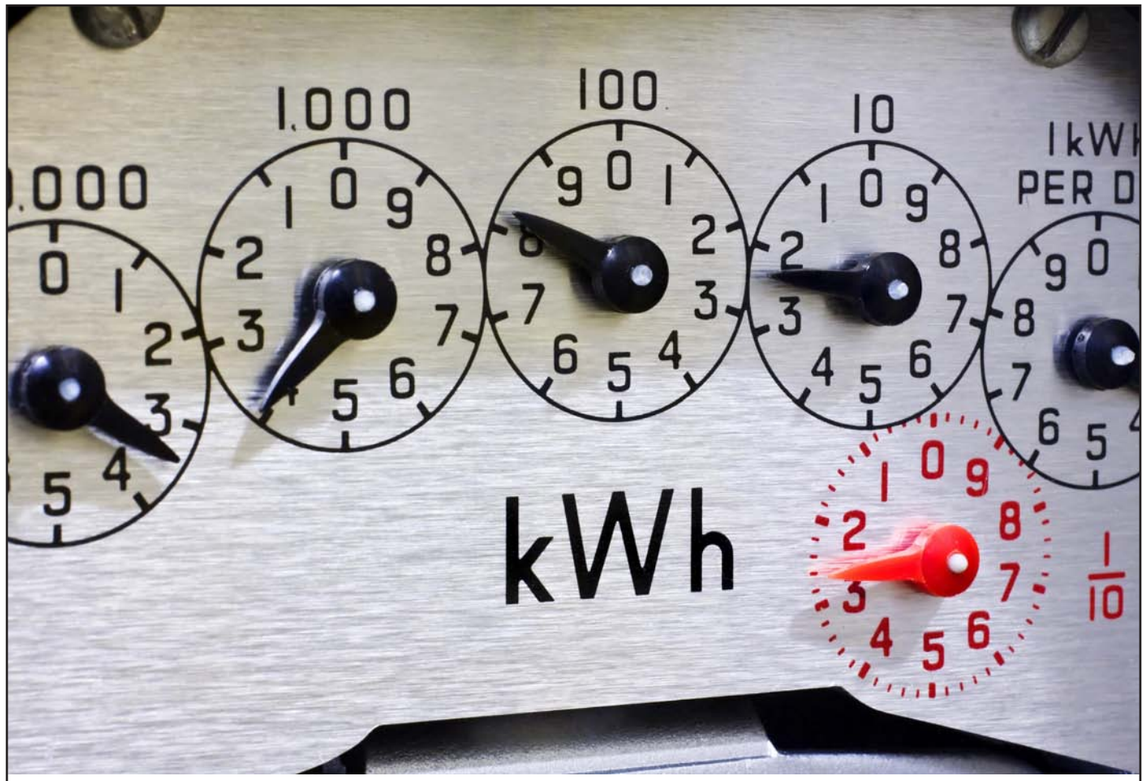


High Power AC Drives: AC890PX

The AC890PX is a high power modular systems drive designed for industrial and power conversion applications. Available as a standalone drive pr as part of a high power drive system, the AC890PX features removable phase and control modules, which allow for simple servicing and flexible system design. Power output to 2MW. Typical applications include:

- Extruders
- Mixers, centrifuges
- Engine dynamometers
- Power conversion inverters





Together, we can drive your productivity up and your energy costs down.

It's widely acknowledged that fitting variable speed drives in pump & fan applications can lead to lower energy consumption, thereby reducing energy bills. Often overlooked are the improvements they deliver to plant performance and reliability. Bearing and belt life, filter blockages and plant uptime are all improved thanks to a reduction in mechanical stresses during start and stop cycles leading to improved productivity and lower maintenance costs. When you partner with the world's leading diversified manufacturer of motion and control technologies, expect to profit from our expertise and experience.

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www.parker.com/ssd epic@parker.com
00800 27 27 5374

General Purpose AC Drives

AC650 Series AC Drive

0.25kW - 7.5kW

Description

Whether you need to control a conveyor belt, automatic barrier, machine spindle or other general purpose application, the AC650 delivers reliable, cost-effective voltage/frequency speed control of your motor.
Designed with simplicity in mind, the AC650 comes in a compact format with DIN rail mounting as standard allowing easy integration into any electrical control panel.
The operator/programming keypad can be removed after setup to prevent unauthorised changes to inverter configuration.
For simple motor speed control up to 7.5kW, the AC650 is an easy to use, out of the box solution that will have your system up and running in no time.

Features

Pre-programmed Macros allowing quick and simple drive setup

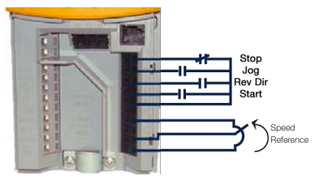
Integrated operator keypad with option for remote mounting

DIN rail mounting for easy integration into any electrical cabinet

Integrated EMC filter ensures compliance while maintaining a compact footprint

6514 cloning module (option) allows easy back-up and transfer of parameters between different drives

Flexible I/O including analogue and relay output and motor thermister input allowing greater control options



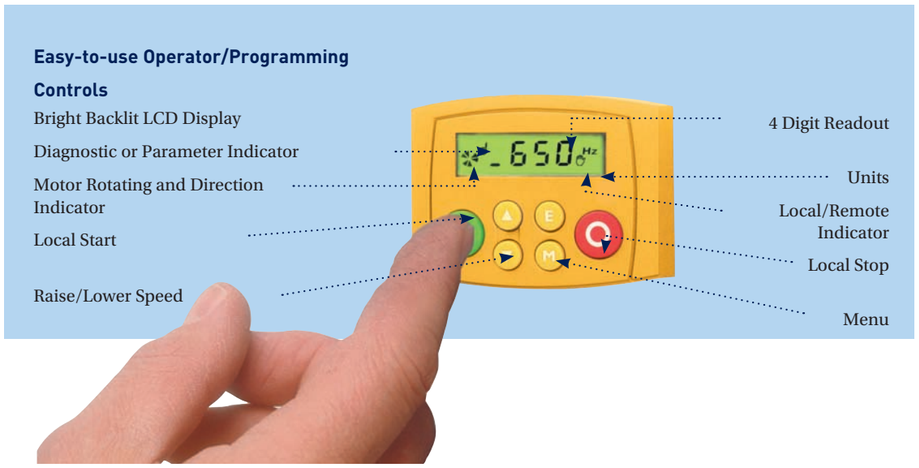
General Purpose AC Drive

AC650 Series AC Drive

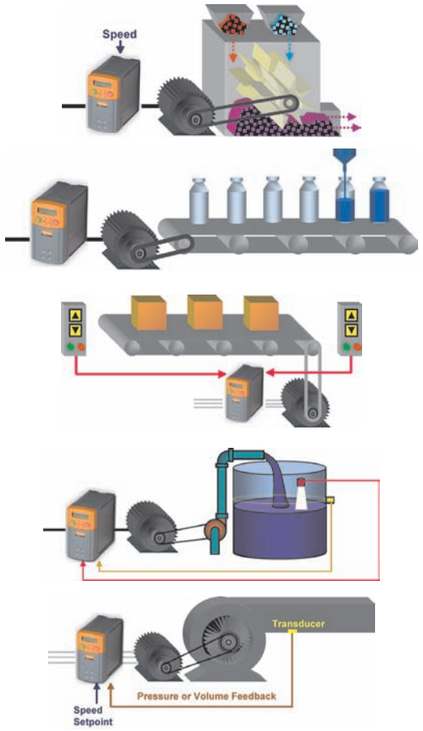
0.25kW - 7.5kW

Features

Diagnostic and control through the operator keypad



Simplified operation throught the use of pre-programmed macros



- **Simple speed control**
  set speed and voltage or current with start / stop direction control

- **Manual / Automatic control**
  set to run with local speed setting or external reference

- **Preset speed control**
  select up to 8 pre-programmed speeds using digital inputs

- **Increase / Decrease**
  Increase or reduce speed using digital inputs

- **PID Control**
  Control the pressure, flow, temperature or any process variable

General Purpose High Performance AC Drives

AC650V Series AC Drive

0.25kW - 110kW

Description

The AC650V expands upon the simple, no-fuss philosophy of the AC650 and provides reliable, robust motor control from 0.25kW through to 110kW. With the addition of sensorless flux vector technology, the AC650V allows improved motor control at lower speeds, better speed regulation of variable loads and higher starting torques for high inertia systems. The variable torque configuration option above 5.5kW makes the AC650V ideally suited to energy saving in pump and fan applications.

Features

- The AC650V offers the same high level of specification as the AC650 and also includes :
- High torque sensorless vector control mode for advanced motor control
- Selectable constant torque or (higher) variable torque rating for centrifugal pump and fan applications allowing optimum inverter sizing to suit the application
- Fully configurable with graphical software tools such as DSE Lite provided at no additional charge.
- Additional user configurable I/O points offering increased control capabilities
- Additional PROFIBUS communications options for integration into PLC systems
- Wall and panel mounting options above 7.5kW
- Extended power range to 110kW makes the AC650V suited to a wide of uses

Technical Specification

AC650-AC650V Series AC Drive

Power Supply	Single Phase Units 220-240 Vac +/- 10 %, 50-60 Hz +/- 5% Three Phase Units 380-460 Vac +/- 10 %, 50-60 Hz +/- 5%
Environment	0-40°C (derate to 50°C) Up to 1000m ASL (derate > 1000m)
Protection	IP20
Overload	Constant torque rating : 150% for 60s Variable torque rating (pumps and fans) : 110% for 60s
Output Frequency	0-240 Hz
Inputs/Outputs Analogue Inputs	2; Speed Control 0-10V, 0-10V/4-20mA
Analogue Outputs	1; User configurable output frequency / load 0-10V
Digital Inputs	AC650 - 3, AC650V - 5 ; User configurable Start / Stop / Direction / pre-set speeds (8)
Digital Inputs / Outputs	AC650 - 1, AC650V - 2 ; User configurable as inputs or outputs
Digital Relay Outputs	1; Relay output 4A @ 240V All digital outputs configurable for; at (not at) speed / at (above) minimum speed / running (stopped) / health (tripped) / above (below) pre-set load
Motor Thermistor Input	
Power Supply Outputs	24V dc (50mA) - Digital I/O Supply 10V dc (10mA) - Analogue reference supply
Communications Options	RS485 / RS232 - AC650V and AC650 Profibus - AC650V only

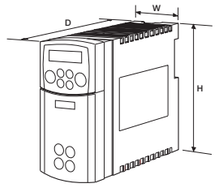
Standards

The AC650 and AC650V Series AC drives meets the following standards when installed in accordance with the relevant product manual

- CE Marked to EN50178 (Safety, Low Voltage Directive)
- CE Marked to EN61800-3 (EMC Directive)
- UL listed to US Standard UL508C
- cUL Listed to Canadian Standard C22.2 #14

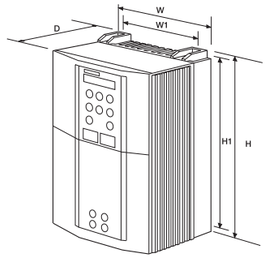
Dimensions

Frame	H	W	D
1	137	73	142
2	192	73	173
3	257	96	195



Frame 1,2,3

Frame	Overall Dimensions			Fixing Centres		Weight
	H	W	D	H1	W1	(kg)
C	348	201	208	335	150	9.3
D	453	252	245	440	150	17.4
E	669	257	312	630	150	32.5
F	720	257	349	700	150	41.0



Frame C, D, E, F

Electrical Characteristics

AC650-AC650V Series AC Drive

220 – 240Vac (+10%) 50Hz (+5%) 1 ph

Old Reference**	New Order Reference	Nominal Power (kW)	Output Current (A)	Frame
650(V)-002-230-...	650(V)-21115010-...	0.25	1.5	1
650(V)-003-230-...	650(V)-21122010-...	0.37	2.2	1
650(V)-005-230-...	650(V)-21130010-...	0.55	3.0	1
650(V)-007-230-...	650(V)-21140010-...	0.75	4.0	1
650(V)-011-230-...	650(V)-21155020-...	1.1	5.5	2
650(V)-015-230-...	650(V)-21170020-...	1.5	7.0	2

220 – 240Vac (+10%) 50Hz (+5%) 1/3 ph

Old Reference**	New Order Reference	Nominal Power (kW)	Output Current (A)	Frame
	650(V)-22196030-...	2.2	9.6	3

380 – 460Vac (+10%) 50Hz (+5%) 3 ph

		Constant Torque		Variable Torque		
Old Reference**	New Order Reference	Nominal Power (kW)	Output current (A)	Nominal Power (kW)	Output Current (A)	Frame
650(V)-003-400-...	650(V)-43115020-...	0.37				2
650(V)-005-400-...	650(V)-43120020-...	0.55				2
650(V)-007-400-...	650(V)-43125020-...	0.75				2
650(V)-011-400-...	650(V)-43135020-...	1.1				2
650(V)-015-400-...	650(V)-43145020-...	1.5				2
650(V)-022-400-...	650(V)-43155020-...	2.2				2
650(V)-030-400-...	650(V)-43168030-...	3.0				3
650(V)-040-400-...	650(V)-43190030-...	4.0				3
650(V)-055-400-...	650(V)-43212030-...	5.5				3
650(V)-075-400-...	650(V)-43216030-...	7.5				3
650VC-110-4-...	650V-432160C0-...	7.5	16	11	23	C
650VC-150-4-...	650V-432230C0-...	11	23	15	30	C
650VD-180-4-...	650V-432200C0-...	15	30	18	38	C
650VD-220-4-...	650V-432380D0-...	18	38	22	45	D
650VD-300-4-...	650V-432450D0-...	22	45	30	59	D
650VE-370-4-..	650V-432590D0-...	30	59	37	73	D
650VE-450-4-...	650V-432730E0-...	37	73	45	87	E
650VF-550-4-...	650V-432870E0-...	45	87	55	105	E
650VF-750-4-...	650V-433105F1-...	55	105	75	145	F
650VF-900-4-...	650V-433145F1-...	75	145	90	165	F
	650V-433180F1-...	90	180	110	205	F

** Old reference refers to legacy part references prior to 2009
... See following product configuration pages to complete product reference

Selection and Order Codes

AC650 Series General Purpose AC Drive

		Block 1	Block 2			Block 3				Block 4	
	Example ►	650	-	21	1150	1	0	-	0	0	0	P	00	-	A	0
Product Family	AC650 AC Drive - V/F	650														
	Supply Voltage / kW / Output Current (A) / HP / Frame Size															
Current / Power Rating	230V 1 phase			21												
	0.25 / 1.5 / 0.3 / 1				1150	1										
	0.37 / 2.2 / 0.5 / 1				1220	1										
	0.55 / 3 / 0.75 / 1				1300	1										
	0.75 / 4 / 1 / 1				1400	1										
	1.1 / 5.5 / 1.5 / 2				1550	2										
	1.5 / 7 / 2 / 2				1700	2										
	230V 1/3 phase			22												
	2.2 / 9.6 / 3 / 3				1960	3										
	230V 3 phase			23												
	3 / 12.3 / 4 / 3				2123	3										
	4 / 16.4 / 5 / 3				2164	3										
	400/460V 3 phase			43												
	0.37 / 1.5 / 0.5 / 2				1150	2										
	0.55 / 2 / 0.75 / 2				1200	2										
	0.75 / 2.5 / 1 / 2				1250	2										
	1.1 / 3.5 / 1.5 / 2				1350	2										
	1.5 / 4.5 / 2 / 2				1450	2										
	2.2 / 5.5 / 3 / 2				1550	2										
	3 / 6.8 / 4 / 3				1680	3										
	4 / 9 / 5 / 3				1900	3										
	5.5 / 12 / 7.5 / 3				2120	3										
	7.5 / 16 / 10 / 3				2160	3										
Auxiliary Supply	Not Required	0														
Brake Switch	Not fitted - (not available on frame 1 and frame 2 230V products)					0										
	Brake switch fitted - (must be fitted on frame 2 400/460V, and all frame 3 products)					B										
Filter	Not fitted						0									
	Filter fitted						F									
Communications	No communications port							0								
	RS 232 port fitted - (must be selected if remote mounting of keypad required)							1								
Mounting	Panel mount								P							
Special Options	None									00						
	Documented special options (01-99) (refer to local sales office)															
Language	English (50Hz)														A	
	English (60Hz)														B	
	German														D	
	Spanish														E	
	French														F	
	Italian														I	
	Swedish														S	
Keypad	None															0
	6511 TTL fitted - (local mounting only)															1
	6511 RS232 fitted - (local or remote mounting - RS232 port must be selected for remote mounting)															2

Selection and Order Codes

AC650V Series General Purpose High Performance AC Drive

230V Power Supplies

		Block 1	Block 2			Block 3				Block 4	
	Example ►	650V	-	21	1150	1	0	-	0	0	0	P	00	-	A	0
Product Family	AC650V AC Drive -Sensorless Flux Vector Control	650V														
	Supply Voltage / Constant Torque kW/A @Vac / Constant Torque HP/A @Vac / Variable Torque kW/A @Vac / Variable Torque HP/A @Vac / Frame Size															
Current / Power Rating	230V 1 phase			21												
	0.25/1.5 / 0.3/1.5 / 1				1150	1										
	0.37/2.2 / 0.5/2.2 / 1				1220	1										
	0.55/3.0 / 0.75/3.0 / 1				1300	1										
	0.75/4.0 / 1.0/4.0 / 1				1400	1										
	1.1/5.5 / 1.5/5.5 / 2				1550	2										
	1.5/7.0 / 2.0/7.0 / 2				1700	2										
	230V 1/3 phase			22												
	2.2/9.6 / 3.0/9.6 / 3				1960	3										
	230V 3 phase			23												
	3.0/12.3 / 4/12.3 / 3				2123	3										
	4.0/16.4 / 5/16.4 / 3				2164	3										
	5.5/22 / 7.5/22 / 7.5/28 / 10/28 / C				2220	C										
	7.5/28 / 10/28 / 11/42 / 15/42 / C				2280	C										
	11/42 / 15/42 / 15/54 / 20/54 / D				2420	D										
	15/54 / 20/54 / 18.5/68 / 25/68 / D				2540	D										
	18.5/68 / 25/68 / 18.5/68 / 25/68 / D				2680	D										
	22/80 / 30/80 / 30/104 / 40/104 / E				2800	E										
	30/104 / 40/104 / 37/130 / 50/130 / F				3104	F										
	37/130 / 50/130 / 45/154 / 60/154 / F				3130	F										
	45/154 / 60/154 / 55/192 / 75/192 / F				3154	F										
Auxiliary Supply	Not required (not available on frames 1-3 & frames C-E)															0
	115V 1ph (frame F only)															1
	230V 1ph (frame F only)															2
Brake Switch	Not fitted - (not available on frame 1 and frame 2 230V products)					0										
	Brake switch fitted - (must be fitted on frame 2 400/460V and all frame 3 products)					B										
Filter	Not fitted						0									
	Filter fitted						F									
Communications	RS 232 port fitted							1								
	RS232 & RS485 port fitted (frame C-F only)							2								
Mounting	Panel mount - (standard fitting)								P							
	Wall mount (option on frames C-F only)								W							
	Through panel mount (option on frames C-E only)								T							
Special Options	None									00						
	Documented special options (01-99) (refer to local sales office)															
Language	English (50Hz)														A	
	English (60Hz)														B	
	German														D	
	Spanish														E	
	French														F	
	Italian														I	
	Swedish														S	
Keypad	None															0
	6511 TTL fitted (option on frames 1-3 only) (local mounting only)															1
	6511 RS232 fitted (option on frames 1-3 only) (local or remote mounting)															2
	6521 RS232 fitted (option on frames C – F only) (local or remote mounting)															3

Selection and Order Codes

AC650V Series General Purpose High Performance AC Drive

400V Power Supplies

		Block 1	Block 2	Block 3	Block 4
	Example ▶	650V -	43 1150 2 0 -	B 0 0 P 00 -	A 0
Product Family	AC650V AC Drive -Sensorless Flux Vector Control	650V			
	Supply Voltage / Constant Torque kW/A @Vac / Constant Torque HP/A @Vac / Variable Torque kW/A @Vac / Variable Torque HP/A @Vac / Frame Size				
Power / Current Rating	400/460V 3 phase		43		
	0.37/1.5 / 0.5/1.5 / / / 2		1150 2		
	0.55/2.0 / 0.75/2.0 / / / 2		1200 2		
	0.75/2.5 / 1.0/2.5 / / / 2		1250 2		
	1.1/3.5 / 1.5/3.5 / / / 2		1350 2		
	1.5/4.5 / 2.0/4.5 / / / 2		1450 2		
	2.2/5.5 / 3.0/5.5 / / / 2		1550 2		
	3.0/6.8 / 4.0/6.8 / / / 3		1680 3		
	4.0/9.0 / 5.0/9.0 / / / 3		1900 3		
	5.5/12 / 7.5/12 / / / 3		2120 3		
	7.5/16 / 10/16 / / / 3		2160 3		
	400/460V 3 phase		43		
	7.5/16 / 10/14 / 11/23 / 15/21 / C		2160 C		
	11/23 / 15/21 / 15/30 / 20/27 / C		2230 C		
	15/30 / 20/27 / 18.5/37 / 25/34 / C		2300 C		
	15/31 / 20/31 / 18.5/38 / 25/38 / D		2310 D		
	18.5/38 / 25/38 / 22/45 / 30/45 / D		2380 D		
	22/45 / 30/45 / 30/59 / 40/52 / D		2450 D		
	30/59 / 40/52 / 37/73 / 50/65 / D		2590 D		
	30/59 / 40/59 / 37/73 / 50/73 / E		2590 E		
	37/73 / 50/73 / 45/87 / 60/87 / E		2730 E		
	45/87 / 60/87 / 55/105 / 75/105 / E		2870 E		
	55/105 / 75/100 / 75/145 / 100/125 / F		3105 F		
	75/145 / 100/130 / 90/165 / 125/156 / F		3145 F		
	90/180 / 125/156 / 110/205 / 150/180 / F		3156 F		
	90/180 / 150/180 / 110/205 / 150/180 / F		3180 F		
Auxiliary Supply	Not required (frames 1-3 & frames C-E)		0		
	115V 1ph (frame F only)		1		
	230V 1ph (frame F only)		2		
Brake Switch	Not fitted - (not available on frame 1 and frame 2 230V products)			0	
	Brake switch fitted -(must be fitted on frame 2 400/460V products and all frame 3 products)			B	
Filter	Not fitted (option on frame 1-3 and must be selected for frames C-F)			0	
	Filter fitted (option on frame 1-3 only)			F	
Communications	RS 232 port fitted			1	
	RS232 + RS485 port fitted (frame C-F only)			2	
Mounting	Panel mount - (standard fitting)			P	
	Wall mount (option on Frames C-E only)			W	
	Through panel mount (option on frames C-E only)			T	
Special Options	None			00	
	Documented special options (01-99) (refer to local sales office)				
Language	English (50Hz)				A
	English (60Hz)				B
	German				D
	Spanish				E
	French				F
	Italian				I
	Swedish				S
Keypad	None				0
	6511 TTL fitted (local mounting only)				1
	6511 RS232 fitted (option on frames 1 – 3 only) (local or remote mounting)				2
	6521 RS232 fitted (option on frames C– F only) (local or remote mounting)				3

Compact Drive for Sensorless Servo Control

AC650S Series

0.25kW - 7.5kW

Description

The AC650S series is designed to save energy in general purpose applications by replacing induction motors by more efficient permanent-magnet motors.

Easy to commission and maintain, it control the motor without the need for a speed sensor.

It is available up to 1.5 kW for 230V supply and up to 7.5kW for 400V three-phase supply.

Side-by-side mounting reduces cabinet space.

Energy savings achieved when using a permanent-magnet motor instead of an induction motor can amount to up to 12%, thanks to the higher efficiency of permanent magnet motors.

The AC650S comes with one **PID controller.** It can be set to control process parameters like pressure or flow rate.

A cloning module is available as an option for **easy maintenance.** It allows 10 drive configurations to be saved without a PC.

Sensorless motor control removes the need for a speed sensor, which improves the system reliability and reduces cost.

Easy commissioning thanks to built-in application macros for the most common applications and free setup wizard.

Built-in filter for EMC compliance to EN61800-3.

Typical applications

Used in combination with AC650S drives, Parker permanent magnet motors are available as alternatives to induction motors in the following applications:

- When **energy savings** are important : conveyers, fans, pumps, hydraulic systems, extruders...

- In **compact machines**, when compact drive solutions are required or where electrical enclosure space is limited: machine-tools, packaging machines, winders/unwinders, special-purpose machines ...

Compact Drive for Sensorless Servo Control

AC650S Series

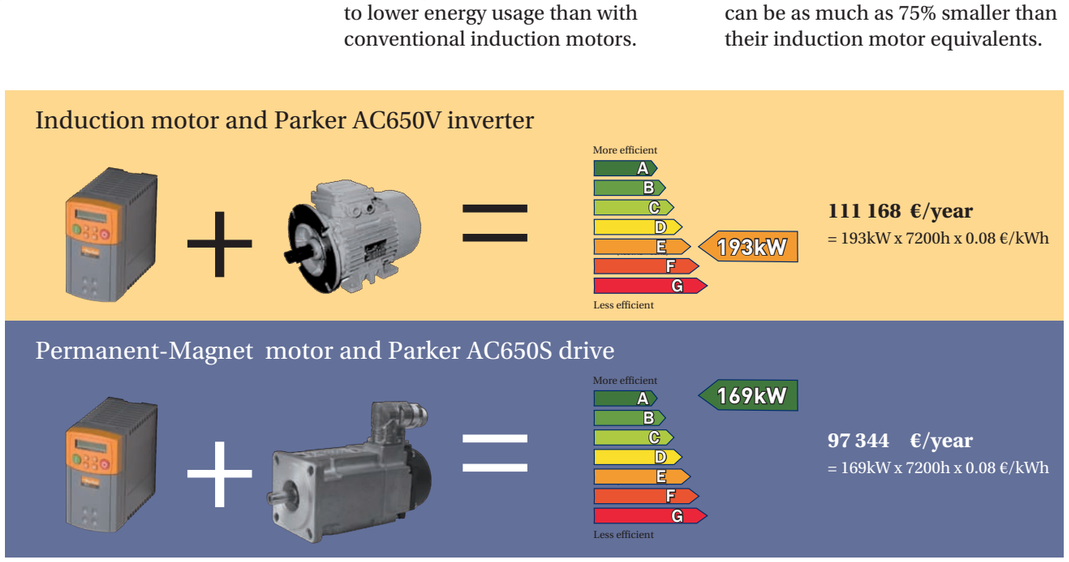
0.25kW - 7.5kW

Energy savings and compact size

The AC650S Compact Sensorless servo drive series features an advanced sesnorless control algorithm for controlling permanent-magnet motors.

When used with Parker's high efficiency permanent-magnet motors, the AC650S delivers impressive performance and high energy efficiency, which in turn leads to lower energy usage than with conventional induction motors.

The use of servo motors also enables machine builders to design smaller machines when compared to standard induction motors of the same size. In some cases servo motors can be as much as 75% smaller than their induction motor equivalents.



Typical annual savings **13 824 €/year**

assuming 100 x 1.5kW motors

Extremely compact solution for smaller machines

Parker PM motors are up to 75 % smaller than the same power induction motors, which enables you make ultra-compact machines.
Furthermore, the motors are available with a very economical brake option and have no need for force ventilation.

Minimum electrical enclosure space requirements

The AC650S is one of the smallest drives of its kind on the market today.

Leading thermal design and management enables the AC650S to be mounted side-by-side with other AC650 series drives in the electrical cabinet. This in turn reduces the size and cost of the enclosure and helps to improve the overall envelope of the machine, making more compact designs possible.

Compact Drive for Sensorless Servo Control

AC650S Series

0.25kW - 7.5kW

Technical Specification

Power Supply	**0.25 to 1.5kW, single phase supply** 220-240 Vac +/- 10 %, 50-60 Hz +/- 5% **0.37 to 7.5kW, three Phase supply** 380-460 Vac +/- 10 %, 50-60 Hz +/- 5%
Environment	0-40°C (derate to 50°C) Up to 1000m ASL (derate > 1000m)
Protection	IP20
Overload	150% for 30s
Output Frequency	0-500 Hz
Inputs/Outputs Analogue Inputs	2; 0-10V, 0-10V/4-20mA
Analogue Outputs	2; 0-10V, load <10mA
Digital Inputs	5 ; User configurable 15V to 24VDC
Digital Relay Output	1; Relay output 4A@240V
Motor Thermistor Input	1
Communications Options	Profibus-DP, Modbus RTU
Cloning Option	Up to 10 drive configurations can be saved without the need for a PC

Application Macros	User Selectable pre-programmed application macros **Basic speed control** voltage or current source speed demand with digital start/stop snd direction. **Manual /Auto control** switch between a local or remote speed demand signal **Preset speeds** select up to 8 pre-programmed speeds selected by digital inputs. **Raise/Lower control** increase and decrease speed from raise / lower digital inputs. **PID control** control pressure, flow, temperature or other variable by monitoring transducer feedback

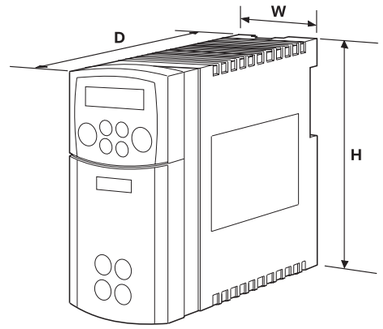
Standards

The AC650 and AC650V Series AC drives meets the following standards when installed in accordance with the relevant product manual

- CE Marked to EN50178 (Safety, Low Voltage Directive)
- CE Marked to EN61800-3 (EMC Directive)
- UL listed to US Standard UL508C
- cUL Listed to Canadian Standard C22.2 #14

Dimensions

Frame Size	H	W	D
1	137	73	142
2	192	73	173
3	257	96	200



Selection and Order Codes

AC650S Series

0.25kW -7.5kW

Product code	Supply voltage	Nominal power (KW / HP)	Output current (A)	Frame	Overload
650S-21140010-0▪1P00-A1	230V 1ph	0.75 / 1.0	4	1	150 % x 30 sec
650S-21170020-0▪1P00-A1		1.5 / 2.0	7	2	
650S-43125020-B▪1P00-A1	400V 3ph	0.75 / 1.0	2,5	2	
650S-43155020-B▪1P00-A1		2.2 / 3.0	5,5	2	
650S-43190030-B▪1P00-A1		4.0 / 5.0	9	3	
650S-43216030-B▪1P00-A1		7.5 / 10	16	3	
The models listed below are available for special order only (minimum quantities apply) - Please consult your local sales office for details					
650S-21115010-0▪1P00-A1	230V 1ph	0.25 / 0.3	1,5	1	150 % x 30 sec
650S-21122010-0▪1P00-A1		0.37 / 0.5	2,2	1	
650S-21130010-0▪1P00-A1		0.55 / 0.75	3	1	
650S-21155020-0▪1P00-A1		1.1 / 1.5	5,5	2	
650S-43115020-B▪1P00-A1	400V 3ph	0.37 / 0.5	1,5	2	
650S-43120020-B▪1P00-A1		0.55 / 0.75	2	2	
650S-43135020-B▪1P00-A1		1.1 / 1.5	3,5	2	
650S-43145020-B▪1P00-A1		1.5 / 2.0	4,5	2	
650S-43168030-B▪1P00-A1		3.0 / 4.0	6,8	3	
650S-43212030-B▪1P00-A1		5.5 / 7.5	12	3	

▪ = 0, drives with no EMC filter ; ▪ = F, for drives with built-in EMC filter

Parker Permanent -Magnet Servo Motors

NX Series

NX Servo Motor and AC650S Compatibility

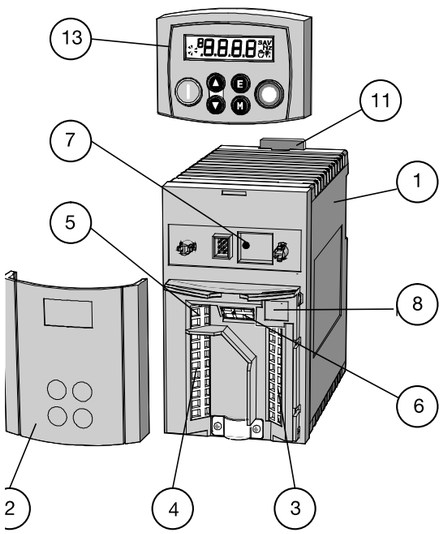
230 Vac power supply								
At rated speed		@ 1500 rpm	@ 3000 rpm	At low speed		Inertia	Motor code	Drive Code
Nn (rpm)	Pn (kW)	P (kW)	P (kW)	M0 (Nm)	I0 (Arms)	(kg.m².10-5)		
6000	0,21	0,07	0,13	0,45	1,14	2,1	NX205EYUR6000	650S-21140010-001P00-A1
5000	0,37	0,15	0,27	1	1,99	3,8	NX210EYPR6000	650S-21140010-001P00-A1
2000	0,38	0,29	_	2	1,39	7,9	NX310EYPR6000	650S-21140010-001P00-A1
3500	0,62	0,29	0,55	2	2,43	7,9	NX310EYKR6000	650S-21140010-001P00-A1
1900	0,72	0,58	_	4	2,71	29	NX420EYPR6000	650S-21140010-001P00-A1
3350	1,09	0,58	1,06	4	4,43	29	NX420EYKR6000	650S-21170020-001P00-A1
1750	0,95	0,83	_	5,5	3,43	42,6	NX430EYMR6000	650S-21140010-001P00-A1
2700	1,38	0,83	_	5,5	5,24	42,6	NX430EYJR6000	650S-21170020-001P00-A1
3500	1,67	0,83	1,5	5,5	6,64	42,6	NX430EYFR6000	650S-21170020-001P00-A1
1850	1,47	1,21	_	8	5,31	98	NX620EYRR6000	650S-21170020-001P00-A1
1650	1,82	1,8	_	12	6,74	147	NX630EYWR6000	650S-21170020-001P00-A1
850	1,38	_	_	16	5,16	320	NX820EYXR6000	650S-21170020-001P00-A1
400 Vac power supply								
6000	0,21	0,07	0,13	0,45	1,14	2,1	NX205EYUR6000	650S-43125020-B01P00-A1
6000	0,39	0,15	0,27	1	1,99	3,8	NX210EYPR6000	650S-43125020-B01P00-A1
3700	0,65	0,29	0,55	2	1,39	7,9	NX310EYPR6000	650S-43125020-B01P00-A1
6000	0,88	0,29	0,55	2	2,43	7,9	NX310EYKR6000	650S-43125020-B01P00-A1
1750	0,67	0,58	_	4	1,36	29	NX420EYVR6000	650S-43125020-B01P00-A1
3500	1,19	0,58	1,06	4	2,71	29	NX420EYPR6000	650S-43155020-B01P00-A1
6000	1,65	0,58	1,06	4	4,43	29	NX420EYKR6000	650S-43155020-B01P00-A1
2250	1,19	0,83	_	5,5	2,45	42,6	NX430EYQR6000	650S-43125020-B01P00-A1
3150	1,55	0,83	1,5	5,5	3,43	42,6	NX430EYMR6000	650S-43155020-B01P00-A1
3500	1,67	0,83	1,5	5,5	3,78	42,6	NX430EYLR6000	650S-43155020-B01P00-A1
1500	1,21	1,21	_	8	2,42	98	NX620EYIR6000	650S-43125020-B01P00-A1
3350	2,33	1,21	2,17	8	5,31	98	NX620EYRR6000	650S-43155020-B01P00-A1
5800	2,41	1,21	2,17	8	8,88	98	NX620EYKR6000	650S-43190030-B01P00-A1
2350	2,4	1,8	_	12	5,25	147	NX630EYRR6000	650S-43155020-B01P00-A1
3000	2,82	1,8	2,82	12	6,74	147	NX630EYWR6000	650S-43190030-B01P00-A1
4000	3,18	1,8	2,82	12	8,98	147	NX630EYLR6000	650S-43190030-B01P00-A1
1620	2,53	2,36	_	16	5,16	320	NX820EYXR6000	650S-43155020-B01P00-A1
3500	4,89	2,36	4,33	16	11	320	NX820EYRR6000	650S-43216030-B01P00-A1
5150	6,26	2,36	4,33	16	16	320	NX820EYMR6000	650S-43216030-B01P00-A1
1650	4,22	3,9	_	28	8,9	620	NX840EYRR6000	650S-43290030-B01P00-A1
3000	6,39	3,9	6,39	28	15,9	620	NX840EYWR6000	650S-43216030-B01P00-A1
1400	4,81	_	_	41	15,6	920	NX860EYWR6000	650S-43216030-B01P00-A1

Parker NX motors are the ideal complement to AC650S drives in applications where space and energy savings are needed. Their main features are as follows :

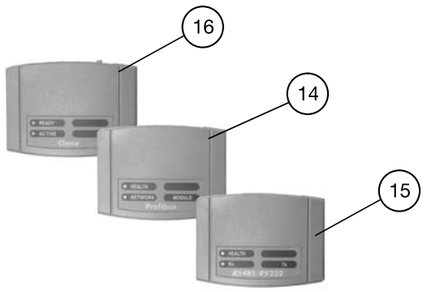
- Excellent motion control
- Compact dimensions and robust design
- Large set of options and customization possibilities
- **EX variant for explosive atmospheres**
- High-speed variant up to 17000rpm
- CE and UL variants

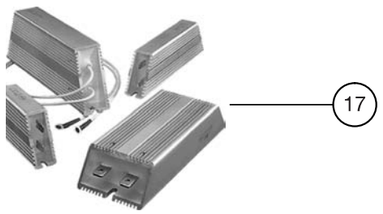
Accessories and Options

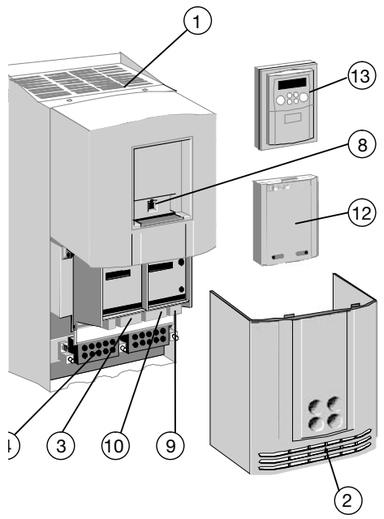
AC650/AC650V/AC650S Series AC Drive



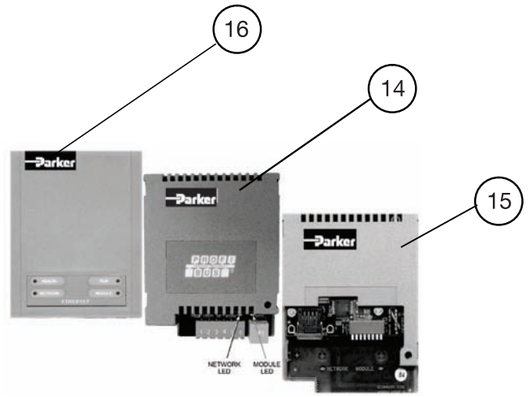
Frames 1 - 3 up to 7.5kW







Frames C - F up to 110kW



Accessories and Options

AC650/AC650V/AC650S Series AC Drive

Options		Frame	AC650V Only	Fitting	Reference	Page
AC Inverters						
1	Inverter housing	1 – F		Standard	See order codes	17-28
2	Terminal Cover (simplified wiring diagram)	1 – F				
3	Control wiring terminals	1 – F				
4	Power wiring terminals	1 – F				
5	Volt-free relay contact	1 – F				
6	Encode / Digital Inputs	1 – F	√			
7	Power On LED	1 – F				
8	RS232 P3 port for remote mounting of operator keypad	1 – F	√			
9	RS232 P3 port for programming	C – F	√			
10	RS485 port	C – F				
11	DIN Rail mounting clip	1 – 3				
12	Front cover	C – F				
	Operator keypad					
13	TTL keypad (local mounting only)	1 – 3		Standard	6511-TTL-00	32
	RS232 keypad (remote mountable)	1 – 3	√	Option	6511-RS232-00	
		C – F	√	Standard	6521/00/G	
	Communication					
14	Profibus communications card	1 – 3	√	Factory Option	6513-PROF-00	33
		C – F	√	Factory Option	6523/PROF/00	
15	RS232/RS485 communication card (Modbus RTU, EI Bisync F1/3)	1 – 3	√	Factory Option	6513-EI00-00	32
		C – F	√	Factory Option	See order codes	
	Other options					
16	Cloning module for the storage and transfer of up to 10 drive configurations	1 – 3, C - F		Option	6514-00	32
	Accessories					
17	Brake resistor	See corresponding section				92

Cloning Module

Description

The cloning module can be used with the complete range of the AC650 / AC650V series of AC drives.
It allows the user to store up to 10 separate drive configurations which can then be transferred between different drives. The configurations can be mapped between different drive sizes. This is an invaluable tool for commissioning or plant maintenance personnel allowing drives to be backed up and reconfigured simply and easily.

