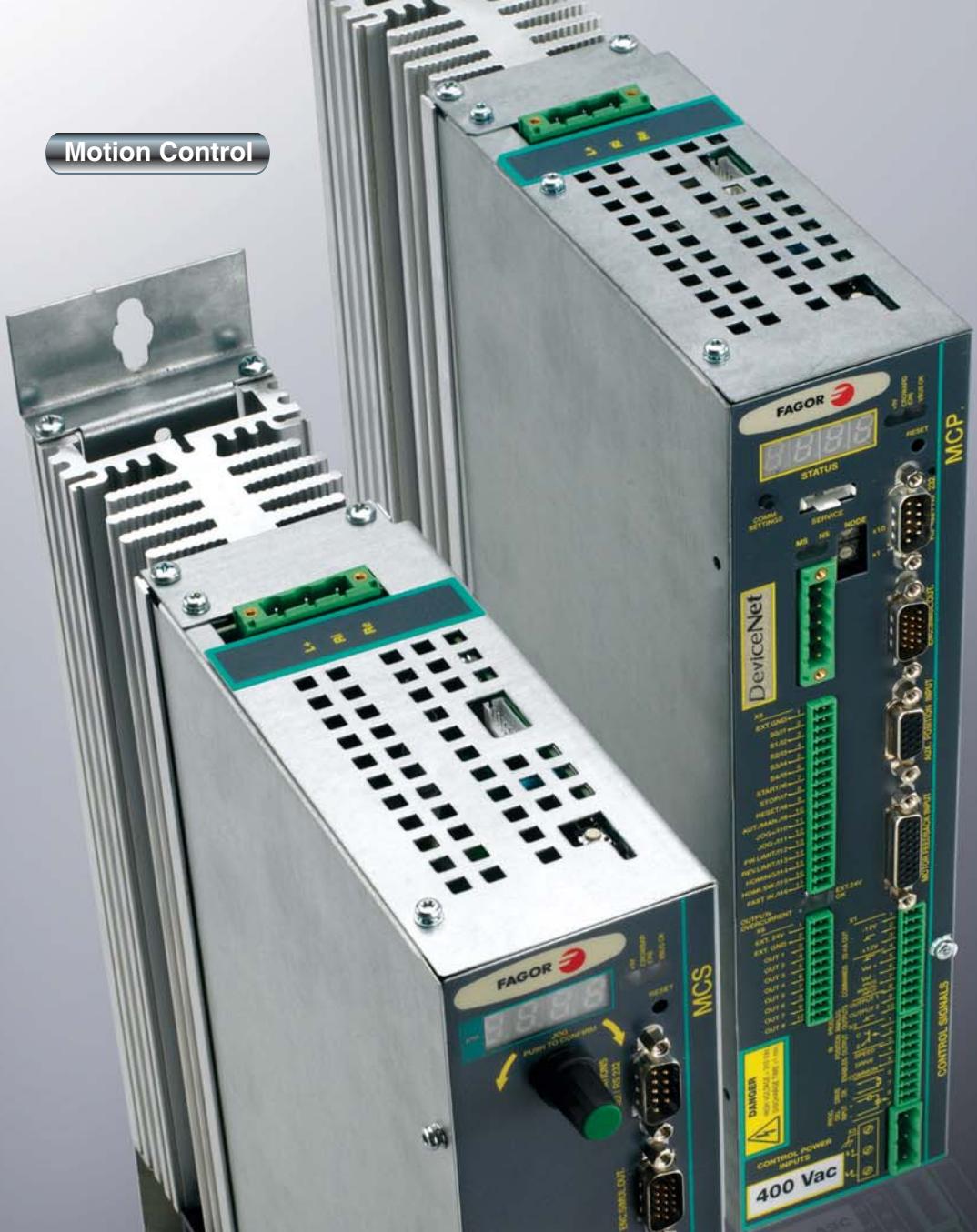


Motion Control



FAGOR MCS / MCP Series Servo Drive System



FAGOR 

FAGOR AUTOMATION

FAGOR Servo Drive System

MCS / MCP series

MCS

Speed drive

MCP

Positioning drive



Configuration

- Outputs for external braking resistance
- Numerical displays
- Rotary selector with confirmation button
- RS-422, RS-485 and RS-232 lines
- Programmable output of the encoder simulator
- Motor feedback input
- Analog velocity command input, programmable analog outputs and auxiliary power supply to generate velocity commands
- Digital control inputs and outputs
- Control voltage supply (2x220Vac or 400 Vac depending on model)
- Motor power voltage (3x220Vac or 400Vac depending on model) and power output (5 L and 10 L models also single-phase)



