



FAGOR AUTOMATION

# Digital servo drive system



# DDS (Digital Drive System)

The perfect solution for the machine-tool manufacturer who requires smooth, fast and precise machining



## General characteristics

<b>Interface</b>	Sercos or analog
<b>Velocity feedback</b>	High resolution Sincos encoder
<b>Protections</b>	Over-voltage, over-current, over-speed, over-temperature, overload, etc.
<b>Control</b>	High speed spindles and built-in motors
<b>Direct position feedback</b>	Differential TTL, Vpp, distance-coded reference mark, Fagor absolute
<b>Fine interpolation</b>	Position loop (250 microseconds) and velocity loop (62.5 microseconds)

# Solutions tailored to your machine

**The Fagor Automation's digital servo drive system is the perfect solution for the machine manufacturer who requires smooth, fast and precise machining. It offers maximum efficiency using a single power supply for governing the spindle and the axes of the machine .**

- **PS** Non-regenerative power supply.
- **XPS** Regenerative power supply.
- **RPS** Regulated regenerative power supply with a power factor (cosine of  $\varphi$ ) near 1 (boosting power supply).

## Axis control

AXD drives can govern the axes of the machine with FKM motors, covering a range from 1.7 Nm to 115 Nm (1.0 kW to 24.1 kW) with a rated speed from 2000 rpm to 6000 rpm.

FKM	Torque (Nm)	1.7 ... 3.2	6.3 ... 11.6	8.9 ... 23.5	32 ... 100	68 ... 115
	Power (kW)	1 ... 2	2 ... 4.9	2.8 ... 7.4	6.7 ... 25.1	14.2 ... 24.1
	Flange (mm)	80	110	130	180	230

## Spindle control

SPD drives are used to govern the spindle with FM7 and FM9 motors.

- **E01 series** Spindle motors with Delta (triangle) winding.
- **E03 series** Spindle motors with Y-D (star-triangle) winding.
- **HS3 series** Direct drive motors (without pulleys), with hollow shaft for cooling the tool from the spindle and Y/Delta (star / triangle) winding.

FM7 E01	Power (kW)	3.7	5.5 ... 9	11 ... 22	22 ... 37	21.5 ... 60
	Flange (mm)	150	180	230	300	350
	Shaft height (mm)	100	112	160	180	225

FM9 E01	Power (kW)	37 ... 55	71 ... 130
	Flange (mm)	300	450
	Shaft height (mm)	180	225

FM7 E03	Power (kW)	5.5 ... 7.5	11 ... 22
	Flange (mm)	180	230

FM7 HS3	Power (kW)	7.5	11 ... 22
	Flange (mm)	180	230

## Safety function



Fagor AXD and SPD drives offer the STO (Safe Torque Off) safety function defined in compliance with the standard IEC 61800-5-2. This safety function may be used to safely disconnect the motor torque and it is always active.

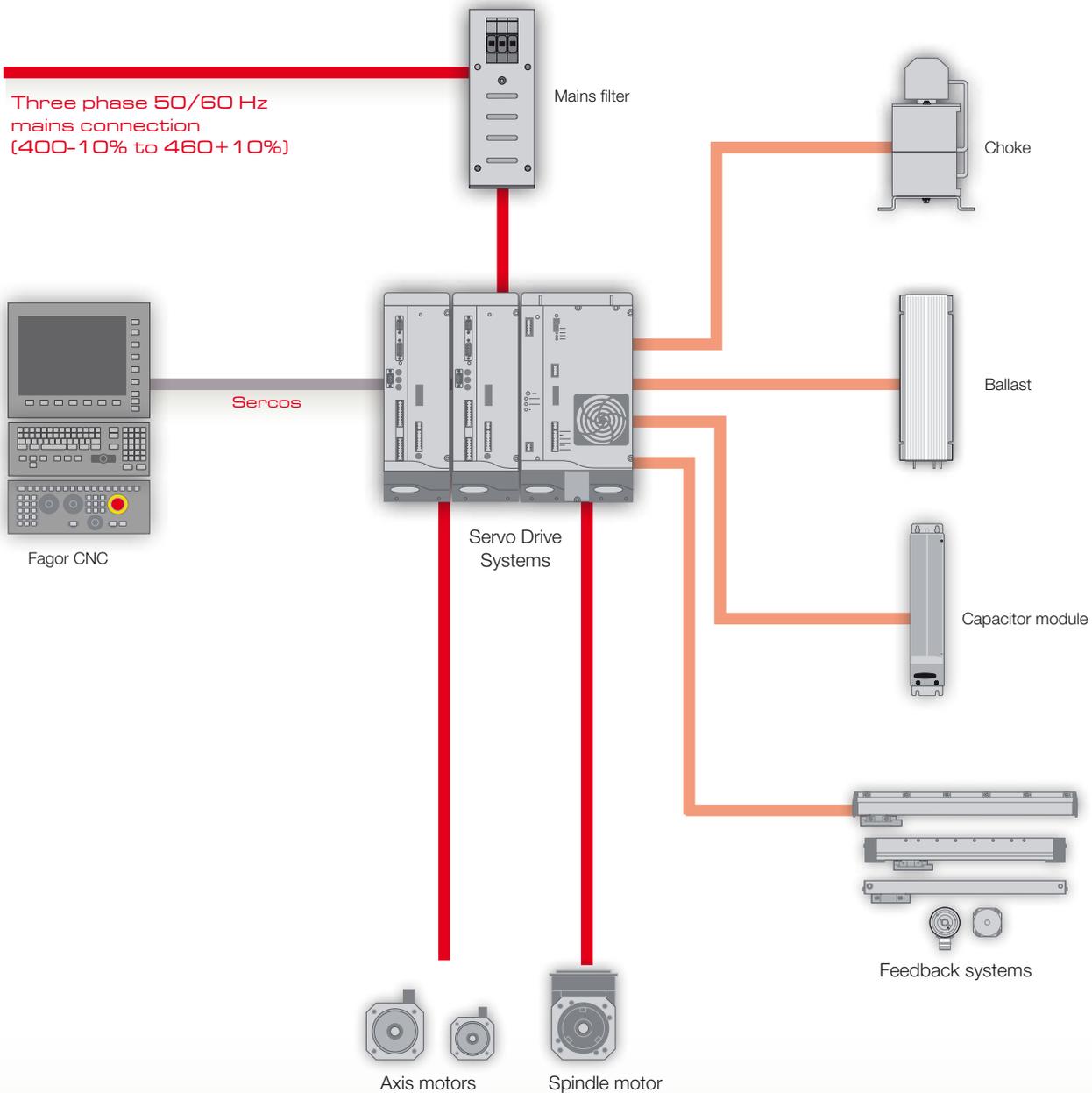
When a machine requires a certain Performance Level «PL d» or a certain safety integrity level «SIL 2», it requires an external safety controller «PL d» or «SIL 2» that disconnects the motor torque in two different channels. The safety controller will watch the status of each channel (only when demanding the STO) keeping the motor torque off in case of failure.