Product Details

Order Code	Description	Suitable for
6514-00	Cloning Module	AC650/AC650V

RS485 Modbus Interface

Description

The RS485/RS232 communications interface provides serial data communication, allowing an AC650V drive to connect to a Modbus RTU network as a slave station.

Features

- Protocols : ModBus RTU or EI-6ASCII
- Compatible with AC650/650V versions 4.x and above
- Connection by shielded twisted pair cable (RS485)
- Connection by shielded 3 core cable (RS232)
- Configuration of input function blocks
- Baud rate configurable by software
- Slave address configurable by software
- Direct access to all drive parameters

Product Details

Order Code	Description	Suitable for
6513-E100-00	RS485/RS232 Communications Interface	AC650V Frames 1, 2, 3

Operator Keypads

Product Details

Order Code	Description	Suitable for
6511-TTL-00	TTL keypad (local mounting)	AC650, AC650V Frames 1 - 3
6511-RS232-00	RS232 keypad (remote mountable)	AC650, AC650V Frames 1 - 3
6521-00-G	RS232 kepad (remote mountable)	AC650V Frames C - F

6511-xxxx-00

6521-00-G

Profibus-DP Interface

Description

The PROFIBUS option supports the PROFIBUS-DP PROFIBUS protocol, designed specifically for communication between a PLC system and remote I/O.

The Profibus interface enables the drive to connect to a Profibus-DP as a slave station.

Features

- Profibus-DP network
- Connection by shielded twisted pair
- Baud rate configurable by software up to 12M Baud
- LED indication of card and communication status
- Compatible with AC inverters AC650V vers 4.9+

PROFIBUS Module 6513-PROF-00
(AC650V Frames 1, 2, 3)

Product Details

Order Code	Description	Suitable for drives
6513-PROF-00	Profibus-DP communications interface	AC650/AC650V Frames 1, 2, 3
6523-PROF-00	Profibus-DP communications interface	650V - Frames C, D, E & F

PROFIBUS Module 6523-PROF-00
(AC650V Frames C-F)

Integrator Series AC Drives

AC690+ Series AC Drive

AC Drives 0.75kW - 1000kW

Description

The AC690+ Series is a single range of AC drives designed to meet the requirements of all variable speed applications from simple single motor speed control through to the most sophisticated integrated multi-drive systems.

The heart of the AC690+ is a highly advanced 32-bit microprocessor based motor control model. This provides an exceptional dynamic performance platform to which can be added a host of communications and control options, enabling you to tailor the drives to meet your exact requirements.

The AC690+ is available in 380-500V 3-phase 0.75 to 1000kW and 220V-240V 0.75 to 55kW.

Modes of Operation

The AC690+ can be user configured for 3 different modes of operation

Open-loop (volts/frequency) control

This mode is ideal for basic motor speed control, or multiple motors driven in parallel. The quick set-up menu and plain language display ensures the quickest and easiest, trouble free start up.

Sensorless vector control

High starting torque and tight speed regulation is provided by a sophisticated MRAS (Model Reference Adaptive System) motor control strategy. MRAS provides accurate speed simulation (without the need for any speed measuring transducer) by continually modelling the motor.

Closed-loop vector control

Full closed-loop flux vector performance can be achieved with the AC690+ by simply adding an encoder feedback 'technology box'. This provides 100% continuous full load standstill torque plus a highly dynamic speed loop (up to 45 Hz bandwidth); more than sufficient for the most demanding of applications.

Demanding Environments

For environments that have dusty, humid or corrosive atmospheres, the AC690+ can optionally be supplied with conformally coated circuit boards that improve the drives resistance to corrosion, thereby increasing reliability and service life.
Industries that would typically benefit from conformal coating could include:

- **Water and wastewater**
- **Paper and pulp processing**
- **Steel**
- **Marine and offshore**
- **Outdoor cranes**
- **Wind & wave power generation**
- **Food processing.**

Integrator Series AC Drive

AC690+ Series AC Drive

AC Drives 0.75kW - 1000kW

Features

Encoder feedback option with encoder technology box

The AC 690+ is converted from open-loop control to high performance closed-loop control by simply adding the plug-in encoder feedback technology box.

High performance systems expansion module

The optional add-on “systems” expansion module is available for more advanced applications and includes phase locking between drives and register control. It fits behind the main control board and provides the following functionality:

- 5 configurable digital Inputs / outputs
- Converts existing 4 analogue inputs to high resolution (12 bit plus sign)
- 2 encoder inputs
- 2 high speed register mark inputs

Integrated function blocks

- Winder Control
- Process PID,
- Raise / Lower
- Spinning Load Start

Mechanical protection options to suit all environments

A choice of mechanical protection options allows the drive to be mounted in a variety of differenct operating environments.

- **IP20** – for mounting inside an electrical enclosure.
- **IP40/NEMA 1** – The optional top cover, with cable gland plate enables the drive to be directly wall or machine mounted. (Frames B to E)
- **IP54** – Ideal for mounting in aggressive environments. Higher levels of protection are available as a special build option on request. A multitude of control options can be added to the drive using our FASTPACK option.
- **Through panel mounting** - This option allows the drive to be mounted with the major heat producing components and heatsink outside the enclosure, keeping the electronics clean and cool. (Frames C,D and E)

Open standard fieldbus communications

The AC690+ has a whole host of communication technology box options allowing seamless multi-vendor integration into networked systems using the most common industrial fieldbus communications protocols :

- Profibus-DP
- Ethernet
- Devicenet
- Modbus RTU
- CANopen,
- Controlnet
- Link (Parker SSD proprietary bus)

Programming / Operator controls

The AC690+ HMI provides access to all of the drive’s functions in a logical and intuitive manner. The readout is backlit and displays all functions in plain language and engineering units. The HMI can be mounted on the drive itself, or alternatively it can be supplied loose, with a mounting kit, for mounting remotely on a panel door, for example.

Integrator Series AC Drive

AC690+ Integrator Series AC Drive

AC Drive 0.75kW - 1000kW

Vector control with / without encoder feedback
Power ratings 0.37 to 1000kW
Supplied in enclosure above 355kW
Pre-programmed application Macros
Programmable over communications
Programming identical to DC 590+ DC drive
Variable torque ratings
Class B EMC filters

Technical Specification

Power Supply	380-460V (±10%) 3-phase 0.75 to 1000kW ; 380-500V (±10%) 3-phase 2.2 to 110kW; 220-240V (±10%) 1-phase 0.37 to 2.2kW; 220-240V (±10%) 3-phase 0.37 to 37 kW.
Environment	Constant torque - 0-45°C (40°C with IP40 cover) derating possible up to 50°C max Max altitude: 1000m, derate by 1% for every 100m above 1000m
Overload	Constant torque: 150% for 60 seconds, 180% for 1 second; Variable torque - 115% for 10 seconds
Output Frequency	0-480Hz
Switching Frequency	Frame B 3,6 or 9kHz; Frame C, D, E and F 3 or 6kHz - All with audibly silent switching frequency
Dynamic Braking	Each drive can be fitted with an internal dynamic brake switch Frame B and C : standard; Frame D,E and F : optional
Analogue Inputs	4 Configurable, 10bits (13 bits with optional system card). 0-10V, 0-±10V, 0-20mA, 4-20mA
Analogue Outputs	3 Configurable, 10 bits. 0-10V, 0-±10V, 0-20mA, 4-20mA
Digital Inputs	7 Configurable, nominal 24V dc (30V dc max)
Digital Outputs	3 Configurable, relay contacts 3A/230 Vac
Reference Supplies	+10V dc, -10V dc, +24V dc
Motor Thermistor input	PTC

Function Block Programming	Function block programming allows a tremendously flexible control structure to be created with ease. An almost infinite combination of user functions can be realised often alleviating the need for an external PLC. However, the drive is pre-configured so it can be used straight from the box as a standard AC drive without further adjustment.
Analogue Functions	If So, summing, subtractor, multiplier, divider, if higher then lower then If, Counter, Timer
Boolean Functions	Not, And, Nand, Or, Nor, Xor, Trigger, Flip-Flop
Application Macros	Simple speed control, Forward/Reverse, Raise/Lower, Process PID, Preset speeds, Winder control.
6901 Operator Keypad	The 6901 keypad is designed for setting-up, configuring and operating the AC690+ drive. The intuitive menu navigation and parameter display is simple and easy to use. Main features: • Remote mounting capability on front of enclosure • Backlit display • Multilingual 2x16 alphanumeric display • Customizable display • Local Control : Speed setpoint, Start/Stop, Jog and Direction • Password protection • Quick set-up mode
Systems Expansion Module	The optional systems expansion module allows for advanced applications such as phase locking between drives and register control. Key features include: • 5 Additional user configurable Inputs / Outputs • 4 High resolution analogue inputs (12 bits plus sign) • 2 Additional encoder inputs • 2 High speed register mark inputs

Integrator Series AC Drive

AC690+ Series AC Drive

400kW - 1000kW

Energy Saving
Fast return on investment in pump and fan applications
Improved power factor
Flux vector control with / without encoder and V/F control
Reduced harmonics through 12 or 18 pulse coupling
Improved HVAC control

Enclosure specifications

(above 355kW for constant torque)

6 pulse Model	Power Rating	Constant torque : 355 - 900 kW Variable torque : 400 - 1000 kW
	Supply Voltage	380-460Vac (±10%) 3-phase
	Disconnect Switch	Standard
	Input inductance	Standard for limiting harmonic current
	Output Choke	Standard
	Operator Panel	6901 operator keypad mounted on enclosure door
12 pulse model (optional)	Harmonics	Reduced harmonic current
	Power Rating	Constant torque : 355 - 600 kW Variable torque : 400 - 650 kW
	Supply Voltage	380-460Vac (±10%) 3-phase
	Disconnect Switch	Standard
	Input Transformer	(not included in the enclosure) optional 2 secondaires U/D
	Output Choke	Standard
	Operator Panel	6901 operator keypad mounted on enclosure door
18 pulse model (option)	Harmonics	Total harmonic distortion (current) in accordance with limits of IEEE 519 (1992)
	Power Rating	Constant torque : 630 - 900 kW Variable torque : 750 - 1000 kW
	Supply Voltage	380-460Vac (±10%) 3-phase
	Disconnect Switch	Standard
	Input Transformer	(not included in the enclosure) optional 3 secondaires phase shifted by 20°
	Output Choke	Standard
	Operator Panel	6901 operator keypad mounted on enclosure door

Standards

The AC690+ series meets the following standards when installed in accordance with the relevant product manual.

CE Marked to EN50178 (Safety, Low Voltage Directive)
CE Marked to EN61800-3 (EMC Directive)
UL Listed to US safety standard UL508C.
cUL Listed to Canadian standard C22.2 #14.

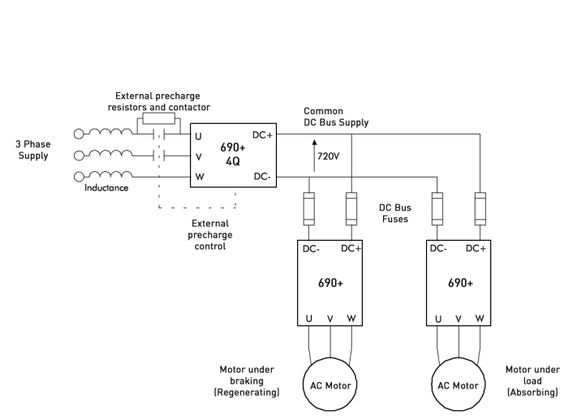
4 Quadrant Power Module

AC690+ Integrator Series AC Drive

AC Drives 0.75kW - 1000kW

Description

In many applications the overall power consumed by the system is less than the sum of power of the installed motors. Indeed, all sections of a machine do not consume energy at the same time. Typically, some motors will be driven electrically while others are being driven by the momentum of the machine.
For such applications, it is economically advantageous to connect the drives of all sections of the machine to a common DC bus: the energy-generating sections are then fed into the energy-consuming sections, which reduces the overall energy consumption of the system.
The drive AC690+ configured in 4 quadrant mode is the ideal solution to power such systems. Thanks to the 4Q functionality of the AC690+, the excess energy in the system is returned to the network and not dissipated in the form of heat through braking resistors. The current waveforms are almost sinusoidal, which minimizes network harmonics.



Energy saving
No maintenance (No braking resistor)
Reducing the size of the supply required by distributing energy through the DC bus system
Reduced harmonics meeting the limits of IEEE 519
High power factor (cos ø ~ 1)

Electrical Characteristics

AC690+ Integrator Series AC Drive

Power Supply 380-460V (±10%) 50/60 Hz 3-phase

Old Reference	New Order Reference	Frame	Constant Torque		Variable Torque		Inductance	Braking Module
			Nominal Power (kW)	Output Current (A)	Nominal Power (kW)	Output Current (A)		
690B-0007-43-xx	690-431250B0-B...	B	0.75	2.5	-	-	N/A	Standard
690B-0015-43-xx	690-431450B0-B...	B	1.5	4.5	-	-		
690B-0022-43-xx	690-431550B0-B...	B	2.2	5.5	-	-		
690B-0040-43-xx	690-431950B0-B...	B	4.0	9.5	-	-		
690B-0055-43-xx	690-432120B0-B...	B	5.5	12	-	-		
	690-432120C0-B...	C	5.5	12			Standard - Internal Inductance DC Bus	
	690-432140B0-B...	B	6.0	14				
690C-0075-43-xx	690-432160C0-B...	C	7.5	16	11	23		
690C-0110-43-xx	690-432230C0-B...	C	11	23	15	31 (UL=27)*		
690C-0150-43-xx	690-432300C0-B...	C	15	31	18.5	38		
	690-432310D0-...	D	15	31	18.5	38		Option
690D-0180-43-xx	690-432380D0-...	D	18.5	38	22	45		
690D-0220-43-xx	690-432450D0-...	D	22	45	30	59(UL=52)*		
690D-0300-43-xx	690-432590D0-...	D	30	59	37	73		
	690-432590E0-...	E	30	59	37	73	Standard - Inductance Internal 3-phase	
690E-0370-43-xx	690-432730E0-...	E	37	73	45	87		
690E-0450-43-xx	690-432870E0-...	E	45	87	55	105		
690F-0550-43-xx	690-433105F2-...	F	55	105	75	145		
690F-0750-43-xx	690-433145F2-...	F	75	145	90	165		
690F-0900-43-xx	690-433180F2-...	F	90	180	110	205		
690G-1100-43-xx	690-433216G2-...	G	110	216	132	260	External Inductance	
690G-1320-43-xx	690-433250G2-...	G	132	250	150	302		
690G-1600-43-xx	690-433316G2-...	G	160	316	180	361		
690G-1800-43-xx	690-433361G2-...	G	180	361	220	420		
690H-2000-43-xx	690-433375H2-...	H	200	375	250	480		
690H-2200-43-xx	690-433420H2-...	H	220	420	250	480		
690H-2500-43-xx	690-433480H2-...	H	250	480	300	545		
690H-2800-43-xx	690-433520H2-...	H	280	520	315	590		
690J-3150-43-xx	690-433590J2-...	J	315	590	355	650		
690GM1800-43-xx	690GM1800-43-xx + 690GS1800-43-xx	K	355	685	400	798		
690HM2200-43-xx	690HM2200-43-xx + 690HS2200-43-xx	K	400	798	475	912		
690HM2800-43-xx	690HM2800-43-xx + 690HS2800-43-xx	K	500	988	600	1120		
690JM3150-43-xx	690JM3150-43-xx + 690JS3150-43-xx	K	600	1120	650	1235		
690GM1800-43-xx	690GM1800-43-xx + 2 x 690GS1800-43-xx	K	550	1028	630	1197		
690HM2200-43-xx	690HM2200-43-xx + 2 x 690HS2200-43-xx	K	630	1197	750	1368		
690HM2800-43-xx	690HM2800-43-xx + 2 x 690HS2800-43-xx	K	800	1482	900	1681		
690JM3150-43-xx	690JM3150-43-xx + 2 x 690JS3150-43-xx	K	900	1681	1000	1852		

Electrical Characteristics

AC690+ Integrator Series AC Drive

Power Supply 380-500V (±10%) 50/60 Hz 3-phase

Old Reference	New Order Reference	Frame	Constant Torque		Variable Torque	
			Nominal Power (kW)	Output Current (A)	Nominal Power (kW)	Output Current (A)
690B-0022-53-xx	690-531500B0-B...	B	2.2	5.0	-	-
690B-0040-53-xx	690-531800B0-B...	B	4.0	8.0	-	-
690B-0055-53-xx	690-532110B0-B...	B	5.5	11	-	-
	690-532110C0-B...	C	5.5	11	7.5	14
690C-0075-53-xx	690-532140C0-B...	C	7.5	14	11	21
690C-0110-53-xx	690-532210C0-B...	C	11	21	15	27
690C-0150-53-xx	690-532270C0-B...	C	15	27	18.5	34
	690-532280D0-...	D	15	28	18.5	36
690D-0180-53-xx	690-532360D0-...	D	18.5	36	22	42
690D-0220-53-xx	690-532420D0-...	D	22	42	30	52
690D-0300-53-xx	690-532520D0-...	D	30	52	37	65
	690-532540E0-...	E	30	54	37	67
690E-0370-53-xx	690-532670E0-...	E	37	67	45	79
690E-0450-53-xx	690-532790E0-...	E	45	79	55	98
690F-0550-53-xx	690-533100F2-...	F	55	100	75	125
690F-0750-53-xx	690-533125F2-...	F	75	125	90	156
690F-0900-53-xx	690-533156F2-...	F	90	156	110	180

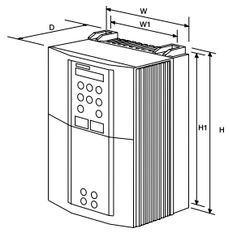
Power Supply 220-240V (±10%) 50/60 Hz

Old Reference	New Order Reference	Number of phases	Frame	Constant Torque		Variable Torque		Inductance	Braking Module
				Nominal Power (kW)	Output Current (A)	Nominal Power (kW)	Output Current (A)		
690B-0007-21-xx 1	690-211400B0-B...	1	B	0.75	4.0	-	-	No	Standard
690B-0015-21-xx 1	690-211700B0-B...	1	B	1.5	7.0	-	-		
690B-0022-21-xx 1	690-212105B0-B...	1	B	2.2	10.5	-	-		
690B-0007-23-xx 3	690-231400B0-B...	3	B	0.75	4.0	-	-		
690B-0015-23-xx 3	690-231700B0-B...	3	B	1.5	7.0	-	-		
690B-0022-23-xx 3	690-232105B0-B...	3	C	2.2	10.5				
690B-0040-23-xx 3	690-232165B0-B...	3	C	4.0	16.5				
690C-0055-23-xx 3	690-232220C0-B...	3	C	5.5	22	7.5	28		
690C-0075-23-xx 3	690-232280C0-B...	3	C	7.5	28	11	42		
690D-0110-23-xx 3	690-232420D0-...	3	D	11	42	15	54	Standard - Internal inductance DC Bus	Option
690D-0150-23-xx 3	690-232540D0-...	3	D	15	54	18.5	68		
690D-0180-23-xx 3	690-232680D0-...	3	D	18.5	68	n.a.	n.a.		
690E-0220-23-xx 3	690-232800E0-...	3	E	22	80	30	104		
690F-0300-23-xx 3	690-233104F2-...	3	F	30	104	37	130	Standard - 3-phase Inductance	
690F-0370-23-xx 3	690-233130F2-...	3	F	37	130	45	154		
690F-0450-23-xx 3	690-233154F2-...	3	F	45	154	55	192		

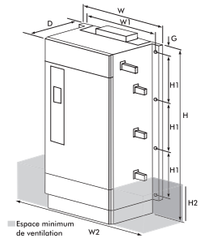
Power ratings stated based on a supply voltage of 230Vac

Dimensions

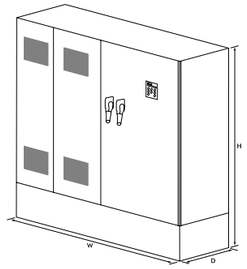
AC690+ Integrator Series AC Drive



Frame B,C,D,E,F



Frame G,H,J



Frame K

Dimensions

Model	Dimensions (mm)				Mounting Centres (mm)					Weight (kg)
	H without brake	H with brake	W	D	W2	H2	H1	W1	G	
Frame B	233	233	177	181	-	-	223	130	-	4.3
Frame C	348	348	201	208	-	-	335	150	-	9.3
Frame D	453	453	252	245	-	-	440	150	-	17.4
Frame E	669	669	257	312	-	-	630	150	-	32.5
Frame F	720	720	257	349	-	-	700	150	-	41.0
Frame G	1042	1490	455	465	675	225	300	420	16	100
Frame H	1177	1750	570	465	805	360	300	536	16	125
Frame J	1288	1825	1177	465	825	333	300	641	16	170
Frame K 355/400kW*	2000	2000	1600	600	-	-	-	-	-	-
Frame K 400/475kW*	2000	2000	1600	600	-	-	-	-	-	-
Frame K 500/600kW*	2000	2000	1600	600	-	-	-	-	-	-
Frame K 600/650kW*	2000	2000	2000	600	-	-	-	-	-	-
Frame K 550/630kW*	2000	2000	2400	600	-	-	-	-	-	-
Frame K 630/750kW*	2000	2000	2400	600	-	-	-	-	-	-
Frame K 800/900kW*	2000	2000	2400	600	-	-	-	-	-	-
Frame K 900/1000kW*	2000	2000	3000	600	-	-	-	-	-	-

Selection and Order Codes

AC690+ Integrator Series AC Drive (230V)

		Block 1	Block 2			Block 3				Block 4			
	Example ►	690	- 21	1400	B	0	- B	0	0	P	00	- A	0	0	0
Product Family	AC690+ Integrator Series AC Drive	690													
	AC690+ Integrator Series AC Drive (Conformal Coating)	C690													
		Constant Torque kW/A @230Vac	Constant Torque HP/A @230Vac	Variable Torque kW/A @230Vac	Variable Torque HP/A @230Vac	Frame									
	Supply Voltage														
Power / Current Rating	230V 1-phase						21								
		0.75/4.0	1.0/4.0			B		1400	B						
		1.5/7.0	2.0/7.0			B		1700	B						
		2.2/10.5	3.0/10.5			B		2105	B						
	230V 3-phase						23								
		0.75/4.0	1.0/4.0			B		1400	B						
		1.5/7.0	2.0/7.0			B		1700	B						
		2.2/10.5	3.0/10.5			B		2105	B						
		4.0/16.5	5.0/16.5			B		2165	B						
		5.5/22	7.5/22	7.5/28	10/28	C		2220	C						
		7.5/28	10/28	11/42	15/42	C		2280	C						
		11/42	15/42	15/54	20/54	D		2420	C						
		15/54	20/54	18.5/68	25/68	D		2540	C						
		18.5/68	25/68			D		2680	D						
		22/80	30/80	30/104	40/104	E		2800	E						
		30/104	40/104	37/130	50/130	F		3104	F						
		37/130	50/130	45/154	60/154	F		3130	F						
		45/154	60/154	55/192	84/192	F		3154	F						
Auxiliary Supply	Not Required (frames B-E)								0						
	115V 1-ph (frame F only)								1						
	230V 1-ph (frame F only								2						
Brake Switch	Not fitted (option for frames D - F)									0					
	Brake switch fitted - (must be fitted on frames B & C. Optional on frames D – F)									B					
Filter	Not fitted (option for frame B, fitted filter not available for frames C – F)										0				
	Filter fitted (option on frame B only)									F					
System Board	Not fitted									0					
	System card fitted									S					
Mounting	Panel mount (option on frames B - E, must be selected on frame F)										P				
	Wall mount (option on frames B -E only)										W				
	Through panel mount (option for frames C-E only)										T				
Special Options	None										00				
	Documented special options (01-99) (refer to local sales office)														
Language	English (50Hz)											A			
	English (60Hz)											B			
	German											D			
	Spanish											E			
	French											F			
	Portuguese											G			
	Italian											I			
	Polish											L			
	Swedish											S			
Keypad	None (option on frames B –F)												0		
	6901 keypad fitted (option on frames B – F)												4		
Speed Feedback	None													0	
	HTTL encoder													3	
Communications	None														0
	ControlNet														C
	DeviceNet														D
	Ethernet														E
	Johnson Metasys														J
	Link														L
	Modbus +														M
	CaNOpen														N
	Profibus														P
	RS485 (EI Bisynch)														R
	Siemens Apogee														S
	LonWorks														W

Selection and Order Codes

AC690+ Integrator Series AC Drive (400/460V, <55 kW)

		Block 1	Block 2			Block 3					Block 4			
	Example ►	690	- 43	1450	B 0	- B	0	0	P	00	- A	0	0	0
Product Family	AC690+ Integrator Series AC Drive	690												
	AC690+ Integrator Series AC Drive (Conformal Coating)	C690												

Supply Voltage	Constant Torque kW/A @400Vac	Constant Torque HP/A @460Vac	Variable Torque kW/A @400Vac	Variable Torque HP/A @460Vac	Frame		
400/460V 3-ph					43		
Current / Power Rating	0.75/2.5	1.0/2.5			B	1250	B
	1.5/4.5	2.0/4.5			B	1450	B
	2.2/5.5	3.0/5.5			B	1550	B
	4.0/9.5	5.0/9.5			B	1950	B
	5.5/12	7.5/11			B	2120	B
	6.0/14	10/14			B	2140	B
	5.5/12	7.5/12	7.5/16	10/16	C	2120	C
	7.5/16	10/14	11/23	15/21	C	2160	C
	11/23	15/21	15/30	20/27	C	2230	C
	15/30	20/27	18.5/37	25/34	C	2300	C
	15/31	20/31	18.5/38	25/38	D	2310	D
	18.5/38	25/38	22/45	30/45	D	2380	D
	22/45	30/45	30/59	40/52	D	2450	D
	30/59	40/52	37/73	50/65	D	2590	D
	30/59	40/59	37/73	50/73	E	2590	E
	37/73	50/73	45/87	60/87	E	2730	E
	45/87	60/87	55/105	75/105	E	2870	E
Auxiliary Supply	Not required (frames B-E)						0

Brake Switch	Not fitted (option on frames D - E)	0
	Fitted (mandatory on frames B & C, option on frames D – E)	B
Filter	Not fitted (option on frame B, fitted filter not available on frames C & E)	0
	Filtre fitted (option on frame B only)	F
System Board	Not fitted	0
	System board fitted	S
Mounting	Panel mount (option on frame B, must be selected for frames C - E)	P
	Wall mount (option on frames B -E only)	W
	Through panel mount (option on frames C-E only)	T
Special Options	None	00
	Documented special options (01-99) (refer to local sales office)	

Language	English (50Hz)	A
	English (60Hz)	B
	German	D
	Spanish	E
	French	F
	Portuguese	G
	Italian	I
	Polish	L
	Swedish	S
Keypad	None (option on Frames B –E)	0
	6901 keypad fitted (option on frames B – E)	4
Speed Feedback	None	0
	HTTL Encoder	3
Communications	None	0
	ControlNet	C
	DeviceNet	D
	Ethernet	E
	Johnson Metasys	J
	Link	L
	Modbus +	M
	CaNOpen	N
	Profibus	P
	RS485 (EI Bisynch)	R
	Siemens Apogee	S
	LonWorks	W

Selection and Order Code

AC690+ Integrator Series AC Drive(400/460V, > 55 kW)

		Block 1	Block 2			Block 3					Block 4			
	Example ►	690	- 43	3105	F 1	- B	0	0	P	00	- A	0	0	0
Product Family	AC690+ Integrator Series AC Drive	690												
	AC690+ Integrator Series AC Drive (Conformal Coating)	C690												

Supply Voltage	Constant Torque kW/A @400Vac	Constant Torque HP/A @460Vac	Variable Torque kW/A @400Vac	Variable Torque HP/A @460Vac	Frame		
400/460V 3-ph					43		
Current / Power Rating	55/105	75/100	75/145	100/125	F	3105	F
	75/145	100/130	90/165	125/156	F	3145	F
	90/180	125/156	110/205	150/180	F	3156	F
	90/180	150/180	110/205	150/180	F	3180	F
	110/216	175/216	132/260	200/260	G	3216	G
	132/250	200/250	150/302	250/302	G	3250	G
	160/316	250/316	180/361	300/361	G	3316	G
	180/361	300/361	220/420	350/420	G	3361	G
	200/375		250/480		H	3375	H
	220/420	350/420	250/480	400/480	H	3420	H
	250/480	400/480	300/545	450/545	H	3480	H
	280/520	450/520	315/590	505/590	H	3520	H
	315/590	500/590	355/650	550/650	J	3590	J
Auxiliary Supply	115V 1-ph (frames F – J only)						1
	230V 1-ph (frames F – J only)						2

Brake Switch	Not fitted (option on frames D - J)	0
	Brake switch fitted (must be fitted on frames B & C, option on frames D – J)	B
Filter	Not fitted (option on frame B, fitted filter not available for frames C – F)	0
	Filtre fitted (option on frame B only)	F
System Board	Not fitted	0
	System board fitted	S
Mounting	Panel Mount (must be speciofied for frames F - J)	P
Special Options	None	00
	Documented special options (01-99) (refer to local sales office)	

Language	English (50Hz)	A
	English (60Hz)	B
	German	D
	Spanish	E
	French	F
	Portuguese	G
	Italian	I
	Polish	L
	Swedish	S
Keypad	None (option on frame F)	0
	6901 keypad fitted (option on frame F, must be specified for frames G - J)	4
Speed Feedback	none	0
	HTTL Encoder	3
Communications	None	0
	ControlNet	C
	DeviceNet	D
	Ethernet	E
	Johnson Metasys	J
	Link	L
	Modbus +	M
	CaNOpen	N
	Profibus	P
	RS485 (EI Bisynch)	R
	Siemens Apogee	S
	LonWorks	W

Selection and Order Code

AC690+ Integrator Series AC Drive (400/500V)

		Block 1		Block 2				Block 3					Block 4			
	Example ►	690	-	53	1500	B	0	-	B	0	0	P	00	-	A	0	0	0

		Constant Torque		Variable Torque				
	Supply Voltage	kW @500Vac	Current (A)	kW @500Vac	Current (A)	Frame		
Product Family	AC690+ Integrator Series AC Drive					690		
	AC690+ Integrator Series AC Drive (Conformal Coating)					C690		
Current / Power Rating	400/500V 3-ph						53	
		2.2	5.0			B	1500	B
		4.0	8.0			B	1800	B
		5.5	11			B	2110	B
		5.5	11	7.5	14	C	2110	C
		7.5	14	11	21	C	2140	C
		11	21	15	27	C	2210	C
		15	27	18.5	34	C	2270	C
		15	28	18.5	36	D	2280	D
		18.5	36	22	42	D	2360	D
		22	42	30	52	D	2420	D
		30	52	37	65	D	2520	D
		30	54	37	67	E	2540	E
		37	67	45	79	E	2730	E
		45	79	55	98	E	2870	E
		55	100	75	125	F	3105	F
		75	125	90	156	F	3145	F
		90	156	110	180	F	3156	F
Auxiliary Supply	Not required (frames B-E)							0
	115V 1-ph (frame F only)							1
	230V 1-ph (frame F only)							2
Brake Switch	Not fitted (option for frames D - F)							0
	Brake switch fitted (mandatory for frames B & C, option on frames D – F)							B
Filter	Not fitted (option on frame B, fittedmandatory on frames C – F)							0
	Filter fitted (option on frame B only)							F
System Board	Not fitted							0
	System board fitted							S
Mounting	Panel mount (option on frames B - E, must be selected for frame F)							P
	Wall mount (option on frames B -E only)							W
	Through panel mount (option on frames C-E only)							T
Special Options	None							00
	Documented special options (01-99) (refer to local sales office)							
Language	English (50Hz)							A
	English (60Hz)							B
	German							D
	Spanish							E
	French							F
	Portuguese							G
	Italian							I
	Polish							L
	Swedish							S
Keypad	None (option on frames B –F)							0
	6901 keypad fitted (option on frames B – F)							4
Speed Feedback	None							0
	HTTL Encoder							3
Communications	None							0
	ControlNet							C
	DeviceNet							D
	Ethernet							E
	Johnson Metasys							J
	Link							L
	Modbus +							M
	CaNOpen							N
	Profibus							P
	RS485 (EI Bisynch)							R
	Siemens Apogee							S
	LonWorks							W

Accessories and Options

AC690+ Integrator Series AC Drive

Options	Frame	Fitting	Order Reference	Page
Operator Keypad				
AC690+ (removable)	B - J	Option	6901-00-G	51
Advanced operator keypad (removable)	B - J	Option	6911-01-00-G	
Remote mounting kit	B - J	Option	6052/00	
Communication Cards				
Ethernet Modbus/TCP and Ethernet IP	B	Option	6053-ETH-00	48
	C - J	Option	6055-ETH-00	
ControlNet	B	Option	6053-CNET-00	
	C - J	Option	6055-CNET-00	
Modbus Plus	B	Option	6053-MBP-00	
	C - J	Option	6055-MBP-00	
DeviceNet	B	Option	6053-DNET-00	
	C - J	Option	6055-DNET-00	
RS485 / Modbus	B	Option	6053-EI00-00	
	C - J	Option	6055-EI00-00	
Profibus-DP	B	Option	6053-PROF-00	
	C - J	Option	6055-PROF-00	
CANopen DS402	B	Option	6053-CAN-00	
	C - J	Option	6055-CAN-00	
LonWorks	B	Option	6053-LON-00	
	C - J	Option	6055-LON-00	
Link	B	Option	6053-LINK-00	
	C - J	Option	6055-LINK-00	
Speed Feedback / Systems Module				
HTTL Encoder Card	B	Option	LA467461	49
	C - J	Option	6054/HTTL/00	
Systems Expansion Module	B	Option	LA467471U002	50
	C - J	Option	AH463889U001	
Accessories				
Brake Resistor				92
Chokes				95
IP40 Cover for Wall Mounting	B	Option	LA467452	
	C	Option	LA465034U002	
	D	Option	LA465084U002	
	E	Option	LA465058U002	
DSE Lite Programming Software				86
HMI Operator interace 3 to 15”				87
Motors				
Asynchronous Motors				96

Communication Cards

AC690+ Integrator Series AC Drive

The AC690+ Communication cards allow the AC690+ to be connected to the most common industry standard fieldbuses

Features

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

Ethernet Communications Interface	
*Order Code: 6053-ETH-00 and 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	AC690+ version 4.7+ DC590+ version 7.1+

Devicenet Communications Interface	
*Order Code: 6053-DNET-00 and 6055-DNET-00	
Supported Protocols	DeviceNet Drive Profile Drive – Group 2 slave only
Station Address	DeviceNet Drive Profile Drive – Group 2 slave only
Suitable for Drives	AC690+ DC590+ version 5.x+

CANopen Communications Interface	
*Order Code: 6053-CAN-00 and 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	AC690+ DC590+ version 5.x+

RS485/Modbus Communications Interface	
*Order Code: 6053-EI-00 and 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	AC690+ version 4.7+ DC590+ version 5.17+

ControlNet Communications Interface	
*Order Code: 6053-CNET-00 and 6055-CNET-00	
Supported Messages	Polled I/O
Station Address	Selectable via Software
Suitable for	AC690+ version 4.7+ DC590+ version 5.17+

Modus Plus Communications Interface	
*Order Code: 6053-MBP-00 and 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	AC690+ version 4.7+ DC590+ version 7.1+

Profibus-DP Communications Interface	
*Profibus-DP (6053-PROF-00 and 6055-PROF-00)	
Supported Protocols	Profibus-DP
Communication Speed	Automatically Detected
Station Address	Selectable via Software
Suitable for	AC690+ version 1.x+ DC590+ version 5.x+

LonWorks	
*Order Code: 6053-LON-00 and 6055-LON-00)	
Supported Protocols	LonWorks
Delivered	with a resource file compatible with LonMaker software (or equivalent)
Suitable for	AC690+ version 5.1+

Johnson Controls	
*Order Code: 6053-JMET-00 and 6055-JMET-00)	
Supported Protocols	Johnson Controls N2

* Refer to page 45 for details of drive frame compatibility

HTTL Encoder Feedback Card

AC690+ Integrator Series AC Drive

Description

The HTTL Encoder Feedback Card allows an incremental encoder to be connected to the AC690+ AC drive, allowing users to take full advantage of the integrated torque control and speed regulation functionality.