Configuration

- Outputs for external braking resistance
- Errors and status display
- RS-422, RS-485 and RS-232 lines
- Programmable output of the encoder simulator
- Second feedback input
- Motor feedback input
- Analog velocity command input, programmable analog outputs and auxiliary power supply to generate velocity commands
- Digital control inputs and outputs
- Control voltage supply (2x220Vac or 400 Vac depending on model)
- Motor power voltage (3x220Vac or 400Vac depending on model) and power output (5 L and 10 L models also single-phase)

Features of MCS / MCP Servo drives

● Standard
○ Optional

	MCS	MCP
Tools for easier configuration and friendly programming of the drives	●	●
Integrated programming module	●	---
Feedback input for the motor incremental encoder (2500 TTL or 1 Vpp sinusoidal)	●	●
Single-phase or three-phase supply (for 5L and 10L models)	●	●
Independent power supply for power and control	●	●
Protections against power outage, overtemperature, etc.	●	●
Programmable logic output	●	●
Two analog outputs for monitoring speed and current	●	●
8 outputs and 16 inputs, all digital (24V), optocoupled, protected against short-circuits.	---	●
Two programmable analog outputs and one programmable analog input	●	●
Communication interfaces: RS-232, RS-422 and RS-485	●	●
Communications protocols: MODBUS (RTU and ASCII)	●	●
Optional field bus CANopen, DEVICENET and PROFIBUS DP-VO	---	○
ON-LINE parameter editing	●	●
Encoder simulation output (programmable number of pulses)	●	●
Second feedback input	---	●

FAGOR MCS/MCP Servo Drives	220 V (L)				400 V (H)		
	MCS / MCP						
	05	10	20	30	04	08	16
OUTPUT RATED CURRENT (Amp)	2.5	5	10	15	2	4	8
PEAK CURRENT-0.5 SEC (Amp)	5	10	20	30	4	8	16
POWER SUPPLY	Three-phase 50/60 Hz mains with a voltage range between 220Vac-15% and 240Vac+10%				Three-phase 50/60 Hz mains with a voltage range between 400Vac-15% and 460Vac+10%		
CONSUMPTION (Amp-rms)	5.6 (9.5)*	11.1(18.5)*	22.2	33.3	4.4	8.9	16.7
OVERVOLTAGE PROTECTION	430 Vdc				780 Vdc		
INTERNAL BALLAST (OHMS)	112	56	28	18	132	132	66
POWER OF INTERNAL BALLAST	150 W						
BALLAST TRIGGER	416 Vdc				780 Vdc		
HEAT-SINK THERMAL PROTECTION	90°C (194°F)						
OPERATING TEMPERATURE	5°C / 45°C (41°F / 113°F)						
STORAGE TEMPERATURE	(-)20°C / 60°C (-4°F / 140°F)						
DEGREE OF PROTECTION	IP20						
MODULE DIMENSIONS	67 x 280 x 245 mm (2.48 x 11.8 x 9.05 inches)						
MODULE WEIGHT	3.85 Kg (8.5 lbs)						

* Consumption for models with single-phase power voltage.

With friendly programming and configuring tools



Using a PC-compatible Windows® based software makes it easier to program and configure the drives. The user can modify the parameters and act upon the drive on line.

The screenshot shows two windows from the WindosSetup software. The top window is titled 'WindosSetup - [Configuration wizard1]' and displays a 'Motion block editing table in debug mode'. It lists various motion blocks (1-21) with columns for P01, MODE, POS_NIN, VELOCITY, EVENT_TYPE, FAULT_INPUT, TIME, and PRODUCT. The bottom window is titled 'WindosSetup - [Parameter setting assistance]' and shows a configuration dialog for a 'Positioning' section, including fields for Speed, Position feedback, Position scaling, Position window, and Positioning acceleration.

Motion block editing table in debug mode

Parameter setting assistance

Field buses

Fagor Automation integrates in its MCS/MCP families and in its Innova MCSi/MCPI series the most popular field buses on the market making it possible to interconnect systems that support these field buses for bidirectional data exchange between the master and the slave elements.

This reduces cabling costs, simplifies the installation and operation of industrial machines and equipment used in manufacturing processes as well as their diagnostics, control and maintenance. Plus, our velocity drives may be connected to our Motion Controllers via Sercos offering as a result a perfect Fagor package.