# Completely integrated solu

A unique integrated platform for all your needs

**Fagor Automation's unique integrated platform brings together every electronic element of your machine: the CNC, digital servo motors and drives, linear and angular feedback and ensures seamless integration, guaranteeing robust machine design and extreme performance to obtain maximum efficiency.**

These elements work in perfect harmony and intelligently selecting and executing the machining algorithms to exceed user's expectations – EVERYTIME.





### Reliable, robust and durable: Total quality

In order to ensure superior system performance under tough ambient conditions (temperature, vibrations etc.), various product testing methods like HALT-HASS process (unique, accelerated product reliability test methods) for detecting and resolving any product weakness are used ensuring very high product reliability at launch.

The quality, robustness and reliability of Fagor Automation systems have been accredited and certified by many renowned agencies (TÜV, CE, etc.).

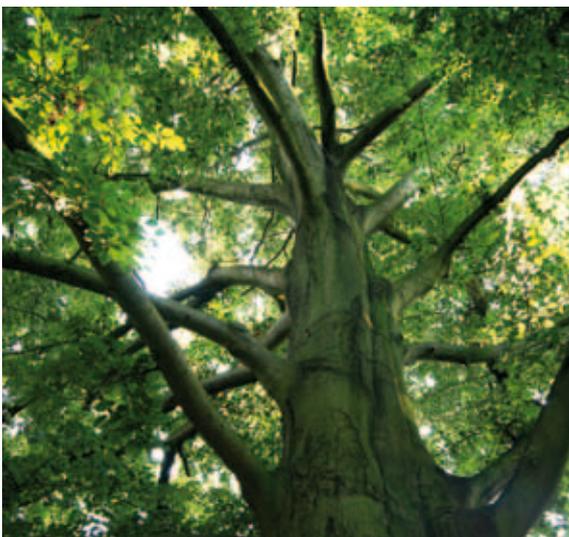


### Continuous innovation to meet our customer's needs

A major part of Fagor Automation's successful history is due to our constant investment commitment in company's infrastructure and R&D+i (Research, Development and innovation). This allows us to continuously develop leading products for the marketplace.

Fagor's technical center in Spain, called AOTEK, has also jointly participated with other domestic and international research centers and universities on many prestigious technical projects like POWER-OM, ReBORN, CHAMELEON and IMPELER etc.

Fagor Automation recently increased its R&D+i capabilities by adding 2 new technical centers in Ivrea (Italy) and Beijing (China).



### Commitment to environment

Development and implementation of advanced technologies has helped us create more "GREEN" designs without needing any batteries or fans hence removing such environmentally unfriendly components demonstrating our commitment to preserving and protecting the environment.

Using regenerative power supplies with our digital servo drive systems eliminates the heat loss generated by resistors during motor braking while returning that energy to the power source- hence providing economical savings while helping the environment.

# POWER SUPPLIES

## PS - XPS - RPS series

**FAGOR power supplies are connected to three-phase mains from 360 to 506 VAC, 50/60 Hz and they provide power through the power bus of the drive modules. They also manage the energy excess generated when braking the motors.**



### PS series

Non-regenerative power supplies. The excess of energy generated while braking is dissipated as heat on certain electrical resistors.

	PS-25B4	PS-65A
<b>Input voltage</b>	Three-phase 50/60 Hz, with a voltage range between 400 V AC -10% and 460 V AC +10%	
<b>Output voltage (Power bus)</b>	565 - 650 V DC	565 - 650 V DC
<b>Rated (peak) output power</b>	25 kW (75 kW, 1s)	65 kW (195 kW, 1s)
<b>Rated (peak) output current</b>	45 A (135 A, 1s)	120 A (360 A, 1s)
<b>Auxiliary power supply for drive control signals</b>	24 V DC (240 W)	—
<b>Internal Ballast resistance (power)</b>	16.5 Ω (500 W)	9 Ω (600 W)
<b>Width</b>	77 mm	117 mm

### XPS series

Regenerative power supplies. The energy excess is returned to mains, reducing the electrical consumption of the system without generating extra heat.

