



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



# Parker Servo system P series complete catalog



ENGINEERING YOUR SUCCESS.

# Powerful servo solution

## Main features

- Auto configuration (BiSS-C base)
- Multiple feedback interface
  - Serial(BiSS-C, EnDAT2.2, Tamagawa), Quadrature, SinCos
- User-friendly drive software
  - Step by step easy configuration
  - Pre-defined profile function
  - Auto tuning (real-time)
  - Various homing mode
  - Jog mode & Point to Point movement
  - 4 channel oscilloscope
  - Easy firmware update
- Programmable I/O
  - 1ms update rate
  - 16 channel digital input, 8 channel digital output
  - 2 channel analog input/output
- Various compatibility and application
  - ETH, ETT, OSPE
  - Rotary, Linear, DD servo motors and more



# Parker Servo Systems

## P Series



The new Parker P Series servo system combines compact, flexible, advanced functionality drives with high performance motors for a superior servo system, providing unique value to machine builders.

The P-Series drives operate with a variety of machine control architectures and offer sophisticated servo capability. A number of different feedback types are supported to drive a wide range of linear and rotary servo motors. The best matches are the P-Series motors, which include absolute encoders and populate motor nameplate data back to the drives for simplified commissioning.

Accurate and easy to use inertia detection leads to fast set-up of tuning parameters and minimal settling time. Advanced filtering and vibration suppression features can be used to increase throughput and improve positioning performance.

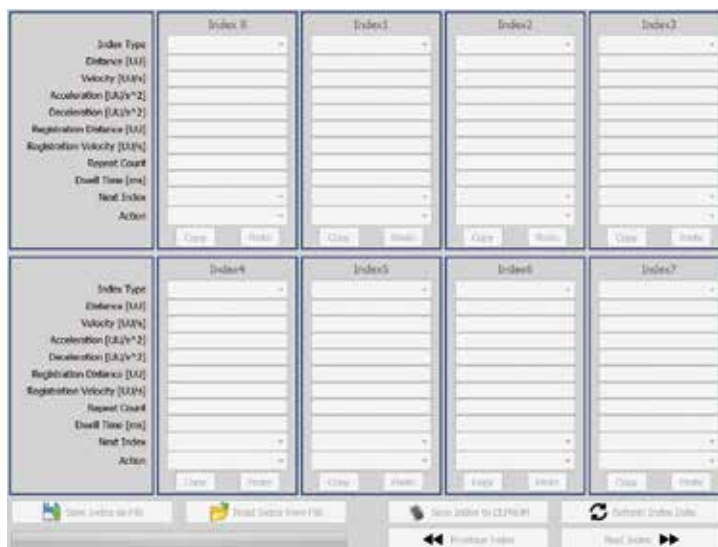
For high speed, real-time network applications, the P-Series is available with EtherCAT, the fastest growing, most flexible industrial Ethernet



# EtherCAT®

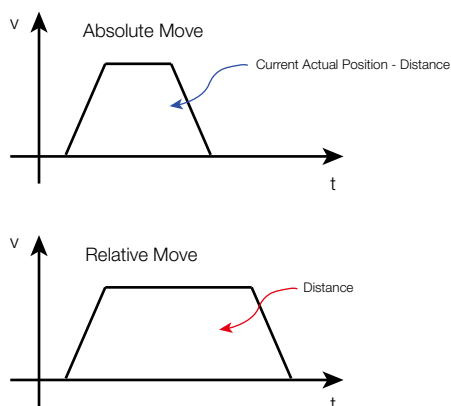
# Pre-defined profile function

- Available 64 profiles

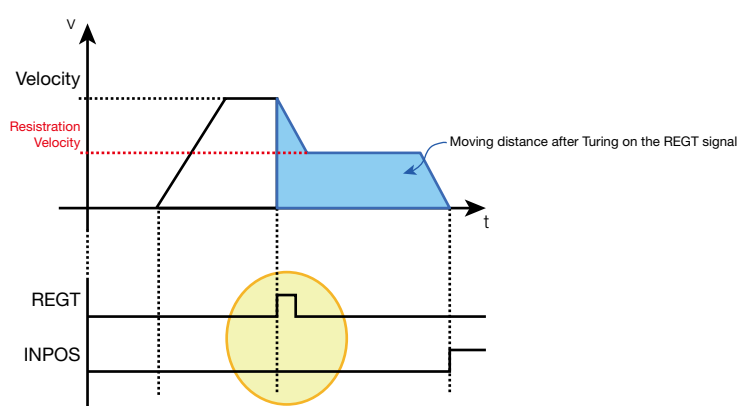


- Variable profile mode

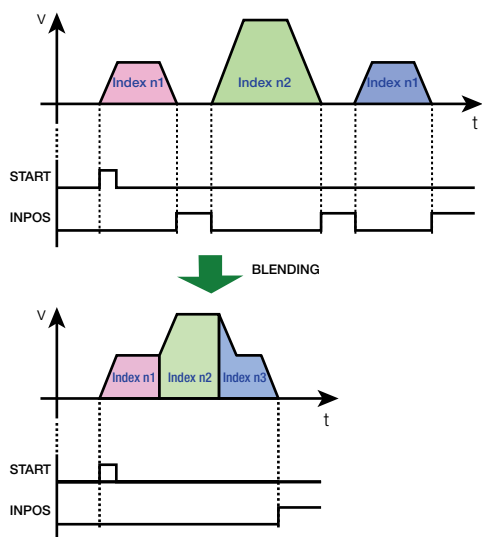
## - Absolute/Relative move



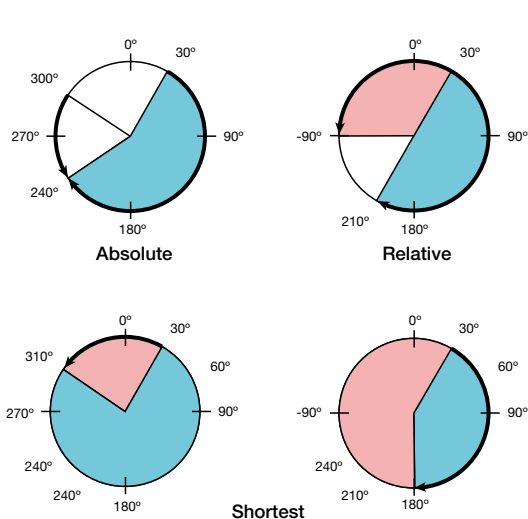
## - Registration Absolute/Relative move



## - Blending Absolute/Relative move

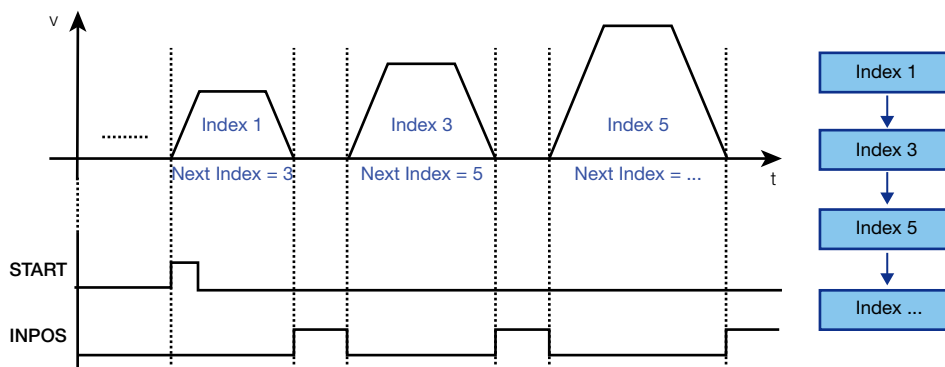


## - Rotary Absolute/Relative/Shortest move



### • Loop method

- Go to Next Index
- Wait for Start
- Stop

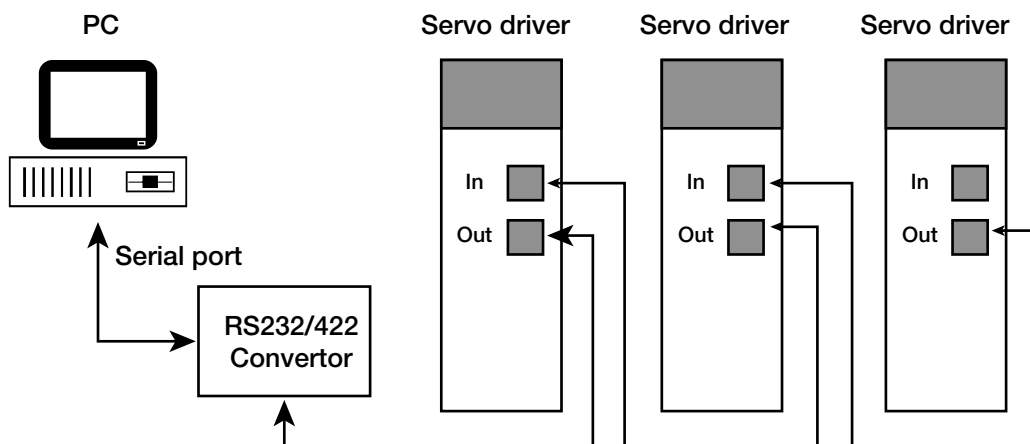


### • I/O control

- Start, Stop, REG, EOS
- I/O0~5(Index number selecting & monitoring)

### • Multi-drop connection

- RS422 serial communication interface for tasking ,test driving, gain turning, parameter setting and pre-defined position mode.
- This interface can be used for bus interface by using the multi-drop. (Max 32 axes)



- The maximum packet size of MODBUS-RTU is 256 Byte

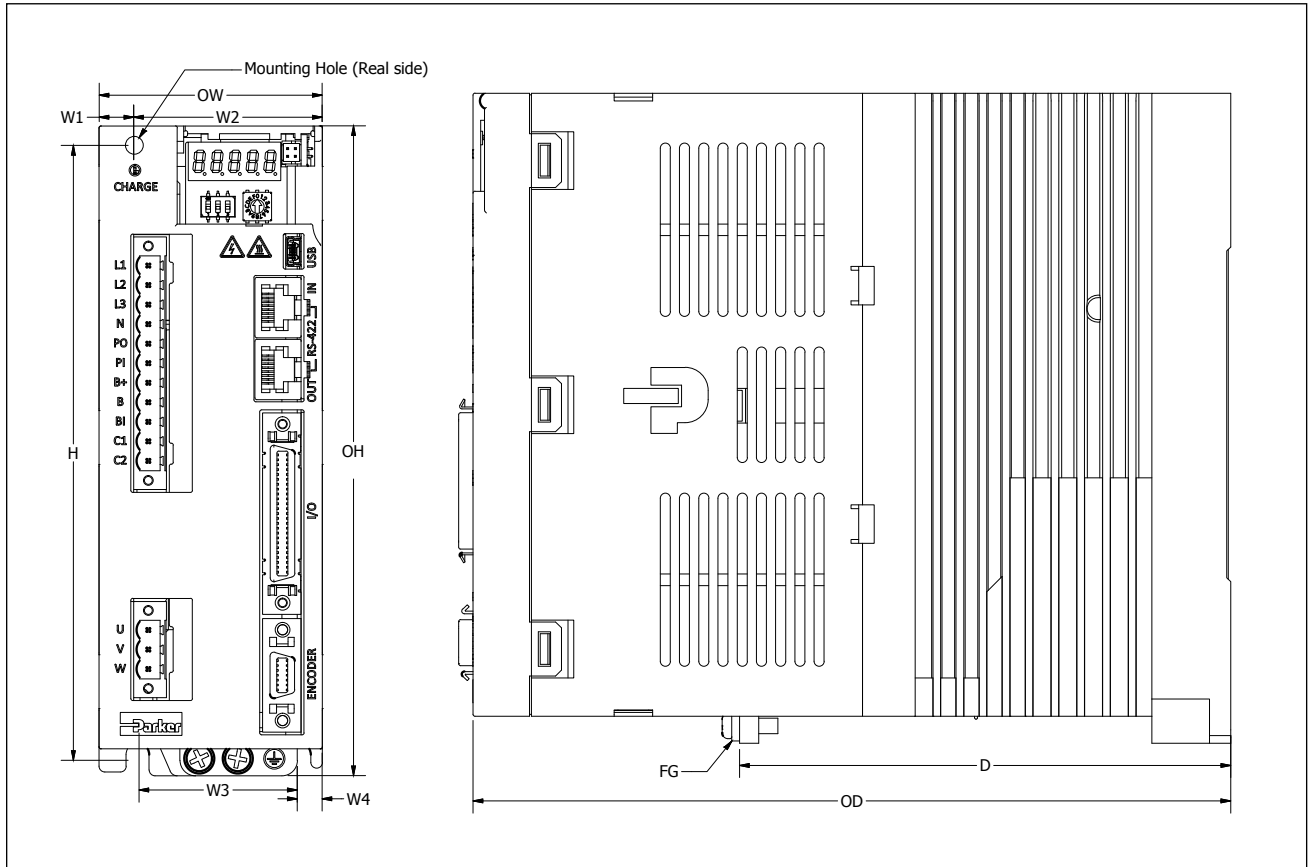
Item		Specification
Communication rule		ANSI/TIA/EIA-422 Standard
Communication protocol		MODBUS-RTU
Data Type	Data bit	8 bit
	Stop bit	1 bit
	Parity	None
Synchronous method		Asynchronous
Baud rate		9600/19200/38400/57600/115200 bit for second
Available distance		Max. 200m
Current consumption		Under 100mA