The HTTL Encoder Feedback card has the following features:

- 4 Optically isolated differential inputs A, B, M and H
- Adjustable isolated 10 - 20V encoder power output

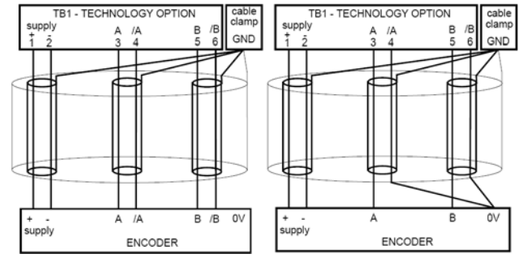
Specifications

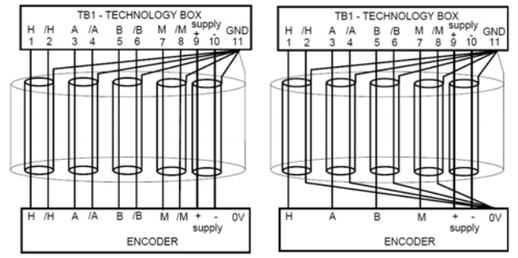
Maximum input frequency	250kHz
Receiver current consumption	≤10mA per channel
Input format	2-channels in quadrature, clock / direction, or clock only
De-phasing	>1µs
Differential input voltage	10 - 30V Maximum
Encoder power	Maximum Load: Card AH467407U001: 200mA or 2W Housing 6054/HTTL/00: 250mA or 2.5W Voltage 10-20V software adjustable.

Product Codes

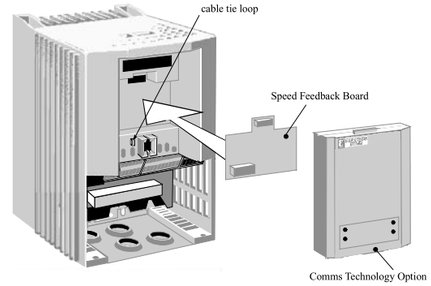
Order Code	Drives
AH467407U001	AC690+ Frame B (690-xxxxxxB...) drives
6054/HTTL/00	AC690+ Frames C - K drives

Installation and cabling

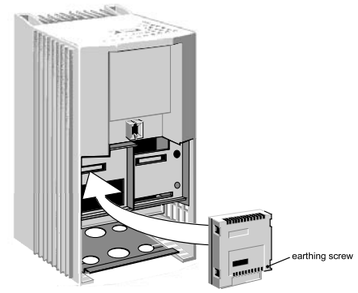




AC690+ Frame B AC Drives



AC690+ Frames C-K Drives



System Expansion Module

AC690+ Integrator Series AC Drive

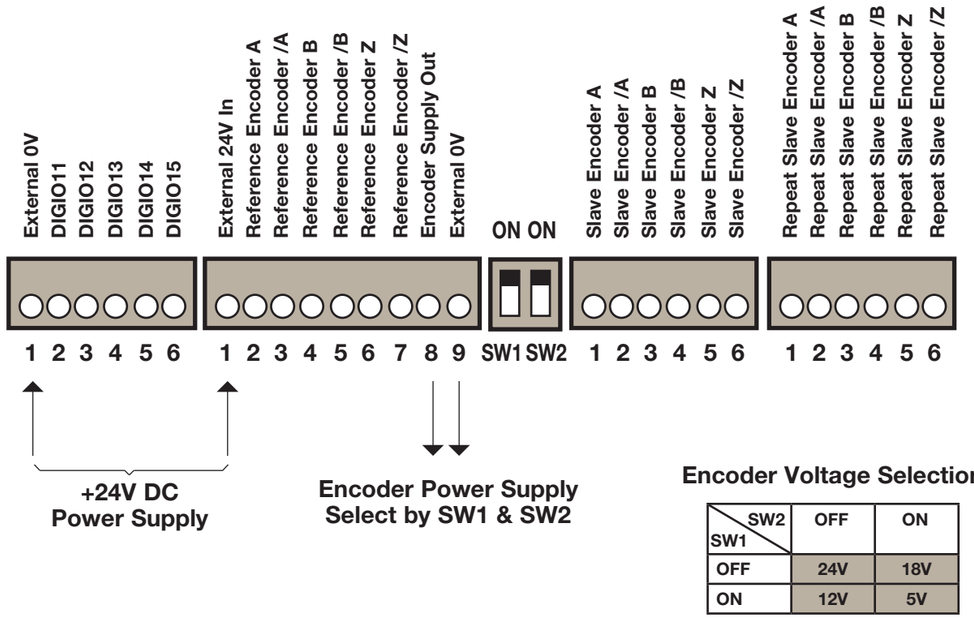
Description

With the System expansion module, the AC690+ can be used in sophisticated applications, or where a small amount of automation is required to be used in conjunction with the drive.
The following features are available:

Analogue Inputs AIN1-4 become high resolution (12 bit plus sign)
5 isolated I/O points, configurable as either inputs or outputs
Variable isolated output power for encoders
Master encoder inputs (Isolated HTTL): A, A/, B, B/, Z and Z/
Slave encoder inputs (Isolated HTTL): A, A/, B, B/, Z and Z/
Slave encoder output retransmission (Isolated HTTL): A, A/, B, B/, Z and Z/.

External Power Supply

An external 1A / 24Vdc(±10%) must be connected to the card.



Encoder Voltage Selection

SW1 \ SW2	OFF	ON
OFF	24V	18V
ON	12V	5V

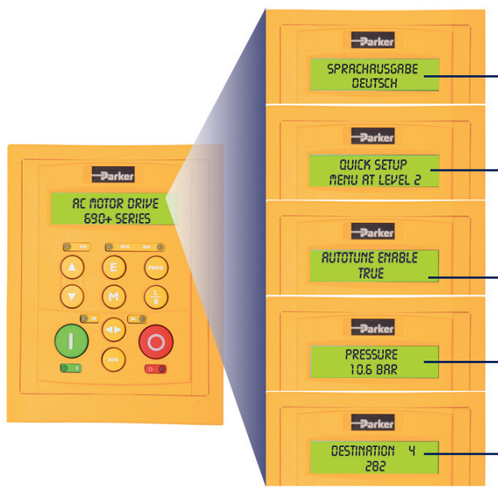
Operator Keypads

AC690+ Integrator Series AC Drive

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 paramters to keypad and restore to drive (Memory card 256Mb to 2Gb)

Fastpack Drives

AC Series

0.25kW - 110kW

Overview

FASTPACK AC is a range of single and three phase industrial drives designed to help save energy across a wide range of variable and constant torque applications up to 110kW.

Designed as a simple replacement to direct-on-line, star/delta or soft start control of motors, FASTPACK AC can be configured to deliver complete control in a single ready-to-install IP54 enclosure.

Pre-engineered options and stocked part built base enclosures enable the FASTPACK range to be offered on short deliveries at very economical cost.

Control options such as operator keypad, start / stop pushbuttons, emergency-stops and output contactors can all be selected from a list of standard options to meet a host of control requirements from simple motor speed control to more complex applications. This method of integration removes the need for additional enclosures to be installed alongside the drive.

Benefits

- Simple replacement or upgrade of direct-on-line, star/ delta and soft starters
- Helps to improve the load power factor (>0.95)
- I/O interface compatible with most existing building management systems
- Ready-to-install standalone drive
- IP54 enclosure
- Wide range of ratings available up to 110kW on 400Vac supply
- Extensive range of control options pre-engineered for fast delivery
- Easy commissioning
- Meets all relevant EMC standards and EC directives
- Helps to reduce mechanical stress and unnecessary wear on pump & fan components

Fastpack Drives

AC Series

0.25kW - 110kW

3 Simple Steps to a FASTPACK Drive

1. Select the drive model and kW rating that matches the needs of your application

2. Select the control options to suit your application and create your FASTPACK code using the table on page 54

3. Complete both the drive and the FASTPACK part numbers and contact your local sales office or distributor for price and availability

Fastpack Drives

AC Series 0.25kW - 110kW

Product Coding Example ►		**FP**	**1**	**1**	**1**	**0**	**2**	**2**	**1**	**0**	**1**	**3**	**3**	**0**	**0**	**0**	**0**
Door Mounted Operator Station	Not fitted		**0**														
	Door mounted keypad fitted		**1**														
Door Mounted Isolator	Not fitted			**0**													
	Fitted			**1**													
Drive Protection	Not fitted				**0**												
	MCB fitted				**1**												
EMC Filter	Not fitted (internal filters specified in drive code)					**0**											
	Footprint filter fitted					**1**											
Start/Stop Controls	Not fitted						**0**										
	Remote switch						**1**										
	Switch mounted on door						**2**										
	Remote pushbuttons						**3**										
	Pushbuttons mounted on door						**4**										
	Pushbuttons remote and mounted on door						**5**										
	Pushbuttons remote and on door + local/remote switch						**6**										
Direction Change Controls	Not fitted							**0**									
	Remote forward/reverse switch							**1**									
	Forward/reverse switch mounted on door							**2**									
	Remote forward/reverse pushbuttons							**3**									
	Forward/reverse pushbuttons mounted on door							**4**									
	Forward/reverse pushbuttons remote and mounted on door							**5**									
	Pushbuttons remote and on door + local/remote switch							**6**									
Inch Forward Controls	Not fitted								**0**								
	Remote inch forward								**1**								
	Inch forward pushbutton mounted on door								**2**								
	Inch forward remote and pushbutton mounted on door								**3**								
	Inch forward remote and on door + local/remote switch								**4**								
Inch Reverse Controls	Not fitted									**0**							
	Remote inch reverse									**1**							
	Inch reverse pushbutton mounted on door									**2**							
	Inch reverse remote and pushbutton mounted on door									**3**							
	Inch reverse remote and on door + local/remote switch									**4**							
Speed Control	Not fitted										**0**						
	Remote potentiometer										**1**						
	Remote 0-10V source										**2**						
	Remote 4-20mA source										**3**						
	1 turn potentiometer on door										**4**						
	10 turn potentiometer on door										**5**						
	1 turn pot. on door and 0-10V remote source + local/remote switch										**6**						
	1 turn pot. on door and 4-20mA remote source + local/remote switch										**7**						
	10 turn pot. on door and 0-10V remote source + local/remote switch										**8**						
	10 turn pot. on door and 4-20mA remote source + local/remote switch										**9**						
	Raise and lower speed pushbuttons on door										**10**						
Speed Meter	Not fitted											**0**					
	Remote meter											**1**					
Load Meter	Not Fitted												**0**				
	Remote meter												**1**				
Emergency Stop With Contactor Isolation	Not fitted													**0**			
	Remote emergency stop pushbutton													**1**			
	Emergency stop pushbutton mounted on door													**2**			
	Emergency stop pushbutton remote and mounted on door													**3**			
Emergency Stop Reset	Not fitted														**0**		
	Remote reset pushbutton														**1**		
	Reset pushbutton on door														**2**		
Enclosure	Standard finish (RAL 7035) IP54 and natural ventilation															**0**	
	Non-standard RAL colour															**1**	
	Stainless Steel															**2**	
	IP55 Protection															**3**	
Special Options	No special options																**0**
	Output contactor																**1**
	Manual motor starter in output (per motor)																**2**
	Fan cooled cabinet																**3**
	Non-coded option																**99**

Modular Systems Drives

AC890 Systems Drive

0.55kW - 1200kW

Description

The AC890 is a compact, modular systems drive engineered to control speed and position of open-loop and closed-loop, single- or multi-motor AC or servo motor applications.

Features

The AC890 can be configured for 4 different modes of operation

Open-loop (volts / frequency) control

This mode is ideal for basic, single or multi-motor speed control.

Sensorless vector control

With its ultra high performance sensorless vector algorithm, the AC890 delivers a combination of both high torque and close speed regulation without the need for any speed measuring transducer.

Closed-loop vector control

Full closed-loop flux vector performance can be achieved with the AC890 by simply adding an encoder feedback 'technology box'. This provides 100% continuous full load standstill torque, plus a highly dynamic speed loop more than sufficient for the most demanding applications.

4 Quadrant active front-end power supply module

With this configuration, the energy is fed back into the mains supply with sinusoidal currents and unity power factor; a very low current harmonic content is achieved (THD < 5%).

Compatible with a wide range of feedback options

The AC890 is compatible with any AC motor and virtually any speed/position feedback options. With this flexibility you may not even need to replace your existing AC motor to achieve high performance, saving you time and money.

- Incremental encoder
- EnDat 2.1 (SinCos) encoder
- Resolver
-

International Standards

Complies with :
- EN61800-3 (EMC) Directive
- CE Marked to EN50178 (Low Voltage) Directive
- UL Listedto US safety standard UL508C

AC Induction Motors

PMAC Brushless Motors

Torque Motors

Demanding Environments

For environments that have dusty, humid or corrosive atmospheres, the AC890 can optionally be supplied with conformally coated circuit boards that improve the drives resistance to corrosion, thereby increasing reliability and service life.
Industries that would typically benefit from conformal coating could include:

- **Water and wastewater**
- **Paper and pulp processing**
- **Steel**
- **Marine and offshore**
- **Outdoor cranes**
- **Wind & wave power generation**
- **Food processing**

Modular Systems Drives

AC890 Systems Drive

*stand-alone version shown

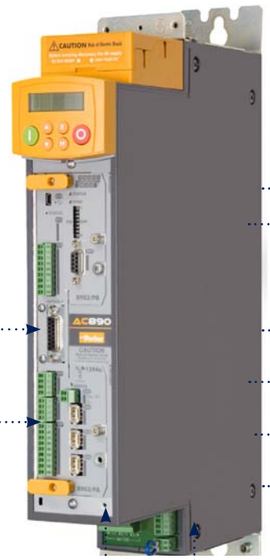
Features

Range of feedback options

- Incremental encoder
- EnDat® 2.1 (SinCos) encoder
- Resolver

Open FireWire IEEE 1394 Process port

- 125µs cycle time
- Real-time synchronization between drives



Open Communications

EtherNet/IP conformance tested · ControlNet · PROFIBUS · DeviceNet · CANopen · PROFINET

Ultra-fast control loops

- Torque loop: 62.5µs
- Speed loop: 62.5µs
- Position loop: 62.5µs

Serves the most demanding applications

Taking advantage of leading edge control algorithms running on a fast 150Mhz microprocessor, the AC890 drive can achieve very high bandwidth control loops.
This allows you to use the drive for the most demanding industrial applications e.g. printing, cut-to-length, rotary shear, converting and slitting.

Benefits

Integrated safety functionality

The integrated Safe Torque Off (STO) functionality offers protection against unexpected motor start-up, in accordance to EN13849-1 PLe, SIL 3 as standard.

Minimal delay between fieldbus setpoints and the control loops

Designed to integrate in existing automation systems, the AC890 features high performance ports linked directly to the fast control loops of the drive. Minimum delay exists between your digital setpoint sent thorugh a fieldbus and the control loops.

Replacement of analogue solutions

Your existing analogue setpoint-based solutions can be replaced by a digital fieldbus-based solution with minimum bandwidth loss.

Flexible feedback options

The AC890 offers system designers complete flexibility in their choice of feedback technology to best suit the needs of their application.

Open standards for protection of investment

The AC890 has been specifically designed to integrate seamlessly into your automation network.

To connect to your PLC or fieldbus network you can simply choose from the wide range of communication technology boxes.

Two performance levels to suit all applications :

Advanced Performance

Motion control with position control,
Motion control function blocks : incremental move, absolute move, move home
Section Control : line drive master ramp, winder blocks (speed and current winder), PID process, sequencer, ...

High Performance

All advanced deatures plus: Library of pre-engineered application specific LINK VM function blocks such as: Shaftless printing, cut-to-length, advanced winding, advanced traversing and others

Modular Systems Drives

AC890 Systems Drive

Space saving compact footprint thanks to modular design concept

Stand Alone version

The Complete Drive

The AC890SD series Stand Alone drive provides a complete AC input to AC motor output, with power input and output terminals.

Other characteristics of the AC890SD include:

- Power output up to 900kW
- 208-500 VAC input supply
- access to all feedback and networking options
- Built-in dynamic brake switch provisions to add external braking resistor
- 24Vdc control board supply for programming without power
- torque and speed outputs
- USB programming port

Common Bus Version

Common Bus Drive

The AC890 is also available in a common bus platform, where individual motor output drives are easily connected to a common bus supply.

Characteristics of the common bus drive (AC890CD) :

- Power output to 900kW (1200HP) in 9 frame sizes
- Power Supply : 320 to 705 VDC
- Access to all feedback and networking options
- 24VDC control board supply for programming without power
- Torque and speed analogue outputs
- USB programming port

Characteristics of the common bus supply module (AC890CS) :

- Power output 7.5 to 110kW
- Power Supply : 208-500 VAC
- Built-in dynamic braking unit (external braking resistor required)
- Operator display for diagnostics
- Up to 162A output per module

Removable terminal block connections for easier installation and maintenance

Reduced dimensions, compact footprint

The AC890 has been designed to be compact and require the minimum possible cabinet space. Boasting the latest innovations in semiconductor cooling the AC890 is a class leader in terms of its size.

The cotrol terminals are pluggable, simplifying connection to the drive during installation and allowing a fast swap-out for maintenance purposes.

The Common DC bus also helps to keep the overall size of the system to a minimum. Simply open the bus terminal cover, connect the busbars and close.

Fast connection of the common DC bus

Modular Systems Drives

AC890 Systems Drive

Technical Specification

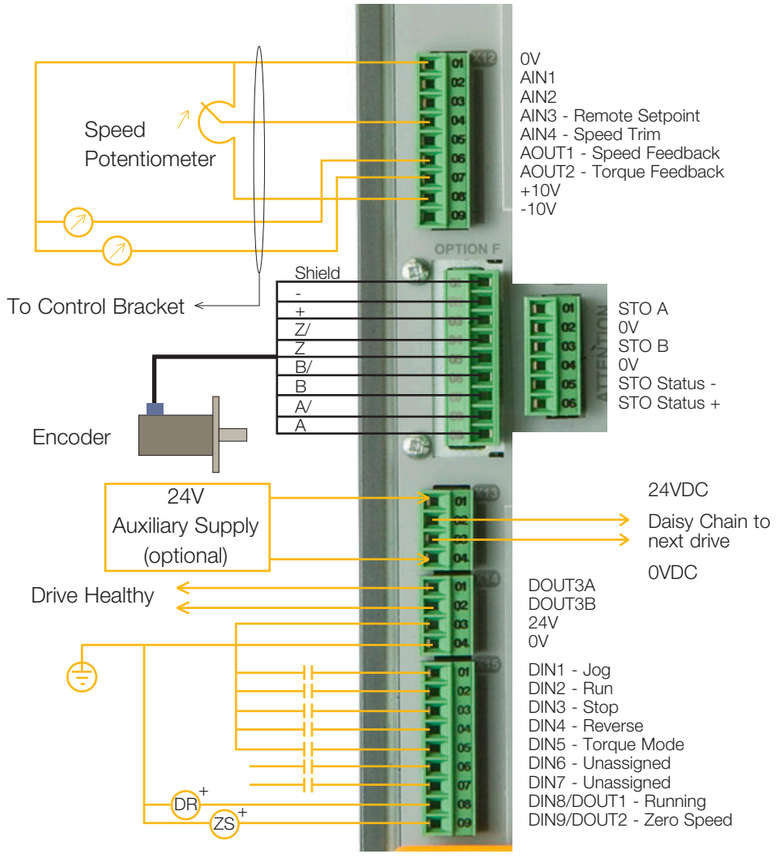
Power Supply	**890CS :** 208 - 500 Vac +/- 10 % **890CD :** 320/560 - 705 Vdc **890SD :** 380 - 500 Vac +/- 10 % **Frames E/F/G/H/J/K :** 380 - 460 Vac +/- 10 %
Environment	0-45°C (derate by 2%/°C up to 50°C maximum) Max.1000m ASL (derate by 1%/100m to 4000m)
Protection	IP20 (Frames G/H/J/K : IP00)
Humidity	Maximum 85% Non-Condensing
Analogue Inputs	4; Configurable 2 x 0-10V, +/-10V, 0-20mA, 4-20mA and 2 x 0-10V, +/-10V
Analogue Outputs	2; Configurable 0-10V, +/- 10V
Digital Inputs	7 ; Configurable 24VDC
Digital Output	2; Configurable 24VDC
Digital Relay Output	1; Configurable
Communications Options	Profibus-DP, DeviceNet, ControlNET, CANopen
Axis Synchronisation	Internally via Firewire

Safe Torque Off - STO

The AC890 features Safe Torque Off functionality as standard, offering users protection against unexpected motor start-up in accordance with EN18849-1 PL-e or SIL3.

The STO functionality helps protect personnel and machinery by preventing the drive from restarting automatically. It disables the drive pulses and disconnects the power supply to the motor, so that the drive cannot generate any potentially hazardous movement. The state is monitored internally within the drive.

Connection Diagram



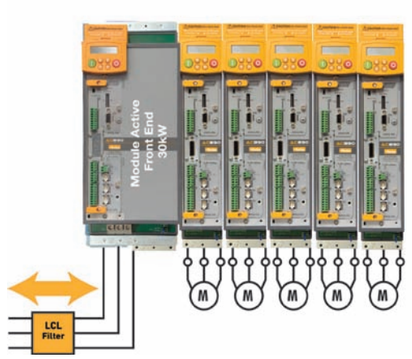
Modular Systems Drives

AC890 Systems Drive

Active Front End

4 Quadrant active front-end power supply with regeneration to the supply network

The AC890CD and AC890SD can be configured to feed energy back into the mains supply with sinusoidal currents and unity power factor; with very low levels of harrmonic current distortion.



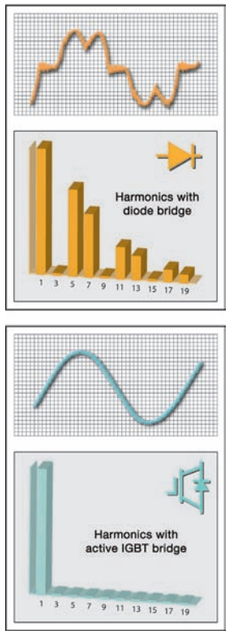
Required Parts

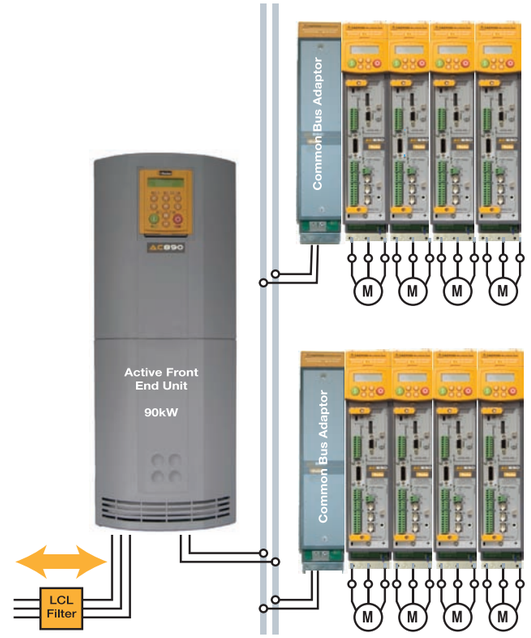
Pre-load circuit
LCL Filter

Fully Bidirectionnel power flow
150% overload for 60 sec
Sinusoidal input current
Harmonic levels meet requirements of IEEE 519

Note :

It is possible to use a larger separate active front-end module for higher power AC890 systems. In this case, several AC890's can be connected to the AFE using the AC890CA common bus adapter.





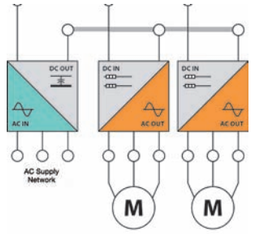
DC Power Supply Module

AC890CS Module

40A - 200A

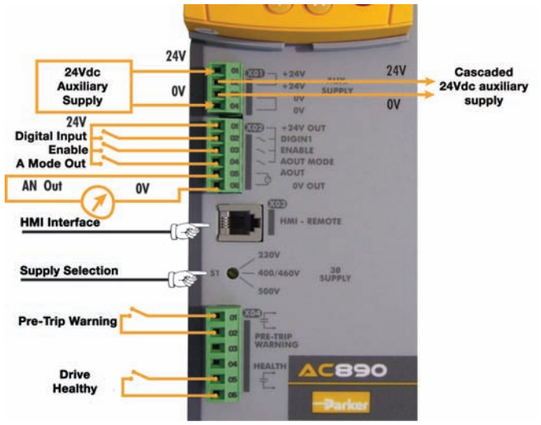
Description

The AC890CS power module is able to provide dual output voltages to power one or more AC890CD or stand alone AC890SD drives connected to a common DC bus.
This modularity provides significant space saving in the enclosure.



Power Supply 208-500Vac
Built-in dynamic braking unit
Dual DC bus power output terminals
Operator display for diagnostics

"Drive Healthy" contact
24Vdc auxiliary supply (optional)
HMI Interface
Power supply selector
Configurable analogue outputs



Electrical Characteristics - AC890CS Drives

Old order reference**	New order reference	Frame	Input voltage (Vac)	Power (kW)	AC input current (A)	DC output current (A)
890CS/5/0032B/B	890CS-532320B0-000-U	Frame B	230	7.5	32	40
			400 / 460	15		
			500	18		
890CS/5/0054B/B	890CS-532540B0-000-U		230	15	54	65
			400 / 460	30		
			500	37		
890CS/5/0108D/D	890CS-533108D0-000-U	Frame D	230	30	108	135
			400 / 460	60		
			500	75		
890CS/5/0162D/D	890CS-533162D0-000-U		230	45	162	200
			400 / 460	90		
			500	110		

Note: For increased power, additional units can be connected in parallel.
For further details, contact our technical support department
** Old reference refers to legacy part references prior to 2009

Modular AC Systems Drives

AC890CD Series Systems Drive

1.5A - 180A

Power Supply 320, 650, 705Vdc
Operator display supplied as standard
Common options as AC890SD
Fiedlbus options : Profibus, DeviceNet, ControlNet, CANOpen

Electrical Characteristics - AC890CD Drive

Old order reference**	New order reference	Frame	Input Voltage (Vdc)	Power (kW)	DC input current (A)	Output current (A)	
						Vector mode	Servo mode
890CD/2/0003B/N/...	890CD-231300B0-000-...	Frame B	320	0.55	4.2	3	2.2
890CD/2/0005B/N/...	890CD-231550B0-000-...			1.1	7.6	5.5	4
890CD/2/0007B/N/...	890CD-231700B0-000-...			1.5	9.3	7	6
890CD/2/0011B/N/...	890CD-232110B0-000-...			2.2	14.9	11	8
890CD/2/0016B/N/...	890CD-232165B0-000-...			4	22.2	16.5	12
890CD/5/0002B/N/...	890CD-531200B0-000-...		560	0.55	2.9	2	1.5
890CD/5/0003B/N/...	890CD-531350B0-000-...			1.1	5	3.5	2.5
890CD/5/0004B/N/...	890CD-531450B0-000-...			1.5	6.6	4.5	3.5
890CD/5/0006B/N/...	890CD-531600B0-000-...			2.2	8.6	6	4
890CD/5/0010B/N/...	890CD-532100B0-000-...			4	14.1	10	6
890CD/5/0012B/N/...	890CD-532120B0-000-...			5.5	16.8	12	9
890CD/5/0016B/N/...	890CD-532160B0-000-...			7.5	22.2	16	12
890CD/2/0024C/N/...	890CD-232240C0-000-...	Frame C	320	5.5	31	24	24
890CD/2/0030C/N/...	890CD-232300C0-000-...			7.5	39	30	30
890CD/4/0024C/N/...	890CD-532240C...		560	11	33	24	20
890CD/4/0030C/N/...	890CD-532300C...			15	43	30	25
890CD/4/0039D/N/...	890CD-532390D0-000-...	Frame D	560	18.5	37	39	35
890CD/4/0045D/N/...	890CD-532450D0-000-...			22	43	45	38
890CD4/0059D/N/...	890CD-532590D0-000-...			30	59	59	50
890CD/4/0073E/N/...	890CD-432730E0-0...	Frame E	560	37	82	73	55
890CD/4/0087E/N/...	890CD-432870E0-0...			45	100	87	65
890CD/5/0073E/N/...	890CD-532730E0-0...		705	37	66	67	Data not available*
890CD/5/0087E/N/...	890CD-532870E0-0...			45	80	79	
890CD/4/0105F/N/...	890CD-433105F...	Frame F	560	55	123	105	78
890CD/4/0145F/N/...	890CD-433145F...			75	166	145	108
890CD/4/0156F/N/...	890CD-433156F...			90	203	180	135
890CD/4/0180F/N/...	890CD-433180F...			90	203	180	Data not available*
890CD/5/0105F/N/...	890CD-533105F...		705	55	98	100	
890CD/5/0145F/N/...	890CD-533145F...			75	133	125	
890CD/5/0156F/N/...	890CD-533156F...			90	162	156	

* For future developments, please contact us or visit our website www.parker.com/ssd
Note : For higher powers, refer to AC890SD series supplied from a DC bus.
Note : Power ratings are given for 320 and 560Vdc
** Old reference refers to legacy part references prior to 2009

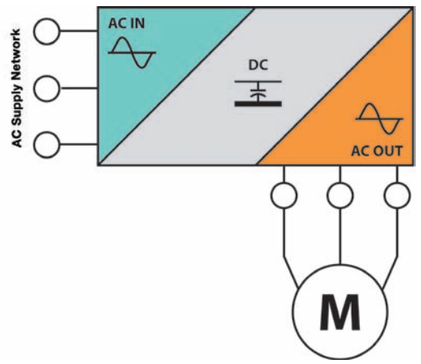
Modular AC Systems Drives

AC890SD Series Systems Drive

1.5A - 1681A

Description

The AC890SD (Standalone) drives are independent modules with integrated three-phase supply inputs. With its wide range of sizes available, the AC890SD is suitable for every type of application from a small machine to a large industrial high power process line (eg rolling mill). It is also suitable for applications requiring sectional control and assembly of independent modules (eg printing systems).



Directly supplied AC or DC common bus
Built-in dynamic braking module
Operator display fitted as standard
Common options as AC890CD
Fieldbusoptions: Profibus, DeviceNet, ControlNet, CANOpen

Electrical Characteristics - AC890SD Drive - 230V

Old order reference**	New order reference	Frame	Input voltage (Vac)	Power (kW)	Input current (A)		Output current (A)	
					Vector mode	Servo mode	Vector mode	Servo mode
890SD/2/0003B/B/...	890SD-231300B0-B00-...	Frame B	230	0.55	4.2	4.2	3	2.2
890CD/2/0005B/B/...	890SD-231550B0-B00-...			1.1	7.7	7.3	5.5	4
890CD/2/0007B/B/...	890SD-231700B0-B00-...			1.5	9.3	9.9	7	6
890CD/2/0011B/B/...	890SD-232110B0-B00-...			2.2	15.2	12.9	11	8
890CD/2/0016B/B/...	890SD-232165B0-B00-...			4	21.8	18.2	16.5	12
890CD/2/0024C/B...	890SD-232240C0-B00-...	Frame C		5.5	31	31	24	24
890CD/2/0030C/B/...	890SD-232300C0-B00-...			7.5	40	40	30	30

Note : Power ratings are given for 230Vac
Permitted overload : 150% for 60 sec in vector mode - 200% for 4 sec in servo mode.
** Old reference refers to legacy part references prior to 2009

Electrical Characteristics - AC890SD drive (contd.)

Old order reference**	New order reference	Frame	Input voltage (Vac)	Power (kW)	Input current (A)		Output current (A)	
					Vector mode	Servo mode	Vector mode	Servo mode
890SD/5/0002B/B/...	890SD-531200B0-B00-...	Frame B	380-500	0,55	2,9	2.9	2	1,5
890SD/5/0003B/B/...	890SD-531350B0-B00-...			1,1	5	4.7	3,5	2,5
890SD/5/0004B/B/...	890SD-531450B0-B00-...			1,5	6,8	6.4	4,5	3,5
890SD/5/0006B/B/...	890SD-531600B0-B00-...			2.2	9	7.2	6	4
890SD/5/0010B/B/...	890SD-532100B0-B00-...			4	14	14	10	6
890SD/5/0012B/B/...	890SD-532120B0-B00-...			5.5	16.5	13.8	12	9
890SD/5/0016B/B/...	890SD-532160B0-B00-...			7.5	21.7	17.9	16	12
890SD/2/0024C/B/...	890SD-232240C0-B00-...	Frame C	380-500	11	32	32	24	20
890SD/2/0030C/B/...	890SD-232300C0-B00-...			15	40	40	30	25
890SD/5/0039D/B/...	890SD-532390D0-B00-...	Frame D	380-500	18.5	42	38	39	35
890SD/5/0045D/B/...	890SD-532450D0-B00-...			22	50	45	45	38
890SD4/0059D/B/...	890SD-532590D0-B00-...			30	62	54	59	50
890SD/4/0073E/B/...	890SD-432730E0-0...	Frame E	380-460	37	81	81	73	73
890SD/4/0087E/B/...	890SD-432870E0-0...			45	95	95	87	87
890SD/4/0105F/B/...	890SD-433105F...	Frame F	380-460	55	114	114	105	78
890SD/4/0145F/B/...	890SD-433145F...			75	143	143	145	110
890SD/4/0156F/B/...	890SD-433156F...			90	164	164	180	135
890SD/4/0216G/B/...	890SD-433216G...	Frame G	380-460	110	216		216	151
890SD/4/0250G/B/...	890SD-433250G...			132	246		250	175
890SD/4/0316G/B/...	890SD-433316G...			160	305		316	221
890SD/4/0361G/B/...	890SD-433361G...			180	336	Data not available*	361	257
890SD/4/0375H/B/...	890SD-433375H...	Frame H	380-460	200	367		375	262
890SD/4/0420H/B/...	890SD-433420H...			220	400		420	294
890SD4/0480H/B/...	890SD-433480H...			250	466		480	336
890SD/4/0520H/B/...	890SD-433520H...			280	516		520	364
890SD/4/0590J/B/...	890SD-433590J...	Frame J	380-460	315	576	Data not available*	590	413
890SD/5/0073E/B/...	890SD-532730E0-0...	Frame E	380-500	37	69	69	66	66
890SD/5/0087E/B/...	890SD-532870E0-0...			45	82	82	79	79
890SD/5/0105F/B/...	890SD-533105F...	Frame F	380-500	55	93	93	100	74
890SD/5/0145F/B/...	890SD-533145F...			75	118	118	125	95
890SD/5/0156F/B/...	890SD-533156F...			90	140	140	156	117
890SD/5/0685K/ * /1F/A/US	890SD/5/0685K/ * /1F/A/US	K(2xG)	380-460	355	Data not available*	Data not available*	685	480
890SD/5/0798K/ * /1F/A/US	890SD/5/0798K/ * /1F/A/US	K(2xH)		400			798	570
890SD/5/0988K/ * /1F/A/US	890SD/5/0988K/ * /1F/A/US	K(2xH)		500			1028	720
890SD/5/1028K/ * /1F/A/US	890SD/5/1028K/ * /1F/A/US	K(3xG)		600			988	699
890SD/5/1120K/ * /1F/A/US	890SD/5/1120K/ * /1F/A/US	K(2xJ)		550			1120	780
890SD/5/1197K/ * /1F/A/US	890SD/5/1197K/ * /1F/A/US	K(3xH)		630			1197	855
890SD/5/1482K/ * /1F/A/US	890SD/5/1482K/ * /1F/A/US	K(3xH)		800			1482	1049
890SD/5/1681K/ * /1F/A/US	890SD/5/1681K/ * /1F/A/US	K(3xJ)		900			1681	1171

x : Version "A" (Advanced) or "H" (High performance)
* For future developments please contact us, or visit our website
Note : Power ratings are given for 400Vac.
** Old reference refers to legacy part references prior to 2009

Permitted overload : 150% for 60 sec in vector mode
200% for 4 sec in servo mode (Frames B,C,D)
150% for 60 sec in servo mode (Frames E, F, G, H, J)

Modular AC Systems Drives

AC890 Alternative Input Power Configurations

1.5A - 1681A

The modular design of the AC890 makes it easy to connect parallel input modules and multi-phase configurations. By using 12-pulse or 18-pulse configurations, harmful line harmonics can be greatly reduced. For thew utimate in harmonic abatement, an Active Front End (AFE) may be selected.