	XPS-25	XPS-65
<b>Input voltage</b>	Three-phase 50/60 Hz, with a voltage range between 400 V AC -10% and 460 V AC +10%	
<b>Output voltage (Power bus)</b>	565 - 650 V DC	565 - 650 V DC
<b>Rated (peak) output power</b>	25 kW (55 kW, 1s)	65 kW (108 kW, 1s)
<b>Rated (peak) output current</b>	45 A (135 A, 1s)	120 A (120 A, 1s)
<b>Auxiliary power supply for drive control signals</b>	24 V DC (192 W)	24 V DC (192 W)
<b>Internal Ballast resistance (power)</b>	18 Ω (520 W)	9 Ω (1800 W)
<b>Rated regenerated power (returned to mains)</b>	20 kW	54 kW
<b>Isolated choke</b>	Choke XPS-25	Choke XPS-65-A
<b>Width</b>	194 mm	234 mm

### RPS series

Regenerative regulated power supplies (boost power supplies). They provide a programmable DC output voltage (regardless of mains voltage) and its exceeding energy is returned to mains with a near-one power factor (cosine of  $\varphi$ ) reducing the consumption of the system without generating additional heat.

	RPS-20	RPS-45	RPS-75	RPS-80
<b>Input voltage</b>	Three-phase 50/60 Hz, with a voltage range between 400 V AC -10% and 460 V AC +10%			
<b>Output voltage (Power bus)</b>	600, 625 or 725 V DC. It is programmable			
<b>Rated (peak) output power</b>	20 kW (26 kW in S6)	45 kW (59 kW in S6)	75 kW (97 kW in S6)	80 kW (104 kW in S6)
<b>Rated (peak) output current</b>	32 A (41.6 A in S6)	72 A (95 A in S6)	120 A (156 A in S6)	128 A (166.5 A in S6)
<b>Auxiliary power supply for drive control signals</b>	24 V DC (192 W)	24 V DC (192 W)	24 V DC (192 W)	24 V DC (192 W)
<b>Isolated choke</b>	Choke RPS-20	Choke RPS-45	Choke RPS-75-3	Choke RPS-75-3
<b>Width</b>	194 mm	311 mm	350 mm	350 mm

# AXIS AND SPINDLE DRIVES



## AXD - SPD series

**The drives have a modular and stackable design. They are connected directly to the power bus provided by the power supply and provide the motor with three-phase voltage with a variable frequency to control the speed and the position.**

### Input of the direct feedback for the position loop (Optional)

Feedback of the actual (real) position of an axis, usually by connecting a linear or rotary encoder.

### Encoder simulator output (Optional)

It provides a number of pulses per motor revolution that may be set by parameter (any value between 1 and 16,384 pulses/turn, programmable I/O, differential TTL).

### Connector for RS-232 serial line connection

To connect with a PC for system parameter setting and monitoring.

### SERCOS interface connector

To transmit position, velocity and torque commands. The use of optical fiber ensures full immunity against noise and very simple wiring between modules.

### Motor feedback input

It reads the signals coming from an encoder mounted on the motor to know its exact position and speed.

## AXD series

Digital drive that can govern a synchronous motor in speed and position working as an axis.

	AXD 1.08	AXD 1.15	AXD 1.25	AXD 1.35	AXD 2.50	AXD 2.75	AXD 3.100	AXD 3.150
I rated (A)	4	7.5	12.5	17.5	25	37.5	50	75
I peak (0.5s) (A)	8	15	25	35	50	75	100	150
Voltage supply for control circuits	24 V DC (between 21 V DC and 28 V DC)							
Consumption of control circuits	0.90 A	0.90 A	0.90 A	0.90 A	1.25 A	1.25 A	2.00 A	2.00 A
Width	77 mm	77 mm	77 mm	77 mm	117 mm	117 mm	234 mm	234 mm

## SPD series

Digital drive that can govern a synchronous or an asynchronous motor in speed and position working as a spindle.

	SPD 1.25	SPD 1.35	SPD 2.50	SPD 2.75	SPD 2.85	SPD 3.100	SPD 3.150	SPD 3.200	SPD 3.250
I rated (S1) at 4 kHz	16	23.1	31	42	50	70	90	121	135
I rated (S1) at 8 kHz	13	18	27	32	37	56	70	97	108
I S6 - 40% 4 kHz	20.8	30	40.3	54.6	65	91	117	157.3	175.5
I S6 - 40% 8 kHz	16.9	23.4	35.1	41.6	48.1	72.8	91	126.1	140.4
Voltage supply for control circuits	24 V DC (between 21 V DC and 28 V DC)								
Consumption of control circuits	0.90 A	0.90 A	0.90 A	0.90 A	0.90 A	2.00 A	2.00 A	2.00 A	2.00 A
Width	77 mm	77 mm	117 mm	117 mm	117 mm	234 mm	234 mm	234 mm	234 mm