# P Series Servo Drive

## Pulse Drive Specifications

Motor Output Power	PD-04P	PD-10P	PD-35P
Shaft Power @ Continuous Current	400 Watts	1000 Watts	3500 Watts
Shaft Power @ Peak Current	1200 Watts	3000 Watts	10500 Watts
Drive Output Power			
Continuous Current (RMS)	3.0 Amps	6.75 Amps	16.7 Amps
Peak Current (RMS)	9.0 Amps	20.25 Amps	50.1 Amps
Bus Voltage	340VDC		
Drive Input Voltage	100-120VAC 50/60Hz 230 VAC, 1/3Ø, 50/60Hz	230 VAC, 1/3Ø, 50/60Hz	
Drive Control Voltage	100-120VAC 50/60Hz 230 VAC, 1Ø, 50/60Hz	230 VAC, 1Ø, 50/60Hz	230 VAC, 1Ø, 50/60Hz
Performance			
Servo update	62.5µ seconds		
Accuracy	± 1 encoder count ; encoder dependent		
Commutation	Sinusoidal		
Control			
Indexer Function	64 user defined profiles, relative/absolute moves, registration, sequences and I/O selection		
Position Control	Step and direction, CW and CCW		
Speed Control	+/- 10V, 1:5000		
Torque Control	+/- 10V		
Feedback			
Encoder Input	Quadrature Incremental encoder, BiSS-C (absolute) encoder, EnDAT 2.2, SinCos		
Encoder Output	RS-422 compatible differential driver		
I/O			
Digital input	16-channel, +24V common, user selectable functions		
Digital output	8-channel, Differential (Isolated), user selectable functions		
Analog input	2-channel, ±10V (max.), 12bits		
Analog output	2-channel, ±10V (max.), selectable, 12bits		
Communications			
USB	USB 2.0 for firmware upload and drive configuration		
Serial	RS422 for PC or HMI interface, MODBUS-RTU		
Standard	ANSI/ TIA/ EIA-422 standard		
Baud Rate	9,600/ 19,200/ 38,400/ 57,600/ 115,200 bps		
Configuration Software	Drive Support Tool		
Standards	CE (EMC, LVD) UL/cUL recognized	CE (EMC, LVD) UL/cUL listed	CE (EMC, LVD) UL/cUL listed
Built-in Functions			
Display	7 Segments, 5 digits for Status and Alarms		
Node Selection	3 dip switches, 1 rotary for address 0-31		
Dynamic Braking	Built-in, user selectable reaction		
Internal Regeneration	100ohm, 50W	40ohm, 100W	12.6Ohm, 150W
External Regeneration	50ohm, 140W	30ohm, 300W	30Ohm, 600W
Environmental			
Temperature	0 - 50 °C ( 32 - 122 °F)		
Humidity	0 - 90% non-condensing		
Shock / Vibration	15g, 11msec half sign / 10-2,000Hz @ 2g		

## Dimensions



(Unit: mm)

		PD-04P	PD-10P	PD-35P
H	Height	158	158	158
OH	Overall Height	169	169	169
OW	Overall Width	38	58	88
W1	Width 1	6	10	44
W2	Width 2	26	48	44
W3	Width 3	32	42	78
W4	Width 4	6	6	5
D	Depth	107.7	127.7	112.5
OD	Overall Depth	173	197	198

Solid Models Available for Download [http://solutions.parker.com/AUG\\_EM](http://solutions.parker.com/AUG_EM)

# P Series Servo Drive

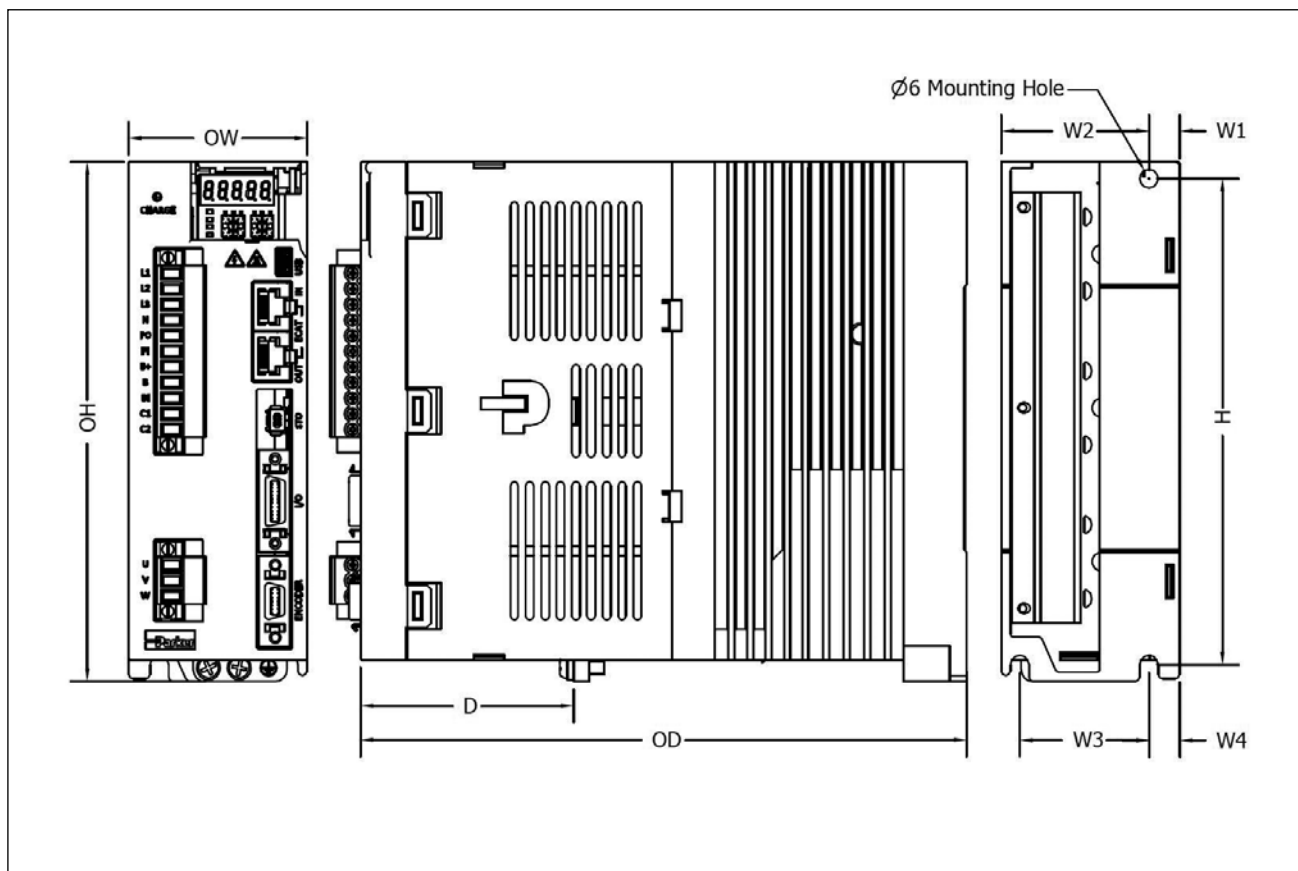
## EtherCAT Drive Specifications



Motor Output Power		PD-04C	PD-10C	PD-35C
	Shaft Power @ Continuous Current	400 Watts	1000 Watts	3500 Watts
	Shaft Power @ Peak Current	1200 Watts	3000 Watts	10500 Watts
Drive Output Power				
	Continuous Current (RMS)	3.0 Amps	6.75 Amps	16.7 Amps
	Peak Current (RMS)	9.0 Amps	20.25 Amps	50.1 Amps
	Bus Voltage	340VDC		
Drive Input Voltage		100-120VAC 50/60Hz 230 VAC, 1/3Ø, 50/60Hz	230 VAC, 1/3Ø, 50/60Hz	
Drive Control Voltage		100-120VAC 50/60Hz 230 VAC, 1Ø, 50/60Hz	230 VAC, 1Ø, 50/60Hz	230 VAC, 1Ø, 50/60Hz
Performance				
	Servo update	62.5µ seconds		
	Accuracy	± 1 encoder count ; encoder dependent		
	Commutation	Sinusoidal		
EtherCAT				
	Supported Protocols	CoE, EoE, FoE		
	Drive Modes	Position Profile, Profile Velocity, Profile Torque, Interpolated Position, Homing Cyclic Synchronous Position, Velocity and Torque		
Feedback				
	Encoder Input	Quadrature Incremental encoder, BiSS-C (absolute) encoder, EnDAT 2.2, SinCos		
I/O				
	Digital input	8-channel, +24V common, user selectable functions		
	Digital output	4-channel, Differential (Isolated), user selectable functions		
	Safety	Safe Torque Off (STO) IEC61508		
Communications				
	USB	USB 2.0 for firmware upload and drive configuration		
	Configuration Software	Drive Support Tool		
Standards		CE (EMC, LVD) UL/cUL recognized	CE (EMC, LVD) UL/cUL listed	CE (EMC, LVD) UL/cUL listed
Built-in Functions				
	Display	7 Segments, 5 digits for Status and Alarms		
	Dynamic Braking	Built-in, user selectable reaction		
	Internal Regeneration	100ohm, 50W	40ohm, 100W	12.6ohm, 150W
	External Regeneration	50ohm, 140W	30ohm, 300W	30ohm, 600W
Environmental				
	Temperature	0 - 50 °C ( 32 - 122 °F )		
	Humidity	0 - 90% non-condensing		
	Shock / Vibration	15g, 11msec half sign / 10-2,000Hz @ 2g		



# EtherCAT Drive Dimensions



(Unit: mm)

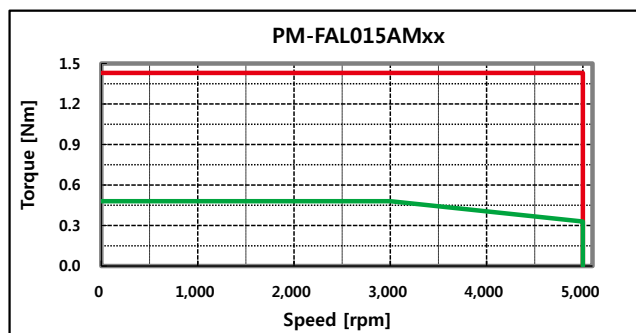
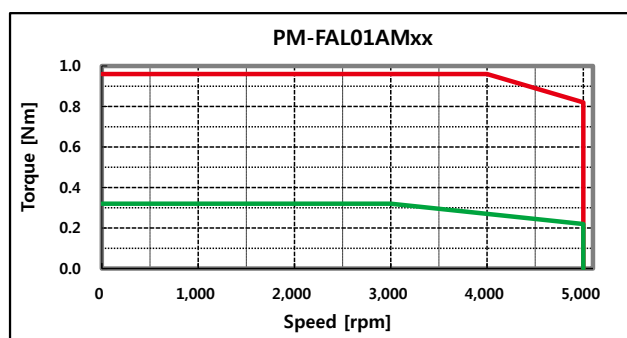
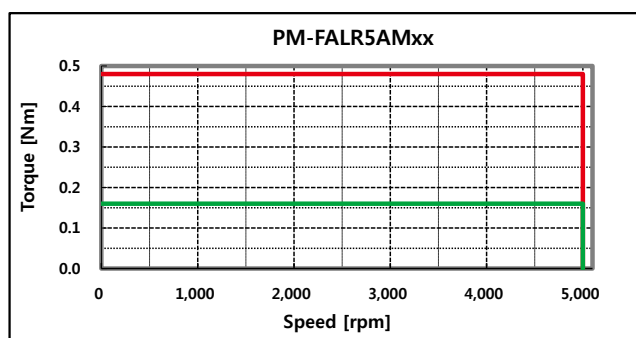
		PD-04C	PD-10C	PD-35C
H	Height	158	158	158
OH	Overall Height	169	169	169
OW	Overall Width	38	58	88
W1	Width 1	6	10	44
W2	Width 2	26	48	44
W3	Width 3	32	42	78
W4	Width 4	6	6	5
D	Depth	107.7	127.7	112.5
OD	Overall Depth	173	197	198

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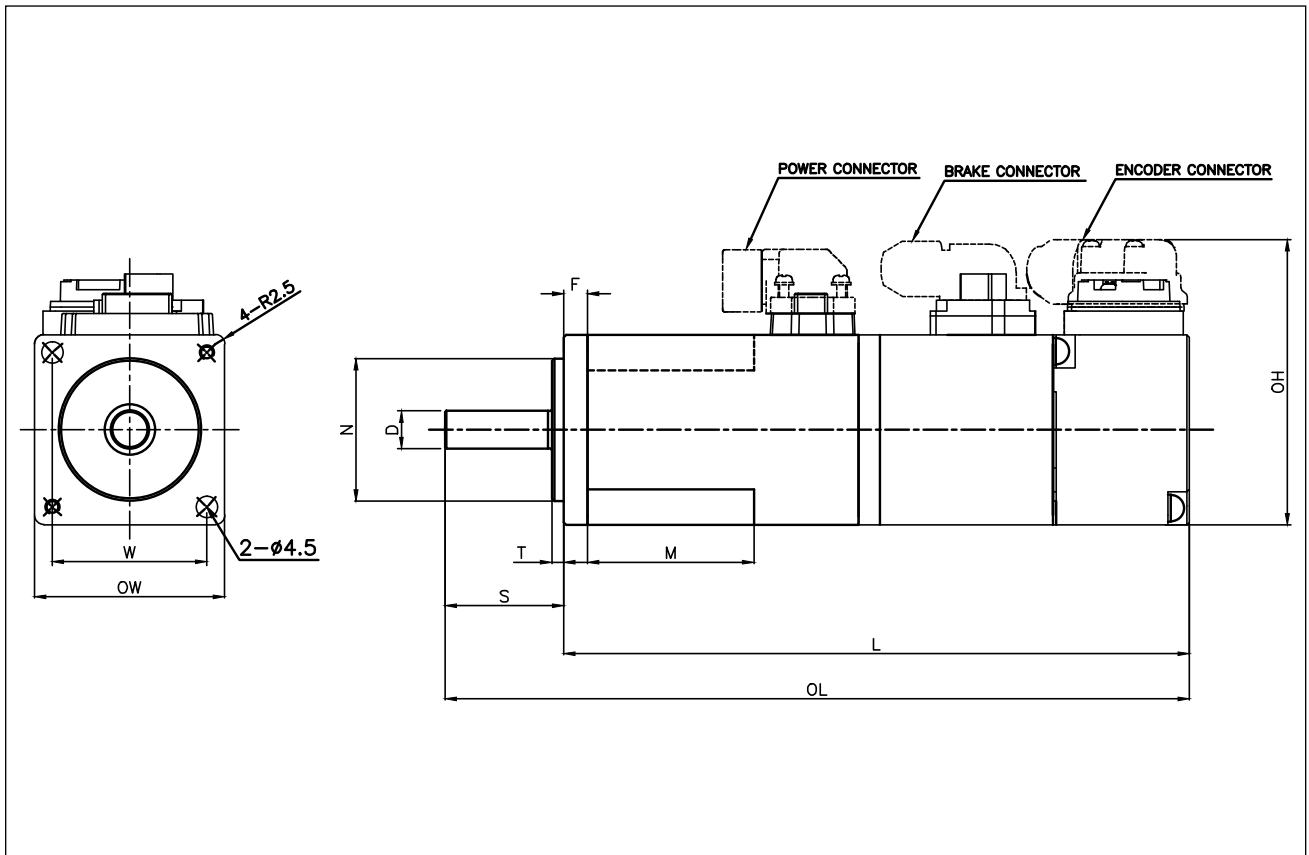
# P Series Servo Motors

