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## AC890PX Series

High Power Modular AC Drive with  
Advanced Cooling Technology (500 - 2200 HP)



ENGINEERING YOUR SUCCESS.

# AC890PX Series

## High Power Modular AC Drive with Advanced Cooling Technology

### Product Overview

The AC890PX is an innovative, modular, high power AC drive system, that has been developed to minimize drive footprint and reduce installation time and costs, for a range of motor control applications. The AC890PX is delivered as a complete package, ready for connection to the power supply and motor.

### Increased Power Density with Advanced Cooling System

With the introduction of an innovative Parker-engineered cooling system, the AC890PX series offers increased power output in a compact drive footprint. The Advanced Cooling design uses a high efficiency hermetically sealed and maintenance-free system.

### Multiple Configurations

While this catalog focuses on the stand-alone drive version, the AC890PX is also available as a DC input inverter and a complete regenerative drive with active front end.

Voltage (V)	Size (Stacks)	Current (A)	Power (kW)	Power (HP)	Part Number
400	1	720	400	-	890PXSx-43580P-000-1B000
400	2	1440	800	-	890PXSx-44116P-000-1B000
400	3	2160	1200	-	890PXSx-44174P-000-1B000
460	1	720	-	600	890PXSx-43580P-000-1B000
460	2	1440	-	1200	890PXSx-44116P-000-1B000
460	3	2160	-	1800	890PXSx-44174P-000-1B000
575	1	720	-	750	890PXSx-63580P-000-1B000
575	2	1400	-	1500	890PXSx-64112P-000-1B000
575	3	2100	-	2200	890PXSx-64168P-000-1B000
690	1	720	700	-	890PXSx-73580P-000-1B000
690	2	1400	1300	-	890PXSx-74112P-000-1B000
690	3	2100	2000	-	890PXSx-74168P-000-1B000
Ratings are for Normal Duty (Variable torque)					

### AC890PX AC Drive Product Family

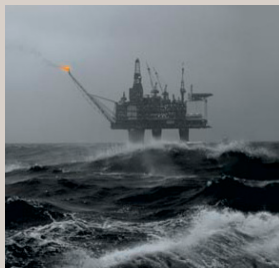
100 HP	600 HP	1000 HP	2000 HP
150-600 HP			
AC890PX Air cooled AC Drive			
600-1200 HP			
AC890PX Air cooled parallel AC Drive			
500-2200 HP			
AC890PX Advanced-Cooled AC Drive			



### Applications

The AC890PX is suited to many different motor control applications, where power density and compactness are key design considerations.

- Pumps
- Automotive Test Stands
- Extruders
- Decanter and batch centrifuges
- Hoists and cranes
- Winder/unwind stands
- Ski lifts and cable cars
- Offshore and marine

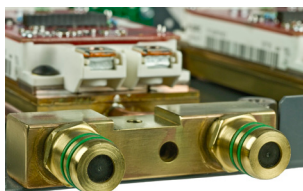
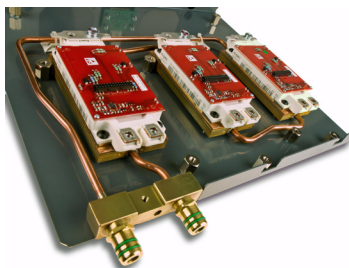


# Advanced Cooling System

More Power, Smaller Footprint

## Advanced Cooling Process

The AC890PX Series Advanced Cooling design draws from years of Parker experience in refrigeration technology combined with state of the art drive design to produce a truly high-performance, yet compact AC drive range. The unique two-phase coolant system rapidly absorbs heat from drive IGBTs in the coolant's change of phase from liquid to vapor. The coolant is safe, non-conductive, and non-corrosive. The system itself is hermetically sealed, requiring no routine maintenance. Compared to water cooling systems, this requires much less liquid to be pumped and reduces the thermal cycling of the drive electronics while maintaining performance. A condenser unit, mounted above the drive, is available in either coolant to air or coolant to liquid varieties.