# SPINDLE MOTORS

## FM7 - FM9 series

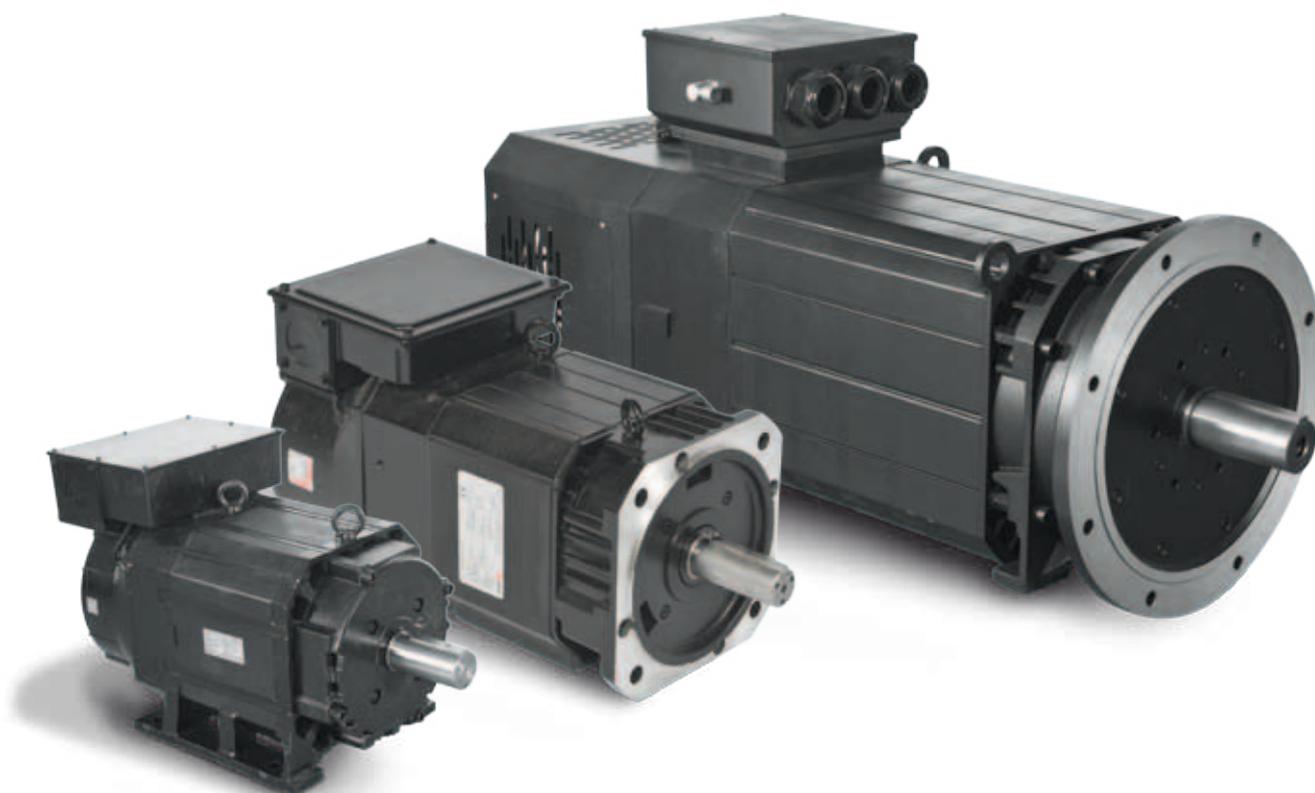
**FM7 - FM9 asynchronous motors may be used on all kinds of machine-tool spindles, providing the high reliability and best efficiency that the application may demand.**

Its highly robust design, the use of high precision bearings (special bearings) and other elements used in their design make it possible to use this motor in a wide range of rated power.

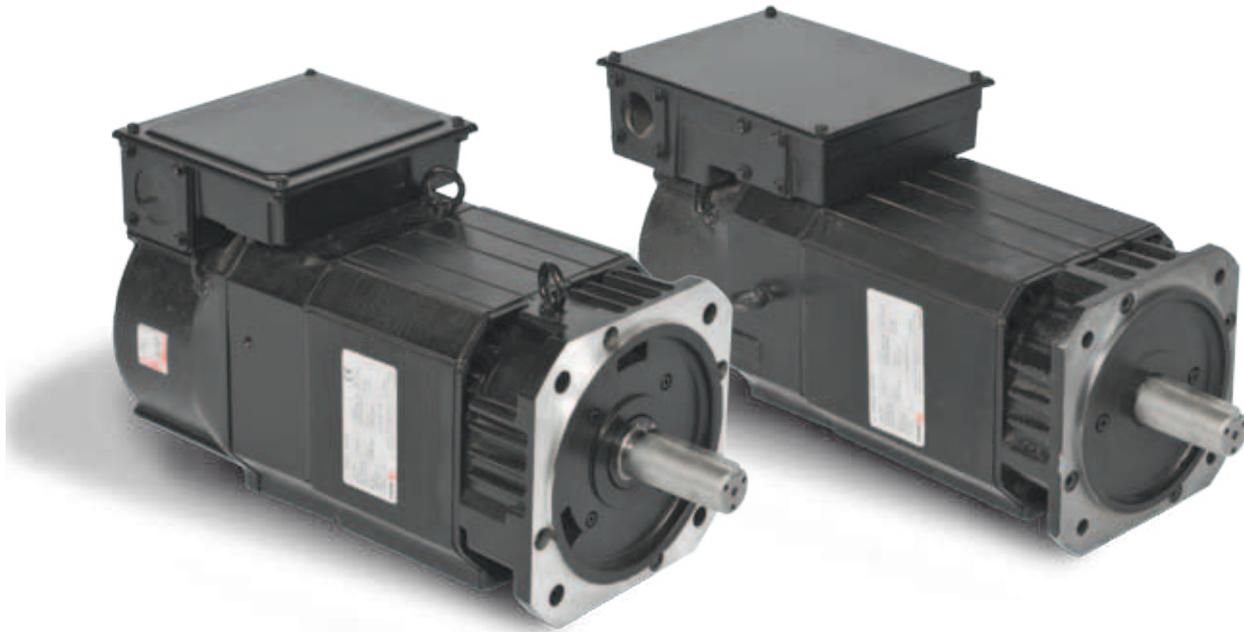
- E01 series Spindle motors with Delta (triangle) winding.
- E03 series Spindle motors with Y-Delta (star-triangle) winding.
- HS3 series Direct drive motors (without pulleys), with hollow shaft for cooling the tool from the spindle and Y/Delta (star /triangle) winding.