## FAL Specifications

		PM-FALR5AM8	PM-FAL01AM8	PM-FAL015AM8
Rated Output Power	Watts	50	100	150
Rated Torque	N-m	0.16	0.32	0.48
	in-lb	1.4	2.8	4.2
Instantaneous Peak Torque	N-m	0.48	0.96	1.43
	in-lb	4.2	8.5	12.7
Rated Speed	rpm	3000	3000	3000
Peak Speed	rpm	5000	5000	5000
Rated Current	Arms	0.95	1.25	1.73
Peak Current	Arms	2.85	3.75	5.19
Inductance	mH	4.42	5.08	3.89
Resistance	ohms	5.57	4.64	3.52
Torque Constant	Nm/Arms	0.18	0.27	0.30
Moment of Inertia	kg-m <sup>2</sup> x 10 <sup>-4</sup>	0.02	0.05	0.06
	in-lb-sec <sup>2</sup> x 10 <sup>-4</sup>	0.18	0.44	0.53
Allowable Moment of Load Inertia		Motor Inertia x 30		x 20
Position Feedback		BiSS-C Interface – 18bit 262,144ppr		4096 revs
Weight	kg	0.4	0.5	0.7
	lb	0.8	1.1	1.5
Standards		CE (EMC, LVD), UL (pending)		
Environmental				
	Temperature	0 - 40 °C		
	Humidity	20-80% non-condensing		
	Shock / Vibration	5G (49m/s <sup>2</sup> )		



## FAL Dimensions



(Unit: mm)

	OW	OH	OL	L	N	W	D	F	M	S	T
PM-FALR5AM8N	40	60	103.2	78.2	30	32.5**	8	5	23	25	2.5
PM-FAL01AM8N			120.2	95.2					35		
PM-FAL015AM8N			140.2	115.2					35		
PM-FAL01AM8N2*			156.6	131.6					35		

**Notes**

- FAL series does not include keyway

\* Includes Static Brake

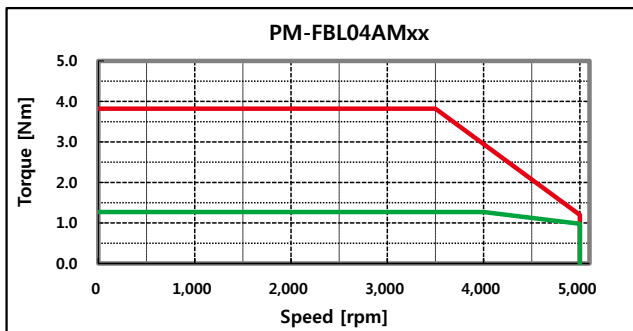
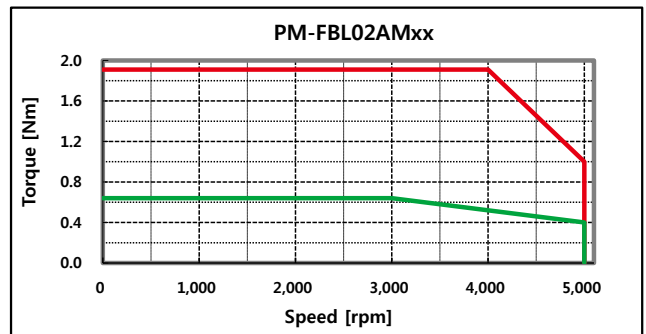
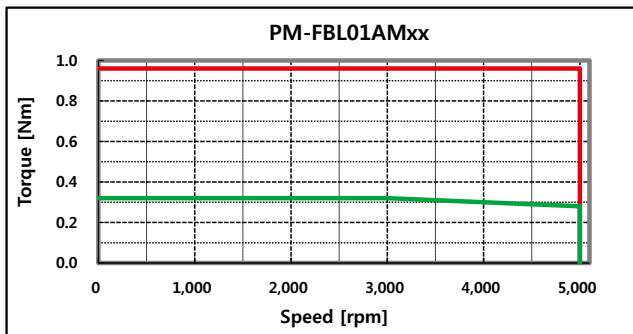
\*\*Bolt Circle Diameter =46mm

Solid Models Available for Download [http://solutions.parker.com/AUG\\_EM](http://solutions.parker.com/AUG_EM)

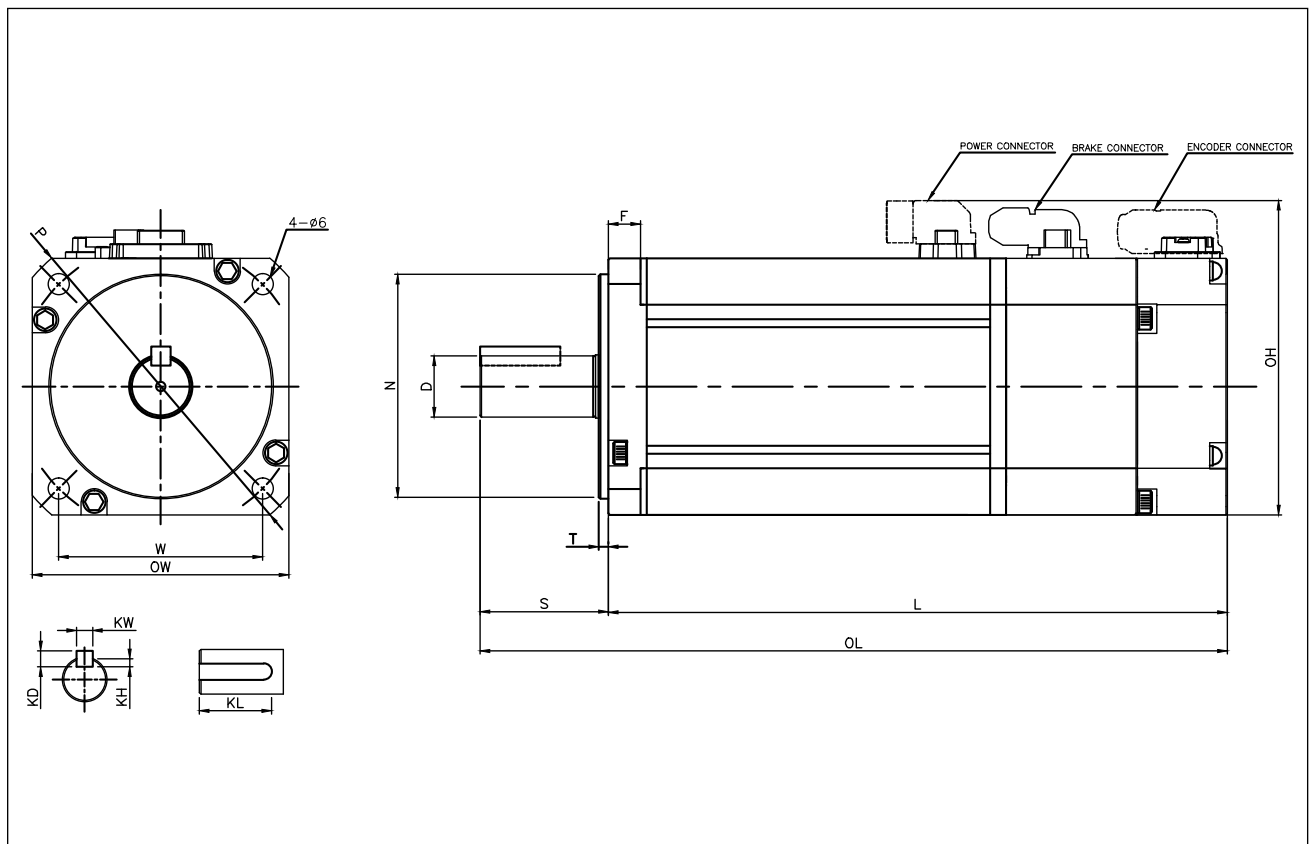
# P Series Servo Motors

## FBL Specifications

		PM-FBL01AM	PM-FBL02AM	PM-FBL04AM
Rated Output Power	Watts	100	200	400
Rated Torque	N-m	0.32	0.64	1.27
	in-lb	2.8	5.7	11.2
Instantaneous Peak Torque	N-m	0.96	1.91	3.82
	in-lb	8.5	16.9	33.8
Rated Speed	rpm	3000	3000	3000
Peak Speed	rpm	5000	5000	5000
Rated Current	Arms	0.95	1.45	2.60
Peak Current	Arms	2.86	4.35	7.80
Inductance	mH	10.46	9.03	5.68
Resistance	ohms	4.33	2.59	1.33
Torque Constant	Nm/Arms	0.36	0.47	0.52
Moment of Inertia	kg-m <sup>2</sup> x 10 <sup>-4</sup>	0.09	0.15	0.25
	in-lb-sec <sup>2</sup> x 10 <sup>-4</sup>	0.8	1.33	2.21
Allowable Moment of Load Inertia	Motor Inertia x 20			
Position Feedback	BiSS-C Interface – 19bit 524,288ppr 4096 revs			
Weight	kg	0.72	0.94	1.32
	lb	1.6	2.1	2.9
Standards	CE (EMC, LVD), UL (pending)			
Protection	IP67 (body and connectors, not shaft)			
Environmental				
Temperature	0 - 40 °C			
Humidity	20-80% non-condensing			
Shock / Vibration	5G (49m/s <sup>2</sup> )			



## FBL Dimensions



(Unit: mm)

	OW	OH	OL	L	N	W	D	F	S	T	KW	KH	KD	KL	P
PM-FBL01AMK	62	80	107.2	77.2	50	49.5**	14	6	30	3	5	3	5	22.5	80
PM-FBL02AMK			118.2	88.2											
PM-FBL04AMK			138.2	108.2											
PM-FBL01AMK2*			147.2	117.2											
PM-FBL02AMK2*			158.2	128.2											
PM-FBL04AMK2*			178.2	148.2											

Note

\* Includes Static Brake

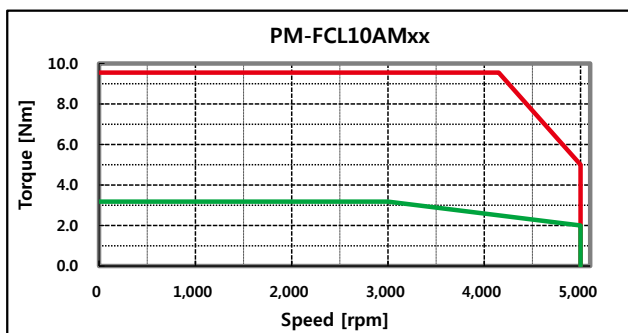
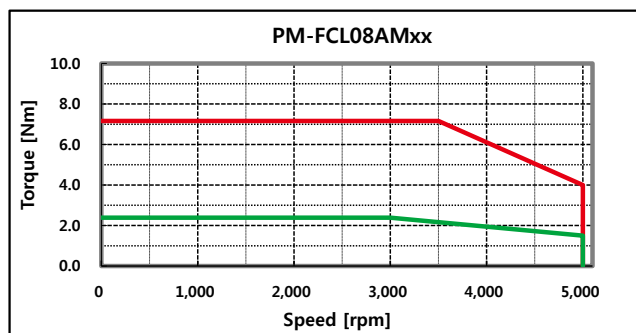
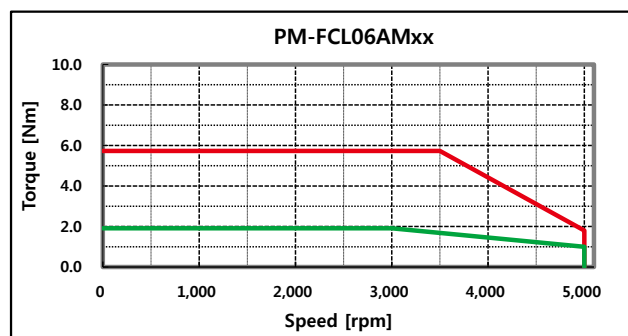
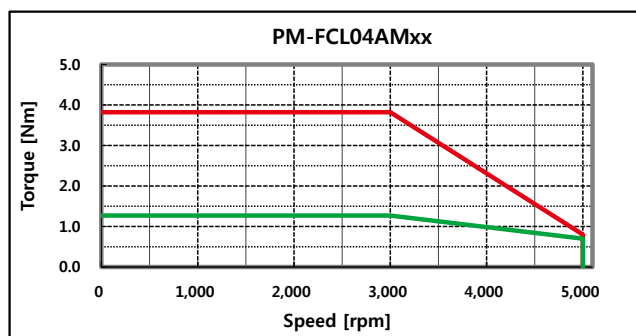
\*\*Bolt Circle Diameter =70mm