The possible communication protocols are:

- Can open DS 301
- DeviceNet
- Profibus DP-VO
- Sercos II
- Modbus (RTU and ASCII)

Operator panels



The option for RS-232/422/485 and field bus communication and the field bus, provide the best way for the panel to communicate with another one or with several MCP servo drives offering numerous functions such as:

- PLC I/O control
- Modify variables and constants
- Show messages for alarm and dynamic display process, etc.

Types of Operator Panels available: Text, graphics/keyboard and graphics with a touch membrane. A programming KIT is available for customizing it.

Brushless AC motors - FXM series

for 220V

	Stall torque (Nm)	Peak torque (Nm)	Stall current			Inertia (Kg.cm²)	Weight (Kg)
			1200 (rpm)	2000 (rpm)	4000 (rpm)		
			Io (Armp)				
FXM 11	1.2	6			2	1.2	3.3
FXM 12	2.3	11			3.9	1.9	4.3
FXM 13	3.3	16			5.6	2.6	6.4
FXM 14	4.1	20		3.5	6.9	3.3	7.6
FXM 31	2.6	13		2.2	4.4	3.5	5.5
FXM 32	5.1	25		4.3	8.4	6	7.5
FXM 33	7.3	36		6.3	12	8.5	9.6
FXM 34	9.3	46		7.6	15	11	11.5
FXM 53	11.9	59		9.9		22	15.8
FXM 54	14.8	74		12.7		29	17.8
FXM 55	17.3	86	9.1	15		36	20
FXM 73	20.8	104	10.7			61	29
FXM 74	27.3	135	13.5			79	31.6
FXM 75	29.5	165	15			97	36

for 400V

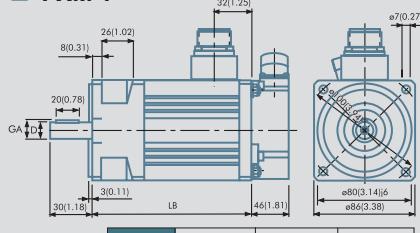
	Stall torque (Nm)	Peak torque (Nm)	Stall current				Inertia (Kg.cm²)	Weight (Kg)
			1200 (rpm)	2000 (rpm)	3000 (rpm)	4000 (rpm)		
			Io (Armp)					
FXM 11	1.2	6		0.45	0.67	0.9	1.2	3.3
FXM 12	2.3	11		0.86	1.29	1.72	1.9	4.3
FXM 13	3.3	16		1.23	1.85	2.5	2.6	6.4
FXM 14	4.1	20		1.51	2.3	2.1	3.3	7.6
FXM 31	2.6	13		0.97	1.45	1.92	3.5	5.5
FXM 32	5.1	25		1.89	2.8	3.8	6	7.5
FXM 33	7.3	36		2.7	4.1	5.5	8.5	9.6
FXM 34	9.3	46		3.4	5.1	6.9	11	11.5
FXM 53	11.9	59	2.8	4.7	7.1		22	15.8
FXM 54	14.8	74	3.5	5.9			29	17.8
FXM 55	17.3	86	4.1	6.7			36	20
FXM 73	20.8	104	4.9	8			61	29
FXM 74	27.3	135	6.6				79	31.6
FXM 75	33.6	165	8				97	36

General characteristics

Balancing (full key)	<ul style="list-style-type: none"> ■ Standard: Class N ■ Optional: Class R
Mounting	<ul style="list-style-type: none"> ■ Shaft with key (keyless shaft optional) ■ Front flange ■ B5 - V1 - V3
Electrical isolation	■ Class F (150°C-302°F)
General degree of protection	<ul style="list-style-type: none"> ■ Standard: IP64 ■ Optional: IP65 with fan
Shaft protection degree	<ul style="list-style-type: none"> ■ Standard: IP64 ■ Optional: IP65 with seal
Fan	■ Optional on FXM5 and FXM7 models
Brake	■ Optional on all models
Feedback	■ TTL, sinusoidal or absolute encoder (optional)

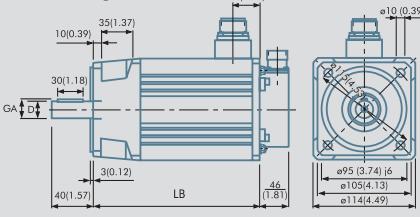
Dimensions in mm (inches)