### General characteristics

	FM7 E03 / FM7 HS3	FM7 E01	FM9 E01
Thermal protection (meets IEC 60034-6 standard)	NTC thermistor	NTC thermistor	Thermistor KTY84-130
Level of vibration (meets IEC 60034-14 standard)	V3	V5 - V10 (standard) V3 - V5 (optional)	V5
Type of construction (meets IEC 60034-7 standard)	Horizontal: IM B5 Vertical: IM V1	Horizontal: IM B3, IM B5, IM B35 Vertical: IM V1, IM V5, IM V15	Horizontal: IM B3, IM B5, IM B35 Vertical: IM V1, IM V5, IM V15, IM V3, IM V6, IM V36
Electrical insulation of the winding (meets IEC 60034 standard)	Class F ( 155 °C / 311 °F )	Class F (155 °C / 311 °F)	Class F (155 °C / 311 °F)
Degree of protection (meets IEC 60034-5 standard)	IP44	IP44	IP54
Feedback	Incremental TTL encoder of 1024 ppt	1024 ppt incremental TTL encoder (standard) 1024 ppt sinusoidal 1Vpp encoder (optional)	1024 ppt sinusoidal 1Vpp encoder



# FM7 E03 - FM7 HS3 series



**FM7 E03 and FM7 HS3 motors have forced fan cooling and Y/Delta (star / triangle) winding. They can reach speeds of up to 15,000 rpm.**

FM7 HS3 motors are especially designed to be mounted on the column for direct transmission without pulleys. The tool is secured with a coupling and they have a hole on the shaft for tool cooling.

## FM7 E03 - FM7 HS3 series

	Rated power S1 (kW)	Rated power S6, 40% (kW)		Rated torque S1 (Mn)		Rated current (Arms)		Base speed (rpm)		Maximum speed (rpm)	Inertia [kg cm <sup>2</sup> ]
		λ	Δ	λ	Δ	λ	Δ	λ	Δ		
FM7-D055-S1D0-E03	5.5	7.7	10	35	13.1	20.3	20.7	1,500	4,000	15,000	210
FM7-D075-S1D0-E03	7.5	11	13	47.7	17.9	26.5	25.8	1,500	4,000	15,000	260
FM7-D110-S1D0-E03	11	15.5	20	70	26.3	38	40	1,500	4,000	12,000	690
FM7-D150-S1D0-E03	15	22	26	95.5	35.8	46.4	45.7	1,500	4,000	12,000	690
FM7-D185-S1D0-E03	18.5	26	32	117.8	44.2	49.2	49.2	1,500	4,000	12,000	890
FM7-D220-S1D0-E03	22	33	40	140.1	52.2	62.3	61.7	1,500	4,000	12,000	1,080
FM7-D075-S1D0-HS3	7.5	11	13	47.7	17.9	26.5	25.8	1,500	4,000	15,000	260
FM7-D110-S1D0-HS3	11	15.5	20	70	26.3	38	40	1,500	4,000	12,000	690
FM7-D185-S1D0-HS3	18.5	26	32	117.8	44.2	49.2	49.2	1,500	4,000	12,000	890
FM7-D220-S1D0-HS3	22	33	40	140.1	52.2	62.3	61.7	1,500	4,000	12,000	1,080

# FM7 E01 - FM9 E01 series



**FM7 E01 - FM9 E01 motors have forced fan cooling and Delta (triangle) winding, with a rated power between 55 kW and 130 kW. They can reach speeds of up to 9,000 rpm.**

FM7 E01 motors provide a rated power between 55 kW and 130 kW and can reach speeds of up to 9,000 rpm.

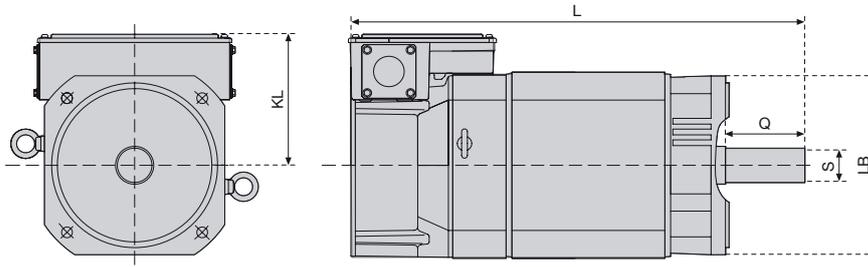
FM9 E01 motors provide a rated power between 55 kW and 130 kW and can reach speeds of up to 4,500 rpm.