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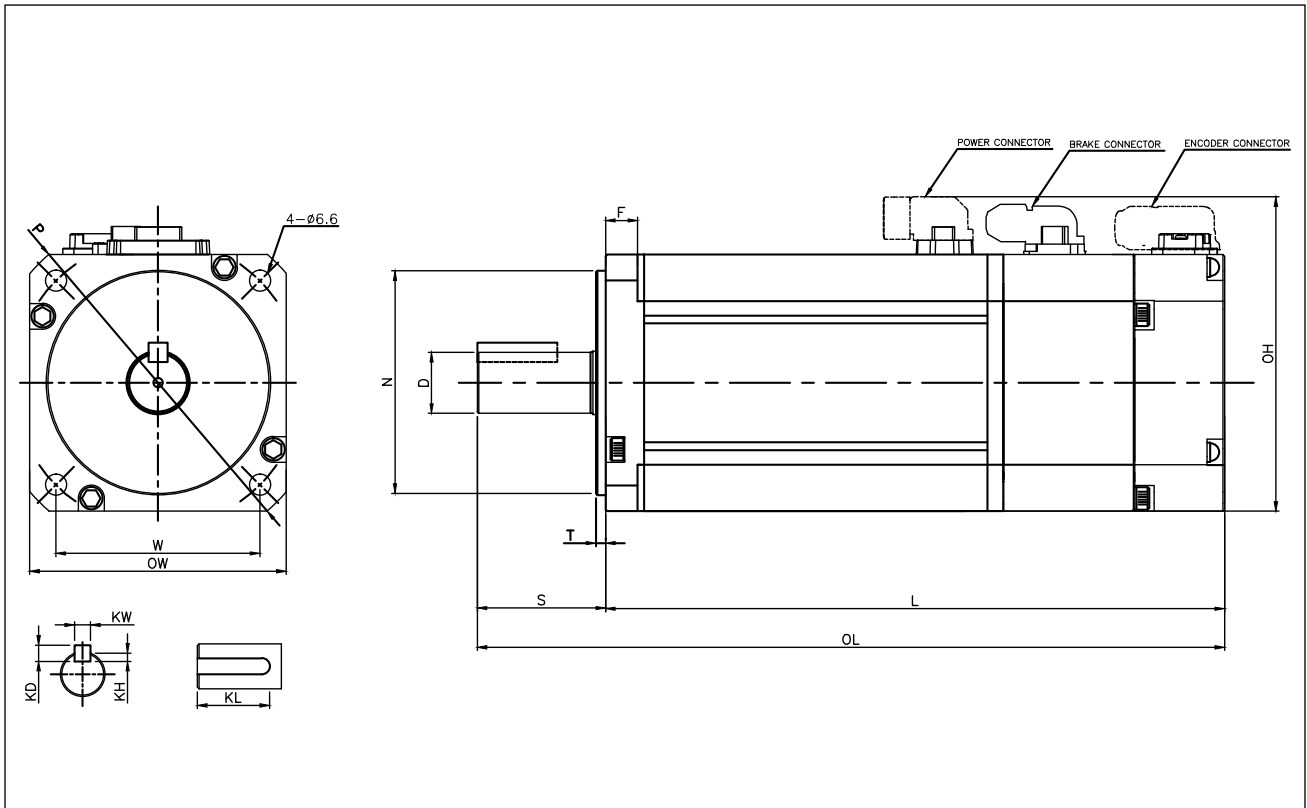
# P Series Servo Motors

## FCL Specifications

		PM-FCL04AM	PM-FCL06AM	PM-FCL08AM	PM-FCL10AM
Rated Output Power	Watts	400	600	800	1000
Rated Torque	N-m	1.27	1.91	2.39	3.18
	in-lb	11.2	16.9	21.2	28.1
Instantaneous Peak Torque	N-m	3.82	5.73	7.16	9.55
	in-lb	33.8	50.7	63.4	84.5
Rated Speed	rpm	3000	3000	3000	3000
Peak Speed	rpm	5000	5000	5000	5000
Rated Current	Arms	2.58	3.81	5.02	5.83
Peak Current	Arms	7.75	11.42	15.07	17.50
Inductance	mH	7.45	3.86	2.31	2.28
Resistance	ohms	1.75	0.66	0.40	0.33
Torque Constant	Nm/Arms	0.52	0.53	0.50	0.58
Moment of Inertia	kg-m <sup>2</sup> x 10 <sup>-4</sup>	0.5	0.88	1.25	1.62
	in-lb-sec <sup>2</sup> x 10 <sup>-4</sup>	4.4	7.8	11.1	14.3
Allowable Moment of Load Inertia	Motor Inertia x 15				
Position Feedback	BiSS-C Interface – 19bit 524,288ppr 4096 revs				
Weight	kg	1.56	2.18	2.72	3.8
	lb	3.4	4.8	6.0	8.4
Standards	CE (EMC, LVD), UL (pending)				
Protection	IP67 (body and connectors, not shaft)				
Environmental					
Temperature	0 - 40 °C				
Humidity	20-80% non-condensing				
Shock / Vibration	5G (49m/s <sup>2</sup> )				



# FCL Dimensions



(Unit: mm)

	OW	OH	OL	L	N	W	D	F	S	T	KW	KH	KD	KL	P
PM-FCL04AMK	80	98	138.7	98.7	70	63.6**	14	10	40	3	5	3	5	25	105
PM-FCL06AMK			156.7	116.7			19				6	3.5	6		
PM-FCL08AMK			174.7	134.7			19				6	3.5	6		
PM-FCL10AMK			192.7	152.7			19				6	3.5	6		
PM-FCL04AMK2*			179	139			14				5	3	5		
PM-FCL06AMK2*			197	157			14				5	3	5		
PM-FCL08AMK2*			215	175			19				6	3.5	6		
PM-FCL10AMK2*			233	193			19				6	3.5	6		

**Note**

\* Includes Static Brake

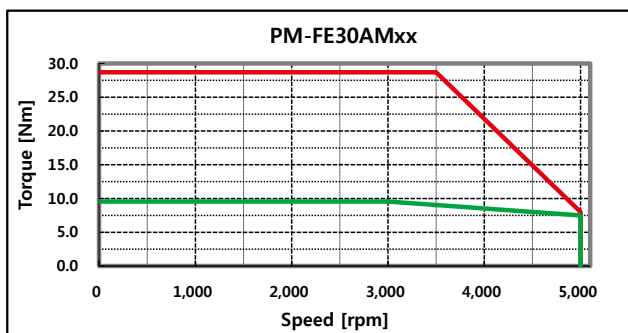
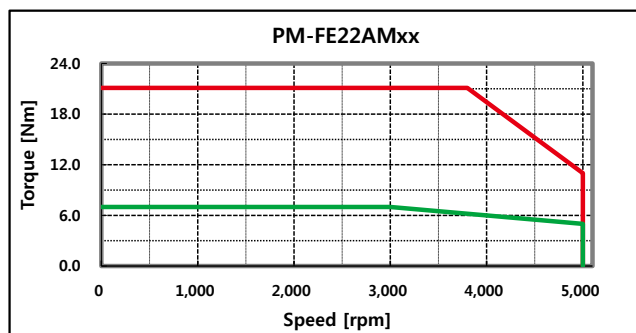
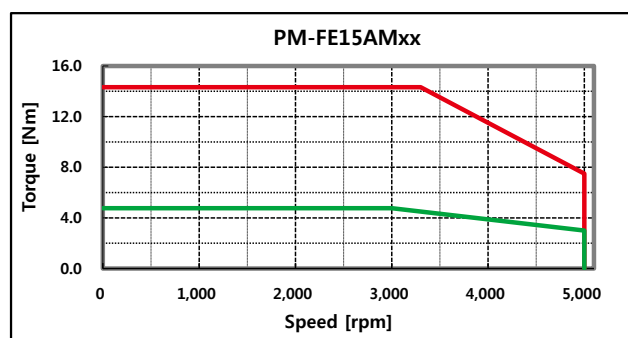
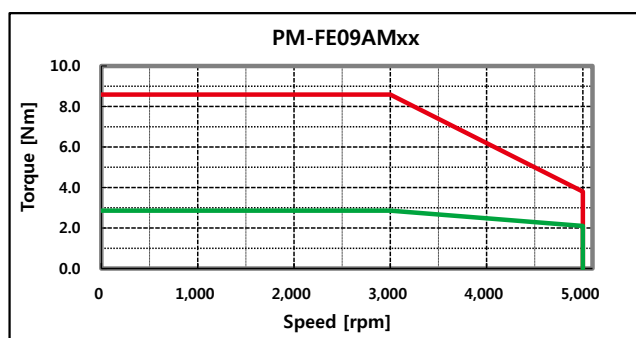
\*\*Bolt Circle Diameter =90mm

Solid Models Available for Download [http://solutions.parker.com/AUG\\_EM](http://solutions.parker.com/AUG_EM)

# P Series Servo Motors

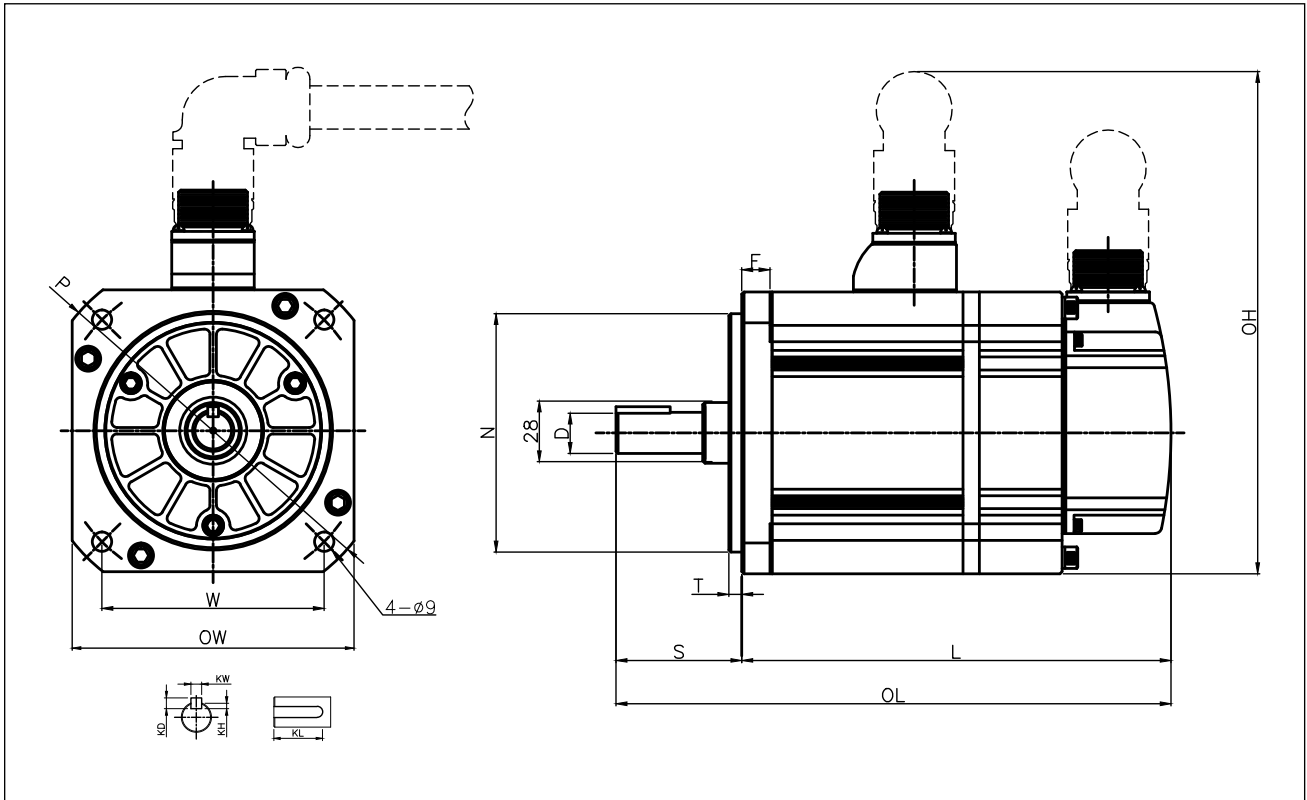
## FE Specifications

		PM-FE09AM	PM-FE15AM	PM-FE22AM	PM-FE30AM
Rated Output Power	Watts	900	1500	2200	3000
Rated Torque	N-m	2.86	4.77	7.00	9.55
	in-lb	25.3	42.2	61.9	84.5
Instantaneous Peak Torque	N-m	8.59	14.32	21.01	28.65
	in-lb	76.0	126.7	185.9	253.5
Rated Speed	rpm	3000	3000	3000	3000
Peak Speed	rpm	5000	5000	5000	5000
Rated Current	Arms	6.45	9.15	13.24	16.09
Peak Current	Arms	19.35	27.45	39.72	48.27
Inductance	mH	2.33	1.52	0.98	0.93
Resistance	ohms	0.31	0.16	0.09	0.09
Torque Constant	Nm/Arms	0.44	0.52	0.53	0.59
Moment of Inertia	kg-m <sup>2</sup> x 10 <sup>-4</sup>	5.66	10.18	14.62	19.04
	in-lb-sec <sup>2</sup> x 10 <sup>-4</sup>	49.8	89.6	128.7	167.6
Available Moment of Load Inertia	Motor Inertia x 10				
Position Feedback	BiSS-C Interface – 19bit 524,288ppr 4096revs				
Weight	kg	5	6.7	8.5	10.1
	lb	11.0	14.8	18.7	22.3
Standards	CE (EMC, LVD), UL (pending)				
Protection	IP67 (body and connectors, not shaft)				
Environmental					
	Temperature	0 - 40 °C			
	Humidity	20-80% non-condensing			
	Shock / Vibration	5G (49m/s <sup>2</sup> )			





## FE Dimensions



(Unit: mm)