6 pulse Model	Power Rating	Constant torque : 355 - 900 kW Variable torque : 400 - 1000 kW
	Supply Voltage	380-460Vac (±10%) 3-phase
	Disconnect Switch	Standard
	Input inductance	Standard for limiting harmonic current
	Output Choke	Standard
	Operator Panel	6901 operator keypad mounted on enclosure door
12 pulse model (option)	Harmonics	Reduced harmonic current
	Power Rating	Constant torque : 355 - 600 kW Variable torque : 400 - 650 kW
	Supply Voltage	380-460Vac (±10%) 3-phase
	Disconnect Switch	Standard
	Input Transformer	(not included in the enclosure) optional 2 secondaires U/D
	Output Choke	Standard
	Operator Panel	6901 operator keypad mounted on enclosure door
18 pulse model (option)	Harmonics	Total harmonic distortion (current) in accordance with limits of IEEE 519 (1992)
	Power Rating	Constant torque : 630 - 900 kW Variable torque : 750 - 1000 kW
	Supply Voltage	380-460Vac (±10%) 3-phase
	Disconnect Switch	Standard
	Input Transformer	(not included in the enclosure) optional 3 secondaires phase shifted by 20°
	Output Choke	Standard
	Operator Panel	6901 operator keypad mounted on enclosure door

Standards

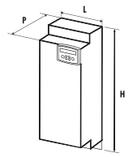
The AC890 series meets the following standards when installed in accordance with the relevant product manual.

CE Marked to EN50178 (Safety, Low Voltage Directive)
CE Marked to EN61800-3 (EMC Directive)
UL Listed to US safety standard UL508C.
cUL Listed to Canadian standard C22.2 #14.

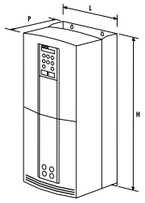
ISO 9001 & TickIT REGISTERED

Dimensions

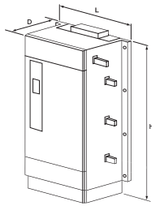
AC890 Series Systems Drives



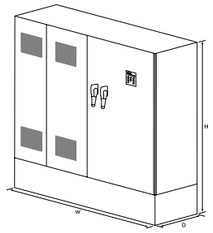
Frames B/C/D



Frames E/F



Frames G/H/J



Frame K

Dimensions and Weights

Model	W (mm)	H (mm)	D (mm)	Weight (kg)		
				890CS	890CD	890SD
890 Frame B	72.4	433	258	3.5	5	6
890 Frame C	116			Data not available	6.6	7.6
890 Frame D	160			8.7	12.1	13.1
890 Frame E	257	668	312	Data not available	32.5	33.5
890 Frame F		720	355		41	42
890 Frame G	456	1.042	465		Data not available	108
890 Frame H	572	1.177				138
890 Frame J	675	1.288				176
Frame K 355/400kW*	1600	2000	600	Data not available	Data not available	Data not available
Frame K 400/475kW*	1600	2000	600			
Frame K 500/600kW*	1600	2000	600			
Frame K 600/650kW*	2000	2000	600			
Frame K 550/630kW*	2400	2000	600			
Frame K 630/750kW*	2400	2000	600			
Frame K 800/900kW*	2400	2000	600			
Frame K 900/1000kW*	3000	2000	600			

Selection and Order Code

AC890 Series Systems Drives

AC890CS Series - AC-DC for DC bus connection

		Block 1	Block 2			Block 3	Block 4
Example ▶		890CS -	53	2320	B 0 -	B 00	- U
Product Family	AC890 Common Bus Supply	890CS					
	Supply Voltage		Current (A)	Frame Size			
	400/500V 3ph		53				
Current / Power Ratings			32	B	2320 B		
			54	B	2540 B		
			108	D	3108 D		
			162	D	3162 D		
Auxiliary Supply	None				0		
Brake Switch	Fitted					B	
Special Options	None					00	
Language	English (50/60Hz)						U

AC890CA Series - Common Bus Adapter

		Block 1	Block 2			Block 3	Block 4
Example ▶		890CA -	53	2500	B 0 -	R 00	U
Product Family	AC890 Common Bus Adaptor	890CA					
	Supply Voltage		Current (A)	Frame Size			
	400/500V 3 ph		53				
Current / Power Ratings			50	B	2500 B		
			80	B	2800 B		
Auxiliary Supply	None				0		
Hardware Characteristics	None (80A only)					0	
	(Ride through capacitors (50A only)					R	
Special Options	None					00	
Language	English (50/60Hz)						U

Selection and Order Code

AC890 Series Systems Drives

AC890CD Series - Common bus drive < 37kW

		Block 1	Block 2					Block 3	Block 4	
Example ▶		890CD -	23	1300	B	0 -		B 00 -	1	A 0 0 0
Product Family	AC890 Common Bus Drive	890CD								
	230V nominal		23							
	Vector Mode kW/A 320Vcc	Vector Mode HP/A 320Vcc	Servo Mode kW/A 320Vcc	Servo Mode HP/A 320Vcc	Frame					
Power / Current Rating	0.55/3.0	0.75/3.0	0.55/2.2	0.75/2.2	B	1300 B				
	1.1/5.5	1.5/5.5	1.1/4.0	1.5/4.0	B	1550 B				
	1.5/7.0	2.0/7.0	1.5/6.0	2.0/6.0	B	1700 B				
	2.2/11	3.0/11	2.2/8.0	3.0/8.0	B	2110 B				
	4.0/16.5	5.0/16.5	4.0/12	5.0/12	B	2165 B				
	5.5/24	7.5/24	5.5/24	7.5/24	C	2240 C				
	7.5/30	10/30	7.5/30	10/30	C	2300 C				
	500V nominal		53							
	Vector Mode kW/A 560Vcc	Vector Mode HP/A 650-705Vcc	Servo Mode kW/A 320Vcc	Servo Mode HP/A 320Vcc	Frame					
Power / Current Rating	0.55/2.0	0.75/2.0	0.55/1.5	0.75/1.5	B	1200 B				
	1.1/3.5	1.5/3.5	1.5/2.5	1.5/2.5	B	1350 B				
	1.5/4.5	2.0/4.5	1.5/3.5	2.0/3.5	B	1450 B				
	2.2/6.0	3.0/5.0	2.2/4.0	3.0/4.0	B	1600 B				
	4.0/10	5.0/8.0	4.0/6.0	5.0/6.0	B	2100 B				
	5.5/12	7.5/12	5.5/9.0	7.5/9.0	B	2120 B				
	7.5/16	10/14	7.5/12	10/10	B	2160 B				
	7.5/-	10/-	7.5/16	10/14	B	216S B				
	11/24	15/24	11/20	15/20	C	2240 C				
	15/30	20/27	15/25	20/22	C	2300 C				
	15/30	20/30	15/30	20/28	C	230S C				
	18.5/39	25/35	18.5/35	25/29	D	2390 D				
	22/45	30/40	22/38	30/34	D	2450 D				
	30/59	40/52	30/50	40/45	D	2590 D				
Auxiliary Supply	Not required (not available on frames B-E)						0			
Brake Switch	Not Fitted							B		
Special Options	None							00		
	Documented Special Options (01-99) (Refer to local sales office)									
Performance	Advanced								1	
	High								2	
Language	English (50Hz)								A	
	English (60Hz)								B	
Option F	None									0
	SinCos Encoder (Endat 2.1)									1
	Incremental Quadrature Encoder									3
	Resolver									5
	8902/M1 Sin/Cos Registration									7
Option A	Not Fitted									0
	CanOpen									N
	ControlNet									C
	DeviceNet									D
	Ethernet IP									H
	Modbus/TCP									T
	Profibus - DP									P
	Profinet									F
	RS485 / Modbus									S
	8903/M1 Sin/Cos Registration									7
Option B	Not Fitted									0
	Firewire 1394A									A

Selection and Order Code

AC890 Series Systems Drives

AC890CD Series - Common Bus Drive > 37kW

		Block 1	Block 2	Block 3	Block 4
Example ▶		890CD	- 43 2730 E 0	- 0 00	- 1 A 0 0 0
Product Family	AC890 Common Bus Drive	890CD			

400V nominal — 43

	Induction Mode Constant kW/A 560Vcc	Induction Mode Constant HP/A 650Vcc	Induction Mode Quadratic kW/A 560Vcc	Induction Mode Quadratic HP/A 650Vcc	Servo Mode Constant kW/A 560Vcc	Servo Mode Constant HP/A 650Vcc	Servo Mode Quadratic kW/A 560Vcc	Servo Mode Quadratic HP/A 650Vcc	Frame	Block 2
Power / Current Ratings	37/73	50/73	45/87	60/87	37/73	50/73	45/76	60/76	E	2730 E
	45/87	60/87	55/105	75/105	45/87	60/87	55/90	75/90	E	2870 E
	55/105	75/100	75/145	100/125	55/78	75/74	75/126	100/108	F	3105 F
	75/145	100/130	90/165	125/156	75/110	100/99	90/143	125/135	F	3145 F
	90/180	125/156	110/205	150/180	90/135	125/117	110/176	150/154	F	3156 F
	90/180	150/180	-	-	90/135	150/135	-	-	F	3180 F

500V nominal — 53

	Induction Mode Constant kW/A 705Vcc	Induction Mode Constant HP/A 705Vcc	Induction Mode Quadratic kW/A 705Vcc	Induction Mode Quadratic HP/A 705Vcc	Servo Mode Constant kW/A 705Vcc	Servo Mode Constant HP/A 705Vcc	Servo Mode Quadratic kW/A 705Vcc	Servo Mode Quadratic HP/A 705Vcc	Frame	Block 2
Power / Current Ratings	37/67	-	45/79	-	37/67	-	45/69	-	E	2730 E
	45/79	-	55/98	-	45/79	-	55/84	-	E	2870 E
	55/100	-	75/125	100/125	55/74	-	75/93	100/93	F	3105 F
	75/125	-	90/156	125/156	75/95	-	90/118	125/118	F	3145 F
	90/156	-	-	-	90/117	-	-	-	F	3156 F

		Block 3
Auxiliary Supply	Not Required (not available on frames B-E)	0
	115V 1ph (option for frame F only)	1
	230V 1ph (option for frame F only)	2
Brake Switch	Not Fitted	0
Special Options	None	00
	Active Front End ('Y' caps removed - only available on frames E-F)	07
	Documented special options (01-99) (Refer to local sales office)	

		Block 4
Performance	Advanced	1
	High	2
Language	English (50Hz)	A
	English (60Hz)	B
Option F	None	0
	SinCos Encoder (Endat 2.1)	1
	Incremental Quadrature Encoder	3
	Resolver	5
	8902/M1 Sin/Cos Registration	7
Option A	Not Fitted	0
	CanOpen	N
	ControlNet	C
	DeviceNet	D
	Ethernet IP	H
	Modbus/TCP	T
	Profibus	P
	Profinet	F
	RS485 / Modbus	S
	8903/M1 Sin/Cos Registration	7
Option B	Not Fitted	0
	Firewire 1394A	A

Selection and Order Code

AC890 Series System Drive

AC890SD Series - Standalone Drive <37kW

		Block 1	Block 2	Block 3	Block 4
Example ▶		890SD	- 23 1300 B 0	- B 00	- 1 A 0 0 0
Product Family	Standalone AC890 Drive	890SD			

230V nominal — 23

	Vector Mode kW/A 230Vca	Vector Mode HP/A 230Vca	Servo Mode kW/A 230Vca	Servo Mode HP/A 230Vca	Frame	Block 2
Power / Current Ratings	0.55/3.0	0.75/3.0	0.55/2.2	0.75/2.2	B	1300 B
	1.1/5.5	1.5/5.5	1.1/4.0	1.5/4.0	B	1550 B
	1.5/7.0	2.0/7.0	1.5/6.0	2.0/6.0	B	1700 B
	2.2/11	3.0/11	2.2/8.0	3.0/8.0	B	2110 B
	4.0/16.5	5.0/16.5	4.0/12	5.0/12	B	2165 B
	5.5/24	7.5/24	5.5/24	7.5/24	C	2240 C
	7.5/30	10/30	7.5/30	10/30	C	2300 C

500V nominal — 53

	Vector Mode kW/A 400Vca	Vector Mode HP/A 460Vca	Servo Mode kW/A 400Vca	Servo Mode HP/A 460Vca	Frame	Block 2
Power /Current Ratings	0.55/2.0	0.75/2.0	0.55/1.5	0.75/1.5	B	1200 B
	1.1/3.5	1.5/3.5	1.5/2.5	1.5/2.5	B	1350 B
	1.5/4.5	2.0/4.5	1.5/3.5	2.0/3.5	B	1450 B
	2.2/6.0	3.0/5.0	2.2/4.0	3.0/4.0	B	1600 B
	4.0/10	5.0/8.0	4.0/6.0	5.0/6.0	B	2100 B
	5.5/12	7.5/12	5.5/9.0	7.5/9.0	B	2120 B
	7.5/16	10/14	7.5/12	10/10	B	2160 B
	7.5/16	10/14	7.5/16	10/14	B	216S B
	11/24	15/24	11/20	15/20	C	2240 C
	15/30	20/27	15/25	20/22	C	2300 C
	15/30	20/30	15/30	20/28	C	230S C
	18.5/39	25/35	18.5/35	25/29	D	2390 D
	22/45	30/40	22/38	30/34	D	2450 D
	30/59	40/52	30/50	40/45	D	2590 D

		Block 3
Auxiliary Supply	Not Required (Not available on frames B-D)	0
Brake Switch	Brake Switch Fitted	B
Special Options	None	00
	Documented special options (01-99) (Refer to local sales office)	

		Block 4
Performance	Advanced	1
	High	2
Language	English (50Hz)	A
	English (60Hz)	B
Option F	None	0
	SinCos Encoder (Endat 2.1)	1
	Incremental Quadrature Encoder	3
	Resolver	5
	8902/M1 Sin/Cos Registration	7
Option A	Not Fitted	0
	CanOpen	N
	ControlNet	C
	DeviceNet	D
	Ethernet IP	T
	Modbus/TCP	H
	Profibus - DP	P
	Profinet	F
	RS485 / Modbus	S
	8903/M1 Sin/Cos Registration	7
Option B	Not Fitted	0
	Firewire 1394A	A

Selection and Order Code

AC890 Series Systems Drives

AC890SD Series - Standalone Drives >37kW

		Block 1	Block 2	Block 3	Block 4
	Example ▶	890SD	- 43 2730 E 0	- 0 00	- 1 A 0 0 0
Product Family	Standalone AC890 Drive	890SD			

400V nominal — 43

Power / Current Ratings	Induction Mode Constant kW/A 400Vac	Induction Mode Constant HP/A 460Vac	Induction Mode Quadratic kW/A 400Vac	Induction Mode Quadratic HP/A 460Vac	Servo Mode Constant kW/A 400Vac	Servo Mode Constant HP/A 460Vac	Servo Mode Quadratic kW/A 400Vac	Servo Mode Quadratic HP/A 460Vac	Frame	
	37/73	50/73	45/87	60/87	37/73	50/73	45/76	60/76	E	2730 E
	45/87	60/87	55/105	75/105	45/87	60/87	55/90	75/90	E	2870 E
	55/105	75/100	75/145	100/125	55/78	75/74	75/126	100/108	F	3105 F
	75/145	100/130	90/165	125/156	75/110	100/99	90/143	125/135	F	3145 F
	90/180	125/156	110/205	150/180	90/135	125/117	110/176	150/154	F	3156 F
	90/180	150/180	-	-	90/135	150/135	-	-	F	3180 F
	110/216	175/216	132/260	200/260	110/153	175/153	132/210	200/210	G	3216 G
	132/250	200/250	150/302	250/302	132/171	200/171	150/237	250/237	G	3250 G
	160/316	250/316	180/361	300/361	160/224	250/224	180/286	300/286	G	3316 G
	180/361	300/361	220/420	350/420	180/253	300/253	220/331	350/331	G	3361 G
	200/375	-	250/480	-	200/268	-	250/343	-	H	3375 H
	220/420	350/420	250/480	400/480	220/300	350/300	250/383	400/383	H	3420 H
	250/480	400/480	300/545	450/545	250/336	400/336	300/428	450/428	H	3480 H
	280/520	450/520	315/590	500/590	280/368	450/368	315/368	500/465	H	3520 H
	315/590	500/590	355/650	550/650	315/411	500/411	355/471	550/471	J	3590 J

500V nominal — 53

Power /Current Ratings	Induction Mode Constant kW/A 500Vac	Induction Mode Constant HP/A 500Vac	Induction Mode Quadratic kW/A 500Vac	Induction Mode Quadratic HP/A 500Vac	Servo Mode Constant kW/A 500Vac	Servo Mode Constant HP/A 500Vac	Servo Mode Quadratic kW/A 500Vac	Servo Mode Quadratic HP/A 500Vac	Frame	
	37/67	-	45/79	-	37/67	-	45/69	-	E	2730 E
	45/79	-	55/98	-	45/79	-	55/84	-	E	2870 E
	55/100	-	75/125	100/125	55/74	-	75/93	100/93	F	3105 F
	75/125	-	90/156	125/156	75/95	-	90/118	125/118	F	3145 F
	90/156	-	-	-	90/117	-	-	-	F	3156 F

Auxiliary Supply	Not Fitted (not available on frames B-E)	0
	115V 1ph (option on frames F-J only)	1
	230V 1ph (option on frames F-J only)	2
Brake Switch	Not Fitted	B
Special Options	None	00
	Active Front End ('Y' caps removed - option on frames E-F only)	07
	Documented Special Options (01-99) (Refer to local sales office)	
Performance	Advanced	1
	High	2
Langue	English (50Hz)	A
	English (60Hz)	B
Option F	None	0
	SinCos Encoder (Endat 2.1)	1
	Incremental Quadrature Encoder	3
	Resolver	5
	8902/M1 Sin/Cos Registration	7
Option A	Not Fitted	0
	CanOpen	N
	ControlNet	C
	DeviceNet	D
	Ethernet IP	H
	Modbus/TCP	T
	Profibus - DP	P
	Profinet	F
	RS485 / Modbus	S
	8903/M1 Sin/Cos Registration	7
Option B	Not Fitted	0
	Firewire 1394A	A

High Power Modular AC Drives

AC890PX Series

110kW - 400kW

Description

The AC890PX is a high power standalone modular systems drive designed for industrial applications. It is especially fitted to retrofit applications where a complete standard enclosed drive system is required. It is particularly suited to the following applications:

- Energy-saving pump and fan applications
- Extruders,
- Mixers, centrifuges
- Engine Dynamometers

Features

Suitable for use with all types of AC motor

The AC890PX can control all types of AC motor:

- Induction motors
- PMAC servo motors
- Torque Motors

Operation with or without feedback

The drive can be configured for the following operating modes:

- V/F speed control
- Sensorless or full flux vector control
- PMAC Servo motor control

Compatible with a wide range of feedback options

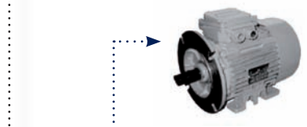
Thanks to a range of optional feedback cards, the AC890PX works with all types of popular feedback systems:

- Incremental encoder
- Resolver
- SinCos (Endat 2.1) encoder
- Absolute encoder EnDat

Conforming to international standards

Suitable for supply voltages of 380Vac to 690Vac, the AC890PX can be connected to different supply networks around the world without any additional equipment.

Meeting the requirements of key international standards, the AC890PX is supported in over 60 countries around the world through the Parker SSD Drives support network.



AC induction Motors

PMAC Brushless Motors

Torque Motors

High Power Modular AC Drive

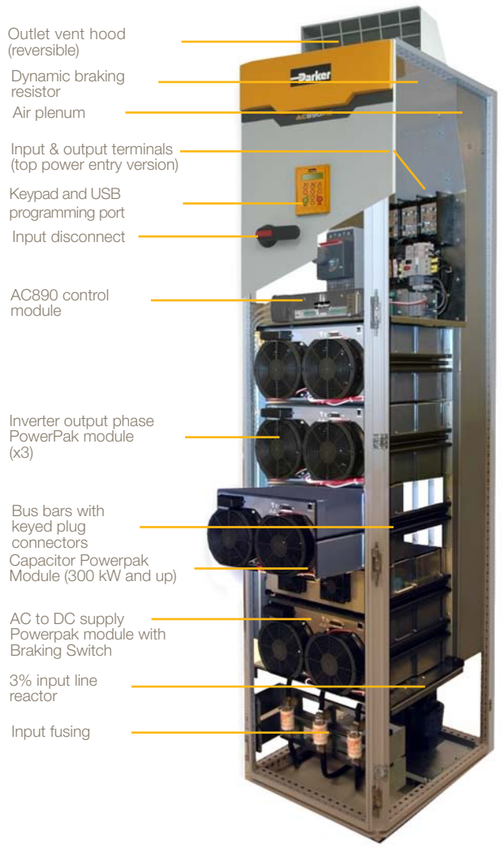
AC890PX Series

110kW - 400kW

Features

Ultra-Compact Drive

The extremely compact footprint of the AC890PX is unmatched in the high power AC drives market. Within its small frame it integrates all of the standard equipment necessary for your installation: line reators, disconnect switch, fuses and second enviroment line filter (compliant to EN 61800-3).
Configuration and start-up of the drive can be performed using the operator keypad in a matter of minutes or from your laptop using the DSELite configuration software.



Low-maintenance ensures maximum machine up-time and productivity

Thanks to a plug in design, the power modules of the AC890PX have been designed to be replaceable in minutes by any technician, even a non-specialist. These lightweight, ship anywhere modules help to reduce machine downtime and lost productivity in the event of a fault occurring.

PowerPak Phase Module – Front View

PowerPak Phase Module - Rear View

Total flexibility for easy factory integration

To facilitate maximum integration into the factory or existing buildings the AC890PX is available in a number of different variants :

- Top or bottom cable entry/exit to suit existing arrangements
- 12 or 18 pulse configuration
- Active Front-End with negligable harmonic distortion
- Integrated contactors, fuses, chokes etc.

Note : Certain variants require an additional enclosure bay.

TOP CABLE ENTRY / EXIT

BOTTOM CABLE ENTRY / EXIT

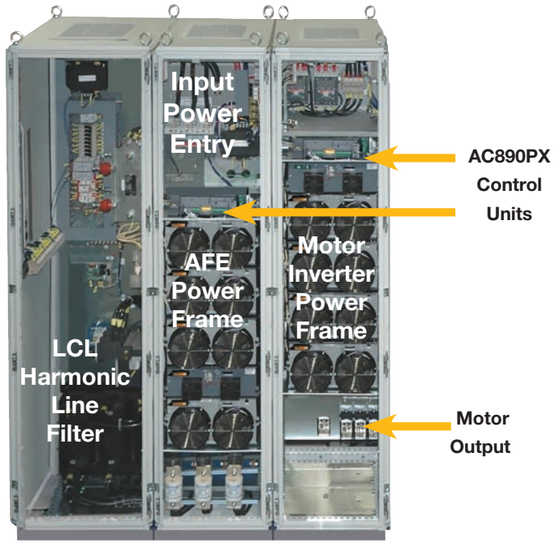
High Power Modular AC Drive

AC890PX Series

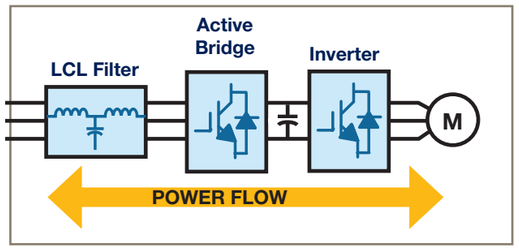
110kW - 400kW

Alternative Input Power Configurations

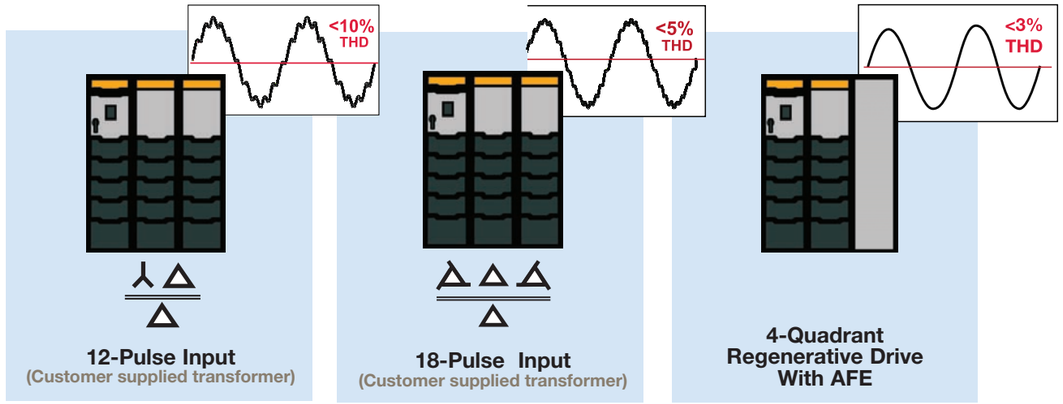
Active Front-End (AFE) Version - Energy regeneration with low harmonic distortion



Fully line regenerative drive
Continuous duty at full torque - motoring or braking
Negligible power line harmonics - meets IEEE519
Unity power factor
Compact 3 bay (1600 mm) enclosure



12 and 18 pulse Input



High Power Modular AC Drive

AC890PX Series

Solutions above 400kW

Description

The flexible nature of the AC890PX means that higher power ratings of up to 1200kW / 1800HP can be provided as well as the standard catlogue ratings. These larger units use the same modular construction as the standard AC890PX, with replacable phase modules, built into multiple bay cabinets.

Power ratings of over 750kW / 1000HP are supplied with integral liquid refrigerant cooling. This enables Parker to offer drives with one of the highest power densities available in the market and its customers to benefit from smaller form factors and increased floorspace.

The High power AC890PX is also available as a DC input converter, AC input converter, AC input complete drive, Grid-Tie inverter and fully line regenerative drive.

High Power Modular AC Drive

AC890PX Series

110kW - 400kW

Technical Specification

Range	AC Induction Motors	Servo Motors
Supply Voltage - 380 to 460Vac 3ph +/-10% - 500 to 575Vac 3ph +/-10% - 600 to 690Vac 3ph +/-10%	Standard duty [heavy] 132-400kW [110-315kW] 149-373kW [112-298kW] / 200-500HP [150-400HP] 132-400kW [110-315kW]	Heavy duty 155-410 Amps 60-155 Amps
Overload Capacity Asynchronous motor - standard duty Asynchronour motor - heavy duty Servo motor - heavy duty	 110% for 60 sec 150% for 60 sec 150% for 60 sec	
Output Frequency	0 - 1000 Hz in V/F mode 0 - 350 Hz in Closed loop vector mode 0 - 120 Hz in Sensorless vector mode	
Switching Frequency	2 kHz (standard) - Adjustable 4 kHz (derating required, consulte factory). Suppression of audible frequencies	
Dynamic Braking	Dynamic braking module integrated as standard (limited service) External braking resistor (option).	
Ambient Temperature	0°C to 40°C	
IP Rating	IP 21 / NEMA 1 as standard. IP 52 or greater available upon demand.	
Insulation	Cabinet provides an attenuation of 15dB to emissions between 30-100 MHz	
Humidity	90% maximum humidty at 40°C, without condensation	
Atmosphere	Non flammable, non corrosive, no dust	
Climate	Class 3k3, as defined by EN50178 (1998)	
Vibrations	Test Fc meeting EN60068-2-6	

Standards

Pollution Index	Level II (non-conductive pollution, except for temporary condensation)
Europe	Low Voltage Directive 73/23/EEC with amendment 93/68/EEC, Article 13 and Annex III, EN50178 (1998) Conforms to EN61800-3 (second environment)
North America / Canada	Product conforms to UL specifications.

High Power Modular AC Drive

AC890PX Series

110kW - 400kW

Electrical Characteristics

Product Codes	Asynchronous motors					Servo motors	
Model	Constant torque	Variable torque	Constant torque (Amps)	Variable torque (Amps)	Maximum current without overload	Variable torque (Amps)	Constant torque (Amps)
400Vac modules							
890PX/4/0215/B/00/A	110 kW	132 kW	215 A	260 A	265 A	190 A	155 A
890PX/4/0260/B/00/A	132 kW	160 kW	260 A	340 A	347 A	245 A	185 A
890PX/4/0300/B/00/A	160 kW	200 kW	300 A	390 A	398 A	285 A	210 A
890PX/4/0420/B/00/A	200 kW	250 kW	420 A	480 A	487 A	350 A	295 A
890PX/4/0480/B/00/A	250 kW	315 kW	480 A	600 A	609 A	435 A	340 A
890PX/4/0520/B/00/A	280 kW	355 kW	520 A	660 A	670 A	475 A	365 A
890PX/4/0580/B/00/A	315 kW	400 kW	580 A	720 A	731 A	520 A	410 A
460Vac modules							
890PX/4/0215/B/00/A	120 kW/150HP	149 kW/200HP	200 A	250 A	255 A	190 A	155 A
890PX/4/0260/B/00/A	149 kW/200HP	187 kW/250HP	250 A	320 A	326 A	245 A	155 A
890PX/4/0300/B/00/A	187 kW/250HP	224 kW/300HP	300 A	380 A	388 A	285 A	210 A
890PX/4/0420/B/00/A	224 kW/300HP	298 kW/400HP	380 A	480 A	487 A	350 A	295 A
890PX/4/0480/B/00/A	298 kW/400HP	298 kW/400HP	460 A	590 A	599 A	435 A	340 A
890PX/4/0580/B/00/A	373 kW/500HP	448 kW/600HP	580 A	700 A	711 A	520 A	410 A
575Vac modules							
890PX/6/0130/B/00/A	112 kW/150HP	149 kW/200HP	160 A	210 A	214 A	60 A	855 A
890PX/6/0160/B/00/A	149 kW/200HP	187 kW/250HP	210 A	250 A	255 A	75 A	105 A
890PX/6/0190/B/00/A	224 kW/300HP	224 kW/300HP	215 A	310 A	316 A	85 A	130 A
890PX/6/0280/B/00/A	120 kW/150HP	298 kW/400HP	310 A	420 A	426 A	125 A	185 A
890PX/6/0340/B/00/A	298 kW/400HP	298 kW/400HP	410 A	480 A	487 A	155 A	235 A
690Vac modules							
890PX/7/0130/B/00/A	110 kW	132 kW	130 A	160 A	163 A	60 A	85 A
890PX/7/0160/B/00/A	132 kW	160 kW	160 A	190 A	194 A	75 A	105 A
890PX/7/0190/B/00/A	160 kW	200 kW	190 A	240 A	245 A	85 A	130 A
890PX/7/0230/B/00/A	200 kW	250 kW	230 A	280 A	286 A	105 A	150 A
890PX/7/0280/B/00/A	250 kW	315 kW	280 A	340 A	347 A	125 A	185 A
890PX/7/0320/B/00/A	280 kW	355 kW	320 A	390 A	398 A	145 A	210 A
890PX/7/0340/B/00/A	315 kW	400 kW	340 A	430 A	436 A	155 A	235 A

Selection and Order Codes

AC890PX High Power Modular AC Drive

Example ▶ 890 PX / 4 / 0580 / B / 00 / A / UK

Field	Description	kW	Output Current (A)	HP	Code
Product Family	AC890PX Standard High Power Drive				890
	AC890PX Conformal Coated PCB High Power Drive				891
Product Type	Modular Standalone Drive				PX
	Supply Voltage	kW	Output Current (A)	HP	
Power / Current Ratings	380-460V AC nominal				4
		110	215	150	
		132	260	200	0215
		160	300	250	0260
		200	420	300	0300
		250	480	400	0420
		280	520	-	0520
		315	580	500	0580
	500-575V AC nominal				6
	600-690V AC nominal				7
		110	130	150	0130
		132	160	200	0160
		160	190	250	0190
		200	230	-	0230
		250	280	300	0280
		280	320	-	0320
		315	340	400	0340
Brake Switch	No brake switch				N
	Braking control including internal brake resistor (200kJ/2.4kW) and thermal OL protection fitted				B
Build Options	Top cable entry				00
	Bottom cable entry				01
	Top entry no line choke				02
	Bottom entry no line choke				03
Performance	Advanced performance				A
	High performance				H
Language	French				FR
	German				GR
	Italian				IT
	Polish				PL
	Portuguese				PO
	Spanish				SP
	Swedish				SW
	English (50Hz)				UK
	English (60Hz)				US

For power module and option card selection refer to page 78 for details

Accessories and Options

AC890/AC890PX Series

Options	Frame	Fitted	Reference	Page
Power Module				
Common bus adaptor 50A DC with additional bus caps.	B	Option	890CA-532500B0-R-00-U	
Common bus adapter 80A DC without bus caps.	B	Option	890CA-532800B0-0-00-U	
EMC filter	B	Option		93
Options Cards				
Firewire peer-to-peer		Option	8903-FA-00	80
CAN peer-to-peer		Option	8903-SP-00	
Ethernet Modbus/TCP		Option	8903-IM-00	
Ethernet Ethernet/IP		Option	8903-IP-00	
Profinet		Option	8903-PN-00	
Profibus-DP		Option	8903-PB-00	
DeviceNet		Option	8903-DN-00	
CANopen		Option	8903-CB-00	
ControlNet		Option	8903-CN-00	
EtherCAT		Option	8903-CT-00	
RS485 / Modbus		Option	8903-RS-00	
Resolver feedback		Option	8902-RE-00	82
Resolver feedback with simulated incremental encoder		Option	8902-RR-00	
SinCos Endat 2.1 feedback		Option	8902-E1-00	
Incremental quadrature encoder		Option	8902-EQ-00	81
Incremental pulse encoder		Option	8902-EP-00	
SinCos Endat 2.1 feedback and registration		Option	8902-M1-00	84
SinCos Endat 2.1 master and registration		Option	8903-M1-00	
Incremental master encoder		Option	8903-EP-00	
High resolution analogue input		Option	8903-AI-00	
Accessories				
Braking resistor		Option		92
AC line reator		Option	NRTFxxxx	95
Standard compact keypad		Standard	6511-RS232-00-B	79
Alphanumeric keypad		Option	6901-00-B	
Graphical operator station		Option	6911-01-00-G	
Remote mounting kit for keypad		Option	6052-00-B	
Configuration tool software including USB cable		Option		85
System Busbars - frame B-D	B-D	Option	BH465850	79
Installation kit frame B-d	B-D	Standard	LA468430Uxx3	
Ventilation duct kit (1M exhaust for frames B,C,D)	B-D	Option	8905-DUCTKIT-190	
Ventilation fan kit frame B-D	B-D	Option	8905-DUCTFAN-190	
Cables				
HMI Touchscreen 3” to 15”		Option	TS800x	87
Motors				
Induction motors				96
Brushless servo motors		See Servo Catalogue		
Torque motors				114

Accessories

AC890/AC890PX Series

Keypad

Model	Description
6511-TTL-00	4 Digit LCD keypad*
6901/00	Alphanumeric multilingual keypad**
6911-01-00-G	Graphical operator station
6052/00	Remote mounting kit for 6901 with 3m cable

*Standard equipment for frames B - D
** Standard equipment for frames E - K and All AC890PX

6511

6901

6911

Screened power cables with connectors

Model	Description
CD1UA1F9R00xx	Power cable with motor connector for NX motor and Io ≤ 14A rms
CD1UP2F1R00xx	Power cable with motor connector for NX motor and Io ≤ 22A rms
CS4UA1F1R00xx	Resolver cable with motor connector and Sub-D connector for NX motor

Assembly kit

Model	Description
LA468430U003	Assembly kit for 890CS/CA
LA468430U103	Assembly kit for 890CD, B to D
LA468430U203	Assembly kit for 890SD, B to D
8905-DUCTKIT-00	Ventilation duct kit
8905-DUCTFAN-00	Ventilation duct fan

Cables

Model	Description
8905-USBCL1-00	USB programming cable for 890
8905-FWCBL200-00	FireWire cable 200 mm
8905-FWCBL280-00	FireWire cable 280 mm
8905-FWCBL1000-00	FireWire cable 1000mm
8905-FWCBL4500-00	FireWire cable 4.5 m

Busbar System

Model	Description
BH465850	DC SSD Rail/Bus Bar 140A (UL) 1m
BC465938U200	Insulator for DC bus bars 200mm

Options

AC890/890PX Series

Communication Interfaces

Ethernet IP (8903-IP-00) and Modbus/TCP (8903-IM-00)	
Supported Protocols	Card 8903-IM-00 : Modbus/TCP Card 8903-IP-00 : Ethernet IP
Communication speed	10/100M bits/s
Station Address	By Drive System Explorer software via RTNX protocol
Suitable for Drives	AC890 version 3.2+

DeviceNet (8903-DN-00)	
Supported Protocols	Supports the group 2 only slave subset of the DeviceNet protocol
Supported Messages	Polled I/O, Cyclic Outputs, Change of State (COS), Explicit Messaging
Communication Speed	125K, 250K et 500K bits/s
Station Address (MACID)	Dip switch or software setting of station address and network speed
Suitable for Drives	AC890 version 1.9+

CanOpen (8903-CB-00)	
Profile	DS402
Supported Messages	SDO, PDO, NMT, SYNC
Communication Speed	20K, 50K, 125K, 250K, 500K, 1M bits/s selectable by software or dip switch setting
Station Address	Dip switch or software setting of station address and network speed
Suitable for Drives	AC890 version 1.3+

ControlNet (8903-CN-00)	
Supported Messages	Polled I/O
Station Address	Selectable by software
Station Address	Selectable by dip switch
Suitable for Drives	AC890 version 1.4+

Profibus-DP (8903-PB-00)	
Supported Protocols	Profibus-DP ; Demand Data and Data Exchange
Communication Speed	Up to 12M bits/s selected by the master
Station Address	Dip switch or software setting of station address
Suitable for Drives	AC890 version 1.4+

FireWire IEEE 1394 (8902-FA-00)	
Communication Supported	peer-to-peer communication between drives

Profinet (8903-PN-00 and 8903-PN-FF)	
Supported Protocols	Profinet I/O RT Protocol
Station Address (IP)	Software setting of IP address via DSE
Suitable for Drives	AC890 version 3.3+

Peer to peer (8903-SP-00 and 8903-SP-FF)	
Supported Protocols	Peer to peer data exchange with other drives
Communications Speed	up to 1M bits/s selectable by dip switch
Suitable for Drives	AC890 version 3.3+

Options

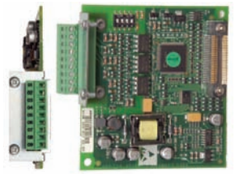
AC890/890PX Series

Communication Interfaces

EtherCAT (8903-CT-00)	
Supported Protocols	CANopen over EtherCAT (CoE) DS301 Compliant
Communication speed	100M bits/s
Suitable for Drives	AC890 version 3.7 onwards and 4.1 onwards

RS485 / Modbus (8903-RS-00)	
Supported Protocols	Modbus RTU only
Cabling	RS485 2 wire
Communication Speed	1200 to 115200 bits/s
Station Address	Selectable via software
Suitable for Drives	AC890 version 3.7 onwards and 4.1 onwards

Incremental Quadrature encoder card 8902-EQ



Description

The HTTL 8902-EQ speed feedback option allows incremental encoders to be connected directly to the drive to provide highly accurate speed feedback measurement. Supplies variable voltage isolated encoder power supply.