## FM7 E01 - FM9 E0 series

	Rated power S1 (kW)	Rated power S6, 40% (kW)	Rated torque S1 (Mn)	Rated current (Arms)	Base speed (rpm)	Maximum speed (rpm)	Inertia [kg cm <sup>2</sup> ]
FM7 A037-xx-E01	3.7	5.5	23.5	12.4	1,500	9,000	140
FM7 A055-xx-E01	5.5	7.7	35	14.6	1,500	9,000	210
FM7 A075-xx-E01	7.5	11	47.7	19.8	1,500	9,000	260
FM7 A090-xx-E01	9	13	57.4	25.1	1,500	9,000	330
FM7 A110-xx-E01	11	15.5	70	27.9	1,500	9,000	690
FM7 A150-xx-E01	15	22	95.5	39.3	1,500	8,000	690
FM7 A185-xx-E01	18.5	26	117.8	47.4	1,500	8,000	890
FM7 A220-xx-E01	22	33	140	61.4	1,500	8,000	1,080
FM7 A300-xx-E01	30	45	191	82.1	1,500	6,500	2,310
FM7 A370-xx-E01	37	56	235	89.9	1,500	6,500	2,660
FM7 A510-xx-E01	51	71	325	115.1	1,500	5,000	4,730
FM7 B120-xx-E01	12	18.5	114.6	35	1,000	8,000	890
FM7 B170-xx-E01	17	25	162.3	47.2	1,000	8,000	1,080
FM7 B220-xx-E01	22	33	210	64.9	1,000	6,500	2,310
FM7 B280-xx-E01	28	42	267.4	78.2	1,000	6,500	2,660
FM7 C215-xx-E01	21.5	29	410.6	87.8	500	5,000	4,730
FM7 C270-xx-E01	27	37	515.7	116.9	500	5,000	5,840
FM7 E600-xx-E01	60	80	458.4	117.4	1,250	5,000	8,720
FM9 B037-xx-E01	37	45	350	74.7	1,000	5,000	3,000
FM9 B055-xx-E01	55	72	525.2	104.4	1,000	5,000	6,900
FM9 B071-xx-E01	71	105	678	134.8	1,000	4,500	14,790
FM9 A100-xx-E01	100	136	636.6	190	1,500	4,500	14,790
FM9 B113-xx-E01	113	153	1,079	215	1,000	4,500	23,260
FM9 A130-xx-E01	130	178	827.6	246.9	1,500	4,500	19,300

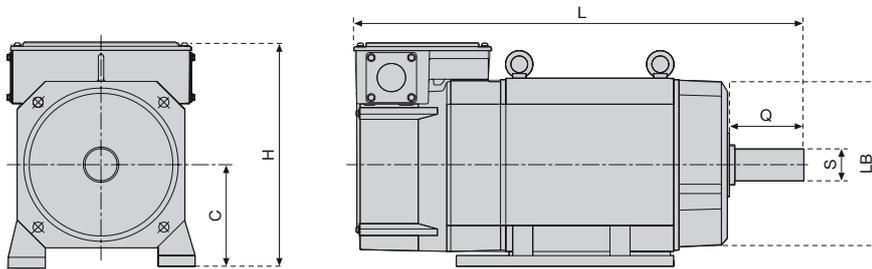
## Dimensions in mm

### FM7 E03 - FM7 HS3 series



	L	LB	KL	Q	S
<b>FM7-D055-S1D0-E03</b>	475	180h7	158	60	28h6
<b>FM7-D075-S1D0-E03</b>	506	180h7	164	60	28h6
<b>FM7-D110-S1D0-E03</b>	556	230h7	183	80	38h6
<b>FM7-D150-S1D0-E03</b>	556	230h7	183	80	38h6
<b>FM7-D185-S1D0-E03</b>	618	230h7	183	80	38h6
<b>FM7-D220-S1D0-E03</b>	665	230h7	183	80	38h6
<b>FM7-D075-S1D0-HS3</b>	715	180h7	158	60	28h6
<b>FM7-D110-S1D0-HS3</b>	751	230h7	183	70	38h6
<b>FM7-D185-S1D0-HS3</b>	813	230h7	183	70	38h6
<b>FM7-D220-S1D0-HS3</b>	851	230h7	183	70	38h6

### FM7 E01 - FM9 E01 series



	L	LB	C	H	Q	S
<b>FM7 A037-xx-E01</b>	499	150h7	100	250	60	28h6
<b>FM7 A055-xx-E01</b>	486	180h7	112	269	80	32h6
<b>FM7 A075-xx-E01</b>	546	180h7	112	269	110	48h6
<b>FM7 A090-xx-E01</b>	586	180h7	112	269	110	48h6
<b>FM7 A110-xx-E01</b>	571	230h7	160	343	110	48h6
<b>FM7 A150-xx-E01</b>	571	230h7	160	343	110	48h6
<b>FM7 A185-xx-E01</b>	633	230h7	160	343	110	48h6
<b>FM7 A220-xx-E01</b>	671	230h7	160	343	110	48h6
<b>FM7 A300-xx-E01</b>	769	300h7	180	407	140	60m6
<b>FM7 A370-xx-E01</b>	809	300h7	180	407	140	60m6
<b>FM7 A510-xx-E01</b>	842.5	350h7	225	540	140	70m6
<b>FM7 B120-xx-E01</b>	633	230h7	160	343	110	48h6
<b>FM7 B170-xx-E01</b>	671	230h7	160	343	110	48h6
<b>FM7 B220-xx-E01</b>	769	300h7	180	407	140	60m6
<b>FM7 B280-xx-E01</b>	809	300h7	180	407	140	60m6
<b>FM7 C215-xx-E01</b>	842.5	350h7	225	540	140	70m6
<b>FM7 C270-xx-E01</b>	892.5	350h7	225	540	140	70m6
<b>FM7 E600-xx-E01</b>	1,065.5	350h7	225	540	140	65m6
<b>FM9 B037-xx-E01</b>	944	300	160	420,3	100	55
<b>FM9 B055-xx-E01</b>	1,218.5	300	180	476	140	65
<b>FM9 B071-xx-E01</b>	1,259	450	225	660	140	75
<b>FM9 A100-xx-E01</b>	1,259	450	225	660	140	75
<b>FM9 B113-xx-E01</b>	1,444	450	225	660	140	75
<b>FM9 A130-xx-E01</b>	1,354	450	225	660	140	75