	OW	OH	OL	L	N	W	D	F	S	T	KW	KH	KD	KL	P	
PM-FE03MMK PM-FE05GMK PM-FE06DMK PM-FE09AMK	130	231.7	197.3	139.3	110	102.5	19	13	58	6	5	3	5	25	165	
PM-FE06MMK PM-FE09GMK PM-FE11DMK PM-FE15AMK			217.3	159.3							6	3.5	6			
PM-FE09MMK PM-FE13GMK PM-FE16DMK PM-FE22AMK			237.3	179.3							22	4	7			
PM-FE12MMK PM-FE17GMK PM-FE22DMK PM-FE30AMK			255.3	197.3							24	8	7			
PM-FE03MMK2 PM-FE05GMK2 PM-FE06DMK2 PM-FE09AMK2			235.3	177.3							19	5	3			5
PM-FE06MMK2 PM-FE09GMK2 PM-FE11DMK2 PM-FE15AMK2			255.3	197.3							22	6	3.5			6
PM-FE09MMK2 PM-FE13GMK2 PM-FE16DMK2 PM-FE22AMK2			275.3	217.3							24	8	4			7
PM-FE12MMK2 PM-FE17GMK2 PM-FE22DMK2 PM-FE30AMK2			293.3	235.3												

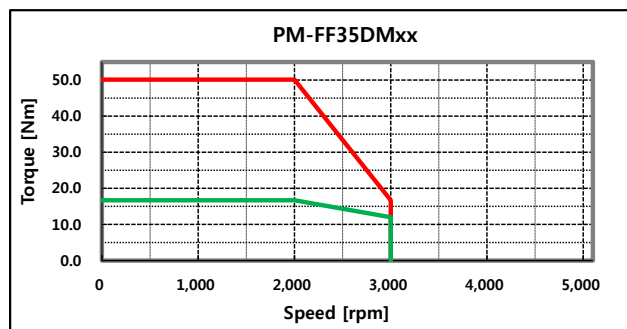
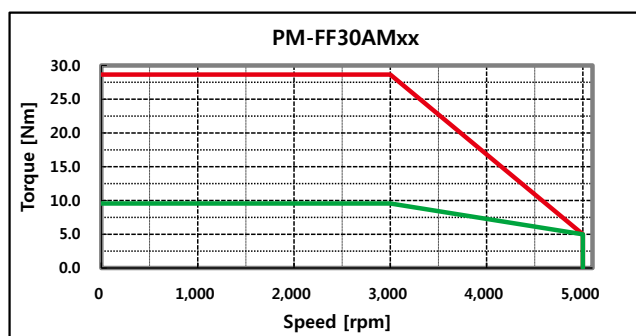
Note)

- Detail drawings and N-T curves are available at [http://solutions.parker.com/AUG\\_EM](http://solutions.parker.com/AUG_EM)
- Specification subject to change without notice.

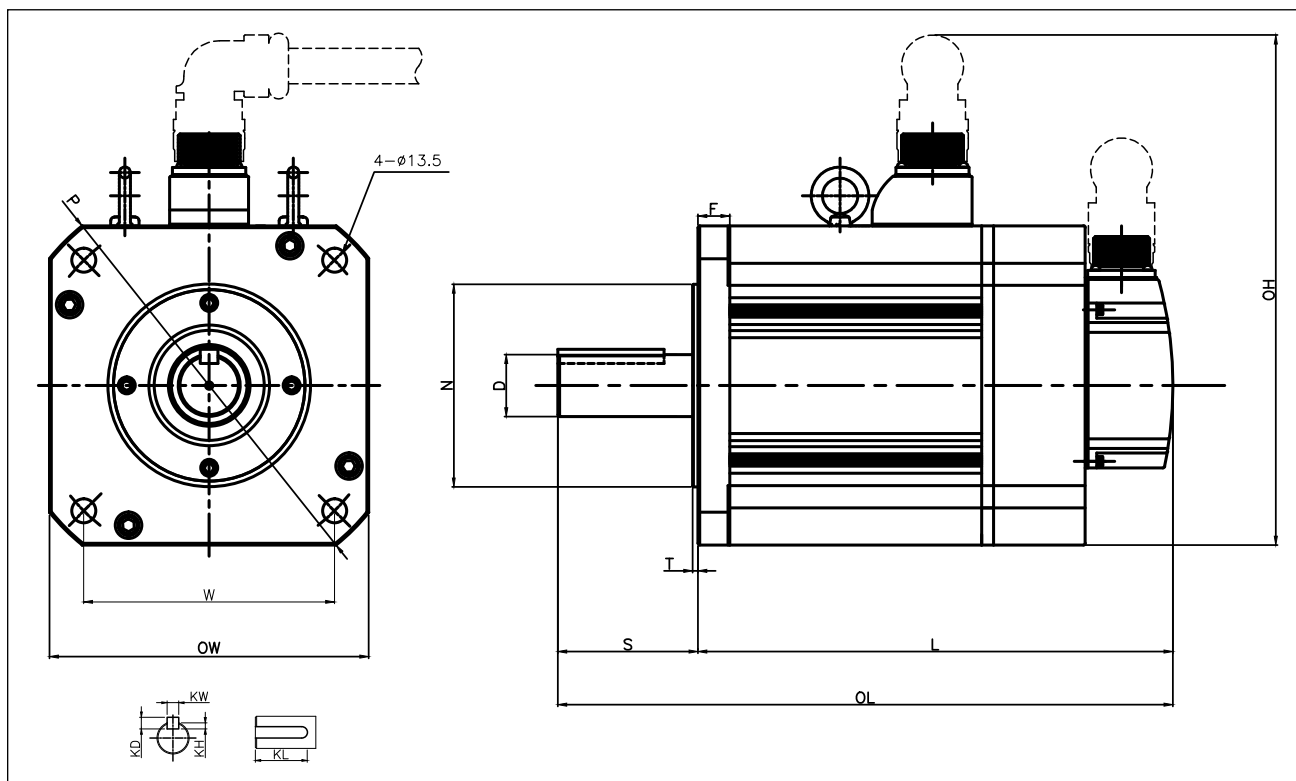
# P Series Servo Motors

## FF Specifications

		PM-FF30AM	PM-FF35DM
Rated Output Power	Watts	3000	3500
Rated Torque	N-m	9.55	16.70
	in-lb	84.5	147.8
Instantaneous Peak Torque	N-m	28.65	50.10
	in-lb	253.5	443.3
Rated Speed	rpm	3000	2000
Peak Speed	rpm	5000	3000
Rated Current	Arms	15.26	16.48
Peak Current	Arms	45.78	49.44
Inductance	mH	1.04	1.42
Resistance	ohms	0.07	0.09
Torque Constant	Nm/Arms	0.63	1.01
Moment of Inertia	kg-m <sup>2</sup> x 10 <sup>-4</sup>	27.96	46.56
	in-lb-sec <sup>2</sup> x 10 <sup>-4</sup>	246.0	409.7
Available Moment of Load Inertia	Motor Inertia x 5		
Position Feedback	BiSS-C Interface – 19bit 524,288ppr 4096revs		
Weight	kg	12.5	17.4
	lb	27.6	38.4
Standards	CE (EMC, LVD), UL(pending)		
Protection	IP67 (body and connectors, not shaft)		
Environmental			
	Temperature	0 - 40 ° C	
	Humidity	20-80% non-condensing	
	Shock / Vibration	5G (49m/s <sup>2</sup> )	



## FF Dimensions



(Unit: mm)

	OW	OH	OL	L	N	W	D	F	S	T	KW	KH	KD	KL	P
PM-FF12MMK PM-FF20GMK PM-FF22DMK PM-FF30AMK	180	287.7	257.5	178.5	114.3	141.4	35	17	79	3	10	5	8	60	230
PM-FF20MMK PM-FF30GMK PM-FF35DMK			287.5	208.5											
PM-FF30MMK			331.5	252.5											
PM-FF12MMK2 PM-FF20GMK2 PM-FF22DMK2 PM-FF30AMK2			308.9	229.9											
PM-FF20MMK2 PM-FF30GMK2 PM-FF35DMK2			338.9	259.9											
PM-FF30MMK2			382.9	303.9											

Note)

- Detail drawings and N-T curves are available at [http://solutions.parker.com/AUG\\_EM](http://solutions.parker.com/AUG_EM)
- Specification subject to change without notice.

# P Series Ordering Information

Select an option from each numbered field to create a complete model order code.

## Drive

Order Example : ① ② ③

P	D	-	04	C
---	---	---	----	---

① Series	② Frame Size	③ Interface
PD	04 - 400W	C - EtherCAT P - Pulse/Indexer
	10 - 1000W	
	35 - 3500W	

## Motor

Order Example : ① ② ③ ④ ⑤ ⑥ ⑦

P	M	-	FBL	04	A	M	K	2
---	---	---	-----	----	---	---	---	---

① Series	② Frame Size	③ Rated Power	④ Winding	⑤ Feedback	⑥ Key	⑦ Options			
PM	FAL - 40mm	R5 -50W	A - 3000rpm	M8 -18bit BiSS-C	N - none	[ ] - None			
		01 -100W				[ ] - None			
		15 -150W				2 - Brake			
	FBL - 62mm	01 -100W				A-3000rpm	M - 19bit BiSS-C	K - keyway	[ ] - None
		02 -200W							2 - Brake
		04 -400W							[ ] - None
		04 -400W	[ ] - None						
	FCL - 80mm	06 -600W	D-2000rpm	M - 19bit BiSS-C	K - keyway	[ ] - None			
		08 -800W				2 - Brake			
		10 -1kW				[ ] - None			
		09-900W				G-1500rpm	M - 19bit BiSS-C	K - keyway	[ ] - None
		15-1.5kW							2 - Brake
		22-2.2kW							[ ] - None
	FE - 130mm	30-3.0kW	A-3000rpm	M - 19bit BiSS-C	K - keyway	[ ] - None			
		06-600W				2 - Brake			
		11-1.1kW	D-2000rpm	M - 19bit BiSS-C	K - keyway	[ ] - None			
		16-1.6kW				2 - Brake			
		22-2.2kW	G-1500rpm	M - 19bit BiSS-C	K - keyway	[ ] - None			
		05-500W				2 - Brake			
		09-900W				[ ] - None			
FF - 180mm		13-1.3kW	A-3000rpm	M - 19bit BiSS-C	K - keyway	[ ] - None			
	17-1.7kW	2 - Brake							
	30-3.0kW	D-2000rpm	M - 19bit BiSS-C	K - keyway	[ ] - None				
	22-2.2kW				2 - Brake				
	35-3.5kW	G-1500rpm	M - 19bit BiSS-C	K - keyway	[ ] - None				
20-2.0kW	2 - Brake								
30-3.0kW									

## Accessories

	Part Number	Description
Motor Power Cables	APCS-PN03LS	Motor Power Cable, 3 meters
	APCS-PNxxLS	xx=Length in meters : 05, 10, 20
Encoder Cables	APCS-EN03ES	Encoder Cable, 3meters
	APCS-ENxxES	xx=Length in meters : 05, 10, 20
	APCS-EN03ES1	Encoder Cable, Multi-Turn w/Battery, 3 meters
	APCS-ENxxES1	xx=Length in meters : 05, 10, 20
Brake Cables	APCS-BN03QS	Brake Cable, 3 meters (Motor power cable is required)
	APCS-BNxxQS	xx=Length in meters : 05, 10, 20
Connectors and I/O Cables	APC-CN102A	I/O Cable, 50-pin,Flying Lead, 2m long for PD-xxP
	APC-CN105A	I/O Cable, 50-pin,Flying Lead, 5m long for PD-xxP
	APCS-CN102A	I/O Cable, 20-pin,Flying Lead, 2m long for PD-xxC
	APCS-CN105A	I/O Cable, 20-pin,Flying Lead, 5m long for PD-xxC
	APC-CN1NNA	I/O Connector, 50-pin for PD-xxP
	APC-CN2NNA	I/O Connector, 20-pin for PD-xxC
	APC-CN3NNA	Drive Feedback Connector, 14-pin
	APCS-CN6J	STO Jumper, 8-pin
	APC-VSCN1T	I/O Breakout Board, 50-pin for PD-xxP
	APCS-CN5L7U	USB Communication Cable
Brake Resistors	APCS-140R50	Brake Resistor 400W
	APCS-300R30	Brake Resistor 1kW
	APC-600R30	Brake Resistor 3.5kW

### Notes:

Brake Cables are separate from the motor power cables.

Cables exit toward the front of the motor. Rear exit cables are also possible, consult factory for availability.

**Solid Models Available for Download** [http://solutions.parker.com/AUG\\_EM](http://solutions.parker.com/AUG_EM)



# iPM Series

Economic, Flexible,  
Complete Control Solution



## iPM overview

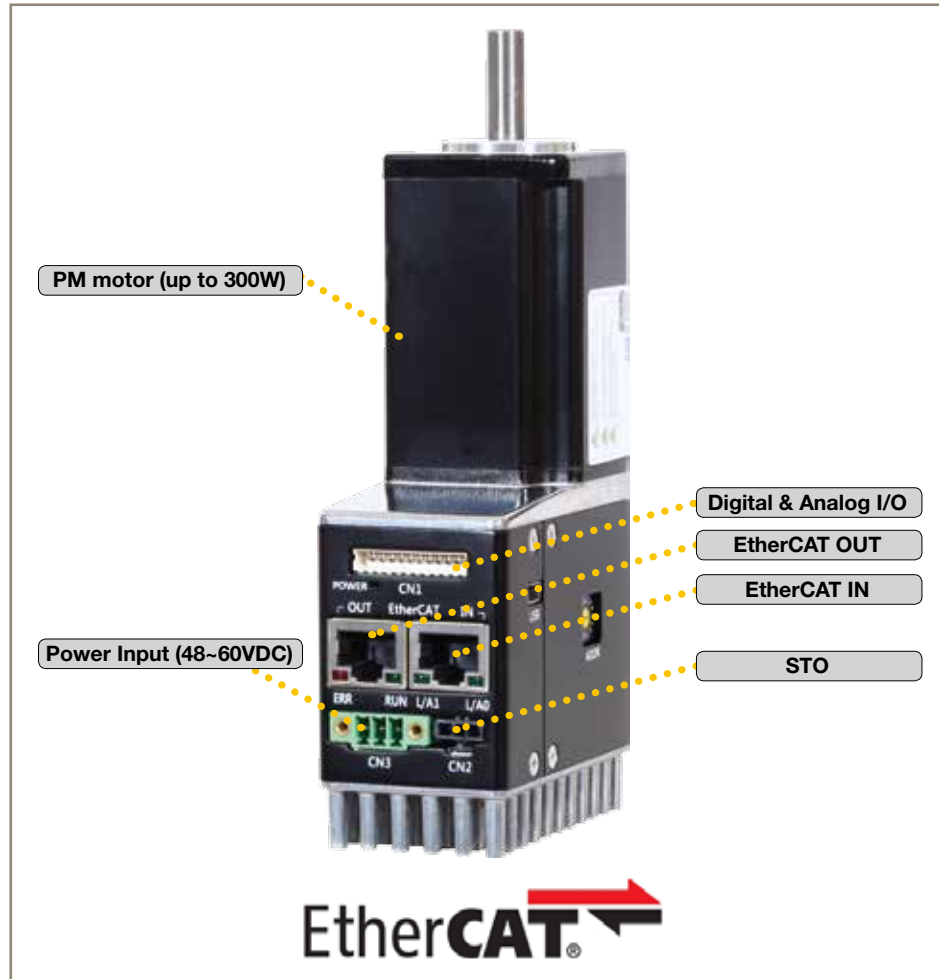
iPM(integrated Parker Motor) series is a compact integrated EtherCAT drive and PM series servo motor(up to 300W, 3000rpm).