## Comparison of Cooling Technologies

### Air Cooled

- Lowest efficiency
- Poor power density
- Subject to contamination

### Water/Glycol

- Requires coolant source
- High maintenance needs
- Leaks can be damaging to plant and electronics
- Subject to corrosion

### AC890PX

- Pumped 2-phase system
- Non-conductive coolant
- High efficiency cooling
- Highest power density
- Hermetically sealed system
- No condensation
- No compressor
- No routine maintenance
- No -leak dry break fittings
- No derating for ambient temperature or altitude



## AC890PX Features

### Pluggable power modules

- Sealed modules can be replaced in minutes
- Modules weigh under 25kg airfreight weight allowance

### Integrated bus system

- Power wiring minimized
- Keyed modules eliminate installation errors

### Wide range of variants

- Active Front End (AFE) option for grid-tie or regenerative systems
- Suitable for use with induction, torque or permanent magnet motors
- Wide range of industry standard communications options
- Heat exchanger can be mounted remotely or on top of the drive

### Configuration Software

- Programmable through graphical configuration software (DSE Lite)
- Deterministic Object Oriented programming



# AC890PX Series

## Model Number Key

Example: 890PX S / 4 / 3580 / P / B / 1 / 0									
Product Family	AC890PX Standard High Power Drive					890PX			
Product Type	Modular Stand-alone Drive					S			
	Inverter (DC input)					C			
Product Rating	Supply Voltage		Drive Output						
			Heavy Duty/Constant Torque		Standard Duty/Variable Torque				
			Power	Current	Power	Current			
	400V AC nominal					4			
		315 kW	580A	400 kW	720A		3580		
		630 kW	1160A	800 kW	1440A		4116		
		945 kW	1740A	1200 kW	2160A		4174		
	480V AC nominal					7			
		500 HP	580A	600 HP	720A		3580		
		1000 HP	1160A	1200 HP	1440A		4116		
		1500 HP	1740A	1800 HP	2160A		4174		
	575V AC nominal					4			
		625 HP	580A	750 HP	720A		3580		
		1200 HP	1120A	1500 HP	1400A		4112		
		1800 HP	1680A	2200 HP	2100A		4168		
	690V AC nominal					4			
		550 kW	580A	700 kW	720A		3580		
		1000 kW	1120A	1300 kW	1400A		4112		
		1600 kW	1680A	2000 kW	2100A		4168		
Build Style	Modular (Chassis drive)							M	
	Assembled into free-standing industrial grade enclosure							P	
Braking	Switch included								B
	No braking switch								0
Enclosure/ Connection Locations	No enclosure (Chassis drive)								0
	600mm deep, lower DC connections								1
	600mm deep, middle DC connections								2
	600mm deep, upper DC connections								3
	800mm deep, right hand DC connections								4
	800mm deep, left hand DC connections								5
	800mm deep, right hand and left hand DC connections								6
Special Option	Documented special options (0-9)								0



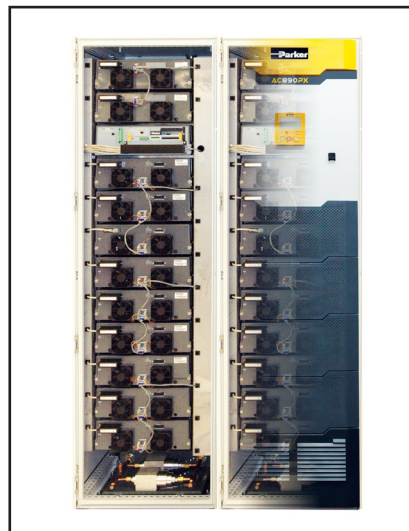
# AC890PX Series

## Compact Modular Design

The plug-in modular nature of the AC890PX makes it easy to configure the drive to suit a number of alternative input power configurations including 12 or 18 pulse and Active Front End (AFE). The 'PowerPak' phase modules, common supply modules, capacitor and control module can be arranged to suit the particular requirements of the application.