# AXIS MOTORS

## FKM series

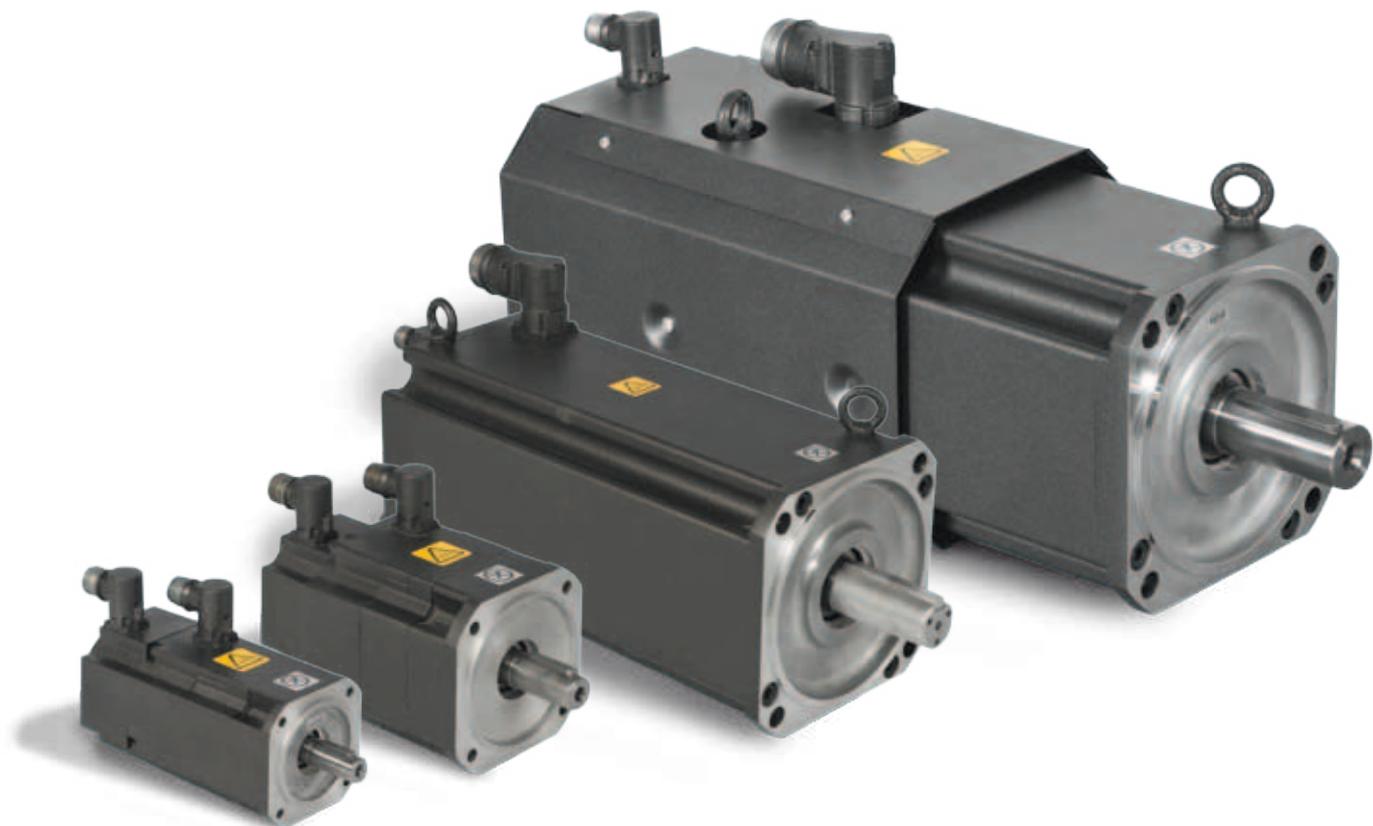
**FKM motors are permanent-magnet synchronous motors that may be adapted to any application and meet the ever growing demands of new-generation state-of-the-art machines.**

These motors are combined with AXD axis drives to make up a solid and high featured system. The type of encoder integrated for speed and position control depends on the application.

They are designed to run without external cooling because heat is dissipated off the surface of the motor. Optionally, they may carry an electromechanical brake.

### General characteristics

Temperature sensor	Thermistor PTC KTY84-130
Shaft end	Keyless shaft (option: with key)
Mounting methods	IM B5, IM V1, IM V3 meets CEI 34-3-72
Balancing (meets DIN 45665)	Half-key balancing, Class N (standard), Class R (optional)
Stator winding insulation class	Class F. Limit temperature 150 °C / 302 °F according to EN 60034-01 (IEC 60034-1)
Degree of protection (meets EN 60034-5)	Models FKM 94, 95 and 96: IP 65 Rest of models: IP 64 (standard) and IP 65 (optional)
Ventilation	Optional on models FKM 82, 83, 84, 85
Holding brake	Optional on all models except FKM96
Feedback	Multi-turn absolute sinusoidal 1024 ppt 1Vpp encoder 1024 ppt sinusoidal 1Vpp encoder