### Key features of iPM includes the following:

- Simplified wiring
- simple machine configuration and efficient power control via shared external DC bus voltage for multi-axes systems
- Reduced control panel space
- iPM is based on EtherCAT field bus protocol for complete connectivity to the Global Parker Automation Controller (PAC) or any other 3rd party EtherCAT masters to offer various solutions in synchronous and multi-axes motion control applications

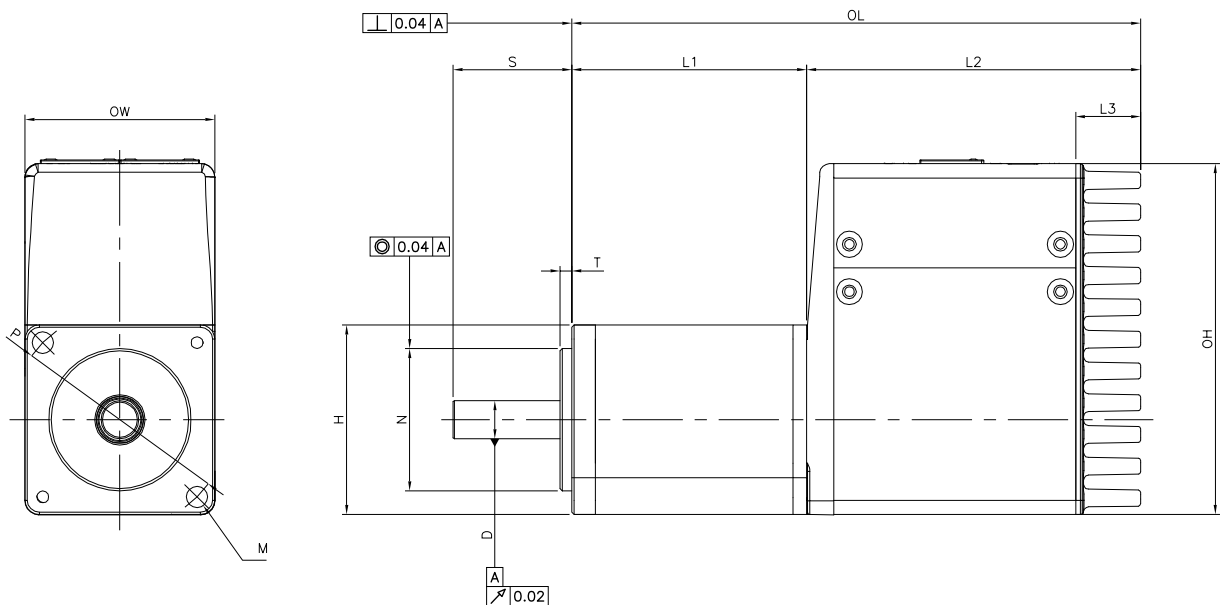
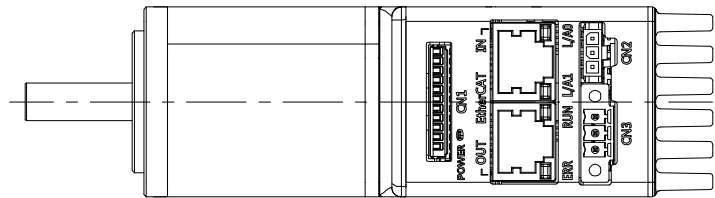
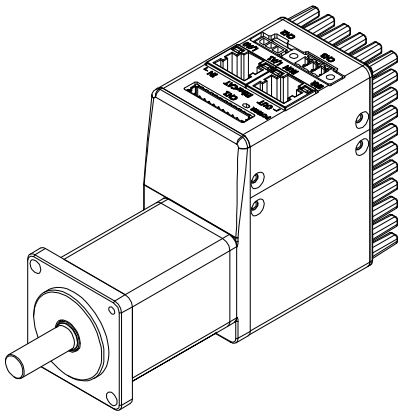
### Markets/Applications:

- Packaging
- Food & Beverage
- General Automation
- Robot Application
- Medical Equipment



- 40/60mm frame (50~300W)
- 4096ppr, rated speed 3000rpm
- Auto-configuration
- Auto-tuning
- Safety function
- 4 Digital Input / 2 Digital Output
- 1 Analog Output
- CAN-open over EtherCAT (CoE)
- Ethernet over EtherCAT (EoE)
- File access over EtherCAT (FoE)

# Dimensions



unit: mm

		iPM-AR5A-MA	iPM-A01A-MA	iPM-B01A-MA	iPM-B02A-MA	iPM-B03A-MA
OH	Overall Height	74				
OW	Overall Width	40		62		
OL	Overall Length	119.9±0.5	136.9±0.5	132.3±0.5	146.3±0.5	174.3±0.5
H	Height	40			62	
D	Shaft Diameter	8 h6			14 h6	
S	Shaft Length	25			30	
L1	Motor Length	49.5	66.5	52.3	66.3	94.3
L2	Drive Length	70.4	70.4	80	80	80
L3	Heat sink	13.7	13.7	23.3	23.3	23.3
N	Pilot Diameter	30 h7			50 h7	
T	Pilot Depth	2.5			3	
M	Mounting Hole	Ø 4.5			Ø 6	
P	PCD	46			70	

Note) Detail drawings are available at [http://solutions.parker.com/AUG\\_EM](http://solutions.parker.com/AUG_EM)

# iPM Series

## Technical Specifications



### Drive

Rated values	iPM-AR5A	iPM-A01A	iPM-B01A	iPM-B02A	iPM-B03A
Continuous output current [Arms]	1.77	2.38	3.62	5	6.8
Maximum output current [Arms]	3.54	3.57	7.24	10	13.6
Input voltage	DC+48 V - DC +60 V				

### Motor

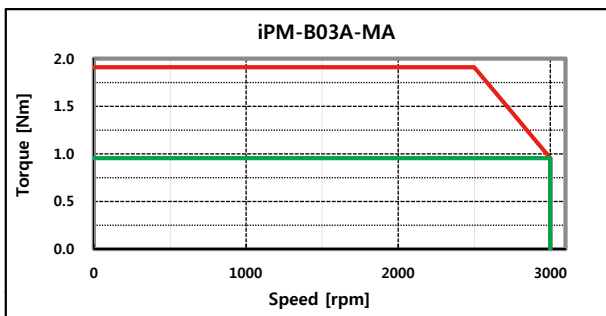
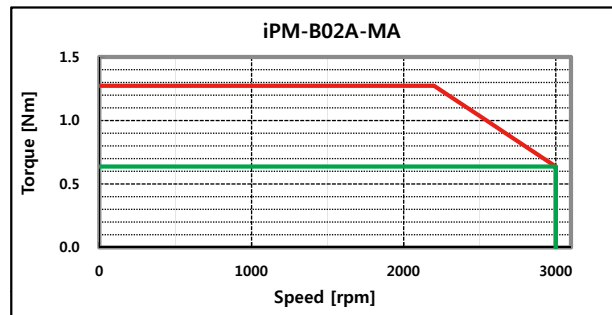
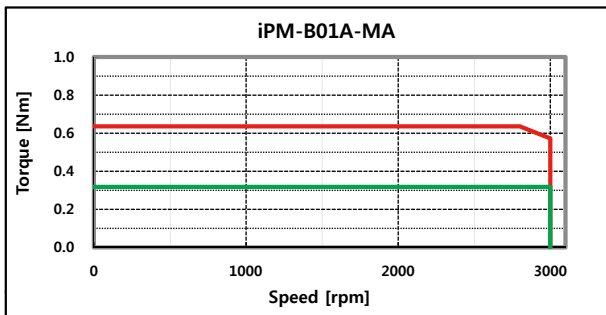
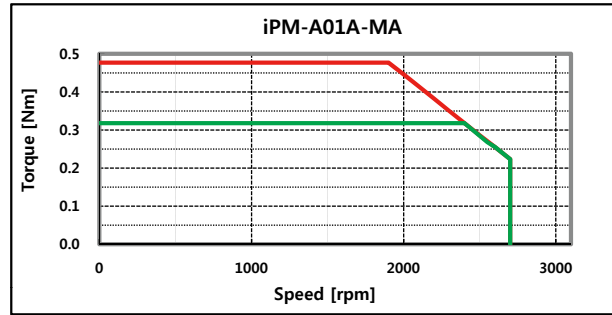
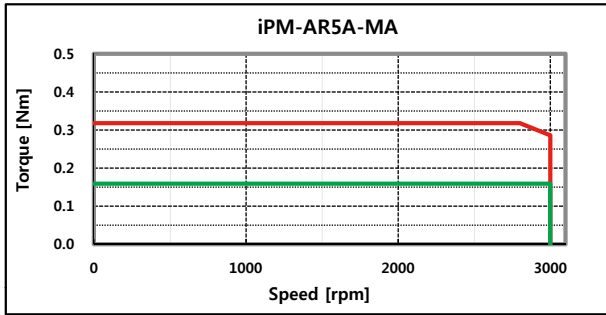
Category	Unit	iPM-AR5A	iPM-A01A	iPM-B01A	iPM-B02A	iPM-B03A
Rated Torque	[Kgf cm]	1.62	3.25	3.25	6.50	9.74
Max. Torque	[Kgf cm]	3.24	4.88	6.50	13.0	19.48
Rated Speed	[rpm]	3000	2400	3000	3000	3000
Max Speed	[rpm]	3000	3000	3000	3000	3000
Inertia	[Kgm <sup>2</sup> x 10 <sup>-4</sup> ]	0.0240	0.0450	0.114	0.182	0.321

### Control

Category		Details
Input/output signal	Input signal	Input voltage range: DC 12 V - DC 30 V The 4-channel input signal can be assigned to 12 functions: POT, NOT, HOME, STOP, PCON, GAIN2, PCL, NCL, PROBE1, PROB2, EMG, and ARST.
	Output signal	Rated voltage and current: DC 24 V ± 10%, 120 [mA] The 2-channel output signal can be assigned to 11 functions: BRAKE, ALARM, RDY, ZSPD, INPOS1, TLMT, VLMT, INSPD, WARN, TGON, and INPOS2.
Analog monitor		Number of channels: 1 Output voltage range: ±4V Angular resolution: 12 bits Stabilization time: 15 us
Protection functions		Overcurrent, overload, current limit, overheat, overvoltage, under voltage, over speed, encoder error, position follow error, etc.
Auxiliary functions		Gain adjustment, alarm history, JOG drive, programmed JOG drive, etc.
Safety functions	Input	STO1 and STO2
	Compatible standard	TBD



# N-T Curve



# Ordering Code

Order Example : ① iPM — ② A ③ R5 ④ A — ⑤ MA

Select an option from each numbered field to create a complete model order code.

① **Series**

iPM Integrated Parker Motor

② **Frame size**

A 40mm  
B 60mm

③ **Interface**

R5 50W  
01 100W  
02 200W  
03 300W

④ **Rated speed**

A 3000rpm<sup>\*1)</sup>

⑤ **Feedback**

MA Magnetic Encoder 12bit  
MB Magnetic Encoder 17bit(optional)

<sup>\*1)</sup> Rated speed of iPM-A01A-MA is 2700rpm.