AC890PX Phase Module - Advanced Cooled



## Low-maintenance ensures maximum machine up-time and productivity

By virtue of a unique plug-in design, the rack mount power modules of the AC890PX drive are replaceable in minutes by any technician, even a non-specialist. These lightweight, ship anywhere modules help to reduce machine or process downtime and lost productivity in the event of a fault occurring.

AC890PX drives can be configured with different module combinations dependant upon the application.

### CP Module

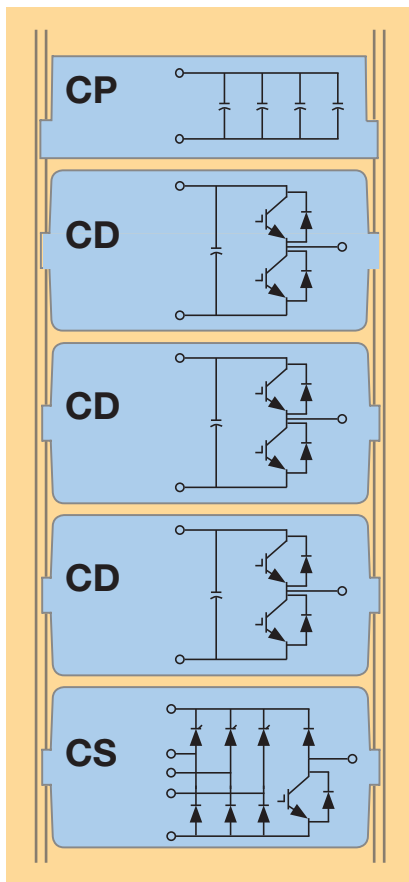
The capacitor module, where included, provides extra capacitance for the DC bus.

### CD Module

These output phase modules each provide a single phase of the complete drive and can be interchanged with each other.

### CS Module

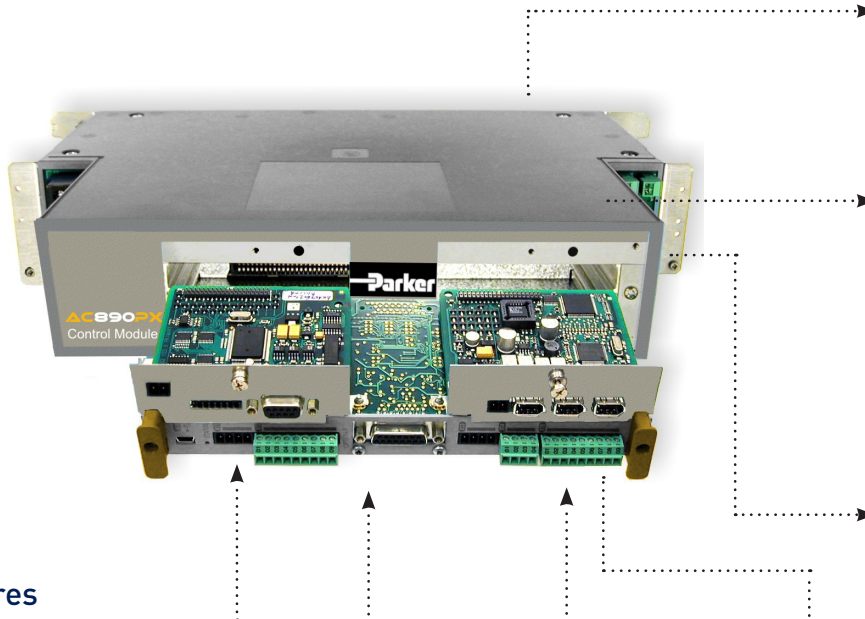
A 3-phase input rectifier containing a half-controlled diode/thyristor bridge. This module supplies DC to the three CD modules and can include an integral dynamic brake switch. (Used in AC fed units only)



# AC890PX Series

## AC890PX Control Module (PCM)

At the heart of the AC890PX drive is a highly advanced control module that manages all of the drive's functions. Taking advantage of leading edge control algorithms running on a fast 150 MHz microprocessor, the drive can achieve very high-bandwidth control loops. This allows you to use the drive for the most demanding of industrial applications.