Product Codes

Code	Description
8902-EQ-00-00	Optional HTTL incremental encoder
8902-EQ-00-FF	Option HTTL encoder factory-fitted

Features

Maximum pulse rate	250kHz (differential) 200kHz (single ended)
Receiver current	≦10mA per channel
Input Format	Two differential channels in quadrature (Clock/direction or clock only)
Input Voltage	±30V (differential), 0-30V (single-ended)
Input Voltage Differential	±30V maximum
Input Voltage Threshold dip switch settings	3V ± 1V (differential) 8V ± 1V (single-ended)
Encoder Power Supply	Maximum load 200mA or 2W

Options

AC890/890PX Series

Resolver feedback card 8902-RE

Description

The 8902-RE resolver speed feedback option allows the resolver to be connected directly to the drive to provide highly accurate speed feedback measurement. Contains a carrier output signal to power the resolver.

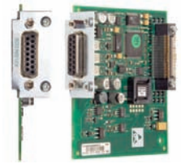
Features

Maximum Speed	Up to 50 000 RPM (with 2 pole resolver)
Carrier Output Signal	7V rms, 8kHz
Maximum Carrier Supply	70mA rms
Maximum Input Voltage	±12V peak
Accuracy	< 5 minutes
Resolution	Equivalent to 16 bits in one revolution of resolver
Inputs	Differential inputs Zin ~2 kΩ
Maximum Input Voltage	12Vpeak

Product Codes

Code	Description
8902-RE-00-00	Optional Resolver feedback card
8902-RE-00-FF	Option Resolver feedback factory-fitted

SinCos Endat 2.1 Feedback Card 8902-E1



Description

The SinCos speed feedback option 8902-E1 allows a 1V p-p Sin/Cos encoder to be connected directly to the drive to provide highly accurate speed feedback measurement. Decodes Heidenhain Endat 2.1 absolute position encoders and supplies 5V or 10V for the encoder.

Product Codes

Code	Description
8902-EI-00-00	Optional SinCos encoder card
8902-EI-00-FF	Optional SinCos card factory-fitted

Features

Maximum Pulse Rate	250kHz
Receiver Impedance	120Ω
Input Format	two differential 1V p-p signals in quadrature
Encoder Supply	Maximum load 250mA Adjustable Voltage 5V/10V

Options

AC890/890PX Series

SinCos registration position 8902-M1 and 8903-M1

Description

The 8903-M1-00 and 8902-MA-00 feedback cards allow operation without external registration position, thanks to the connection of the encoder to the drive. They provide highly accurate speed feedback measurement and regstration. Nevertheless registration applications are best achieved when both cards are used.

- Registration achieved in the drive
- Interpolates each encoder line with 11-bit accuracy giving 4 million counts / rev. on a 2048 line encoder
- Optional 1V input from 'Z' index pulse for use with registration
- Supplies 5V or 10V to the encoder
- Decodes Heidenhain Endat 2.1 absolute position encoders
- 4 optically isolated auxiliary digital outputs that can be used either for general purpose inputs, or for inputs from registration mark sensor (8903-M1 only)
- 3 non-isolated auxiliary digital outputs that can be either for general purpose outputs or for synthesizing an encoder output (8903-M1 only)

Product Codes

Code	Description
8902-M1-00	Slave SinCos registration
8903-M1-00	Master SinCos registration
8902-M1-FF	Slave SinCos registration factory-fitted
8903-M1-FF	Master SinCos registration factory-fitted

Approved Encoders

	1V p-p	Endat 2.1	Single Turn ABS	Multi-turn ABS
Heidenhain :				
EQN425	√	√		√
ECN413	√	√	√	
ERN480	√			
Stegmann :				
HG660 AKR (xxxx)S	√			
HG660 DKR (xxxx)S	√			
Hengstler :				
RIS58-H	√			

Specification

Encoder Inputs (8902-M1... and 8903-M1...)

Maximum Pulse Rate	250kHz
Receiver Impedance	120Ω
Input Format	2 differential 1V p-p signals in quadrature
Encoder Supply	250mA Maximum load
Supply Voltage	5V/10V adjustable
Terminal Type	Sub-D15 connector
Maximum Cable Length	150m screened cable
Serial Protocol	Endat 2.1

Auxiliary digital input (8903-M1... only)

Low Logic Level High Logic Level Absolute Max. Input Voltage	0V to 5V relative to X63 pin 5 15V to 26V relative to X63 pin 5 30V relative to X63 pin 5
Input Current	Low logic level < 1mA High logic level > 3mA, < 10mA Typical input at 24V : 7mA
Isolation withstand relative to drive chassis	30V
Input Safety Category	SELV
Terminal Type	6-way pluggable 3.5mm terminal block
Maximum Cable Length	150m. screened cable is reccomended for all lengths, but essential if over 30m in order to comply with EMC regulations

Auxiliary digital outputs (8903-M1... only)

Input Voltage (VS)	5V to 24V
Maximum Input Voltage	30V
Maximum Output Current	± 100mA per output
Output Voltage	Low logic level < 3V to 100mA High logic level > VS – 4V to 100mA
Overload and short circuit duration	Indefinite withstand
Max. Output Frequency	250kHz per output
Terminal Type	8-way pluggable 3.5mm terminal block
Maximum Cable Length	150m. screened cable is reccomended for all lengths, but essential if over 30m in order to comply with EMC regulations

Options

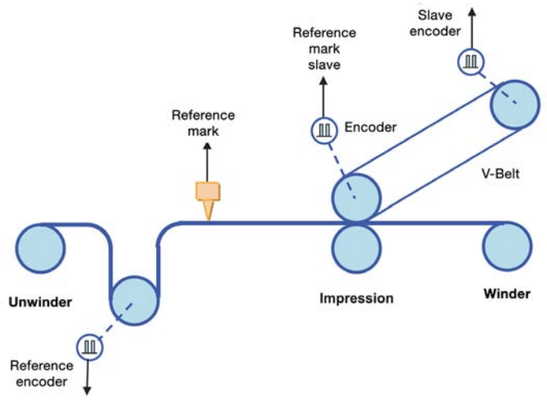
AC890/890PX Series

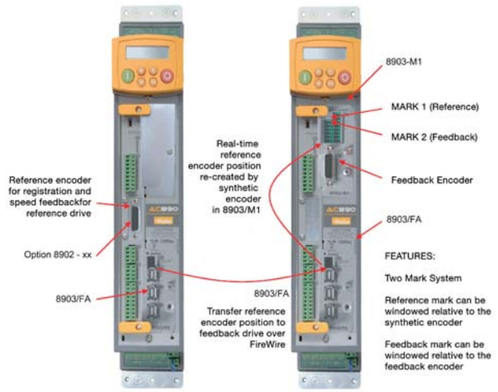
SinCos registration position 8902-M1 and 8903-M1

Possible Configurations

	8902-M1… fitted in slot C 8903-M1… not fitted	8902-M1… not fitted 8903-M1… fitted in slot A	8902-M1… fitted in slot C 8903-M1… fitted in slot A
Speed feedback Encoder	Via 8902-M1 card	Via 8903-M1 card	Via 8902-M1… card
Reference Encoder Signal		In this combination, a reference encoder position would normally be supplied by a FireWire option interface (8903/FA)	Supplied by 8903-M1… card
Registration	Available only using the encoder's 1V index pulse.	Auxiliary digital inputs and the encoder's index pulse (if supplied by the encoder) for registration even inputs	Auxiliary digital inputs and the encoder's index pulse (if supplied by the encoders) from both encoders are available for registration even inputs
Inputs/Outputs		The auxiliary digital inputs are also available for general purpose digital inputs. Auxiliary digital inputs are also for simulated pulse encoder output, or for general purpose digital output	The auxiliary digital inputs are also available for general purpose digital inputs. Auxiliary digital inputs are also for simulated pulse encoder output, or for general purpose digital output

Example of two-mark registration





Accessories

For AC890/890PX Series

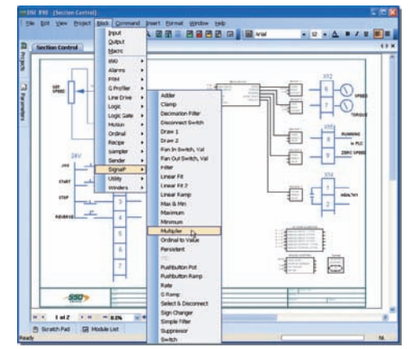
Drive System Explorer (DSE) Software

Description

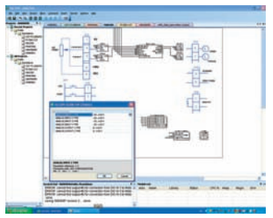
DSE890 is the programming, monitoring and diagnostic software platform for AC890 and AC890PX series variable speed drives.

Communication between the drive and PC is via a mini USB port located on the front of the drive.
Thanks to the on-line help, users can achieve the optimum drive configuration without the need to navigate through complicated parameter menus.
Advanced programming is carried out through a set of pre-engineered templates in order to create the required configuration.
It is possible to monitor every parameter of the drive either as a digital value or as a function in the "chart recorder" during normal operation.

DSE890 Programming Software



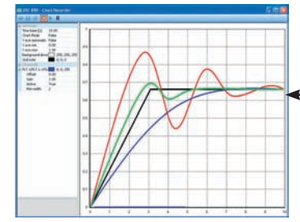
Creates projects quickly and easily
Graphical tool based on a block diagram approach
Integrated digital oscilloscope
On-line configuration and monitoring
System identification tool



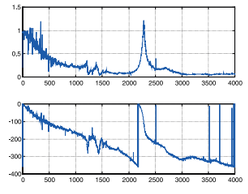
Parameter adjustment and project creation

Product Codes

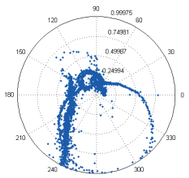
8906-DSELITE-00	DSE Lite software (single axis) + USB cable
8906-DSEDEV-00	DSE Development software + USB cable
8906-DSERUN-00	DSE Runtime/Maintenance + USB cable
8906-DSEDEVUPG-00	DSD Development to DSE Development Upgrade + USB cable
906-DSERUNUPG-00	DSD Runtime to DSE Runtime Upgrade + USB cable



real-time data acquisition oscilloscope



System identification tool



Accessories

For All AC Drives

Drive System Explorer Lite (DSE Lite) Software

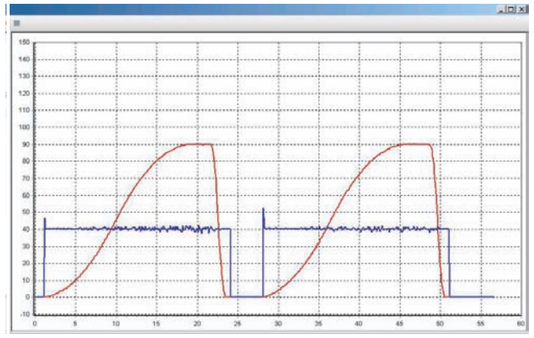
Description

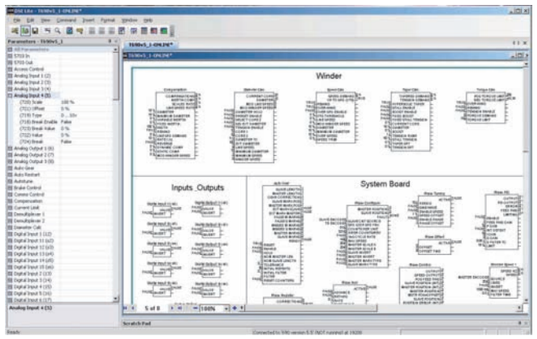
DSE LITE software is an easy to use configuration, commissioning and monitoring tool with graphical interface for the Parker SSD Drives range of AC and DC drives.

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





HMI Touchscreen

TS8000 Series

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.

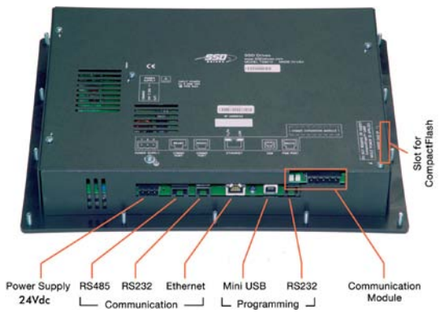
Multi-lingual graphical interface
Built-in symbol library of common objects
Built-in web server
CompactFlash support
Integrated automatic multiple protocol conversion
Free programming software

Technical specifications

Power Supply	24Vdc ±20%
Operating Temperature	0-50°C
Relative Humidity	80% non-condensing
Altitude	2000 m
Enclosure	IP66 / Nema 4
Keypads	TS8003 : . 8 user assignable keys . 5 navigation keys . 12 numeric keys . 7 dedicated keys
	TS8006 : 5 keys for on screen menus
	TS8008 : 7 keys for on screen menus
	TS8010 : 8 keys for on screen menus
	TS8015 : 9 keys for on screen menus
Memory	CompactFlash slot
Communication Ports	
	Programming : USB 1.1 - connector type B RS232 - via RJ12
	Communication : . RS232 - via RJ12 . RS485 - via RJ45 . Ethernet 10/100 Base T - connector RJ45

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"/DSTN	256 VGA	640 x 480
TS8010	10.4"/TFT		
TS8015	15"/TFT	32,000 XGA	1024 x 768

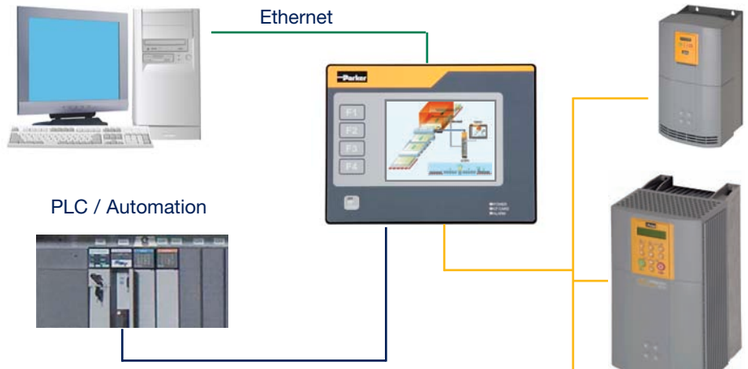


HMI Touchscreen

TS8000 Series

TS8003 TS8006 TS8008 TS8010 TS8015

Application Example



The TS8000 range of Human Machine Interfaces is compatible with a wide range of Programmable Logic Controllers, Process and Machine Automation Controllers including :

- **Allen-Bradley**
- **Siemens**
- **Telemecanique**
- **Mitsubishi**
- **Omron**
- **Idec**
- **IMO**
- **Festo**
- **General Electric**
- **Moeller**
- **Matsushita**
- **Koyo**

638 Series

- AC Brushless Servodrive

AC650 Series

- V/F Control
- Sensorless Vector Control

AC690+ Series

- V/F Control
- Sensorless Vector Control
- Closed-Loop Vector Control
- 12/18 Pulse option
- 4Q AFE Capability

AC890 Series

- V/F Control
- Sensorless Vector Control
- Closed-Loop Vector Control
- AC Servo Control
- 4Q AFE Capability

DC590+ Series

- 2/4 Quadrant DC Drive

HMI Touchscreen

TS8000 Series

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

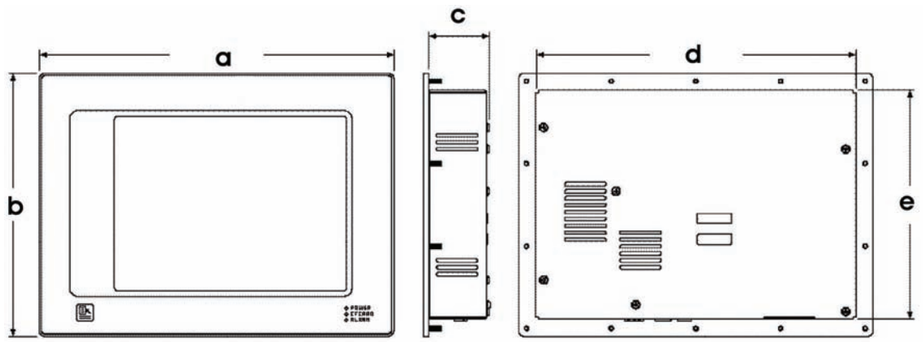
Multilingual Interface

Programming and Display in :	
Italian	German
English	Spanish
French	Dutch

Unicode Support for :	
Japanese	Chinese (traditional)
Thai	Chinese (simpified)
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

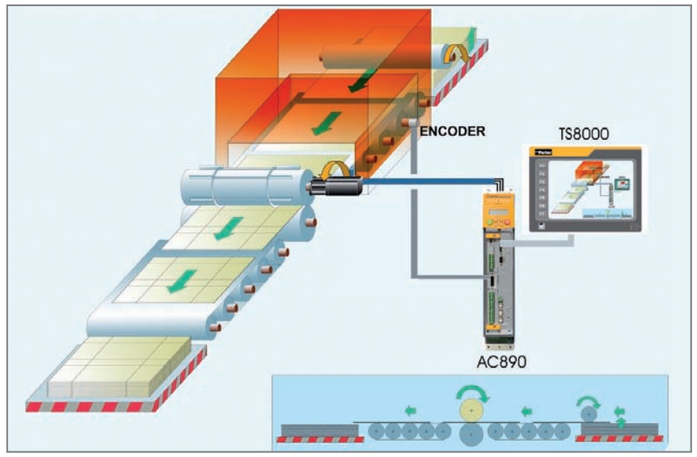
Complies with standards:
- EN61010-1
- EN61326
- EN55011 Class A

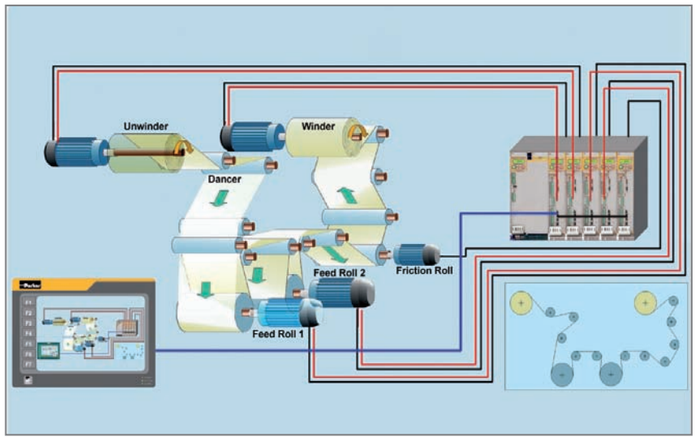
CE Marked

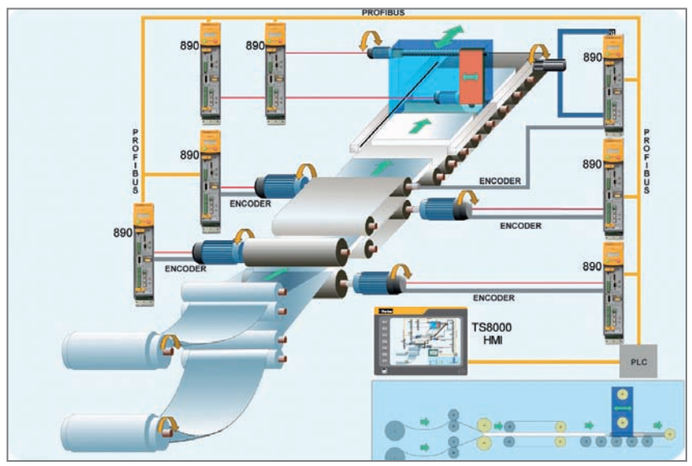
HMI Touchscreen

TS8000 Series

HMI Applications







Communication Cards

TS8000 Series

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	• CANopen SDO Master
Communication Speed	• Selectable by software up to 1 Mbits/s
Communication	• With Drive System Explorer software using RTNX protocol
Suitable for drives	• AC890 version 3.2+

DeviceNet Communications Interface

Order Code: 8000-DN-00	
Supported Protocols	• DeviceNet – Slave Group 2 only
Communication Speed	• 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-CB-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

Braking Resistors

for AC Drives

Description

Brake resistors are used with AC650, AC650V, or AC690 drives equipped with a braking option modules. They are designed to allow the drive to stop a motor at full load during deceleration or an overhauling load.

Brake resistor selection

Brake resistor assemblies must be rated to absorb both peak braking power during deceleration and the average power over the complete cycle.

Resistors above 500W

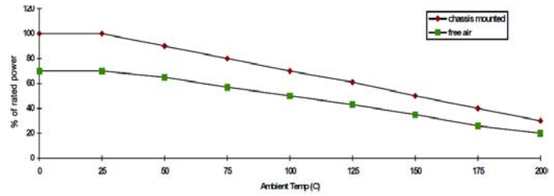
Resistors above 500W are available upon request :

- IP20 protection up to 3 kW
- IP13 protection between 4.2 and 9.8 kW

Peak braking power $= \frac{0.0055J \times (n_1^2 - n_2^2)\ (W)}{t_b}$

Average braking power $P_{av} = \frac{P_{pk} \times t_b}{t_c}$

J - total inertia (Kgm^2) n_1 - initial speed (rpm)
n_2 - final speed (rpm) t_b - braking time (s)
t_c - cycle time (s)



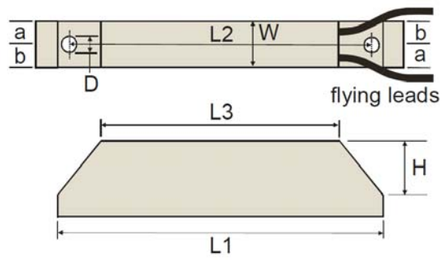
Dimensions

Nominal Power (kW	Dimensions		
	L (mm)	H (mm)	P (mm)
1.0	137	450	140
1.6	182	450	140
2.0	182	450	140
2.5	227	450	140
3.0	227	450	140
4.2	450	440	540
5.6	530	440	540
7.0	530	440	540
8.4	610	440	540
9.8	610	440	540

Dimensions

Model	Impe-dance (ohms)	Nom. Power (W)	Dimensions							
			L1	L2	L3	W	H	D	a	b
CZ467715	500	60	100	87	60	22	41	4.3	10	12
CZ467714	200	100	165	152	125	22	41	4.3	10	12
CZ389853	100	100	165	152	125	22	41	4.3	10	12
CZ467717	100	200	165	146	125	30	60	4.3	13	17
CZ463068	56	200	165	146	125	30	60	4.3	13	17
CZ388397	56	200	165	146	125	30	60	4.3	13	17
CZ388396	36	500	335	316	295	30	60	4.3	13	17
CZ467716	28 x 2	500	335	316	295	30	60	4.3	13	17

Overload 5 sec : 500%
Overload 3 sec : 833%
Overload 1 sec : 2500%



EMC Filters

for AC 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

AC Drives	2nd Environment (Industrial)	1st Environment (Domestic)
650 / 650V		
Frame 1-3	Indicated by an F in the product code	Indicated by an F in the product code
650V / 690P		
Frame B	Indicated by an F in the product code	Indicated by an F in the product code
Frame C	Standard	TN/IT AC Supply Ext. Filter FP C0467842U044
Frame D	Standard	TN/IT AC Supply Ext. Filter FP C0467842U084
Frame E	Standard	TN/IT AC Supply Ext. Filter FP C0467842U105
Frame F	Standard	TN/IT AC Supply Ext. Filter FP C0467842U215
Frame G/H/J (690PG-1100 and 690PG-1320)	Standard	TN and IT AC Supply Ext. Filter FP C0467842U340
(690PG-1600 and 690PG-1800 and frame H and J)	Standard	TN and IT Ext. Filter 2 x FP C0467842U340

EMC Filters

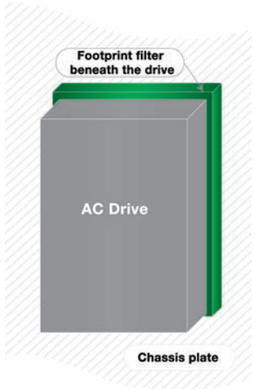
for AC Drives

IP40 mounted: use mounting kits below

Filter	Mounting Kit
CO467842U020	BA467840U020
CO467842U044	BA467840U044
CO467842U084	BA467840U084
CO467842U105	BA467840U105

Dimensions

Filter Reference	Terminal size	Earth terminal	Gland mountings	Filter dimensions	Fixing centres	Filter weight
CO467842U044	10 mm²	5 mm	4 x 4 mm	400 x 178x 55 mm	384 x 150 mm	2.1 kg
CO467842U084	25 mm²	6 mm	4 x 4 mm	513 x 233 x 70 mm	495 x 208 mm	4.2 kg
CO467842U105	50 mm²	8 mm	4 x 4 mm	698 x 250 x 80 mm	680 x 216 mm	6.2 kg
CO467842U215	95 mm²	8 mm	N/A	825 x 250 x 115 mm	795 x 216 mm	



Drive mounted on an external footprint filter

Three Phase Line Reactors

for AC Drives

Description

Parker's range of line reactors have been especially selected to match the requirements of the Parker AC drive range and can be used on both the input and output sides of the drive. They are used to reduce the harmonic content of the supply current. A choke fitted in the drive output limits the capacitive current when motor cable runs in excess of 50m are used. It prevents overcurrent trips and temperature rise of the motor.

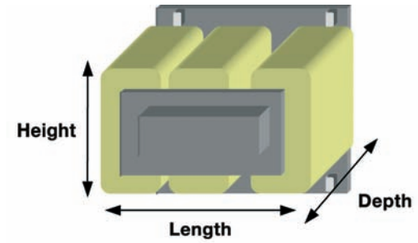
as well as helping with compliance with IEEE 519 there are other benefits to using line/load reactors including:

- Increased drive system reliability
- Reduced harmonics / surge currents
- Reduced motor noise and temperature
- Improved true power factor

Ordering

Order Reference	Inductance	In (A)	Height	Length	Depth	Fixing Centres	Approx. Weight kg
CO389936U401	75 µH	315	215	330	320	175 x 225	70
CO389936U402	50 µH	480	215	330	320	175 x 225	95
CO466448U040	50 µH	36	70	155	127	48 x 140	2.5
CO466448U165	50 µH	148.5	115	190	155	93 x 170	12
CO466709U038	30 µH	342	370	350	226	240 x 320	38
CO466709U050	25 µH	450	431	420	226	290 x 381	53
CO466709U073	20 µH	653	431	420	226	290 x 381	60
CO466709U083	15 µH	747	431	420	226	290 x 381	69
CO468314U650	5 µH	650	30	300	325*	100 x 250	35
CO468325U006	1.749 mH	12.7	83	157	160*	60 x 80	6
CO468325U037	0.416 mH	54	110	240	250*	80 x 200	13
CO468325U110	0.137 mH	165	140	300	310*	110 x 240	30
CO468326U006	2.917 mH	12.8	170	240	260*	80 x 140	17
CO468326U037	0.693 mH	54	240	360	380*	120 x 200	50
CO468326U110	0.227 mH	165	320	390	490*	280 x 260	130
CO468325U055	0.282 mH	79	130	240	250*	100 x 200	19
CO466448U015	50 µH	13.5	60	80	67	64 x 40	1
CO466448U110	50 µH	100	100	190	155	170 x 75	7.5
CO468326U006	2.917 mH	12.8	170	240	260	80 x 140	17
CO466448U070	50 µH	63	85	155	127	140 x 63	4.5
CO466250U012	15 µH	1080	400	420	450	300 x 140	170

* Include Earth Stud



Round Frame Asynchronous Vector Motors

General Purpose Series

0.09kW - 315kW

Description

These IE1 efficiency round frame asynchronous induction motors are suitable for use with the Parker SSD Drives AC650V, AC690+ and AC890/PX ranges of Inverters in closed-loop mode. Featuring a durable rigid construction, these motors are specially engineered for use in heavy industrial applications. Featuring axial, In-Line force ventilation fan and 2048 ppr incremental encoder, the round frame vector motor are suitable for general purpose closed-loop control applications. For applications requiring higher dynamic performance, such as in printing or test rig applications, the MA series square frame vector motors should be considered.

Light Aluminium body up to and including 160 frame size. Cast Iron contruction over 160 frame
IP55 Protection as minimum
Foot or flange mounting options
Paint finished in Black
Insulation Class F (IEC - EN60034 -1))
Auxiliary cooling fan allows low-speed operation
2048 ppr incremental encoder
3x PTC thermistors embedded in motor stator

Options

Adjustable terminal box mounting position
Holding brake
IE2 efficicency
Insulated bearings on 315 frame
8-Pole versions also available

Round Frame Asynchronous Vector Motors

General Purpose Series

2 Pole - 0.18kW - 315kW

Technical features -
IP55 - 3x400V rms max.

Nominal Power Pn (kW)	Frame	Order code Refer to table below for mounting and brake coding	Nominal speed nn (rpm)	Full-load current at 230V (Arms)	Full-load current at 400V (Arms)	Max. brake torque (Nm)	Brake size	Motor (kg)	Blower (kg)	Encoder (kg)	Brake (kg)
0.18	63M2A-TECA	DK599200Uxy2	2710	**0.95**	0.55	5	8	4	1	0.3	0.61
0.25	63M2B-TECA	DK599201Uxy2	2710	1.23	0.71	5	8	4.2	1	0.3	0.61
0.37	71M2A-TECA	DK599202Uxy2	2730	1.67	0.97	5	8	5.2	2	0.3	0.61
0.55	71M2B-TECA	DK5992203Uxy2	2760	2.45	1.42	5	8	6	2	0.3	0.61
0.75	80M2A-TECA	DK5992204Uxy2	2770	3.06	1.77	10	10	8.7	3	0.3	1.3
1.1	80M2B-TECA	DK5992205Uxy2	2770	4.35	2.51	10	10	10	3	0.3	1.3
1.5	90S2A-TECA	DK5992206Uxy2	2840	5.76	3.28	10	10	12	3	0.3	1.3
2.2	90L2A-TECA	DK5992207Uxy2	2840	8.0	4.61	20	11	14.5	3	0.3	2.8
3	100L2A-TECA	DK5992208Uxy2	2840	10.4	6.03	20	11	20	3	0.3	2.8
4	112M2A-TECA	DK5992209Uxy2	2880		7.88	40	13	26	3	0.3	3.7
5.5	132S2A-TECA	DK5992210Uxy2	2900		10.5	70	14	38.4	5	0.3	5.7
7.5	132S2C-TECA	DK5992211Uxy2	2920		14.1	70	14	41.3	5	0.3	5.7
11	160M2A-TECA	DK5992212Uxy2	2940		20	100	16	76	6	0.3	8.4
15	160M2B-TECA	DK5992213Uxy2	2940		26.6	100	16	77.5	6	0.3	8.4
18.5	160L2A-TECA	DK5992214Uxy2	2940		32.6	100	16	92	6	0.3	8.4
22	180M2A-TECC	DK5992215Uxy2	2920		39.69	170	19	180	7	0.6	13.1
30	200L2A-TECC	DK5992216Uxy2	2915		53.64	315	24	240	8	0.6	22
37	200L2B-TECC	DK5992217Uxy2	2920		65.8	315	24	255	8	0.6	22
45	225M2A-TECC	DK5992218Uxy2	2920		78.7	315	24	309	12	0.6	22
55	250M2A-TECC	DK5992219Uxy2	2930		97.85	600	29	403	12	0.6	36
75	280S2-TECC	DK5992220Uxy2	2930		131.22	600	29	544	27.5	0.6	36
90	280M2-TECC	DK5992221Uxy2	2930		155.21	600	29	620	27.5	0.6	36
110	315S2A-TECC	DK5992222Uxy2	2940		189.09			980	32	0.6	
132	315M2A-TECC	DK5992223Uxy2	2940		223.93			1080	32	0.6	
160	315L2A-TECC	DK5992224Uxy2	2945		273.57			1160	32	0.6	
200	315L2B-TECC	DK5992225Uxy2	2945		345.07			1190	32	0.6	
220	355M2A-TECC	DK5992226Uxy2	2945					1700	40	0.6	
250	355M2B-TECC	DK5992227Uxy2	2945		426.54			1760	40	0.6	
280	355L2A-TECC	DK5992228Uxy2	2945					1810	40	0.6	
315	355L2B-TECC	DK5992229Uxy2	2945		534.48			1850	40	0.6	

Order Code Example ►	DK5592**U	X	Y	2
Product Family	2 Pole round frame asynchronous vector motor	DK5592**U		
Mounting Arrangements	B3 foot mounting	1		
	B5 flange mounting	2		
	B35 foot and flange mounting	3		
	C Face mounting	4		
	B34 foot and face mounting	5		
Holding Brake	No holding brake		0	
	Holding brake fitted		1	

Round Frame Asynchronous Vector Motors

General Purpose Series

4 Pole - 0.12kW - 315kW

Technical features -
IP55 - 3x400V rms max.