# Powerful Direct Drive Motors



## Easy configuration

- once the motor is connected to P series drive it will automatically recognize the motor

## Various control option

- Predefined Profile mode provides ideal indexing feature for your machine
- EtherCAT gives high speed communication for multi-axis solutions

### SERVO DRIVE

Ideal direct drive solution for P series drive

- 100~400W : PD-04P & 04C
- 400~1kW : PD-10P & 10C
- 1kW~3.5kW : PD-35P & 35C



#### BEARING

Low vibration and outstanding mechanical accuracy by improved bearing design

#### ENCODER

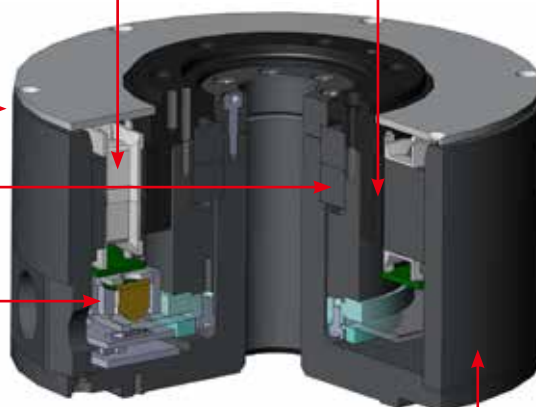
High resolution absolute feedback as standard (20 bit BiSS-C)

#### WINDING

Optimized winging structure

#### MAGNET

High torque density by using highest class rated Neodymium permanent magnet



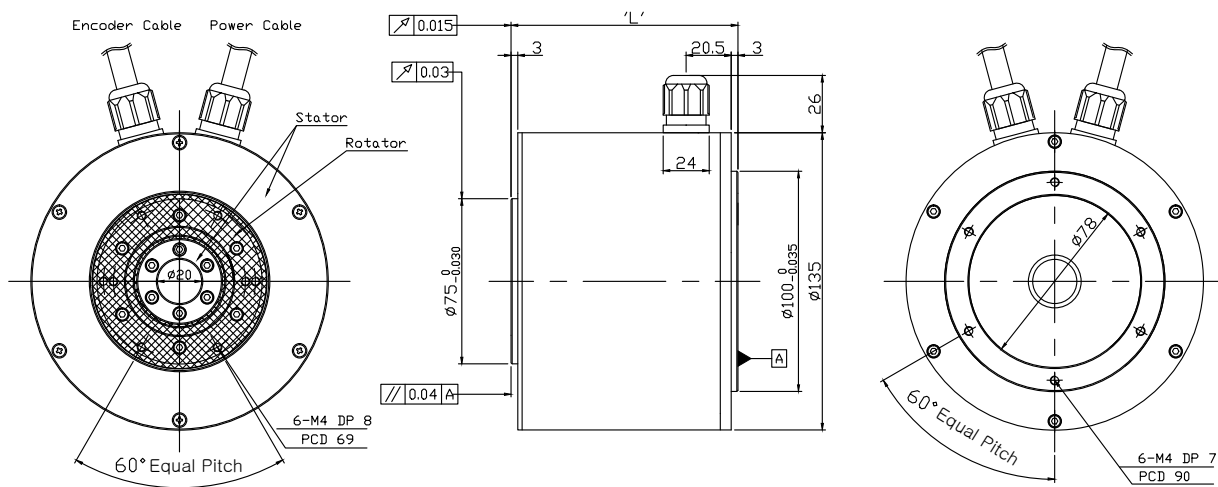
#### FRAME

5 frame size - 135mm/175mm/230mm/290mm/360mm  
various height is available as custom option  
Rated speed : 200RPM / 150RPM

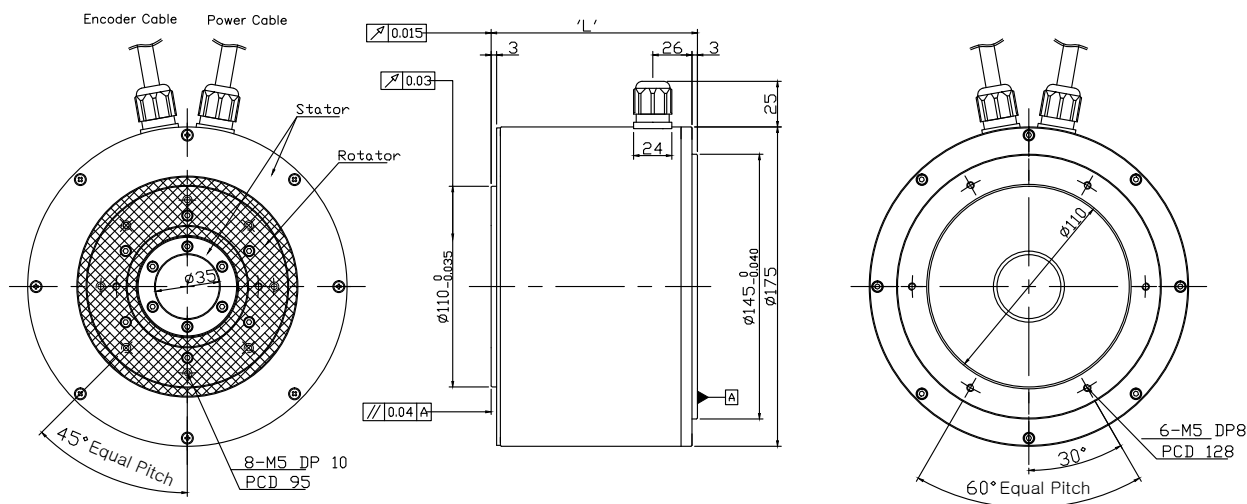
# Basic specification

Motor		PM- <b>DDB</b> □□D□H			PM- <b>DDC</b> □□D□H			PM- <b>DDD</b> □□D□H			PM- <b>DDE</b> □□D□H		PM- <b>DDF</b> □□G□H	
		03	06	09	06	12	18	12	22	34	40	60	A1	A6
P series Drive		PD-04	PD-04	PD-04	PD-04	PD-04	PD-04	PD-04	PD-10	PD-10	PD-10	PD-35	PD-35	PD-35
Diameter	mm	ø135			ø175			ø230			ø290		ø360	
Rated Power	W	63	126	188	126	251	377	251	461	712	838	1,257	1,728	2,513
Rated Torque	N-m	3	6	9	6	12	18	12	22	34	40	60	110	160
Peak Torque	N-m	9	18	27	18	36	54	36	66	102	120	180	330	480
Rated Current	Arms	1.12	1.46	2.63	1.48	2.41	3	2.58	3.33	5.72	5.3	8.33	9.48	14.6
Peak Current	Arms	3.36	4.38	7.89	4.44	7.23	9	7.74	9.99	17.16	15.9	24.99	28.44	43.8
Rated Velocity	rpm	200			200			200			200		150	
Max. Velocity	rpm	500	500	500	500	500	400	500	400	400	300	300	250	250
Torque Constant	N-m/Arms	2.76	4.25	3.57	4.18	5.13	6.12	4.8	6.81	6.13	7.77	7.42	11.95	11.29
Moment of Inertia	kg-m <sup>2</sup> ×10 <sup>-4</sup>	5.74	8.67	11.5	27.32	38.9	50.48	54.14	68.15	82.16	311.55	371.71	1410.2	1763.4
Power Rate	kW/s	15.68	42.35	70.43	13.18	52.71	118.59	26.6	71.02	140.7	51.36	96.68	85.9	145.4
Angular Accel	rad/s <sup>2</sup>	191.2	141.6	127.7	455.03	323.9	280.3	450.9	309.6	241.5	778.35	619.1	1281.13	1101.4
Accuracy for ABS Position	arc-sec	±30												
Accuracy for Repeatability	arc-sec	±1.3												
Axial run-out	mm	0.015												
Radial run-out	mm	0.03												
Allow. thrust load	N	1500			3300			4000			11000		15000	
Allow. moment load	N-m	40			70			93			250		350	
Encoder		20-bit single turn serial encoder ( BiSS-C / Absolute )												
Weight(Approx.)	kg	6.3	7.2	9.2	8.7	10.6	12.6	17.3	19.6	21.9	28.2	35	54	70.3

# Dimensions

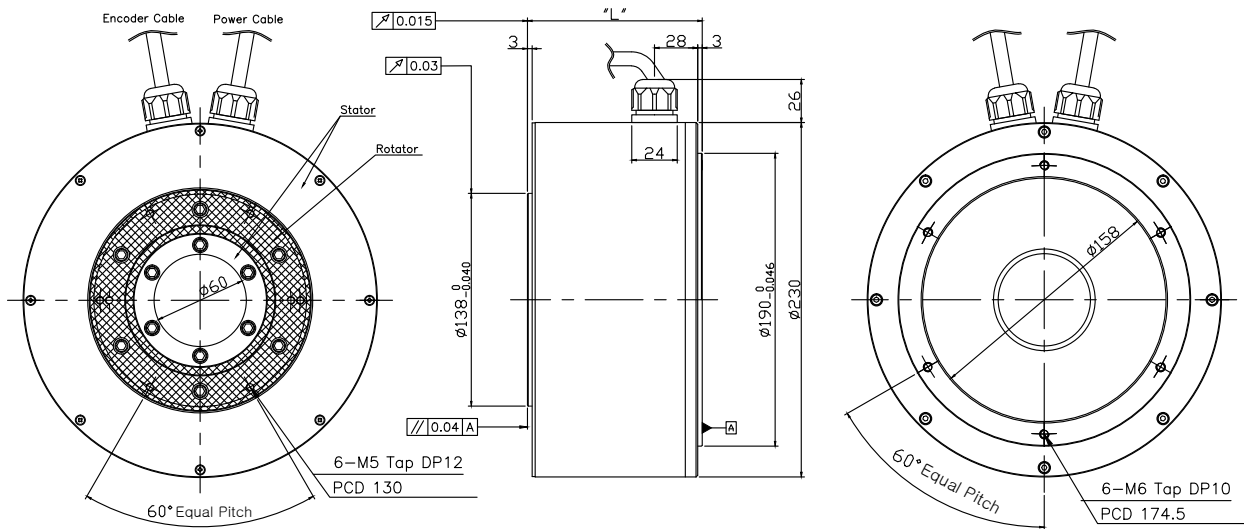


Size B		
Product	Length ( mm ) 'L'	Weight (Kg)
PM-DDB03D	78	6.3
PM-DDB06D	100	7.2
PM-DDB09D	124	9.2

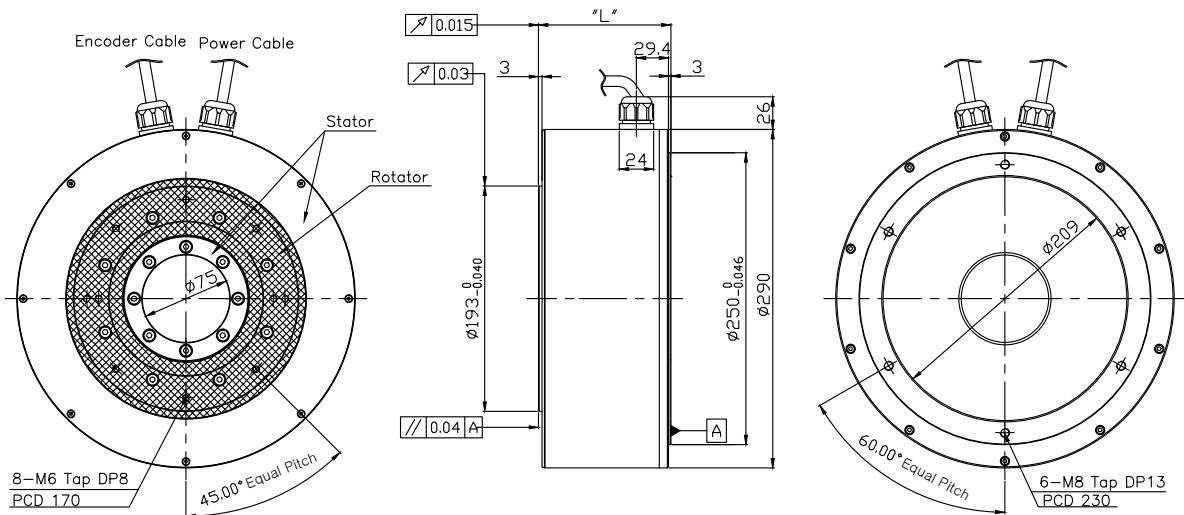


Size C		
Product	Length ( mm ) 'L'	Weight (Kg)
PM-DDC06D	77	8.7
PM-DDC12D	95	10.6
PM-DDC18D	113	12.6

# Dimensions

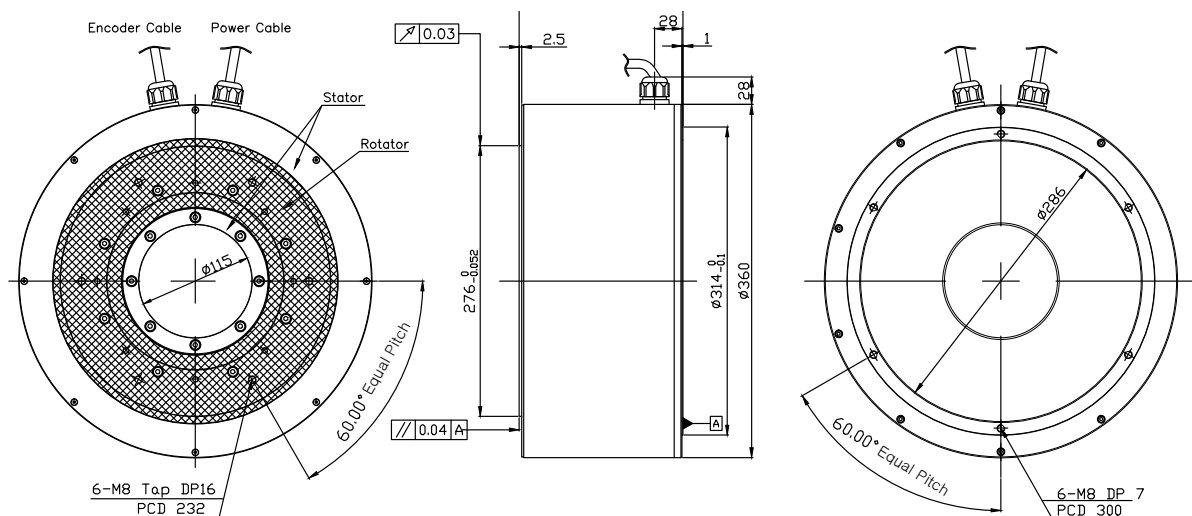


Size D		
Product	Length ( mm ) 'L'	Weight (Kg)
PM-DDD12D	82.5	17.3
PM-DDD22D	100.5	19.6
PM-DDD34D	118.5	21.9



Size E		
Product	Length ( mm ) 'L'	Weight (Kg)
PM-DDE40D	95.4	28.2
PM-DDE60D	113.4	35