FXM 1



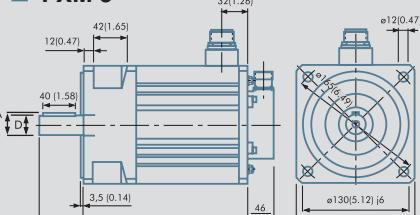
	LB	D	GA
FXM 1	136 (5.35)	14 (0.55) <i>j6</i>	16 (0.62)
FXM 11	136 (5.35)	14 (0.55) <i>j6</i>	16 (0.62)
FXM 12	171 (6.7)	14 (0.55) <i>j6</i>	16 (0.62)
FXM 13	206 (8.11)	14 (0.55) <i>j6</i>	16 (0.62)
FXM 14	241 (9.48)	14 (0.55) <i>j6</i>	16 (0.62)

FXM 3



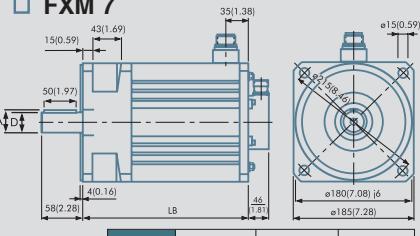
	LB	D	GA
FXM 3	152 (5.98)	19 (0.75) <i>j6</i>	21.5 (0.85)
FXM 31	152 (5.98)	19 (0.75) <i>j6</i>	21.5 (0.85)
FXM 32	187 (7.36)	19 (0.75) <i>j6</i>	21.5 (0.85)
FXM 33	222 (8.74)	19 (0.75) <i>j6</i>	21.5 (0.85)
FXM 34	257 (10.12)	19 (0.75) <i>j6</i>	21.5 (0.85)

FXM 5



	LB	D	GA
FXM 5	237 (9.33)	24 (0.94) <i>j6</i>	27 (1.07)
FXM 53	237 (9.33)	24 (0.94) <i>j6</i>	27 (1.07)
FXM 54	272 (10.74)	24 (0.94) <i>j6</i>	27 (1.07)
FXM 55	307 (12.09)	24 (0.94) <i>j6</i>	27 (1.07)

FXM 7



	LB	D	GA
FXM 7	256 (10.08)	32 (1.26) <i>k6</i>	35 (1.38)
FXM 73	256 (10.08)	32 (1.26) <i>k6</i>	35 (1.38)
FXM 74	291 (11.46)	32 (1.26) <i>k6</i>	35 (1.38)
FXM 75	326 (12.83)	32 (1.26) <i>k6</i>	35 (1.38)

Synchronous Brushless AC motors - FKM series

for 220V

MODEL	Stall torque (Nm)	Peak torque (Nm)	Speed (rpm)	Torque constant Kt (Nm/Arms)	Inertia (Kg.cm²)	Weight (Kg)	Peak torque		
							10 L	20 L	30 L
FKM 21-60 F	1.7	7	6000	0.36	1.6	4.2	3.6	7	
FKM 22-30 F	3.2	13	3000	0.74	2.9	5.3	7.4	13	
FKM 22-50 F	3.2	13	5000	0.45	2.9	5.3		9	13
FKM 42-30 F	6.3	25	3000	0.74	8.5	7.8		14.8	22.2
FKM 42-45 F	6.3	25	4500	0.91	8.5	7.8		18.2	25
FKM 44-30 F	11.6	47	3000	0.74	16.7	11.7			22.2
FKM 62-30 F	8.9	35	3000	0.68	16	11.9			20.4

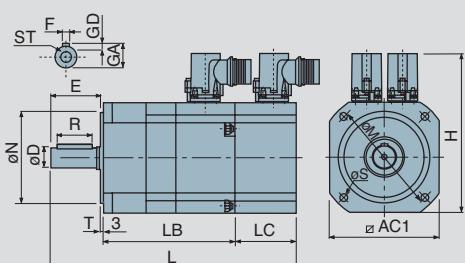
for 400V

MODEL	Stall torque	Peak torque (Nm)	Speed (rpm)	Torque constant Kt (Nm/Arms)	Inertia (Kg.cm²)	Weight (Kg)	Peak torque	
							8 H	16 H
FKM 21-60 A	1.7	7	6000	0.36	1.6	4.2	5	7
FKM 22-30 A	3.2	13	3000	1.28	2.9	5.3	10.2	13
FKM 22-50 A	3.2	13	5000	0.84	2.9	5.3	6.7	13
FKM 42-30 A	6.3	25	3000	1.37	8.5	7.8		21.9
FKM 42-45 A	6.3	25	4500	0.91	8.5	7.8		14.6
FKM 44-30 A	11.6	47	3000	1.41	16.7	11.7		22.6
FKM 44-40 A	11.6	47	4000	1.08	16.7	11.7		17.3
FKM 62-30 A	8.9	35	3000	1.25	16	11.9		20
FKM 62-40 A	8.9	35	4000	0.96	16	11.9		15.4
FKM 64-30 A	16.5	66	3000	1.36	29.5	17.1		21.8