Nominal Power Pn (kW)	Frame	Order code Refer to table below for mounting and brake coding	Nominal speed nn (rpm)	Full-load current at 230V (Arms)	Full-load current at 400V (Arms)	Max. brake torque (Nm)	Brake size	Motor (kg)	Blower (kg)	Encoder (kg)	Brake (kg)
0.12	63M4A-TECA	DK599200Uxy4	1360	**0.95**	0.55	5	8	3.7	1	0.3	0.61
0.18	63M4B-TECA	DK599201Uxy4	1310	**1.21**	0.7	5	8	4.2	1	0.3	0.61
0.25	71M4A-TECA	DK599202Uxy4	1350	1.45	0.84	5	8	5	2	0.3	0.61
0.37	71M4B-TECA	DK599203Uxy4	1370	1.92	1.11	5	8	5.8	2	0.3	0.61
0.55	80M4A-TECA	DK599204Uxy4	1370	2.74	1.58	10	10	8.1	3	0.3	1.3
0.75	80M4B-TECA	DK599205Uxy4	1380	3.34	1.93	10	10	9.1	3	0.3	1.3
1.1	90S4A-TECA	DK599206Uxy4	1400	4.57	2.64	10	10	11.7	3	0.3	1.3
1.5	90L4A-TECA	DK599207Uxy4	1400	5.97	3.45	20	11	14.4	3	0.3	2.8
2.2	100L4A-TECA	DK599208Uxy4	1420	8.38	4.84	20	11	19.2	3	0.3	2.8
3	100L4B-TECA	DK599209Uxy4	1420	11.2	6.47	40	13	22.5	3	0.3	3.7
4	112M4B-TECA	DK599210Uxy4	1430		8.26	40	13	29	3	0.3	3.7
5.5	132S4C-TECA	DK599211Uxy4	1450		11	70	14	39	5	0.3	5.7
7.5	132M4B-TECA	DK599212Uxy4	1450		14.6	70	14	48.6	5	0.3	5.7
11	160M4B-TECA	DK599213Uxy4	1460		20.6	100	16	73	6	0.3	8.4
15	160L4A-TECA	DK599214Uxy4	1460		28.2	100	16	88.5	6	0.3	8.4
18.5	180M4B-TECC	DK599215Uxy4	1435		33.98	170	19	182	7	0.6	13.1
22	180L4B-TECC	DK599216Uxy4	1450		40.6	170	19	190	7	0.6	13.1
30	200L4C-TECC	DK599217Uxy4	1450		53.64	315	24	270	8	0.6	22
37	225S4A-TECC	DK599218Uxy4	1460		65.8	315	24	284	12	0.6	22
45	225M4C-TECC	DK599219Uxy4	1470		80.49	315	24	320	12	0.6	22
55	250M4C-TECC	DK599220Uxy4	1470		96.85	600	29	427	12	0.6	36
75	280S4-TECC	DK599221Uxy4	1470		132.71	600	29	562	27.5	0.6	36
90	280M4-TECC	DK599222Uxy4	1470		155.21	600	29	667	27.5	0.6	36
110	315S4A-TECC	DK599223Uxy4	1475		189.08			1000	32	0.6	
132	315M4A-TECC	DK599224Uxy4	1475		223.93			1100	32	0.6	
160	315L4A-TECC	DK599225Uxy4	1475		270.56			1160	32	0.6	
200	315L4B-TECC	DK599226Uxy4	1475		341.23			1270	32	0.6	
220	355M4A-TECC	DK599227Uxy4	1475					1650	40	0.6	
250	355M4B-TECC	DK599228Uxy4	1475		431.33			1700	40	0.6	
280	355L4A-TECC	DK599229Uxy4	1475					1810	40	0.6	
315	355L4B-TECC	DK599230Uxy4	1475		537.44			1850	40	0.6	

Order Code Example ►	DK5592**U	X	Y	4

		DK5592**U
Product Family	4 Pole round frame asynchronous vector motor	
Mounting Arrangements	B3 foot mounting	1
	B5 flange mounting	2
	B35 foot and flange mounting	3
	C Face mounting	4
	B34 foot and face mounting	5
Holding Brake	No holding brake	0
	Holding brake fitted	1

Round Frame Asynchronous Vector Motors

General Purpose Series

6 Pole - 0.09kW - 250kW

Technical features -
IP55 - 3x400V rms max.

Nominal Power Pn (kW)	Frame	Order code Refer to table below for mounting and brake coding	Nominal speed nn (rpm)	Full-load current at 230V (Arms)	Full-load current at 400V (Arms)	Max. brake torque (Nm)	Brake size	Motor (kg)	Blower (kg)	Encoder (kg)	Brake (kg)
0.09	63M6A-TECA	DK599200Uxy6	840	**0.88**	0.51	5	8	4.2	1	0.3	0.61
0.12	63M6B-TECA	DK599201Uxy6	850	**1.08**	0.62	5	8	4.5	1	0.3	0.61
0.18	71M6A-TECA	DK599202Uxy6	880	**1.22**	0.7	5	8	5.6	2	0.3	0.61
0.25	71M6B-TECA	DK599203Uxy6	900	1.51	0.87	5	8	6	2	0.3	0.61
0.37	80M6A-TECA	DK599204Uxy6	900	2.13	1.23	10	10	8.1	3	0.3	1.3
0.55	80M6B-TECA	DK599205Uxy6	900	2.85	1.65	10	10	9.6	3	0.3	1.3
0.75	90S6A-TECA	DK599206Uxy6	920	3.77	2.18	20	11	11.3	3	0.3	2.8
1.1	90L6B-TECA	DK599207Uxy6	925	5.23	3.02	20	11	14.4	3	0.3	2.8
1.5	100L6A-TECA	DK599208Uxy6	945	6.67	3.85	20	11	18.8	3	0.3	2.8
2.2	112M6A-TECA	DK599209Uxy6	955	9.28	5.36	40	13	25	3	0.3	3.7
3	132S6B-TECA	DK599210Uxy6	950	12.5	7.21	70	14	35	5	0.3	5.7
4	132M6A-TECA	DK599211Uxy6	960		9.44	70	14	47.6	5	0.3	5.7
5.5	132M6B-TECA	DK599212Uxy6	960		12.4	70	14	50.7	5	0.3	5.7
7.5	160M6B-TECA	DK599213Uxy6	960		15.7	100	16	70	6	0.3	8.4
11	160L6B-TECA	DK599214Uxy6	960		23	100	16	87	6	0.3	8.4
15	180L6A-TECC	DK599215Uxy6	955		31.25	170	19	192	7	0.6	13.1
18.5	200L6B-TECC	DK599216Uxy6	960		36.31	315	24	220	8	0.6	22
22	200L6C-TECC	DK599217Uxy6	960		42.89	315	25	250	8	0.6	22
30	225M6B-TECC	DK599218Uxy6	970		57.84	315	24	292	12	0.6	22
37	250	DK599219Uxy6	970		69.20	600	29	408	12	0.6	36
45	280	DK599220Uxy6	975		82.63	600	29	536	27.5	0.6	36
55	280	DK599221Uxy6	975		99.29	600	29	595	27.5	0.6	36
75	315	DK599222Uxy6	975		131.36	Contact local sales office for details		990	32	0.6	
90	315	DK599223Uxy6	975		155.37			1080	32	0.6	
110	315	DK599224Uxy6	975		189.09			1150	32	0.6	
132	315	DK599225Uxy6	975		228.96			1210	32	0.6	
160	355	DK599226Uxy6	975		270.56			1600	40	0.6	
185	355	DK599227Uxy6	975					1650	40	0.6	
200	355	DK599228Uxy6	975		341.23			1700	40	0.6	
220	355	DK599229Uxy6	975					1760	40	0.6	
250	355	DK599230Uxy6	975		431.33			1800	40	0.6	

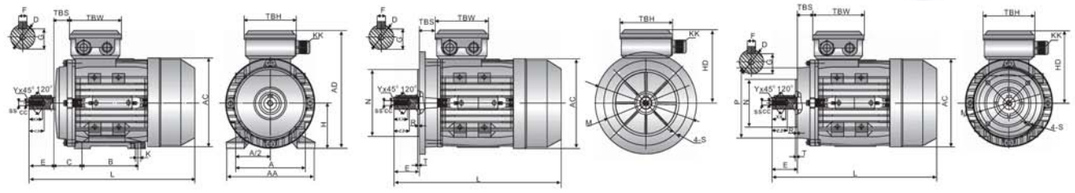
Order Code Example ►	DK5592**U	X	Y	6

		DK5592**U
Product Family	6 Pole round frame asynchronous vector motor	
Mounting Arrangements	B3 foot mounting	1
	B5 flange mounting	2
	B35 foot and flange mounting	3
	C Face mounting	4
	B34 foot and face mounting	5
Holding Brake	No holding brake	0
	Holding brake fitted	1

Round Frame Asynchronous Vector Motors

Aluminium TECA Frame

Dimensions



B3 Mounting B5 Mounting B14 Mounting

B3 Foot Mounting

Frame	H	A	B	C	D	E	F	G	K	AA	AC	L*	KK	TBS	TBW	TBH	SS	XX	ZZ	CC	Y
56	56	90	71	**36**	ø9	20	3	7.2	5.8x8.8	110	ø117	266	1-M16x1.5	14	88	88	M3	9	12	2.5	0.5
63	63	100	80	**40**	ø11	23	4	8.5	7x10	120	ø130	300	1-M16x1.5	14	94	94	M4	10	14	3.3	0.8
71**	71	112	90	**45**	ø14	30	5	11	7x10	132	ø147	331(345)	1-M20x1.5	20	94	94	M5	12	17	4.2	0.8
80	80	125	100	**50**	ø19	40	6	15.5	10x13	160	ø163	380	1-M20x1.5	27	105	105	M6	16	21	5	1
90 S	90	140	100	**56**	ø24	50	8	20	10x13	175	ø183	402	1-M20x1.5	30	105	105	M8	19	25	6.8	1
90L1/L2	90	140	125	**56**	ø24	50	8	20	10x13	175	ø183	427/457	1-M20x1.5	30	105	105	M8	19	25	6.8	1
100**	100	160	140	**63**	ø28	60	8	24	12x15	198	ø205	459(477)	2-M20x1.5	26	105	105	M10	22	30	8.5	1.5
112	112	190	140	**70**	ø28	60	8	24	12x15	220	ø229	495	2-M25x1.5	32	112	112	M10	22	30	8.5	1.5
132S	132	216	140	**89**	ø38	80	10	33	12x15	252	ø265	547	2-M25x1.5	38	112	112	M12	28	37	10.2	1.5
132M/L	132	216	178	**89**	ø38	80	10	33	12x15	252	ø265	585/611	2-M25x1.5	38	112	112	M12	28	37	10.2	1.5
160M/L	160	254	210/254	**108**	ø42	110	12	37	15x19	290	ø325	760	2-M32x1.5	64	143	143	M13	36	45	14.2	2

B5 Flange Mounting

Frame	M	N	P	T	R	S	D	E	F	G	KK	AC	HD	L*	TBS	TBW	TBH	SS	XX	ZZ	CC	Y
56	ø100	ø80	ø120	**3.0**	0	ø7	ø9	20	3	7.2	1-M16x1.5	ø117	100	266	14	88	88	M3	9	12	2.5	0.5
63	ø115	ø95	ø140	**3.0**	0	ø10	ø11	23	4	8.5	1-M16x1.5	ø130	108	300	14	94	94	M4	10	14	3.3	0.8
71**	ø130	ø110	ø160	**3.5**	0	ø10	ø14	30	5	11	1-M20x1.5	ø147	115	331(345)	20	94	94	M5	12	17	4.2	0.8
80	ø160	ø130	ø200	**3.5**	0	ø12	ø19	40	6	15.5	1-M20x1.5	ø163	133	380	27	105	105	M6	16	21	5	1
90 S	ø165	ø130	ø200	**3.5**	0	ø12	ø24	50	8	20	1-M20x1.5	ø183	139	402	30	105	105	M8	19	25	6.8	1
90L1/L2	ø215	ø130	ø200	**3.5**	0	ø12	ø24	50	8	20	1-M20x1.5	ø183	139	427/457	30	105	105	M8	19	25	6.8	1
100**	ø215	ø180	ø250	**4.0**	0	ø15	ø28	60	8	24	2-M20x1.5	ø205	152	459(477)	26	105	105	M10	22	30	8.5	1.5
112	ø215	ø180	ø250	**4.0**	0	ø15	ø28	60	8	24	2-M25x1.5	ø229	167	495	32	112	112	M10	22	30	8.5	1.5
132S	ø265	ø230	ø300	**4.0**	0	ø15	ø38	80	10	33	2-M25x1.5	ø265	186	547	38	112	112	M12	28	37	10.2	1.5
132M/L	ø265	ø230	ø300	**4.0**	0	ø15	ø38	80	10	33	2-M25x1.5	ø265	186	585/611	38	112	112	M12	28	37	10.2	1.5
160M/L	ø300	ø250	ø350	**5.0**	0	ø19	ø42	110	12	37	2-M32x1.5	ø325	224	760	64	143	143	M13	36	45	14.2	2

B14 C Face Mounting

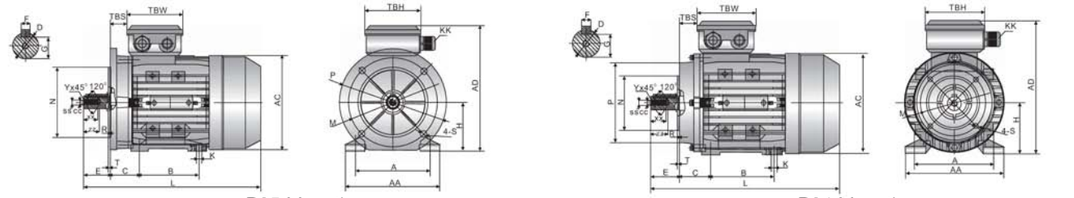
Frame	M	N	P	T	R	S	D	E	F	G	KK	AC	HD	L*	TBS	TBW	TBH	SS	XX	ZZ	CC	Y
56	ø65	ø50	ø80	**2.5**	0	M6	ø9	20	3	7.2	1-M16x1.5	ø117	100	266	14	88	88	M3	9	12	2.5	0.5
63	ø75	ø60	ø90	**2.5**	0	M6	ø11	23	4	8.5	1-M16x1.5	ø130	108	300	14	94	94	M4	10	14	3.3	0.8
71**	ø85	ø70	ø105	**2.5**	0	M6	ø14	30	5	11	1-M20x1.5	ø147	115	331(345)	20	94	94	M5	12	17	4.2	0.8
80	ø100	ø80	ø120	**3.0**	0	M6	ø19	40	6	15.5	1-M20x1.5	ø163	133	380	27	105	105	M6	16	21	5	1
90 S	ø115	ø95	ø140	**3.0**	0	M8	ø24	50	8	20	1-M20x1.5	ø183	139	402	30	105	105	M8	19	25	6.8	1
90L1/L2	ø115	ø95	ø140	**3.0**	0	M8	ø24	50	8	20	1-M20x1.5	ø183	139	427/457	30	105	105	M8	19	25	6.8	1
100**	ø130	ø110	ø160	**3.5**	0	M8	ø28	60	8	24	2-M20x1.5	ø205	152	459(477)	26	105	105	M10	22	30	8.5	1.5
112	ø130	ø110	ø160	**3.5**	0	M8	ø28	60	8	24	2-M25x1.5	ø229	167	495	32	112	112	M10	22	30	8.5	1.5
132S	ø165	ø130	ø200	**4.0**	0	M10	ø38	80	10	33	2-M25x1.5	ø265	186	547	38	112	112	M12	28	37	10.2	1.5
132M/L	ø165	ø130	ø200	**4.0**	0	M10	ø38	80	10	33	2-M25x1.5	ø265	186	585/611	38	112	112	M12	28	37	10.2	1.5
160M/L	ø215	ø180	ø250	**4.0**	0	M12	ø42	110	12	37	2-M32x1.5	ø325	224	760	64	143	143	M13	36	45	14.2	2

*L - The length quoted is for motor with in-line Axial fan and encoder fitted. For dimensions with Brake consult your local sales office.

Round Frame Asynchronous Vector Motors

Aluminium TECA Frame

Dimensions



B35 Mounting B34 Mounting

B35 Foot and Flange Mounting

Frame	H	M	N	P	T	R	S	A	B	C	D	E	F	G	K	KK	AA	AC	AD	L*
56	56	ø100	ø80	ø120	**3.0**	0	ø7	90	71	36	ø9	20	3	7.2	5.8x8.8	1-M16x1.5	110	ø117	156	266
63	63	ø115	ø95	ø140	**3.0**	0	ø10	100	80	40	ø11	23	4	8.5	7x10	1-M16x1.5	120	ø130	171	300
71**	71	ø130	ø110	ø160	**3.5**	0	ø10	112	90	45	ø14	30	5	11	7x10	1-M20x1.5	132	ø147	186	331(345)
80	80	ø160	ø130	ø200	**3.5**	0	ø12	125	100	50	ø19	40	6	15.5	10x13	1-M20x1.5	160	ø163	213	380
90 S	90	ø165	ø130	ø200	**3.5**	0	ø12	140	100	56	ø24	50	8	20	10x13	1-M20x1.5	175	ø183	229	402
90L1/L2	90	ø215	ø130	ø200	**3.5**	0	ø12	140	125	56	ø24	50	8	20	10x13	1-M20x1.5	175	ø183	229	427/457
100**	100	ø215	ø180	ø250	**4.0**	0	ø15	160	140	63	ø28	60	8	24	12x15	2-M20x1.5	198	ø205	252	459(477)
112	112	ø215	ø180	ø250	**4.0**	0	ø15	190	140	70	ø28	60	8	24	12x15	2-M25x1.5	220	ø229	279	495
132S	132	ø265	ø230	ø300	**4.0**	0	ø15	216	140	89	ø38	80	10	33	12x15	2-M25x1.5	252	ø265	318	547
132M/L	132	ø265	ø230	ø300	**4.0**	0	ø15	216	178	89	ø38	80	10	33	12x15	2-M25x1.5	252	ø265	318	585/611
160M/L	160	ø300	ø250	ø350	**5.0**	0	ø19	254	210/254	108	ø42	110	12	37	15x19	2-M32x1.5	290	ø325	384	760

B34 C Face and Foot Mounting

Frame	H	M	N	P	T	R	S	A	B	C	D	E	F	G	K	KK	AA	AC	AD	L*
56	56	ø65	ø50	ø80	**2.5**	0	M5	90	71	36	ø9	20	3	7.2	5.8x8.8	1-M16x1.5	110	ø117	156	266
63	63	ø75	ø60	ø90	**2.5**	0	M5	100	80	40	ø11	23	4	8.5	7x10	1-M16x1.5	120	ø130	171	300
71**	71	ø85	ø70	ø105	**2.5**	0	M6	112	90	45	ø14	30	5	11	7x10	1-M20x1.5	132	ø147	186	331(345)
80	80	ø100	ø80	ø120	**3.0**	0	M6	125	100	50	ø19	40	6	15.5	10x13	1-M20x1.5	160	ø163	213	380
90 S	90	ø115	ø95	ø140	**3.0**	0	M8	140	100	56	ø24	50	8	20	10x13	1-M20x1.5	175	ø183	229	402
90L1/L2	90	ø115	ø95	ø140	**3.0**	0	M8	140	125	56	ø24	50	8	20	10x13	1-M20x1.5	175	ø183	229	427/457
100**	100	ø130	ø110	ø160	**3.5**	0	M8	160	140	63	ø28	60	8	24	12x15	2-M20x1.5	198	ø205	252	459(477)
112	112	ø130	ø110	ø160	**3.5**	0	M8	190	140	70	ø28	60	8	24	12x15	2-M25x1.5	220	ø229	279	495
132S	132	ø165	ø130	ø200	**4.0**	0	M10	216	140	89	ø38	80	10	33	12x15	2-M25x1.5	252	ø265	318	547
132M/L	132	ø165	ø130	ø200	**4.0**	0	M10	216	178	89	ø38	80	10	33	12x15	2-M25x1.5	252	ø265	318	585/611
160M/L	160	ø215	ø180	ø250	**4.0**	0	M12	254	210/254	108	ø42	110	12	37	15x19	2-M32x1.5	290	ø325	384	760

B35 and B34 Mounting

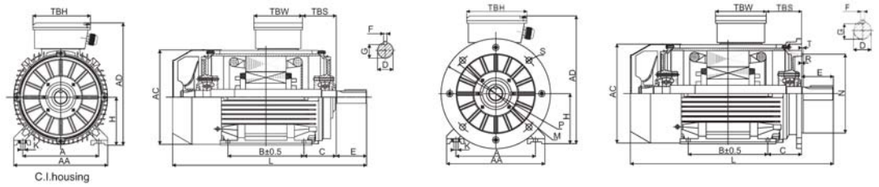
Frame	TBS	TBW	TBH	SS	XX	ZZ	CC	Y
56	14	88	88	M3	9	12	2.5	0.5
63	14	94	94	M4	10	14	3.3	0.8
71**	20	94	94	M5	12	17	4.2	0.8
80	27	105	105	M6	16	21	5	1
90 S	30	105	105	M8	19	25	6.8	1
90L1/L2	30	105	105	M8	19	25	6.8	1
100**	26	105	105	M10	22	30	8.5	1.5
112	32	112	112	M10	22	30	8.5	1.5
132S	38	112	112	M12	28	37	10.2	1.5
132M/L	38	112	112	M12	28	37	10.2	1.5
160M/L	64	143	143	M13	36	45	14.2	2

*L - The length quoted is for motor with in-line Axial fan and encoder fitted. For dimensions with Brake consult your local sales office.

Round Frame Asynchronous Vector Motors

Cast Iron TECC Frame

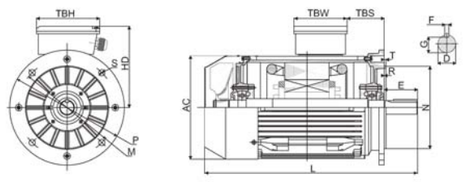
Dimensions



B3 Mounting

B35 Mounting

Frame		Foot Mounting				Shaft					General							
		H	A	B	C	D	E	F	G	K	AA	AD	HD	AC	L*	TBS	TBW	TBH
180M/L		180	279	241/279	121	ø48	110	14	42.5	ø15	348	439	259	ø360	822/860	160/180	162	187
200L		200	318	305	133	ø55	110	16	49	ø19	388	497	297	ø399	903	192	186	233
225S	4,8	225	356	286	149	ø60	140	18	53	ø19	436	553	328	ø465	954	190	186	233
225M	2	225	356	311	149	ø55	110	16	49	ø19	436	553	328	ø465	949	202	186	233
	4,6,8	225	356	311	149	ø60	140	18	53	ø19	436	553	328	ø465	979	202	186	233
250M	2	250	406	349	168	ø60	140	18	53	ø24	484	616	366	ø506	1078	233	218	260
	4,6,8	250	406	349	168	ø65	140	18	58	ø24	484	616	366	ø506	1078	233	218	260
280S/M	2	280	457	368/419	190	ø65	140	18	58	ø24	557	668	388	ø559	1164/1215	265	218	260
	4,6,8	280	457	368/419	190	ø75	140	20	67.5	ø24	557	668	388	ø559	1164/1215	265	218	260
315S	2	315	508	406	216	ø65	140	18	58	ø28	630	840	525	ø680	1380	130	350	430
	4,6,8	315	508	406	216	ø80	170	22	71	ø28	630	840	525	ø680	1410	130	350	430
315M/L	2	315	508	457/508	216	ø65	140	18	58	ø28	630	840	525	ø680	1530	130	350	430
	4,6,8	315	508	457/508	216	ø80	170	22	71	ø28	630	840	525	ø680	1560	130	350	430
355M/L	2	355	610	560/630	254	ø75	140	20	67.5	ø28	740	920	565	ø820	2040	180	350	430
	4,6,8	355	610	560/630	254	ø95	170	25	86	ø28	740	920	565	ø820	2110	180	350	430



B14 Mounting

Frame		Bearings		Cable Gland		B5 Mount				
		Drive End	Non-Drive End		N	M	P	S	T	R
180M/L		6311C3		2-M32x1.5	ø250	ø300	ø350	4-ø19	5	0
200L		6312C3		2-M40x1.5	ø300	ø350	ø400	4-ø19	5	0
225S	4,8	6313C3		2-M50x1.5	ø350	ø400	ø450	8-ø19	5	0
225M	2				ø350	ø400	ø450	8-ø19	5	0
	4,6,8				ø350	ø400	ø450	8-ø19	5	0
250M	2	6314C3		2-M50x1.5	ø400	ø500	ø550	8-ø19	5	0
	4,6,8				ø400	ø500	ø550	8-ø19	5	0
280S/M	2	6316C3		2-M50x1.5	ø400	ø500	ø550	8-ø19	5	0
	4,6,8				ø400	ø500	ø550	8-ø19	5	0
315SM/L	2	6314C3		2-M63x1.5	ø550	ø600	ø660	8-ø24	6	0
	4,6,8	NU319	6319C3		ø550	ø600	ø660	8-ø24	6	0
355M/L	2	6319C3		2-M63x1.5	ø680	ø740	ø800	8-ø24	6	0
	4,6,8	NU322	6322C3		ø680	ø740	ø800	8-ø24	6	0

*L - The length quoted is for motor with in-line Axial fan and encoder fitted. For dimensions with Brake consult your local sales office.

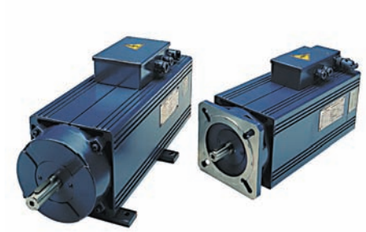
Square Frame Asynchronous Vector Motors

High Performance - MA Series

0.75kW - 314kW

Description

The MA series family of motors has been specially engineered to be suitable for high dynamic performance when used with a flux vector type controller - AC690+ and AC650V. They permit operation in constant power at maximum speed up to 800 RPM.



Compact square frame format
Same frame dimensions as DC motors of similar power rating
Thermostat embedded in stator
Incremental encoder
IP23 or IP54 protection
Insulation Class F (CEI - EN60034 -1))
Auxiliary cooling fan allows low-speed high-torque operation
High overload capability
Higher operating speeds

Options

Terminal box mounting on right or left
PTC thermister
S vibration class
IP55 protection
Roller bearing on frame100
Anti-condensation heater

Square Frame Asynchronous Vector Motors

High Performance - MA Series - IP23

0.75kW - 314kW

Technical features -
MA133 Series - IP23 - 3x400V rms max.

Motor		Code	Nominal speed nn (rpm)	Nominal power Pn (Kw)	Nominal Torque Tn (Kw)	Inertia J (kgcm²)	Nominal voltage Vn (Vrms)	Nominal current In (Arms)	Magnetising current Iμ (Arms)	Nominal frequency Fn (Hz)	Maximum speed at Pn Nmax1 (tr/mn)	Max. speed Nmax2 (tr/mn)	Weight W (kg)
MA133	K	EC	800	13	155	670	395	28	9	28.9	1000	7 000	132
	K	EB	1000	16	153	670	395	33	10	35.7	1200	7 000	132
	K	E3	1350	21	149	670	400	42	14	47.2	1500	7 000	132
	K	FA	1500	23	146	670	395	45	14	52.2	1900	7 000	132
	K	F2	1800	27	143	670	400	52	17	62.1	2100	7 000	132
	K	F3	2000	30	142	670	400	57	19	68.7	2300	7 000	132
	K	G1	2500	36	138	670	395	70	26	85.3	3700	7 000	132
	K	GB	3000	42	134	670	400	79	28	101.9	3600	7 000	132
	S	E2	850	19	213	860	385	40	13	30.3	1400	7 000	157
	S	EC	1000	22	210	860	385	45	15	35.3	1700	7 000	157
	S	E3	1250	27	206	860	400	52	18	43.5	1500	7 000	157
	S	FB	1500	31	197	860	400	59	20	51.9	1700	7 000	157
	S	F2	1800	35	186	860	400	67	24	61.8	2200	7 000	157
	S	F4	2050	39	182	860	400	75	28	70.0	2600	7 000	157
	S	G1	2450	43	168	860	400	83	31	83.3	3100	7 000	157
	S	GB	3000	49	156		400	93	37	101.5	3900	7 000	157
	M	E4	850	21	236	980	395	43	14	30.3	1100	7 000	175
	M	E3	1000	24	229	980	390	49	17	35.2	1600	7 000	175
	M	EB	1250	29	222	980	395	58	20	43.5	1800	7 000	175
	M	FB	1500	34	216	980	395	67	24	51.8	2200	7 000	175
	M	F2	1800	39	207	980	400	74	26	61.8	2100	7 000	175
	M	F3	2100	42	191	980	400	81	32	71.6	2700	7 000	175
	M	G1	2500	47	180	980	395	92	39	84.8	4100	7 000	175
	M	G2	2850	50	168	980	400	97	42	96.4	4000	7 000	175
	P	E7	800	23	275	1200	385	48	16	28.4	1400	7000	200
	P	ED	1000	28	267	1200	390	56	20	35.0	1600	7000	200
	P	FC	1350	36	255	1200	400	69	25	46.6	1600	7000	200
	P	FB	1500	39	248	1200	390	77	31	51.5	2700	7000	200
	P	F2	1850	45	232	1200	400	86	36	63.1	2500	7000	200
	P	F3	2100	48	218	1200	400	92	37	71.4	2600	7000	200
	P	G1	2600	54	198	1200	395	105	47	87.9	4400	7000	200
	P	G2	3000	57	181	1200	400	112	56	101.1	4500	7000	200

Square Frame Asynchronous Vector Motors

High Performance - MA Series - IP23

0.75kW - 314kW

Technical features -
MA160-MA180 Series - IP23 - 3x400V rms max.

Motor		Code	Nominal speed nn (rpm)	Nominal power Pn (Kw)	Nominal Torque Tn (Kw)	Inertia J (kgcm²)	Nominal voltage Vn (Vrms)	Nominal current In (Arms)	Magnetising current Iμ (Arms)	Nominal frequency Fn (Hz)	Maximum speed at Pn Nmax1 (tr/mn)	Max. speed Nmax2 (tr/mn)	weight W (kg)
MA160	M	E3	650	30	441	2400	395	62	17	23.7	800	6 000	270
	M	EA	900	40	424	2400	400	79	23	31.9	1000	6 000	270
	M	E8	1000	44	420	2400	385	89	27	35.2	1700	6 000	270
	M	F4	1300	56	411	2400	400	106	33	45.2	1600	6 000	270
	M	FA	1500	63	401	2400	400	120	39	51.8	1900	6 000	270
	M	FE	1800	73	387	2400	400	138	45	61.8	2300	6 000	270
	M	F5	2000	80	382	2400	390	153	51	68.4	3300	6 000	270
	M	G2	2600	96	353	2400	400	180	64	88.3	3600	6 000	270
	L	ED	650	34	500	3020	400	68	22	23.3	800	6 000	325
	L	EA	850	44	494	3020	390	87	29	29.9	1400	6 000	325
	L	E5	1000	51	487	3020	400	98	33	34.9	1300	6 000	325
	L	FB	1300	64	470	3020	400	121	43	44.8	1800	6 000	325
	L	F4	1500	71	452	3020	400	132	47	51.4	2000	6 000	325
	L	F3	1850	84	434	3020	400	156	59	63.0	2700	6 000	325
	L	FA	2000	88	420	3020	400	165	65	68.0	3000	6 000	325
	L	G1	2450	99	386	3020	400	186	77	82.9	3800	6 000	325
	P	EC	700	42	573	3600	390	85	29	24.8	1300	5 000	365
	P	EB	850	50	562	3600	395	99	35	29.7	1400	5 000	365
	P	E4	1000	58	554	3600	395	111	41	34.7	1700	5 000	365
	P	FA	1300	73	536	3600	395	138	51	44.6	2200	5 000	365
	P	F1	1500	82	522	3600	395	156	60	51.3	2700	5 000	365
	P	FB	1800	94	499	3600	395	177	70	61.2	3300	5 000	365
	P	FC	2000	100	477	3600	395	189	76	67.8	3800	5 000	365
	P	G2	2500	110	420	3600	395	213	97	84.4	5000	5 000	365
MA180	M	E5	650	47	690	5050	390	92	26	22.8	900	4 500	480
	M	EC	850	61	685	5050	395	115	34	29.5	1100	4 500	480
	M	ED	1000	71	678	5050	395	129	39	34.4	1300	4 500	480
	M	EB	1300	89	654	5050	395	158	49	44.4	1800	4 500	480
	M	FB	1500	100	637	5050	395	178	58	51.0	2100	4 500	480
	M	F1	1800	112	594	5050	400	198	69	60.9	2100	4 500	480
	M	F2	2050	118	550	5050	385	215	67	69.3	3700	4 500	480
	M	G1	2500	122	466	5050	380	225	63	84.4	4500	4 500	480
	P	ED	650	60	881	6300	395	117	35	23.0	800	4 500	550
	P	E7	850	78	876	6300	390	147	46	29.7	1300	4 500	550
	P	E4	1000	90	859	6300	390	164	49	34.7	1500	4 500	550
	P	E6	1250	109	833	6300	390	200	64	42.9	2000	4 500	550
	P	FB	1500	124	789	6300	385	232	77	51.2	2800	4 500	550
	P	FA	1750	135	737	6300	395	242	83	59.5	2600	4 500	550
	P	F1	2050	146	680	6300	390	262	85	69.5	3400	4 500	550
	P	G1	2500	155	592	6300	385	285	86	84.6	4500	4 500	550

Square Frame Asynchronous Vector Motors

High Performance - MA Series - IP54

0.75kW - 314kW

Technical features -
MA225-MA280 Series - IP23 - 3x400Vrms max.

Motor		Code	Nominal speed nn (rpm)	Nominal power Pn (Kw)	Nominal torque Tn (Kw)	Inertia J (kgcm²)	nominal voltage Vn (Vrms)	Nominal current In (Arms)	Magnetising current Iμ (Arms)	Nominal frequency Fn (Hz)	Maximum speed at Pn Nmax1 (tr/mn)	Max. speed Nmax2 (tr/mn)	Poids W (kg)
MA225	S	E4	650	71	1043	10500	395	135	34	22.7	800	3 500	640
	S	EC	800	86	1027	10500	395	161	42	27.6	1000	3 500	640
	S	E5	1000	104	993	10500	385	200	58	34.3	1600	3 500	640
	S	FB	1250	124	947	10500	390	233	65	42.6	1800	3 500	640
	S	FA	1500	144	917	10500	400	260	74	50.9	1700	3 500	640
	S	F1	1800	161	854	10500	390	295	80	60.9	2700	3 500	640
	S	F2	2000	176	840	10500	390	320	86	67.5	2900	3 500	640
	L	E3	650	95	1396	15000	395	178	46	22.7	800	3 500	860
	L	EA	850	122	1370	15000	390	230	62	29.3	1300	3 500	860
	L	EC	1000	141	1346	15000	395	255	70	34.3	1300	3 500	860
	L	E2	1300	174	1278	15000	400	310	91	44.2	1500	3 500	860
	L	FA	1450	190	1251	15000	400	336	98	49.2	1700	3 500	860
	L	F1	1800	216	1146	15000	390	391	115	60.8	2800	3 500	860
	X	E3	650	139	2042	21300	395	254	65	22.7	800	3500	1080
	X	E4	800	169	2017	21300	385	313	82	27.7	1400	3500	1080
	X	EB	1000	208	1986	21300	395	370	98	34.4	1300	3500	1080
	X	E1	1250	250	1910	21300	390	447	123	42.7	2000	3500	1080
	X	FA	1450	280	1844	21300	395	493	143	49.3	2100	3500	1080
	X	F1	1700	305	1713	21300	390	540	163	57.6	3000	3500	1080
MA280	M	EA	690	210	2906	39330	395	370	78	23.7	900	3000	1290
	M	E1	840	252	2865	39330	395	439	93	28.7	1100	3000	1290
	M	E2	1060	311	2802	39330	395	536	117	36.0	1400	3000	1290
	M	F1	1450	407	2680	39330	400	686	155	49.0	1500	3000	1290
	L	EA	560	206	3512	47250	395	366	79	19.4	700	3000	1520
	L	E1	680	247	3468	47250	395	434	95	23.3	900	3000	1520
	L	E2	870	309	3391	47250	395	535	115	29.7	1100	3000	1520
	L	F1	1170	401	3273	47250	395	688	156	39.7	1600	3000	1520
	X	EA	470	189	3840	56820	395	347	86	16.4	600	2800	1890
	X	E1	520	226	3786	56820	395	410	105	19.7	700	2800	1890
	X	E2	720	281	3727	56820	395	503	132	24.7	900	2800	1890
	X	F1	980	371	3615	56820	395	656	173	33.3	1300	2800	1890
	X	F2	1510	524	3314	56820	400	907	262	50.9	1600	2800	1890

Square Frame Asynchronous Vector Motors

High Performance - MA Series - IP54

0.75kW - 314kW

Technical features
MA80-MA90-MA100 Series - IP54 - 3x400V rms max.