# Dimensions

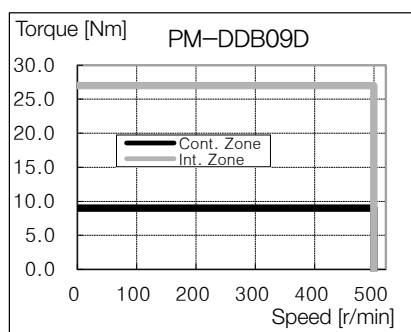
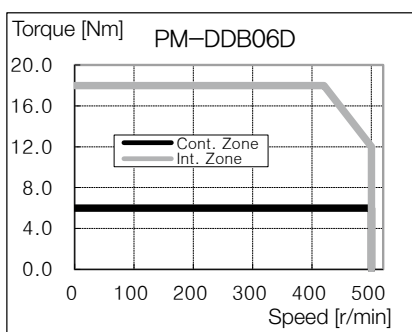
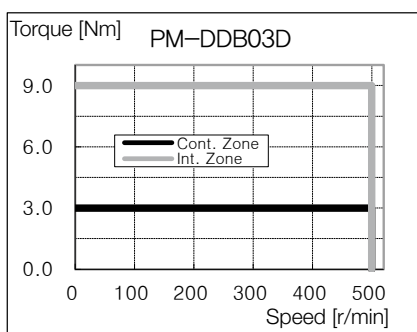


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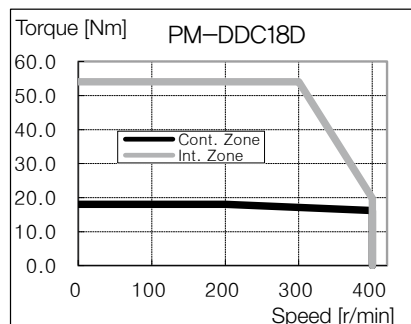
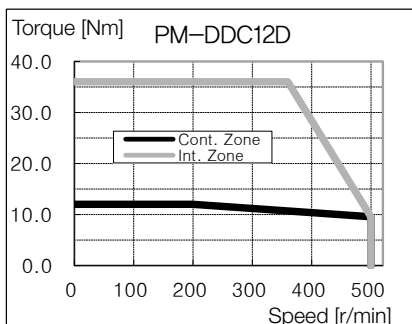
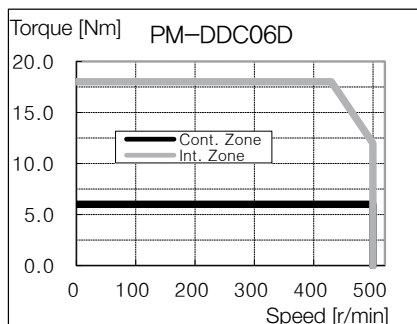
Product	Length ( mm ) 'L'	Weight (Kg)
PM-DDFA1G	131	54
PM-DDFA6G	167	70.3

# N-T curve

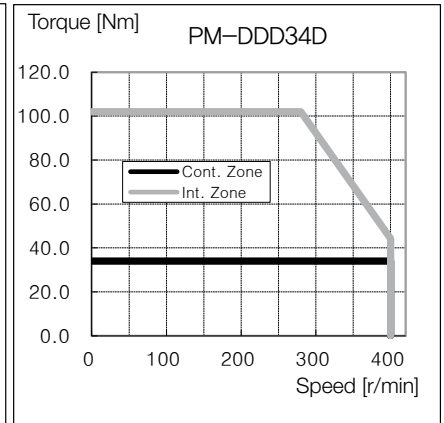
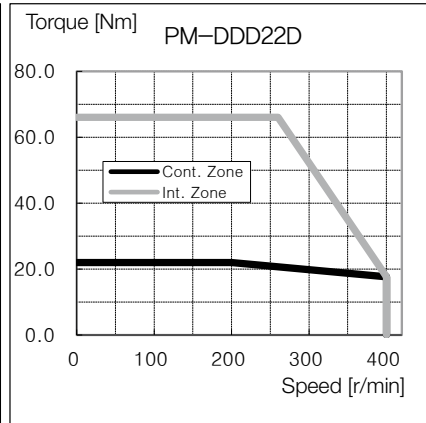
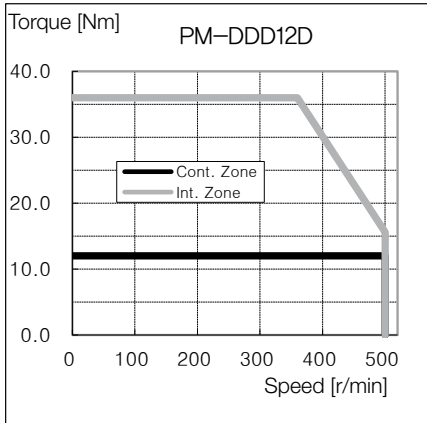
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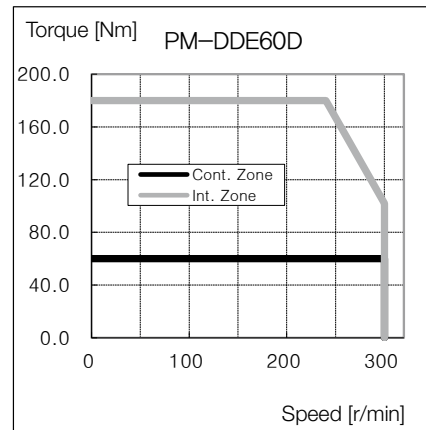
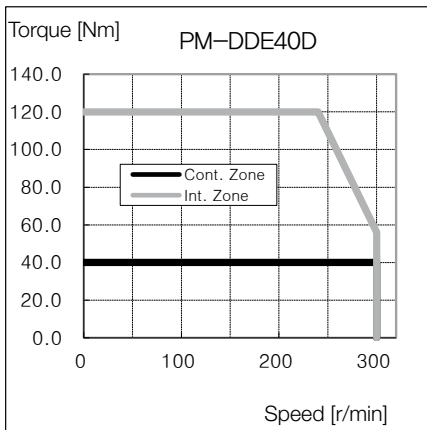
## Size C



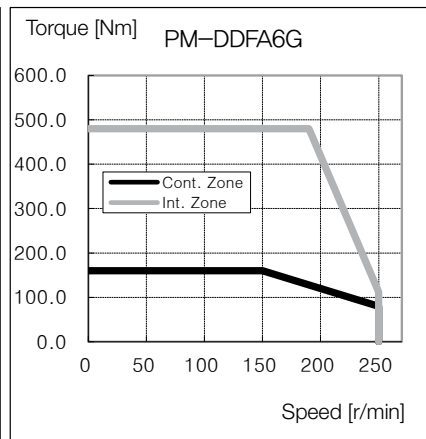
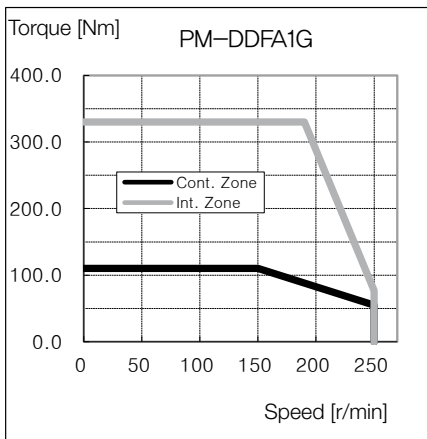
**Size D**



**Size E**



**Size F**



# Ordering Code

## Motor

Diagram illustrating the Motor Ordering Code structure: **P M-DD B 60 A NO H**

Code	Type
DD	DD Motor

Code	Diameter size
B	External Diameter 135mm
C	External Diameter 175mm
D	External Diameter 230mm
E	External Diameter 290mm
F	External Diameter 360mm

Code	Torque
03	3Nm
06	6Nm
09	9Nm
---	---
60	60Nm
---	---
A6	160Nm

Code	Encoder					Note
	135	175	230	290	360	
NO	20Bit		20Bit	20Bit		Single turn ABS, Biss-C Communication

Code	Rated Speed	Note
A	300rpm	
D	200rpm	Standard, ø135-ø290 : 200rpm
G	150rpm	Standard, ø360 : 150rpm
M	100rpm	

Code	Shaft Type	Code	Voltage
H	Standard Hollow shaft	None	200V DD Motor

## Cable

Diagram illustrating the Cable Ordering Code structure: **APCS - EN 03 ZS**

Code
APCS

Code	Cable
EN	Encode Feedback
PN	Motor Power

Code	Length
03	3m
05	5m
10	10m
20	20m

Code	Option
ZS	Standard Feedback Cable Standard Power Cable(PM-DDF series)
YS	Standard Power Cable(PM-DDB~E series)







# Motion & Control Technologies...

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

1 800 C-Parker  
(1 800 272 7537)



## **Aerospace**

### **Key Markets**

Aftermarket services  
Commercial transports  
Engines  
General & business aviation  
Helicopters  
Launch vehicles  
Military aircraft  
Missiles  
Power generation  
Regional transports  
Unmanned aerial vehicles

### **Key Products**

Control systems & actuation products  
Engine systems & components  
Fluid conveyance systems & components  
Fluid metering, delivery & atomization devices  
Fuel systems & components  
Fuel tank inerting systems  
Hydraulic systems & components  
Thermal management  
Wheels & brakes



## **Climate Control**

### **Key Markets**

Agriculture  
Air conditioning  
Construction Machinery  
Food & beverage  
Industrial machinery  
Life sciences  
Oil & gas  
Precision cooling  
Process  
Refrigeration  
Transportation

### **Key Products**

Accumulators  
Advanced actuators  
CO<sub>2</sub> controls  
Electronic controllers  
Filter driers  
Hand shut-off valves  
Heat exchangers  
Hose & fittings  
Pressure regulating valves  
Refrigerant distributors  
Safety relief valves  
Smart pumps  
Solenoid valves  
Thermostatic expansion valves



## **Electromechanical**

### **Key Markets**

Aerospace  
Factory automation  
Life science & medical  
Machine tools  
Packaging machinery  
Paper machinery  
Plastics machinery & converting  
Primary metals  
Semiconductor & electronics  
Textile  
Wire & cable

### **Key Products**

AC/DC drives & systems  
Electric actuators, gantry robots & slides  
Electrohydraulic actuation systems  
Electromechanical actuation systems  
Human machine interface  
Linear motors  
Stepper motors, servo motors, drives & controls  
Structural extrusions



## **Filtration**

### **Key Markets**

Aerospace  
Food & beverage  
Industrial plant & equipment  
Life sciences  
Marine  
Mobile equipment  
Oil & gas  
Power generation & renewable energy  
Process  
Transportation  
Water Purification

### **Key Products**

Analytical gas generators  
Compressed air filters & dryers  
Engine air, coolant, fuel & oil filtration systems  
Fluid condition monitoring systems  
Hydraulic & lubrication filters  
Hydrogen, nitrogen & zero air generators  
Instrumentation filters  
Membrane & fiber filters  
Microfiltration  
Sterile air filtration  
Water desalination & purification filters & systems



## **Fluid & Gas Handling**

### **Key Markets**

Aerial lift  
Agriculture  
Bulk chemical handling  
Construction machinery  
Food & beverage  
Fuel & gas delivery  
Industrial machinery  
Life sciences  
Marine  
Mining  
Mobile  
Oil & gas  
Renewable energy  
Transportation

### **Key Products**

Check valves  
Connectors for low pressure fluid conveyance  
Deep sea umbilicals  
Diagnostic equipment  
Hose couplings  
Industrial hose  
Mooring systems & power cables  
PTFE hose & tubing  
Quick couplings  
Rubber & thermoplastic hose  
Tube fittings & adapters  
Tubing & plastic fittings



## **Hydraulics**

### **Key Markets**

Aerial lift  
Agriculture  
Alternative energy  
Construction machinery  
Forestry  
Industrial machinery  
Machine tools  
Marine  
Material handling  
Mining  
Oil & gas  
Power generation  
Refuse vehicles  
Renewable energy  
Truck hydraulics  
Turf equipment

### **Key Products**

Accumulators  
Cartridge valves  
Electrohydraulic actuators  
Human machine interfaces  
Hybrid drives  
Hydraulic cylinders  
Hydraulic motors & pumps  
Hydraulic systems  
Hydraulic valves & controls  
Hydrostatic steering  
Integrated hydraulic circuits  
Power take-offs  
Power units  
Rotary actuators  
Sensors



## **Pneumatics**

### **Key Markets**

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

### **Key Products**

Air preparation  
Brass fittings & valves  
Manifolds  
Pneumatic accessories  
Pneumatic actuators & grippers  
Pneumatic valves & controls  
Quick disconnects  
Rotary actuators  
Rubber & thermoplastic hose & couplings  
Structural extrusions  
Thermoplastic tubing & fittings  
Vacuum generators, cups & sensors



## **Process Control**

### **Key Markets**

Alternative fuels  
Biopharmaceuticals  
Chemical & refining  
Food & beverage  
Marine & shipbuilding  
Medical & dental  
Microelectronics  
Nuclear Power  
Offshore oil exploration  
Oil & gas  
Pharmaceuticals  
Power generation  
Pulp & paper  
Steel  
Water/wastewater

### **Key Products**

Analytical Instruments  
Analytical sample conditioning products & systems  
Chemical injection fittings & valves  
Fluoropolymer chemical delivery fittings, valves & pumps  
High purity gas delivery fittings, valves, regulators & digital flow controllers  
Industrial mass flow meters/controllers  
Permanent no-weld tube fittings  
Precision industrial regulators & flow controllers  
Process control double block & bleeds  
Process control fittings, valves, regulators & manifold valves



## **Sealing & Shielding**

### **Key Markets**

Aerospace  
Chemical processing  
Consumer  
Fluid power  
General industrial  
Information technology  
Life sciences  
Microelectronics  
Military  
Oil & gas  
Power generation  
Renewable energy  
Telecommunications  
Transportation

### **Key Products**

Dynamic seals  
Elastomeric o-rings  
Electro-medical instrument design & assembly  
EMI shielding  
Extruded & precision-cut, fabricated elastomeric seals  
High temperature metal seals  
Homogeneous & inserted elastomeric shapes  
Medical device fabrication & assembly  
Metal & plastic retained composite seals  
Shielded optical windows  
Silicone tubing & extrusions  
Thermal management  
Vibration dampening

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- 15. Waiver and Severability.** Failure to enforce any provision of this agreement will not waive that provision nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of this agreement by legislation or other rule of law shall not invalidate any other provision herein. The remaining provisions of this agreement will remain in full force and effect.
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