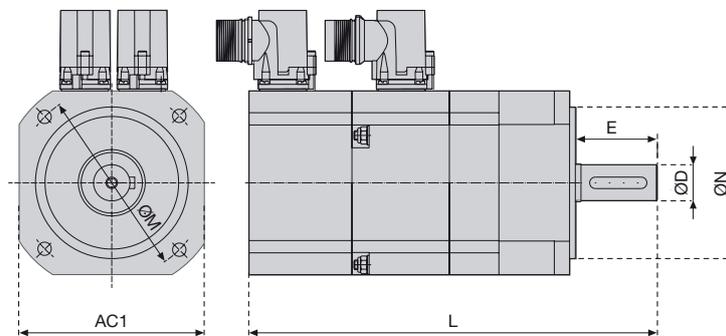


## FKM series

MODEL	Stall torque [Nm]	Peak torque [Nm]	Stall current [Arms] / Peak current [Arms]						Inertia / with brake [kg cm <sup>2</sup> ]
			2000 rpm	3000 rpm	4000 rpm	4500 rpm	5000 rpm	6000 rpm	
FKM 21	1.7	7						2.8 / 11	1.6 / 1.72
FKM 22	3.2	13		2.4 / 10			4.0 / 16	4.5 / 18	2.9 / 3.02
FKM 42	6.3	25		4.6 / 19		6.9 / 28		8.5 / 34	8.5 / 9.04
FKM 44	11.6	47	4.6 / 19	8.2 / 33	10.7 / 43				16.7 / 17.24
FKM 62	8.9	35		7.1 / 28	9.3 / 37			13.1 / 52	16 / 17.5
FKM 64	16.5	66	6.5 / 26	12.1 / 48	16.2 / 64				29.5 / 30.65
FKM 66	23.5	94	10.5 / 42	16.4 / 66					43 / 44.15
FKM 82	32	96	13.2 / 39	19.8 / 59	26.4 / 79				103 / 134.8
FKM 82 V (*)	40	96			33.0 / 79				103 / 134.8
FKM 83	41	123	17.0 / 51	27.1 / 81					150 / 181.8
FKM 83 V (*)	60	123		39.6 / 81					150 / 181.8
FKM 84	52	156	21.5 / 64	32.2 / 96					197 / 228.8
FKM 84 V (*)	80	156	33 / 64	49.5 / 96					197 / 228.8
FKM 85	74	222	29.3 / 87						243 / 274.8
FKM 85 V (*)	100	222	39.6 / 87						243 / 274.8
FKM 94	68	204	25.4 / 99						430 / 483
FKM 95	93	279	33.1 / 129						550 / 603
FKM 96	115	345	42.1 / 164						660 / --

(\*) Electro-ventilated motor

## Dimensions in mm



MODEL	L (without brake)	L (with brake)	AC1	M	N	E	D
FKM 21		208	97	100	80j6	40	19j6
FKM 22		232					
FKM 42		247					
FKM 44		289	126	130	110j6	50	24j6
FKM 62		260					
FKM 64		296					
FKM 66		332	158	165	130j6	58	32k6
FKM 82	388	438					
FKM 83	438	488					
FKM 84	488	538	192	215	180j6	80	38k6
FKM 85	538	588					
FKM 82 V (*)	503	553					
FKM 83 V (*)	553	603	211	215	180j6	80	38k6
FKM 84 V (*)	603	653					
FKM 85 V (*)	653	703					
FKM 94	582	676	240	265	230j6	80	38k6
FKM 95	680	775				110	42k6
FKM 96	748					110	42k6

(\*) Electro-ventilated motor

# Accessory modules

## Mains filters

In order to comply with European Directive 2004/108/CE on electromagnetic compatibility, it is mandatory to insert a mains filter between mains and the DDS servo drive system.

MAIN FILTER 42A,  
for: PS-25B4, XPS-25 / RPS-20

MAIN FILTER 75A, for:  
RPS-45

MAIN FILTER 130A,  
for: PS-65, XPS-65 / RPS-75

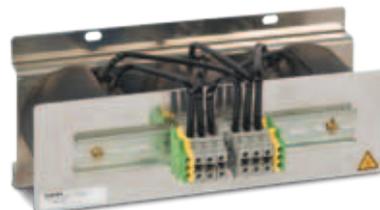
MAIN FILTER 180A,  
for: RPS-80



## Chokes

Installing chokes (inductances or coils) is an absolute must when using XPS regenerative regulated power supplies and regulated regenerative power supplies and they must always be installed between the power supply and the mains filter.

CHOKE XPS-25  
CHOKE XPS-65-A  
CHOKE RPS-20  
CHOKE RPS-45  
CHOKE RPS-75-3



## External Ballast resistors

They are used to dissipate the excess of energy generated at the power bus in a braking process of electrical motors and cannot be dissipated by the internal resistor of the module (power supply or compact drive).

They must be used with PS and XPS power supplies.

Model	W	W
ER+TH-24/750	24	650
ER+TH-24/1100	24	950
ER+TH-18/1100	18	950
ER+TH-18/1800	18	1300
ER+TH-18/2200	18	2000
ER+TH-18/1000+FAN	18	2000
ER+TH-18/1500+FAN	18	3000
ER+TH-18/2000+FAN	18	4000



## CM1.75 capacitor module

It stores the energy returned while braking the motors when using non-generative (PS) power supplies.

It has a capacity of 7.5 mF and it provides a maximum voltage of 797 V DC at the power bus.



## APS 24 auxiliary power supply

It generates 24 V DC for the control circuits of the drive modules and of the power supplies that do not integrate the auxiliary power supply (i.e. PS-65A).

This power supply maintains the 24 V during a mains outage for a while to allow braking safely.

Input voltage From 400 V AC -10% up to 460 V AC +10%, 50/60 Hz

Mains consumption 0.72 A (400 V AC)  
0.63 A (460 V AC)

Output voltage, maximum current 24 V DC (5%)  
10 A

Width 77 mm



## BPM power bus protection module

It prevents overvoltage at the power bus. When the bus voltage exceeds the set limit, the module kicks in to bring it down to the set limit. The energy is dissipated as heat through a resistor.







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