Motor		Code	Nominal speed nn (rpm)	Nominal power Pn (Kw)	Nominal torque Tn (Kw)	Inertia J (kgcm²)	Nominal voltage Vn (Vrms)	Nominal current In (Arms)	Magnetising current Iμ (Arms)	Nominal frequency Fn (Hz)	Maximum speed at Pn Nmax1 (tr/mn)	Max. speed Nmax2 (tr/mn)	Weight W (kg)
MA80	M	F1	1500	0.75	4.8	12	380	2.0	1.1	53.8	6400	9000	14
	M	H1	3000	1.4	4.5	12	380	3.4	1.7	104.0	8200	9000	14
	L	F1	1500	1.5	9.5	49	390	3.8	1.5	55.3	2600	9000	22
	L	H1	3000	3.0	9.5	49	395	6.6	2.4	106.0	4200	9000	22
MA90	M	F1	1500	1.4	8.9	27	340	4.0	2.0	54.7	4500	9000	20
	M	H1	3000	2.8	8.9	27	370	7.3	3.5	104.7	9000	9000	20
	L	F1	1500	3.2	20.4	58	365	8.2	4.4	54.9	9000	9000	32
	L	H1	3000	6.4	20.4	58	390	13.7	7.5	105.0	9000	9000	32
MA100	S	E2	1000	2.5	23.9	190	395	5.9	2.5	35.8	1200	8000	50
	S	E1	1200	3.0	23.8	190	395	6.9	3.1	42.4	1500	8000	50
	S	FA	1500	3.7	23.6	190	380	9.0	4.2	52.3	2600	8000	50
	S	F1	1750	4.3	23.5	190	395	10.0	4.7	60.7	2400	8000	50
	S	F2	2000	4.9	23.4	190	380	11.8	5.5	69.0	3400	8000	50
	S	F3	2400	5.7	22.7	190	395	13.3	6.5	82.2	3400	8000	50
	S	G2	3000	6.8	21.6	190	390	16.3	8.3	102.2	4700	8000	50
	M	EA	1000	4.1	39.2	250	395	9.4	3.9	35.6	1200	8000	65
	M	E2	1200	4.9	38.8	250	400	11.0	5.1	42.1	1300	8000	65
	M	FB	1500	6.0	38.2	250	385	13.7	6.1	52.1	2400	8000	65
	M	F1	1750	6.9	37.7	250	400	15.2	6.8	60.5	1900	8000	65
	M	F3	2100	8.1	36.8	250	400	17.8	8.4	72.0	2500	8000	65
	M	G1	2700	10.0	35.4	250	400	21.9	10.6	92.0	3400	8000	65
	M	G2	3000	11.0	35.0	250	400	24.2	11.2	102.1	3600	8000	65
	L	E2	1000	5.7	54.4	310	400	13.0	5.8	35.4	1200	8000	80
	L	E1	1250	7.0	53.5	310	400	15.7	7.1	43.7	1500	8000	80
	L	FC	1500	8.2	52.2	310	390	18.4	8.3	52.0	2300	8000	80
	L	F1	1800	9.6	50.9	310	400	21.0	9.6	62.0	2200	8000	80
	L	F2	1900	10.0	50.3	310	395	23.5	10.8	65.4	2700	8000	80
	L	GA	2400	12.2	48.5	310	400	27.0	12.8	82.0	2900	8000	80
	L	G1	2700	13.3	47.0	310	395	28.8	13.8	91.9	3900	8000	80
	L	G2	3000	14.5	46.2	310	390	32.0	15.6	101.9	5000	8000	80
	P	EB	1000	6.9	66.2	370	395	15.1	6.6	35.3	1300	8000	90
	P	E2	1300	8.8	64.8	370	400	19.3	9.1	45.2	1500	8000	90
	P	FB	1500	10.0	63.7	370	380	23.0	11.5	51.8	3100	8000	90
	P	F1	1750	11.4	62.2	370	395	25.0	12.2	60.1	2600	8000	90
	P	F2	2000	12.8	61.0	370	400	28.3	13.0	68.6	2200	8000	90
	P	GA	2500	15.1	57.8	370	390	33.0	16.8	85.0	4400	8000	90
	P	G2	3000	17.0	54.1	370	400	36.8	19.1	101.6	3900	8000	90

Square Frame Asynchronous Vector Motors

High Performance - MA Series - IP54

0.75kW - 314kW

Technical features

MA133 series - IP54 - 3x400V rms max.

Motor		Code	Nominal speed nn (rpm)	Nominal power Pn (Kw)	Nominal torque Tn (Kw)	Inertia J (kgcm²)	Nominal voltage Vn (VRMS)	Nominal current In (ARMS)	Magnetising current Iμ (ARMS)	Nominal frequency Fn (Hz)	Maximum speed at Pn Nmax1 (tr/mn)	Max. speed Nmax2 (tr/mn)	Weight W (kg)
MA133	K	EC	850	9.5	107	670	395	21	9	29.9	1400	7 000	132
	K	EB	1000	11	105	670	385	24	11	34.9	2200	7 000	132
	K	E5	1200	13	103	670	400	29	14	41.5	1900	7 000	132
	K	FA	1500	16	102	670	390	34	15	51.6	2800	7 000	132
	K	F2	1800	19	101	670	395	40	18	61.5	3100	7 000	132
	K	F3	2000	21	100	670	395	43	20	68.1	3600	7 000	132
	K	GA	2500	25	95	670	400	51	22	84.8	3400	7 000	132
	K	GB	3000	29	92	670	395	60	29	101.4	5500	7 000	132
	S	E4	850	13	146	860	390	28	12	29.8	1600	7 000	157
	S	EB	1000	15	143	860	395	31	14	34.7	1700	7 000	157
	S	ED	1250	18	138	860	400	37	17	43.0	1700	7 000	157
	S	FA	1500	21	134	860	400	42	18	51.4	1900	7 000	157
	S	F2	1800	24	127	860	395	50	25	61.2	3400	7 000	157
	S	F4	2100	27	123	860	390	55	26	71.2	4500	7 000	157
	S	G1	2600	31	114	860	400	62	29	87.9	3700	7 000	157
	S	GB	3000	34	108	860	395	71	37	101.0	6100	7 000	157
	M	E4	850	15	169	980	385	33	14	29.8	1800	7 000	175
	M	E2	1000	17	162	980	400	35	14	34.8	1200	7 000	175
	M	EB	1300	21	156	980	400	44	21	44.6	1900	7 000	175
	M	FA	1500	24	153	980	395	48	21	51.3	2500	7 000	175
	M	F2	1800	27	143	980	395	56	27	61.2	3400	7 000	175
	M	F3	2100	30	136	980	390	63	31	71.2	4600	7 000	175
	M	G1	2600	34	125	980	395	71	37	87.8	5200	7 000	175
	M	G2	3000	37	118	980	400	75	39	101.0	4700	7 000	175
	P	E7	850	18	202	1200	395	39	16	29.7	1300	7 000	200
	P	E3	1000	21	201	1200	400	44	19	34.7	1300	7 000	200
	P	F4	1300	27	198	1200	400	52	23	44.6	1700	7 000	200
	P	FA	1500	30	191	1200	400	58	26	51.2	2000	7 000	200
	P	F1	1800	33	175	1200	400	65	29	61.2	2400	7 000	200
	P	F3	2100	36	164	1200	390	73	36	71.1	4600	7 000	200
	P	G1	2600	40	147	1200	385	85	46	87.6	7000	7 000	200
	P	G2	3000	43	137	1200	390	93	53	100.9	7000	7 000	200

Square Frame Asynchronous Vector Motors

High Performance - MA Series - IP54

0.75kW - 314kW

Technical features

MA160 Series - IP54 - 3x400V rms max.

Motor		Code	Nominal speed nn (rpm)	Nominal power Pn (Kw)	Nominal torque Tn (Kw)	Inertia J (kgcm²)	Nominal voltage Vn (VRMS)	Nominal current In (ARMS)	Magnetising current Iμ (ARMS)	Nominal frequency Fn (Hz)	Maximum speed at Pn Nmax1 (tr/mn)	Max. speed Nmax2 (tr/mn)	Weight W (kg)
MA160	M	EB	650	19	279	2400	395	35	13	23.0	1000	6 000	255
	M	EC	850	24	270	2400	400	43	17	29.6	1100	6 000	255
	M	EA	1000	28	267	2400	390	51	20	34.6	1900	6 000	255
	M	E1	1300	35	257	2400	400	61	24	44.6	1700	6 000	255
	M	FC	1500	40	255	2400	390	72	28	51.2	2900	6 000	255
	M	F1	1800	45	239	2400	400	79	33	61.2	2600	6 000	255
	M	FE	2000	48	229	2400	395	86	37	67.8	3600	6 000	255
	M	F5	2250	51	216	2400	390	93	42	76.1	5000	6 000	255
	M	GB	2500	53	202	2400	400	93	44	84.3	4100	6 000	255
	L	E6	650	22	323	3020	395	43	16	22.9	1000	6000	310
	L	E4	850	28	315	3020	390	56	22	29.5	1700	6000	310
	L	EA	1000	33	315	3020	400	62	23	34.5	1200	6000	310
	L	E3	1300	40	294	3020	395	77	31	44.4	2300	6000	310
	L	FB	1500	45	287	3020	400	84	33	51.1	2000	6000	310
	L	F1	1750	50	273	3020	395	96	42	59.3	3300	6000	310
	L	F2	1950	53	260	3020	400	100	42	66.0	2800	6000	310
	L	FA	2250	57	242	3020	400	110	52	75.9	3700	6000	310
	L	G2	2500	59	225	3020	400	114	55	84.2	4100	6000	310
	P	E5	650	23	338	3600	395	47	19	22.7	1200	5 000	350
	P	EC	850	30	337	3600	400	58	22	29.4	1100	5 000	350
	P	EA	1000	35	334	3600	390	69	30	34.3	2300	5 000	350
	P	E2	1300	44	323	3600	400	83	36	44.3	2100	5 000	350
	P	FA	1500	49	312	3600	400	93	40	50.9	2400	5 000	350
	P	F1	1750	55	300	3600	400	104	46	59.2	2800	5 000	350
	P	FB	2000	60	286	3600	390	119	56	67.5	5000	5 000	350
	P	G1	2400	64	255	3600	385	133	70	80.7	5000	5 000	350

Square Frame Asynchronous Vector Motors

High Performance - MA Series - IP54

0.75kW - 314kW

Technical features

MA180 - MA225 Series - IP54 - 3x400V rms max.

Motor		Code	Nominal speed nn (rpm)	Nominal power Pn (Kw)	Nominal torque Tn (Kw)	Inertia J (kgcm²)	Nominal voltage Vn (Vrms)	Nominal current In (Arms)	Magnetising current Iμ (Arms)	Nominal frequency Fn (Hz)	Maximum speed at Pn Nmax1 (tr/mn)	Max. speed Nmax2 (tr/mn)	Weight W (kg)
MA180	M	E3	650	31	455	5050	395	58	24	22.4	1000	4 500	480
	M	EC	900	42	446	5050	400	78	34	30.7	1200	4 500	480
	M	EA	1000	46	439	5050	395	85	36	34.1	1700	4 500	480
	M	EB	1350	59	417	5050	395	108	48	45.7	2400	4 500	480
	M	FB	1500	64	407	5050	385	123	58	50.7	3900	4 500	480
	M	FA	1800	73	387	5050	400	129	56	60.7	2300	4 500	480
	M	F2	2300	83	345	5050	395	149	60	77.4	3600	4 500	480
	M	G1	2600	86	316	5050	395	157	65	87.4	4200	4 500	480
	P	EB	650	38	558	6300	395	73	30	22.6	1000	4 500	550
	P	E5	850	49	550	6300	400	91	37	29.3	1000	4 500	550
	P	E1	1000	57	544	6300	400	107	46	34.2	1300	4 500	550
	P	E2	1250	69	527	6300	400	128	56	42.5	1600	4 500	550
	P	EA	1500	80	509	6300	400	149	65	50.9	2000	4 500	550
	P	FA	1800	91	483	6300	395	174	82	60.8	3400	4 500	550
	P	F1	2250	100	424	6300	395	183	77	75.8	3700	4 500	550
	P	G1	2600	105	386	6300	390	195	86	87.5	4500	4 500	550
MA225	S	E7	650	46	676	10500	395	87	30	22.4	900	3 500	640
	S	EC	850	58	652	10500	400	109	42	29.0	1100	3 500	640
	S	EA	1000	67	640	10500	400	125	46	34.0	1300	3 500	640
	S	FB	1300	82	602	10500	395	157	68	43.9	2400	3 500	640
	S	FA	1500	93	592	10500	390	178	75	50.6	3100	3 500	640
	S	F1	1800	105	557	10500	395	200	90	60.5	3500	3 500	640
	S	F2	2100	116	527	10500	400	213	87	70.5	2900	3 500	640
	L	E3	650	64	940	15000	385	125	48	22.3	1400	3 500	860
	L	E6	850	81	910	15000	400	150	58	29.0	1100	3 500	860
	L	EC	1000	94	898	15000	385	178	71	33.9	2400	3 500	860
	L	E2	1300	116	852	15000	390	219	91	43.9	2800	3 500	860
	L	FA	1500	130	828	15000	400	235	95	50.6	2100	3 500	860
	L	F1	1800	142	753	15000	390	273	124	60.5	3500	3 500	860
	X	E3	650	92	1352	21300	385	175	67	22.4	1600	3 500	1080
	X	E4	850	117	1314	21300	395	214	82	29.0	1500	3 500	1080
	X	EB	1000	135	1289	21300	385	252	99	34.0	2500	3 500	1080
	X	E1	1300	166	1220	21300	400	300	126	44.0	1800	3 500	1080
	X	FA	1500	184	1172	21300	400	333	143	50.6	2100	3 500	1080
	X	F1	1750	202	1102	21300	395	371	164	58.9	3500	3 500	1080

Square Frame Asynchronous Vector Motors

High Performance - MA Series - IP54

0.75kW - 314kW

Technical features

MA280 Series - IP54 - 3x400V rms max.

Motor		Code	Nominal speed nn (rpm)	Nominal power Pn (Kw)	nominal torque Tn (Kw)	Inertia J (kgcm²)	Nominal voltage Vn (Vrms)	Nominal current In (Arms)	Magnetising current Iμ (Arms)	Nominal frequency Fn (Hz)	Maximum speed at Pn Nmax1 (tr/mn)	Max. speed Nmax2 (tr/mn)	Weight W (kg)
MA280	M	EA	730	143	1870	39330	400	247	77	24.8	900	3 000	1290
	M	E1	880	169	1834	39330	400	291	93	29.8	1100	3 000	1290
	M	E2	1100	207	1797	39330	400	356	117	37.1	1400	3 000	1290
	M	F1	1500	270	1719	39330	400	461	151	50.4	1900	3 000	1290
	L	EA	590	140	2266	47250	400	244	79	20.1	700	3000	1520
	L	E1	720	168	2228	47250	400	291	92	24.4	900	3000	1520
	L	E2	900	206	2186	47250	400	356	118	30.4	1200	3000	1520
	L	F1	1200	264	2101	47250	395	460	155	40.4	2100	3000	1520
	X	EA	490	127	2475	56820	400	232	89	16.8	650	2800	1890
	X	E1	600	153	2435	56820	400	277	104	20.4	750	2800	1890
	X	E2	760	191	2400	56820	400	342	129	25.8	1000	2800	1890
	X	F1	1020	248	2322	56820	400	444	173	34.4	1400	2800	1890
	X	F2	1540	342	2121	56820	400	617	262	51.7	2200	2800	1890

Motor cooling fans

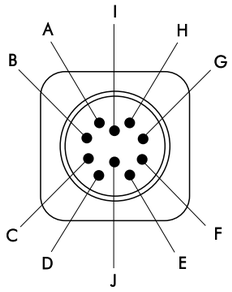
Motor	Cooling method	Voltage (V rms)	Current (A rms)	Noise (dB)	Voltage (Vrms)	Current (Arms)	Noise (dB)	Air flow (m3/h)	Pressure (mmH20)
		Frequency 50Hz			Frequency 60Hz				
MA 80 M-F1 MA 80 L-F1 MA 80 M-H1		230	0.09	54	230	0.08	57		
MA 80 L-H1		230	0.19	55	230	0.20	55		
MA 90 M-F1 MA 90 L-F1 MA 90 M-H1		230	0.11	65	230	0.13	68		
MA 90 L-H1		230	0.37	63	230	0.37	63		
MA 100	IP54-PVAP	345-440 200-255	0.19 0.33	66	345-460 200-265	0.12 0.21	70	220	12
MA 133	IP54-PVAP	345-480 200-275	0.34 0.59	74	345-480 200-255	0.31 0.54	78	720	17
MA 133	IP23-PVA	315-500 180-290	1.1 1.82	75	380-600 215-350	1.1 1.82	79	930	93
MA 160	IP54-PVAP	380-400	0.44	78	380-440	0.5	80	1100	21
MA 160	IP23-PVA IP54-PVAP2	300-460 175-265	2.6 4.5	78	360-510 210-290	2.6 4.5	82	1300	125
MA 180	IP54/IP23-PVA IP54-PVAP2	315-400 180-230	4.8 8.3	80	380-480 220-275	4.8 8.3	84	2200	120
MA 225	IP54/IP23-PVA	380-400 220-230	6.3 10.9	86	460-480 265-275	6.3 10.9	86	3300	315
MA 280	IP54/IP23-PVA	380-400 220-230	6.5 11.3	86	460-480 265-275	6.5 11.3	86	3900	285

Dimensions

MA Series - AC Motors

Encoders

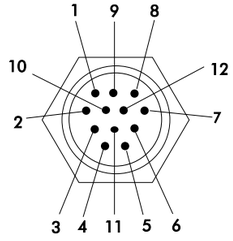
Encoder connection for MA80 - MA90 Series



Max. speed		6000 tr/min
A	Red	+Vdc
B	Green	Ch. A
C	Yellow	Ch. B
D		
E	Black	0 Volt
F		
G	Brown	Ch. A*
H	Orange	Ch. B*
I	Blue	Ch. Z**
J	White	Ch. Z**

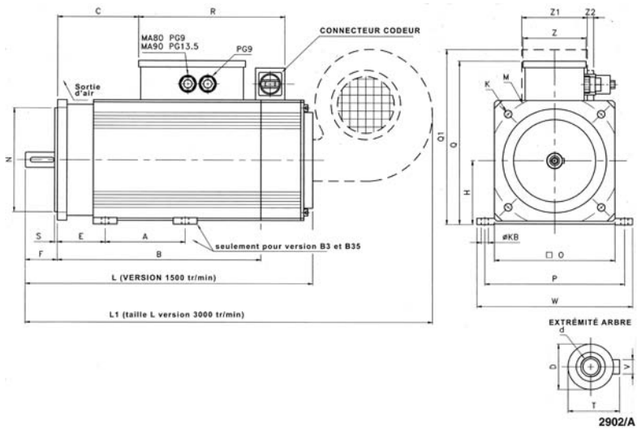
TYPE: MS 3102 A18-1P with MS 3106 A18-1S

Encoder connection for MA100 - MA225 Series



1	Pink	Ch. /B
2	Blue	Encoder Supply 10-30V
3	Red	Ch. Z
4	Black	Ch. /Z
5	Brown	Ch. A
6	Green	Ch. /A
7	Purple	/ Encoder fault
8	Grey	Ch. B
9		
10	White/Green	0V encoder
11	White	0V encoder
12	Brown/Green	Encoder Supply 10-30V

Dimensions

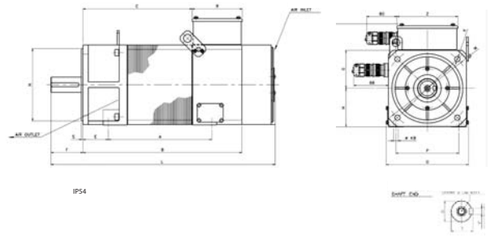


Dimensions MA80 - MA90

Motor		DA	E	S	F	B	L	L1	KB	P	O	W	M	K	H	Q	Q1	N	C	R	Z	Z1	Z2	D	T	V	d
MA80	M	100	60	3.5	40	255	320	-	9	175	151	195	165	9.5	80	205	219	130	101	184	79	82	8	19	21.5	6	M8
	L	180	60	3.5	40	335	400	590	9	175	151	195	165	9.5	80	205	219	130	181	184	79	82	8	19	21.5	6	M8
MA90	M	125	70	3.5	50	293	448	-	9	190	165	215	165	12	90	230	240	130	123	192	108	110	/	24	27	8	M8
	L	207	70	3.5	50	375	530	690	9	190	165	215	165	12	90	230	240	130	205	192	108	110	/	24	27	8	M8

Dimensions

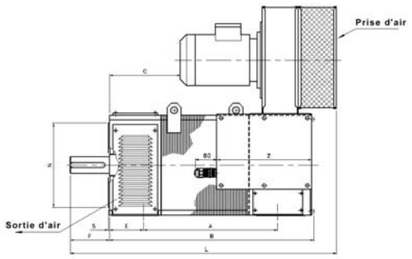
MA Series - AC Motors



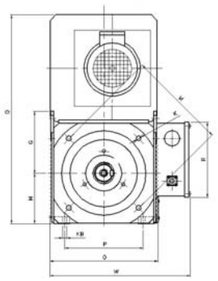
Dimensions MA100 - MA133 - MA160

Motor		A	E	S	F	B	L	KB	P	O	M	K	H	G	Q	N	C	R	Z	D	T	V	d
MA100	S	198	63	4	80	336	500	12	160	198	215	14	100	99	270	180	230	131	146	38	41	10	M12
	M	258	63	4	80	396	560	12	160	198	215	14	100	99	270	180	280	131	146	38	41	10	M12
	L	318	63	4	80	456	620	12	160	198	215	14	100	99	270	180	330	131	146	38	41	10	M12
	P	378	63	4	80	516	680	12	160	198	215	14	100	99	270	180	390	131	146	38	41	10	M12
MA133	K	308	66	5	110	478	690	13	216	260	300	18	132	130	345	250	310	170	245	48	51.5	14	M16
	S	368	66	5	110	538	750	13	216	260	300	18	132	130	345	250	370	170	245	48	51.5	14	M16
	M	408	66	5	110	578	790	13	216	260	300	18	132	130	345	250	410	170	245	48	51.5	14	M16
	P	473	66	5	110	643	855	13	216	260	300	18	132	130	345	250	475	170	245	48	51.5	14	M16
MA160	M	402	108	5	110	642	872	14	254	316	350	18	160	158	400	300	473	170	245	55	59	16	M20
	L	482	108	5	110	722	952	14	254	316	350	18	160	158	400	300	553	170	245	55	59	16	M20
	P	552	108	5	110	792	1022	14	254	316	350	18	160	158	400	300	623	170	245	55	59	16	M20

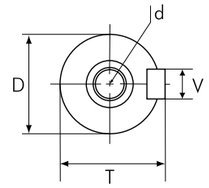
MA 180-225 IP54-PVA



MA 133-160-180-225 IP23-PVA



Motor Shaft



Dimensions MA133 - MA160 - MA180 - MA225

Motor		A	E	S	F	B	L	KB	P	O	M	K*	H	G	Q	N	C	W	R	Z	D	T	V	d
MA133	K	308	66	5	110	435	646	13	216	293	300	18	132	166	558	250	101	356	170	245	48	51.5	14	M16
	S	368	66	5	110	495	706	13	216	293	300	18	132	166	558	250	161	356	170	245	48	51.5	14	M16
	M	408	66	5	110	535	746	13	216	293	300	18	132	166	558	250	201	356	170	245	48	51.5	14	M16
	P	473	66	5	110	600	811	13	216	293	300	18	132	166	558	250	266	356	170	245	48	51.5	14	M16
MA160	M	402	108	5	110	628	835	14	254	349	350	18	160	200	637	300	228	419	170	245	55	59	16	M20
	L	482	108	5	110	708	915	14	254	349	350	18	160	200	637	300	308	419	170	245	55	59	16	M20
	P	552	108	5	110	778	985	14	254	349	350	18	160	200	637	300	378	419	170	245	55	59	16	M20
MA180	M	567	121	5	140	816	1039	15	279	394	350	18	180	220	740	300	344	505	267	337	60	64	18	M20
	P	667	121	5	140	916	1139	15	279	394	350	18	180	220	740	300	444	505	267	337	60	64	18	M20
MA225	S	475	149	5	140	791	1047	19	356	482	400	18	225	270	880	350	267	595	267	337	75	79.5	20	M20
	L	615	149	5	140	931	1187	19	356	482	400	18	225	270	880	350	407	595	267	337	75	79.5	20	M20
	X	855	149	5	140	1171	1427	19	356	482	400	18	225	270	880	350	647	595	267	337	75	79.5	20	M20

Torque Motors

TMW Series

1200 - 22,100 Nm

Description

More than just motors, Parker Torque Motors are complete and ready-to-use “direct drive” systems, specifically designed for use with AC890 and AC890PX drives to fully and effectively respond to the specific needs of the Plastics and Rubber industries. Developed in collaboration with machine builders and end-users, a number of innovative, dedicated features have been integrated into the motors, such as; a generously sized, integrated thrust bearing to support back pressure from the screw, as well as specific mechanisms allowing quick and easy removal of the screw from the motor. Delivering torques up to 22 100 N.m, at speeds ranging from 50 to 500 rpm, Parker Torque Motors represent the perfect alternative to gearbox based systems, for extruders applications of power up to 320 kW.

Parker torque motors are permanent magnet brushless servo motors, especially designed to replace direct current or induction motors and gearboxes in extruder applications.

Designed to deliver high torque at low speed without any additional mechanical transmission system, their usage results in more compact, more efficient, quieter and virtually maintenance free drive systems.

Example of energy savings
Removal of the gearbox has an immediate impact on the overall installation’s efficiency, resulting in energy savings.

Example :
- 100 kW extruder,
- 7200h annual operating
- Energy cost: 0,10 €/kWh

Overall efficiency improvement due to the installation of a torque motor: 5%

Annual savings 3600 €

Features

High power compact design
Water or natural cooling
Overtemperature protection built in
Wide range of feedback devices
Integrated thrust bearing
Customizable shaft ends
IP54 protection
IMB3 mounting

Technical specifications

• **Torque range**	1200 – 22100 N.m (water-cooling)
• **Shaft heights**	200, 315 or 400 mm
• **Rated Voltage**	400 VAC and 480 VAC
• **Speed**	50 – 500 rpm (size dependent) - Field weakening operation up to 1.2xn_{rated} - Other speeds available on request
• **Cooling**	Water Jacket as standard - Natural ventilation with derating (consult us)
• **Mounting**	IMB3
• **Protection degree**	IP 54
• **Thermal protection**	1 x KTY sensor and 2 x PTC probes - Temperature alarm and default
• **Shaft end**	Hollow shaft with keyway as standard - Customized interfaces available on request
• **Thrust bearing**	SKF 294__E as standard
• **Feedback sensor**	Endat Encoder as standard Direct Endat Encoder with hollow shaft (option) Resolver (option)

Torque Motors

TMW Series

1200 - 22,100 Nm

Technical features
TMW Series - 400 VAC Power Supply (1)

Model	Pn (kW)	Nn (rpm)	Mn (Nm)	In (Arms)	Nmax (rpm)	Mmax (Nm)	Inertia (kgm²)	Water flow rate (l/min)	Drive reference (2)
Motor Speed 50 - 75 rpm									
TMW305LU	29	70	3940	68	80	5880	4,40	17	890SD-432730E
TMW306LV	38	75	4830	86	85	7200	4,55	20	890SD-432870E
TMW406LV	81	75	10300	169	90	15300	16,20	28	890SD-433180F
TMW408LW	90	60	14200	197	75	21000	19,40	37	890SD-433216G
TMW40ALW	95	50	18200	219	60	26800	25,10	47	890SD-433250G
TMW40CLW	116	50	22100	271	60	32500	25,90	56	890SD-433316G
TMW40CLS	161	70	22000	348	85	32500	25,90	56	890SD-433420H
Motor Speed 75 - 100 rpm									
TMW304LR	32	100	3040	70	115	4550	3,45	14	890SD-432730E
TMW305LT	39	95	3930	84	115	5880	4,40	17	890SD-432870E
TMW308LU	59	85	6620	133	105	9870	6,50	27	890SD-433145F
TMW30ALU	71	80	8430	163	95	12500	6,80	34	890SD-433180F
TMW30ALS	88	100	8410	191	125	12500	6,80	34	890SD-433216G
TMW406LS	108	100	10300	216	125	15300	16,20	28	890SD-433250G
TMW408LS	126	85	14200	261	105	21000	19,40	38	890SD-433316G
TMW408LP	148	100	14100	306	120	21000	19,40	38	890SD-433361G
TMW40ALQ	151	80	18100	313	100	26800	25,10	47	890SD-433361G
TMW40CLK	207	90	21900	428	110	32500	25,90	57	890SD-433520H
Motor Speed 100 - 125 rpm									
TMW204LU	15	120	1220	35	140	1810	0,75	9	890SD-532450D
TMW205LT	21	125	1570	47	155	2320	0,78	11	890SD-532590D
TMW208LU	30	110	2640	71	125	3910	1,03	18	890SD-432730E
TMW304LQ	40	125	3030	81	150	4550	3,45	14	890SD-432870E
TMW306LS	53	105	4810	115	130	7200	4,55	21	890SD-433105F
TMW306LR	63	125	4800	129	155	7200	4,55	21	890SD-433145F
TMW308LQ	79	115	6590	167	140	9870	6,50	28	890SD-433180F
TMW30ALQ	105	120	8380	216	150	12500	6,80	34	890SD-433250G
TMW406LP	134	125	10200	266	155	15300	16,20	29	890SD-433316G
TMW40ALM	198	105	18000	398	130	26800	25,10	47	890SD-433480H
TMW40ALK	225	120	17900	446	150	26800	25,10	48	890SD-433590J
TMW40CLI	274	120	21800	536	150	32500	25,90	57	AC890SD/4/0685K(3)

(1) Other voltages available, consult us.
(2) This reference corresponds to the optimum drive for operation at nominal point of motor without overload. Warning: this drive does not allow the maximum torque of the motor to be reached and has to be adapted to suit the requirements of the application
(3) Consult Factory

Torque Motors

TMW Series 1200 - 22,100 Nm

Technical features
TMW Series - 400 VAC Power Supply (1)

Model	Pn (kW)	Nn (rpm)	Mn (Nm)	In (Arms)	Nmax (rpm)	Mmax (Nm)	Inertia (kgm²)	Water flow rate (l/min)	Drive reference (2)
Motor Speed 125 - 150 rpm									
TMW207LS	31	130	2280	70	160	3380	1,00	15	890SD-432730E
TMW208LT	39	140	2630	86	175	3910	1,03	18	890SD-432870E
TMW305LP	59	145	3900	118	180	5880	4,40	17	890SD-433105F
TMW308LN	100	145	6560	198	180	9870	6,50	28	890SD-433216G
TMW406LJ	160	150	10200	306	180	15300	16,20	29	890SD-433361G
TMW408LL	198	135	14000	388	165	21000	19,40	38	890SD-433480H
TMW40ALH	270	145	17800	526	180	26800	25,10	48	AC890SD/4/0685K(3)
TMW40CLG	318	140	21700	626	175	32500	25,90	57	AC890SD/4/0798K(3)
Motor Speed 150 - 175 rpm									
TMW204LR	22	175	1210	47	215	1810	0,75	9	890SD-532590D
TMW206LR	33	165	1920	71	205	2850	0,81	13	890SD-432730E
TMW207LR	39	165	2270	85	205	3380	1,00	16	890SD-432870E
TMW305LN	67	165	3880	133	205	5880	4,40	17	890SD-433145F
TMW306LN	82	165	4760	161	205	7200	4,55	21	890SD-433180F
TMW308LM	116	170	6530	225	210	9870	6,50	28	890SD-433250G
TMW30ALN	135	155	8330	268	190	12500	6,80	35	890SD-433316G
TMW406LI	185	175	10100	353	215	15300	16,20	29	890SD-433420H
TMW408LJ	226	155	13900	434	190	21000	19,40	38	890SD-433520H
TMW40ALE	324	175	17700	626	205	26800	25,10	48	AC890SD/4/0798K(3)
Motor Speed 175 - 200 rpm									
TMW206LQ	40	200	1910	83	250	2850	0,81	13	890SD-432870E
TMW208LQ	55	200	2620	114	250	3910	1,03	18	890SD-433105F
TMW304LM	58	185	3000	114	230	4550	3,45	14	890SD-433105F
TMW306LL	99	200	4730	191	240	7200	4,55	21	890SD-433216G
TMW308LK	136	200	6490	261	250	9870	6,50	28	890SD-433316G
TMW30ALL	156	180	8290	305	225	12500	6,80	35	890SD-433361G
TMW406LH	209	200	10000	391	250	15300	16,20	29	890SD-433480H(3)
TMW408LF	289	200	13800	538	250	21000	19,40	39	AC890SD/4/0590J(3)
Motor Speed 200 - 250 rpm									
TMW205LQ	34	205	1560	70	255	2320	0,78	11	890SD-432730E
TMW207LN	59	250	2260	119	310	3380	1,00	16	890SD-433105F
TMW208LP	63	230	2620	128	280	3910	1,03	18	890SD-433145F
TMW304LL	67	215	2980	128	265	4550	3,45	14	890SD-433145F
TMW305LK	87	215	3840	165	265	5880	4,40	18	890SD-433180F
TMW306LI	118	240	4690	224	300	7200	4,55	21	890SD-433250G
TMW308LH	165	245	6420	311	305	9870	6,50	29	890SD-433361G
TMW30ALJ	185	215	8230	354	265	12500	6,80	35	890SD-433420H
TMW30ALH	210	245	8170	396	305	12500	6,80	36	890SD-433480H(3)
TMW406LG	239	230	9930	440	285	15300	16,20	30	890SD-433520H(3)

Torque Motors

TMW Series 1200 - 22,100 Nm

Technical features
TMW Series - 400 VAC Power Supply (1)

Model	Pn (kW)	Nn (rpm)	Mn (Nm)	In (Arms)	Nmax (rpm)	Mmax (Nm)	Inertia (kgm²)	Water flow rate (l/min)	Drive reference (2)
Motor Speed 250 - 300 rpm									
TMW204LP	35	280	1200	70	350	1810	0,75	9	890SD-432730E
TMW205LP	42	260	1550	85	325	2320	0,78	11	890SD-432870E
TMW206LM	60	300	1900	116	375	2850	0,81	14	890SD-433105F
TMW207LM	68	290	2250	134	360	3380	1,00	16	890SD-433145F
TMW304LH	90	295	2920	167	350	4550	3,45	15	890SD-433180F
TMW305LH	105	265	3800	196	325	5880	4,40	18	890SD-433216G
TMW305LF	116	295	3770	217	365	5880	4,40	18	890SD-433250G
TMW308LG	183	275	6370	343	340	9870	6,50	29	890SD-433420H(3)
Motor Speed 300 - 350 rpm									
TMW204LM	45	355	1200	85	440	1810	0,75	9	890SD-432870E
TMW206LL	69	350	1890	131	435	2850	0,81	14	890SD-433145F
TMW208LL	84	310	2600	163	385	3910	1,03	18	890SD-433180F
TMW306LG	147	305	4610	271	370	7200	4,55,	22	890SD-433316G
TMW306LF	154	320	4590	283	385	7200	4,55	22	890SD-433420H(3)
Motor Speed 350 - 400 rpm									
TMW205LL	60	370	1540	113	460	2320	0,78	11	890SD-433105F
TMW205LK	64	400	1530	128	500	2320	0,78	11	890SD-433145F
TMW206LJ	79	400	1880	151	500	2850	0,81	14	890SD-433180F
TMW207LJ	88	375	2240	167	465	3380	1,00	16	890SD-433180F
TMW207LI	93	400	2230	181	500	3380	1,00	16	890SD-433216G
TMW208LJ	102	375	2580	193	465	3910	1,03	18	890SD-433216G
TMW208LH	108	400	2580	213	500	3910	1,03	18	890SD-433250G
TMW304LE	109	365	2860	199	425	4550	3,45	15	890SD-433216G
TMW304LC	119	400	2830	220	475	4550	3,45	15	890SD-433250G(3)
TMW305LC	149	390	3660	271	450	5880	4,40	19	890SD-433316G(3)

(1) Other voltages available, consult us.
(2) This reference corresponds to the optimum drive for operation at nominal point of motor without overload. Warning: this drive does not allow the maximum torque of the motor to be reached and has to be adapted to suit the requirements of the application
(3) Consult Factory

Torque Motors

TMW Series 1200 - 22,100 Nm

Technical features
TMW Series - 480 VAC Power Supply (1)

Model	Pn (kW)	Nn (rpm)	Mn (Nm)	In (Arms)	Nmax (rpm)	Mmax (Nm)	Inertia (kgm²)	Water flow rate (l/min)	Drive reference (2)
Motor Speed 50 - 75 rpm									
TMW408LW	112	75	14200	196	90	21000	19,40	37	890SD-433216G
TMW40ALW	114	60	18100	219	70	26800	25,10	47	890SD-433250G
TMW40CLW	150	65	22000	271	75	32500	25,90	56	890SD-433316G
Motor Speed 75 - 100 rpm									
TMW305LU	35	85	3930	67	95	5880	4,40	17	890SD-432730E
TMW306LV	45	90	4820	86	100	7200	4,55	20	890SD-432870E
TMW30ALU	88	100	8410	162	120	12500	6,80	34	890SD-433216G
TMW406LV	97	90	10300	169	105	15300	16,20	28	890SD-433216G
TMW40ALQ	179	95	18000	312	115	26800	25,10	47	890SD-433361G
TMW40CLS	195	85	22000	347	100	32500	25,90	56	890SD-433420H
Motor Speed 100 - 125 rpm									
TMW304LR	40	125	3030	70	140	4550	3,45	14	890SD-432730E
TMW305LT	47	115	3920	84	135	5880	4,40	17	890SD-432870E
TMW308LU	76	110	6600	133	135	9870	6,50	27	890SD-433156F
TMW30ALS	110	125	8370	190	155	12500	6,80	34	890SD-433216G
TMW406LS	129	120	10200	215	145	15300	16,20	28	890SD-433250G
TMW408LS	155	105	14100	260	125	21000	19,40	38	890SD-433316G
TMW408LP	184	125	14100	304	145	21000	19,40	38	890SD-433361G
TMW40CLK	252	110	21800	426	130	32500	25,90	57	890SD-433520H
Motor Speed 125 - 150 rpm									
TMW204LU	19	150	1210	35	170	1810	0,75	9	890SD-532450D
TMW208LU	37	135	2630	71	150	3910	1,03	18	890SD-432730E
TMW304LQ	47	150	3020	81	180	4550	3,45	14	890SD-432870E
TMW306LS	68	135	4790	114	165	7200	4,55	21	890SD-433145F
TMW308LQ	100	145	6560	167	175	9870	6,50	28	890SD-433216G
TMW30ALQ	127	145	8350	215	180	12500	6,80	34	890SD-433250G
TMW40ALM	243	130	17900	396	160	26800	25,10	47	890SD-433480H
TMW40ALK	271	145	17800	444	180	26800	25,10	48	890SD-433590J
TMW40CLI	329	145	21700	533	180	32500	25,90	57	AC890SD/4/0685K(3)