### Features

#### Support for popular industrial fieldbus networks



#### Range of feedback options

- Incremental encoder
- EnDat® 2.2 option 02 (SinCos) encoder
- Resolver

#### Ultra-fast control loops

- Torque loop: 62.5  $\mu$ s
- Speed loop: 62.5  $\mu$ s
- Position loop: 62.5  $\mu$ s

#### Open FireWire IEEE 1394 Process Port

- 125  $\mu$ s cycle time
- Real-time synchronization between drives

### Benefits

#### Integrated safety functionality

The integrated Safe Torque Off (STO) functionality offers protection against unexpected motor start-up, in accordance to EN 13849-1 PLe, SIL 3 as standard.

#### Minimal delay between fieldbus setpoints and the control loops

Designed to integrate in existing automation systems, the AC890PX drive features high performance ports linked directly to the fast control loops of the drive. Minimum delay exists between your digital setpoint sent through a fieldbus and the control loops.

#### Flexible feedback options

The AC890PX drive 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 AC890PX drive has been specifically designed to integrate seamlessly into your automation network with a wide selection of communications interfaces.

### 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 control.

#### High Performance

All advanced performance features PLUS:  
Library of pre-engineered application specific LINK VM function blocks such as:  
Shaftless printing, cut-to-length, advanced winding and advanced traversing.



# AC890PX Series

## Tools

### Programming / Operator Controls

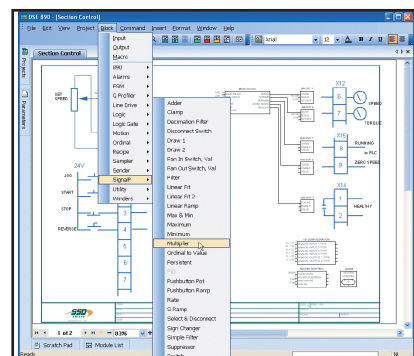
The model 6901 AC890PX inverter operator keypad provides access to all of the inverter's functions in a logical and intuitive manner. The backlit display presents all functions in plain language and engineering units. PLC-like function blocks for advanced applications. It may be mounted remotely or on the front door of an enclosed inverter.

- Multilingual display
- Quick setup menu
- Diagnostic messages
- Inverter configuration



### Drive System Explorer (DSE)

DSE software allows users to program, configure, monitor and diagnose AC890PX drives with the use of a PC. An easy to use interface guides the user through every step of project creation and implementation.



## Inverter and Vector Duty Induction Motors 1 - 500 HP

Parker SSD can provide Inverter Duty and Vector Duty motors that let you get the most out of your drive. With your choice of a wide variety of frame styles, every rating includes specific features demanded by high performance drive applications.

Cast iron frames with totally enclosed non-ventilated construction are available for harsh environments, while compact laminated frame designs with forced ventilation can fit into the tightest spaces while providing 1000:1 constant torque speed range and excellent dynamic performance.

Not all motors are created equal. Don't settle for a re-rated constant speed motor for variable speed applications. All Parker SSD Inverter and Vector Duty motors are provided with insulation that is suitable for use with IGBT based PWM drives, and with 200% torque overload capability. Ask for a performance matched package every time.

Available enclosures:

DPG-FV (Drip-Proof Guarded Force Ventilated) - IEC IP23/IC06. Motor cooling is provided by motor-mounted blower driven by an integrally mounted three-phase blower motor.

TEBC (Totally Enclosed Air-Over Blower-Cooled) - IEC IP44/IC416. In-line blower cooled motors incorporate unique integral air ducts in the frame, external to the windings. The integrally mounted, independently powered three phase blowers result in low noise levels over wide speed ranges.

TEFC (Totally Enclosed Fan-Cooled) - IEC IP44/IC411. Exterior surface cooled by external fan mounted on motor shaft.



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