Torque Motors

TMW Series 1200 - 22,100 Nm

Technical features
TMW Series - 480 VAC Power Supply (1)

Model	Pn (kW)	Nn (rpm)	Mn (Nm)	In (Arms)	Nmax (rpm)	Mmax (Nm)	Inertia (kgm²)	Water flow rate (l/min)	Drive reference (2)
Motor Speed 150 - 175 rpm									
TMW205LT	25	155	1560	47	190	2320	0,78	11	890SD-532590D
TMW207LS	38	160	2270	70	195	3380	1,00	15	890SD-432730E
TMW208LT	48	175	2630	86	215	3910	1,03	18	890SD-432870E
TMW305LP	71	175	3880	117	215	5880	4,40	17	890SD-433145F
TMW306LR	77	155	4770	128	190	7200	4,55	21	890SD-433145F
TMW308LN	120	175	6520	197	215	9870	6,50	28	890SD-433216G
TMW406LP	165	155	10100	264	190	15300	16,20	29	890SD-433316G
TMW408LL	240	165	13900	385	200	21000	19,40	38	890SD-433480H
TMW40ALH	324	175	17700	522	215	26800	25,10	48	AC890SD/4/0685K(3)
TMW40CLG	394	175	21500	621	215	32500	25,90	57	AC890SD/4/0798K(3)
Motor Speed 175 - 200 rpm									
TMW306LN	99	200	4730	160	245	7200	4,55	21	890SD-433216G
TMW30ALN	165	190	8270	267	230	12500	6,80	35	890SD-433316G
TMW406LJ	190	180	10100	304	215	15300	16,20	29	890SD-433361G
TMW408LJ	268	185	13800	431	225	21000	19,40	38	890SD-433520H
Motor Speed 200 - 225 rpm									
TMW204LR	27	215	1210	47	260	1810	0,75	9	890SD-532590D
TMW206LR	41	205	1910	71	250	2850	0,81	13	890SD-432730E
TMW207LR	49	205	2270	84	250	3380	1,00	16	890SD-432870E
TMW304LM	70	225	2970	113	275	4550	3,45	14	890SD-433145F
TMW305LN	83	205	3850	132	250	5880	4,40	17	890SD-433156F
TMW308LM	139	205	6480	224	250	9870	6,50	28	890SD-433250G
TMW30ALL	189	220	8220	303	275	12500	6,80	35	890SD-433361G
TMW406LI	225	215	9970	349	260	15300	16,20	29	890SD-433420H
TMW40ALE	393	215	17500	619	250	26800	25,10	48	AC890SD/4/0798K(3)
Motor Speed 225 - 250 rpm									
TMW206LQ	50	250	1900	83	310	2850	0,81	13	890SD-432870E
TMW208LQ	68	250	2610	114	310	3910	1,03	18	890SD-433145F
TMW306LL	120	245	4680	189	290	7200	4,55	21	890SD-433216G
TMW308LK	162	240	6430	259	300	9870	6,50	28	890SD-433316G
TMW406LH	249	240	9890	387	300	15300	16,20	29	890SD-433480H(3)
TMW408LF	342	240	13600	532	295	21000	19,40	39	AC890SD/4/0685K(3)

(1) Other voltages available, consult us.
(2) This reference corresponds to the optimum drive for operation at nominal point of motor without overload. Warning: this drive does not allow the maximum torque of the motor to be reached and has to be adapted to suit the requirements of the application
(3) Consult Factory

Torque Motors

TMW Series 1200 - 22,100 Nm

Technical features
TMW Series - 480 VAC Power Supply (1)

Model	Pn (kW)	Nn (rpm)	Mn (Nm)	In (Arms)	Nmax (rpm)	Mmax (Nm)	Inertia (kgm²)	Water flow rate (l/min)	Drive reference (2)
Motor Speed 250 - 300 rpm									
TMW205LQ	42	255	1550	69	315	2320	0,78	11	890SD-432730E
TMW208LP	78	285	2600	127	345	3910	1,03	18	890SD-433145F
TMW304LL	80	260	2950	127	320	4550	3,45	14	890SD-433145F
TMW305LK	104	260	3800	164	320	5880	4,40	18	890SD-433216G
TMW306LI	143	295	4620	221	365	7200	4,55	21	890SD-433250G
TMW308LH	199	300	6330	307	370	9870	6,50	29	890SD-433361G
TMW30ALJ	222	260	8140	351	320	12500	6,80	35	890SD-433420H
TMW30ALH	253	300	8060	391	370	12500	6,80	36	890SD-433480H(3)
TMW406LG	281	275	9770	433	340	15300	16,20	30	890SD-433520H(3)
Motor Speed 300 - 350 rpm									
TMW204LP	43	345	1200	69	430	1810	0,75	9	890SD-432730E
TMW205LP	52	320	1550	84	400	2320	0,78	11	890SD-432870E
TMW207LN	73	310	2250	118	380	3380	1,00	16	890SD-433145F
TMW305LH	125	320	3740	194	390	5880	4,40	18	890SD-433216G
TMW308LG	220	335	6270	338	410	9870	6,50	29	890SD-433420H(3)
Motor Speed 350 - 400 rpm									
TMW206LM	72	365	1890	116	455	2850	0,81	14	890SD-433145F
TMW207LM	83	355	2240	134	440	3380	1,00	16	890SD-433156F
TMW208LL	102	375	2590	162	465	3910	1,03	18	890SD-433216G
TMW304LH	107	355	2870	164	420	4550	3,45	15	890SD-433216G
TMW305LF	139	360	3700	213	445	5880	4,40	18	890SD-433250G
TMW306LG	175	370	4520	266	445	7200	4,55	22	890SD-433316G
TMW306LF	181	385	4500	278	460	7200	4,55	22	890SD-433361G(3)
Motor Speed 400 - 450 rpm									
TMW204LM	54	435	1190	85	535	1810	0,75	9	890SD-432870E
TMW205LL	72	450	1530	113	555	2320	0,78	11	890SD-433145F
TMW206LL	83	420	1880	131	520	2850	0,81	14	890SD-433156F
TMW207LJ	106	455	2220	166	560	3380	1,00	16	890SD-433216G
TMW208LJ	122	455	2570	192	560	3910	1,03	18	890SD-433216G
TMW304LE	129	440	2790	194	510	4550	3,45	15	890SD-433216G
Motor Speed 450 - 500 rpm									
TMW205LK	81	511	1520	127	630	2320	0,78	11	890SD-433145F
TMW206LJ	97	495	1860	150	615	2850	0,81	14	890SD-433216G
TMW207LI	116	500	2210	180	625	3380	1,00	16	890SD-433216G
TMW208LH	136	510	2550	211	635	3910	1,03	18	890SD-433250G
TMW304LC	143	500	2720	213	590	4550	3,45	15	890SD-433250G(3)
TMW305LC	175	470	3550	264	540	5880	4,40	19	890SD-433316G(3)

Selection and Order Codes

TM Series Torque Motors

		Example ►	TM	W	30	6LX	C	20	U	F	R	0	003
Product Family	AC650V AC Drive -Sensorless Flux Vector Control		TM										
Cooling Method	Water Cooling (Standard)			W									
	Natural Ventilation (With derating, consult local sales office for details)			A									
Shaft Height	200mm Shaft Height				20								
	315mm Shaft Height				30								
	400mm Shaft Height				40								
Torque/Speed	Torque Speed Characteristics (See motor data tables)												

Feedback Sensor	Type	Cable Ref. for AC890	
	Endat Encoder (Standard)	CS4UV1F3R0xxx*	C
	Direct Endat encoder with hollow shaft (option)	CS4UV1F3R0xxx*	B
	Resolver (option)	CS4UA1F1R0xxx*	A

Thrust Bearing — Base Configurations

Motor Model	Thrust Bearing	Availability	Mechanical Interface	Dimension Drawing	
TMW204...208	SKF 29420	Standard	001	See Page 112	20
	SKF29424	Option	002	See Page 113	24
TMW304	SKF29422	Standard	003	See Page 114	22
	SKF29426	Option	004	See Page 115	26
	SKF29430	Option	005	See Page 116	30
TMW305...30A	SKF29422	Option	003	See Page 114	22
	SKF29426	Standard	004	See Page 115	26
	SKF29430	Option	005	See Page 116	30
TMW406	29430	Option	006	See Page 117	30
	29434	Standard	007	See Page 118	34
	29440	Option	008	See Page 119	40
TMW407...40C	29430	Option	006	See Page 117	30
	29434	Standard	007	See Page 118	34
	29440	Option	008	See Page 119	40
All	With ball bearings	Option	Consult Us		00
All	With roller bearing	Option	Consult Us		01

Terminal Box		
	Upper Rear (standard)	U
	At the rear on the right side (front view) (option)	R
	At the rear on the left side (front view) (option)	L

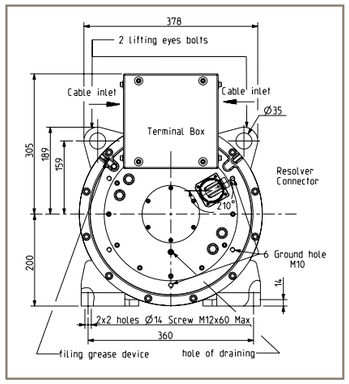
Extruder Screw Extraction / Cooling		
	Front extruder screw extraction	F
	Front extruder screw extraction (extruder screw cooling possible)	P
	Rear extruder screw extraction (consult us) (extruder screw cooling possible)	R
	No screw extraction - no screw cooling	Z

Language	Shaft End	Availability	
	Hollow shaft with keyway	Standard	0
	Hollow shaft with spline profile, (DIN 5480) Module 0.8		1
	Hollow shaft with spline profile, (DIN 5480) Module 1		2
	Hollow shaft with spline profile, (DIN 5480) Module 1.5		3
	Hollow shaft with spline profile, (DIN 5480) Module 2		4
	Hollow shaft with spline profile, (DIN 5480) Module 2.5		5
	Hollow shaft with spline profile, (DIN 5480) Module 3		6
	Full shaft, smooth		7
	Full shaft, with keyway		8
	Special shaft (consult local sales office for details)		9

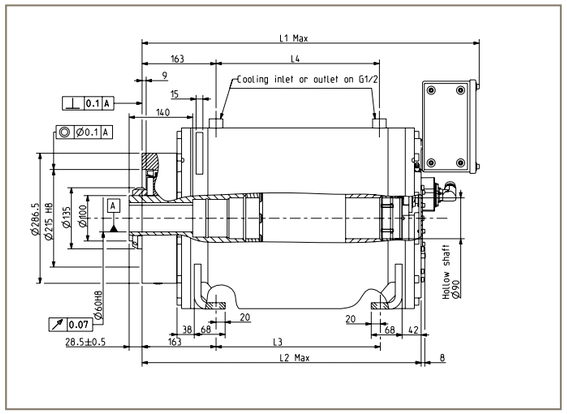
Mechanical Interface		
	See thrust bearing base configuration table above for 3 digit code	XXX

Dimensions
Shaft Height 200 mm / Thrust Bearing 29420

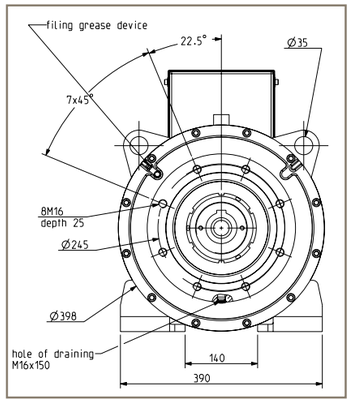
Rear view



Side view

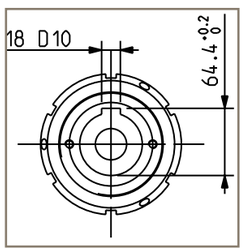


Front view



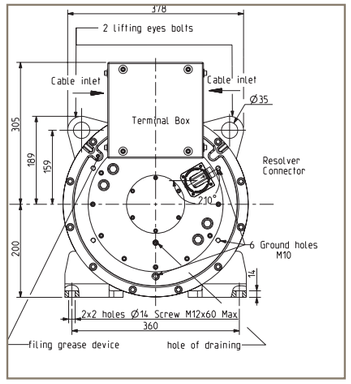
Dimensions (mm) and weight (kg)					
Model	L1 Max	L2 Max	L3	L4	Weight
TMW204	750	620	362	360	335
TMW205	750	620	362	360	350
TMW206	750	620	362	360	365
TMW207	850	720	462	460	405
TMW208	850	720	462	460	420

Shaft End

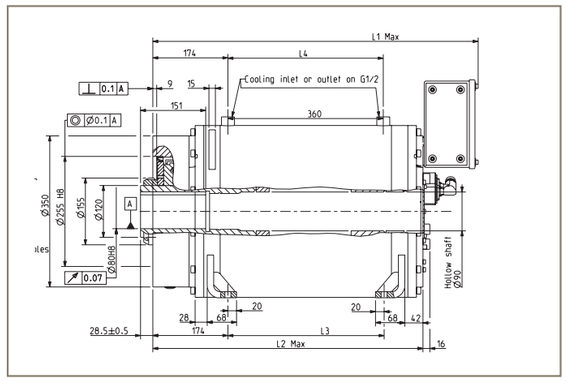


Dimensions
Shaft Height 200mm / Thrust Bearing 29424

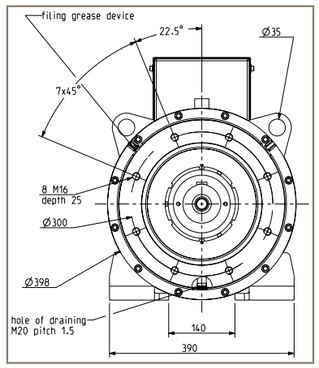
Rear view



Side view

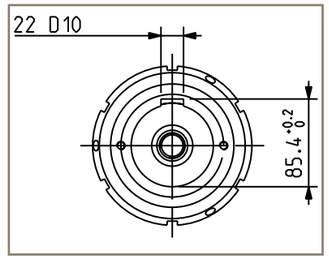


Front view



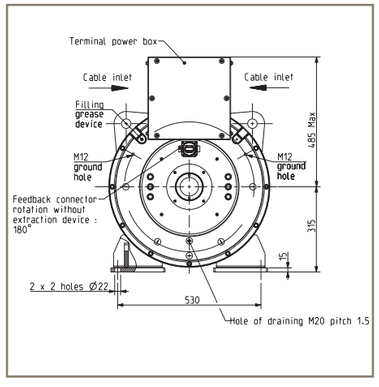
Dimensions (mm) and weight (kg)					
Model	L1 Max	L2 Max	L3	L4	Weight
TMW204	760	630	362	360	365
TMW205	760	630	362	360	380
TMW206	760	630	362	360	395
TMW207	860	730	462	460	435
TMW208	860	730	462	460	450

Shaft End

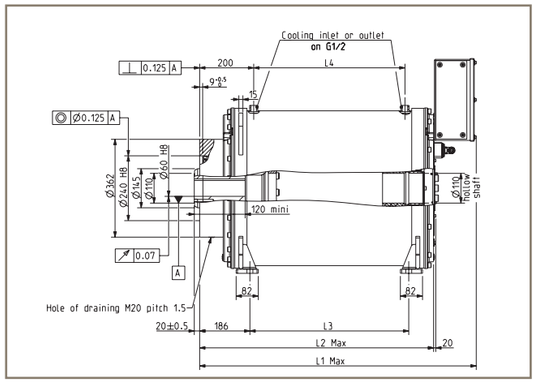


Dimensions
Shaft Height 315 mm / Thrust Bearing 29422

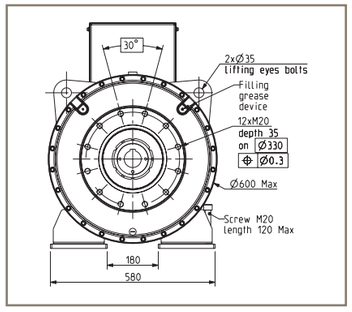
Rear view



Side view

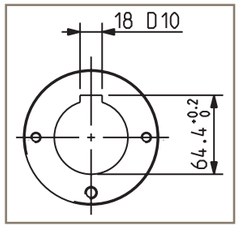


Front view



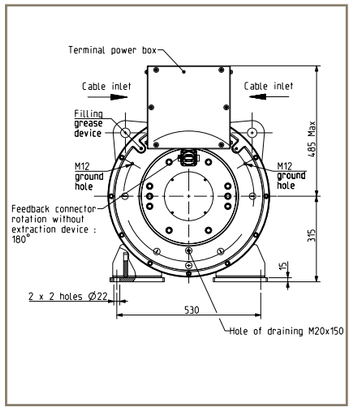
Dimensions (mm) and weight (kg)					
Model	**L1 Max**	**L2 Max**	**L3**	**L4**	**Weight**
TMW304	730	570	288	260	585
TMW305	830	670	388	360	645
TMW306	830	670	388	360	665
TMW308	1030	870	588	560	780
TMW30A	1030	870	588	560	820

Shaft End

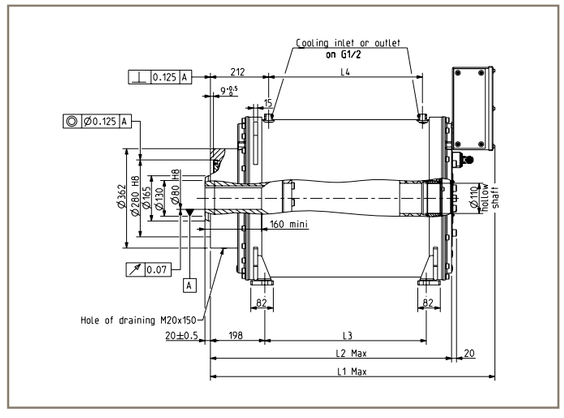


Dimensions
Shaft Height 315mm / Thrust Bearing 29426

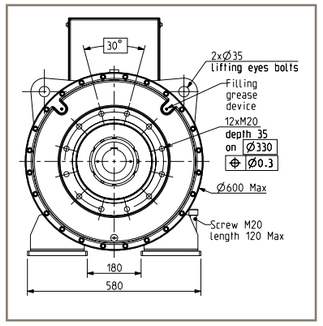
Rear view



Side view

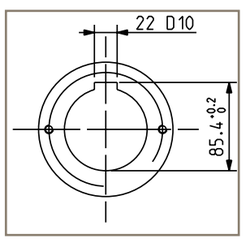


Front view



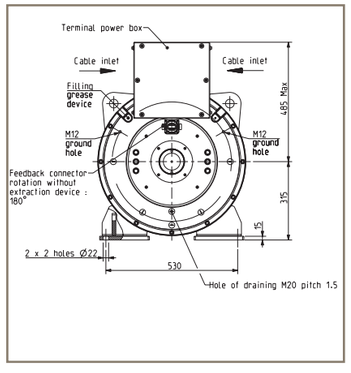
Dimensions (mm) and weight (kg)					
Model	**L1 Max**	**L2 Max**	**L3**	**L4**	**Weight**
TMW304	740	580	288	260	585
TMW305	840	680	388	360	645
TMW306	840	680	388	360	665
TMW308	1040	880	588	560	780
TMW30A	1040	880	588	560	820

Shaft End

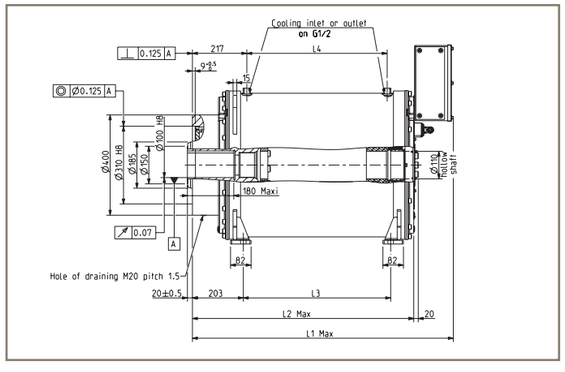


Dimensions
Shaft Height 315 mm / Thrust Bearing 29430

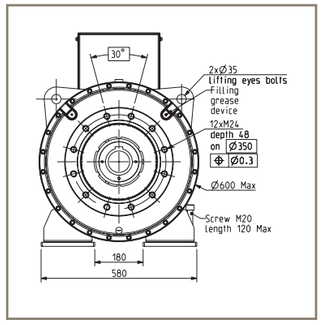
Rear view



Side view

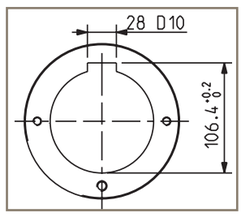


Front view



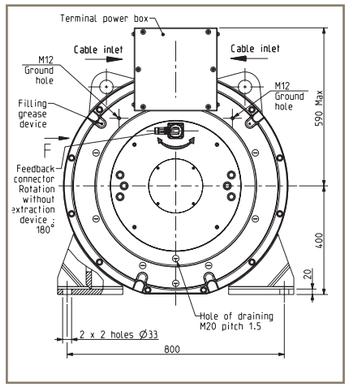
Dimensions (mm) and weight (kg)					
Model	**L1 Max**	**L2 Max**	**L3**	**L4**	**Weight**
TMW304	745	585	288	260	605
TMW305	845	685	388	360	665
TMW306	845	685	388	360	685
TMW308	1045	885	588	560	800
TMW30A	1045	885	588	560	840

Shaft End

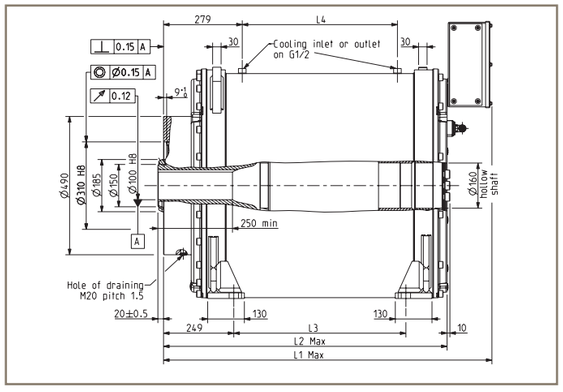


Dimensions
Shaft Height 400mm / Thrust Bearing 29430

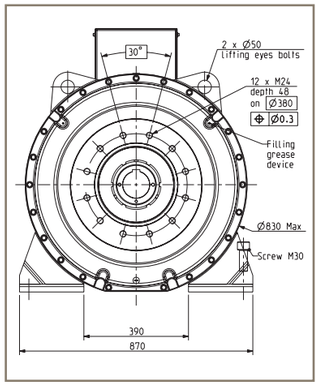
Rear view



Side view

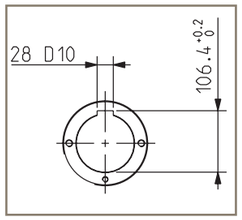


Front view



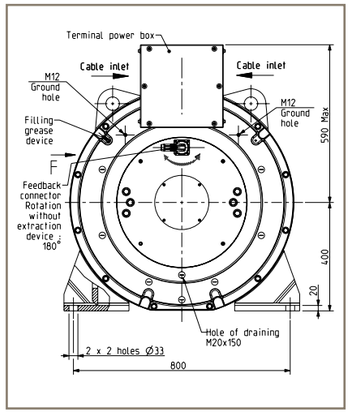
Dimensions (mm) and weight (kg)					
Model	**L1 Max**	**L2 Max**	**L3**	**L4**	**Weight**
TMW406	867	707	310	250	1410
TMW408	967	807	410	350	1550
TMW40A	1167	1007	610	550	1740
TMW40C	1167	1007	610	550	1820

Shaft End

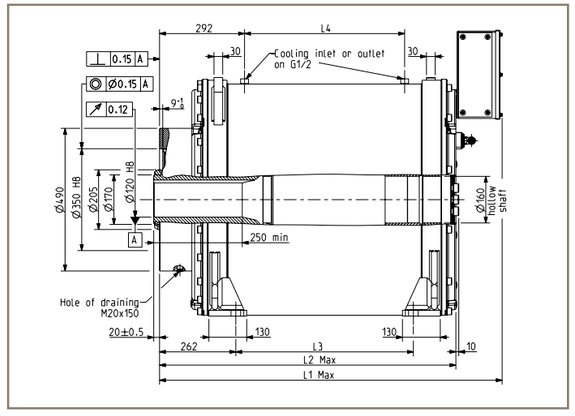


Dimensions
Shaft Height 400 mm / Thrust Bearing 29434

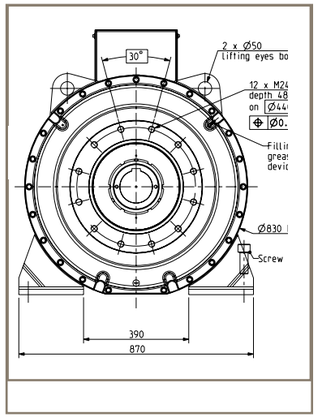
Rear view



Side view

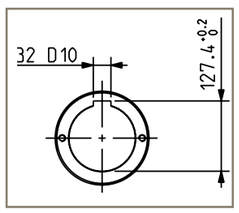


Front view



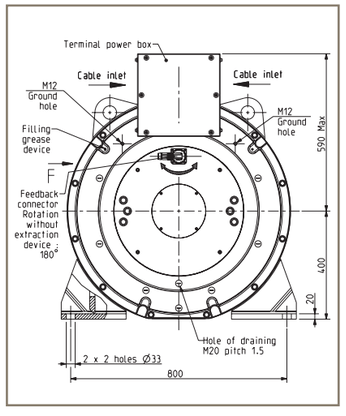
Dimensions (mm) and weight (kg)					
Model	L1 Max	L2 Max	L3	L4	Weight
TMW406	880	720	310	250	1410
TMW408	980	820	410	350	1550
TMW40A	1180	1020	610	550	1750
TMW40C	1180	1020	610	550	1820

Shaft End

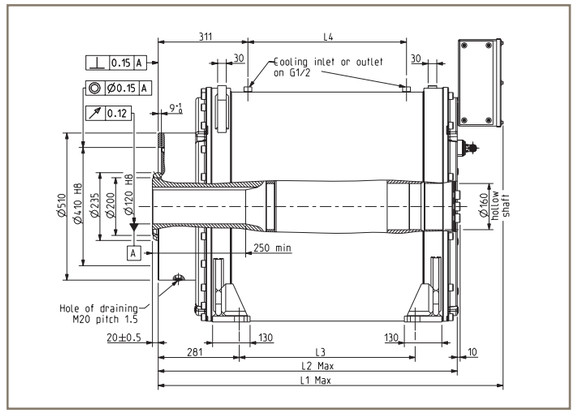


Dimensions
Shaft Height 400mm / Thrust Bearing 29440

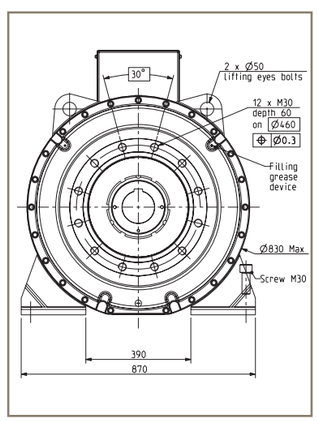
Rear view



Side view

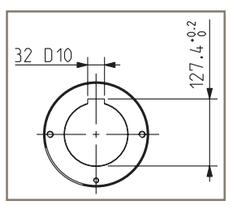


Front view



Dimensions (mm) and weight (kg)					
Model	L1 Max	L2 Max	L3	L4	Weight
TMW406	899	739	310	250	1445
TMW408	999	839	410	350	1585
TMW40A	1199	1039	610	550	1775
TMW40C	1199	1039	610	550	1855

Shaft End



Torque Motors

TMW Series 1200 - 22,100Nm

User Data Checklist for Extruders

GENERAL APPLICATION DATA

Nominal power			[kW]
Nominal/Max. speed			[rpm]
Nominal/Max. torque			[N.m]
Water cooling availability			[Y/N]

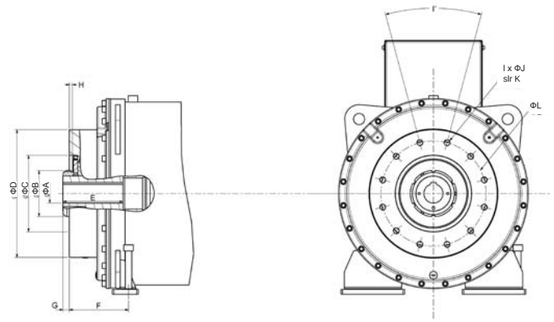
EXTRUDER DATA

Screw diameter		[mm]
Cylinder pressure		[bar]
Screw extraction		[Front/Back]
Screw cooling		[Y/N]

MECHANICAL INTERFACE

Customized Interface - Dimensions Limits (mm)									
Motor		**TMW200**		**TMW300**			**TMW400**		
Thrust bearing		**29420**	**29424**	**29422**	**29426**	**29430**	**29430**	**29434**	**29440**
Hollow shaft diameter MAXI	A	60	90	60	80	110	110	120	150
External shaft diameter	B	135	155	145	165	185	185	205	235
Centering diameter MINI	C	215	255	240	280	310	310	350	410
External front diameter	D	286.5	350	400	400	400	490	490	510
Length keyway MAXI (with G maxi)	E	185	185	179	179	179	270	270	270
Front length MINI	F	163	174	186	198	203	249	262	281
Shaft length MINI (with F mini)	G	28.5	28.5	20	20	20	20	20	20
Shaft length MAXI (with F mini)	G	71	60	45	33	28	55	42	23
Centering depth MAXI	H	9	9	9	9	9	9	9	9
Other dimensions	I to L	free	free	free	free	free	free	free	free
Screw Extraction from the Rear									
Hollow shaft diameter MAXI	A	60	80(*)	60	80	90 (*)	110	120	135 (*)

(*) don't forget the key or other part on extruder screw



REQUIRED DRAWINGS

1. Screw interface
2. Barrel interface

Application Profile

Energy Savings - Fan applications

Parker SSD Drives help British Airways achieve 95% energy reduction for air handling system

Summary

The environmental control systems managing the ambient temperature for each of British Airways' flight simulator cells contained fixed-speed motor-driven air handling units. The fan drive motors operated continuously at maximum speed, regardless of demand or simulator use, which accounted for a significant proportion of the energy consumed by each cell and also led to increased wear and tear on components such as belts, bearing and filters.

Parker SSD Drives' AC650V General Purpose High Performance AC drives were fitted to the air handling systems and connected to a new building management system, producing significant energy savings of 95% and reducing maintenance, including air filters and motor components. Results were immediate, with a payback period of under two years.

Benefits

- **95% reduction in energy consumption**
- **Efficient speed control of fan drive motors**
- **Reduced wear and tear of mechanical components**
- **Reduced maintenance and increased system availability**
- **Communication to BMS system allows instant changes to be implemented**
- **Simple interface allows for future modifications**

Parker SSD Drives Solution

AC650V Drive

- Easy to configure, even for more complex applications
- Retrofittable in existing motor applications
- Industry compatible I/O and communications
- Broad power range to 110kW

Engineered Solution

- Integration with external control system
- Available in IP54 'Fastpack' format
- Local technical support

Application Profile

Process Optimization - Multi-Section Winder

Parker SSD Drives improves process quality while saving energy in a multi-section winder

Summary

Parker SSD Drives AC890 Series Modular Systems Drives were the first choice of an industry-leading steel manufacturer when process quality improvements and energy savings were required in a complex, multi-section winding machine .

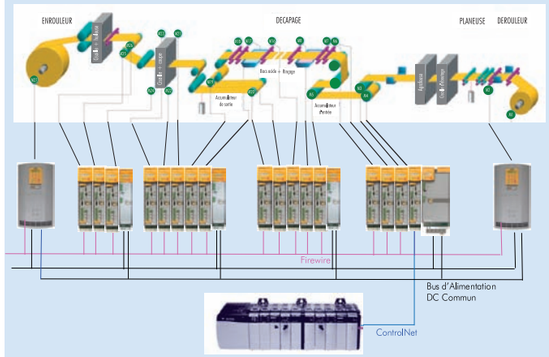
The AC890 Series solution utilized application -specific function blocks, which provide reat-time data logging and trending and provide the user with the ability to optimize the process.

By utilizing a Common DC Bus power supply configuration, the system was able to efficiently manage energy across all motor-drive sets, as well as reduce overall cabinet space.

Benefits

- **Energy saving operation using Common DC Bus configuration**
- **Real-time trending and historical data logging for process application enhancement**
- **Reduced overall cabinet space**
- **High-speed drive communications offering optimum machine speeds**

Parker SSD Drives Solution



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AC890 Series Modular Systems Drive

- Integrated winding application function blocks
- Compact footprint with Common DC Bus
- Industry compatible communications

Asynchronous Motors

- Compact with high dynamic performance
- Available with or without cooling fan

Technical Support

- Site survey and project management
- Commissioning and start-up assistance

Application Profile

Energy Savings - Pump applications

Wastewater station retrofit reduces energy costs by replacing eddy current clutch

Summary

The wastewater treatment works at Rock Hill, South Carolina turned to Parker SSD Drives when it needed to reduce energy and replace an obsolete eddy current clutch system on three 150kW waste water pumps. By connecting the motors directly to the pumps, engineers were able to remove the obsolete and troublesome clutch systems which had been controlling the flow of waste water.

AC890PX High Power Modular Systems Drives were installed in bottom entry configuration to provide stand-alone control of the pumps. The integrated line reactors also removed the need for expensive additional harmonic filters to be fitted.

In addition to providing significant energy savings, the AC890PX installation has also reduced the overall maintenance costs of the system by reducing the mechanical stresses of the pumps during starting.

Benefits

- **Significant reduction in energy consumption**
- **Efficient speed control of pump drive motors**
- **Reduced wear and tear of mechanical components**
- **Reduced maintenance and increased system availability**
- **Stand-Alone module format**
- **Integrated 3% line reactor removing the need for additional filtering**

Parker SSD Drives Solution

AC890PX High Power Modular Drive

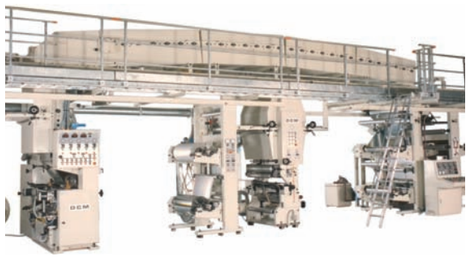
- High power ratings, can be configured for systems requiring 1MW and above
- Plug-in power modules for easy replacement
- Top or bottom cable entry provides flexibility in siting
- Available in 12/18 pulse and AFE configurations

Worldwide Support

- Air-freightable plug-in power modules for improved availability and support
- Configurable to meet local requirements

Application Profile

Process Optimization - Shaftless Printing



Shaftless printing machine control delivers improved performance and operation

Summary

Parker SSD Drives AC890 Modular Systems Drives were selected when a large end-user print company wanted to upgrade their existing printing line. The integrated shaftless printing function blocks made it a simple task to replace the mechanically linked line shafts with individual AC890 drives capable of precise synchronization and print registration adjustment to each section

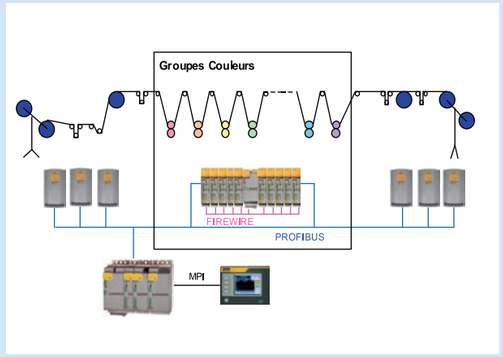
The inclusion of high performance brushless motors increased acceleration and deceleration rates allowing greater production throughput and the electronic control of the process simplified and reduced changeover times considerably.

TS8000 HMI's completed the transformation with integrated web-server and Ethernet connectivity, delivering real-time control and data capture and providing seamless integration to other manufacturing systems.

Benefits

- **Removal of mechanical line shafts reducing maintenance and complexity**
- **Improve acceleration and deceleration speeds**
- **Improved changeover speeds**
- **Reduced waste on changeover**
- **Integrated diagnostics and data handling**
- **Web server delivering real-time production and maintenance information**

Parker SSD Drives Solution



AC890 Modular Systems Drive

- Compact footprint thanks to Common DC Bus configuration
- Common DC Bus allows power to be optimized between driving and coasting motors
- AC890 capable of driving a wide range of AC motors with a variety of feedback devices

Total Solutions

- ATEX motors for explosive atmospheres
- HMI's between 3" and 15" to suit all of your visualization requirements

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At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374.

AEROSPACE

Key Markets
- 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
- CO^2 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 & accumulators
- 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
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors

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
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management

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