General characteristics

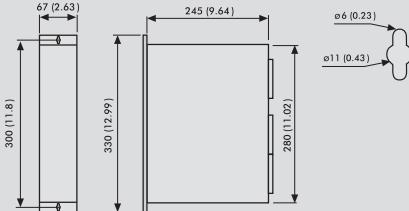
Temperature sensor	▪ Thermistor PTC KTY-84
Balancing (halfkey)	▪ Standard: Class N ▪ Optional: Class R
Mounting	▪ Keyless shaft (optional with key) ▪ Front flange ▪ B5 - V1 - V3
Electrical isolation	▪ Class F (150°C-302°F)
Degree of protection	▪ Standard: IP64 ▪ Optional: IP65 with seal
Brake	▪ Optional on all models
Feedback	▪ TTL, sinusoidal or absolute encoder (optional)

Dimensions in mm



Dimensions in mm (inches)

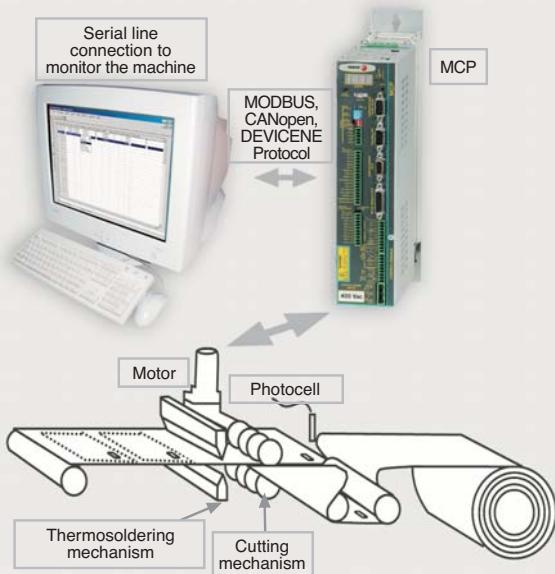
■ MCS / MCP



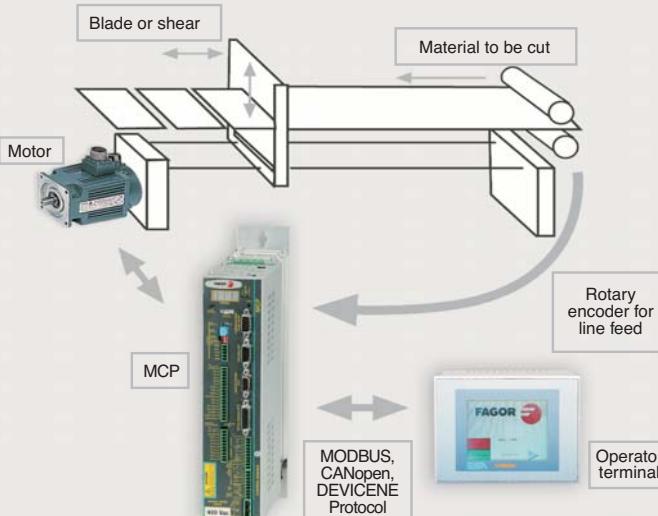
APPLICATION EXAMPLES

MCS-MCP drives are ideal for applications in a great variety of market segments such as handling, packaging, special machinery, graphic arts, paper industry, woodworking industry, food industry, textile industry, glass, marble, automotive, machinery for plastics, rubber, etc.

Machine to make plastic bags



Fly cutting



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Fagor Automation S. Coop. (Mondragón)

Bº San Andrés, 19 – P.O.Box 144
E-20500 Arrasate-Mondragón, Spain
Tel. 34 943 719 200
34 943 039 800
Fax: 34 943 791 712
E-mail: info@fagorautomation.es
www.fagorautomation.com



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ER-0968/1999



Fagor Automation S. Coop. (Usurbil)

Bº San Esteban, s/n – Txoko Alde
E-20170 Usurbil, Spain
Tel. 34 943 71 92 00
Fax: 34 943 360 527
E-mail: usurbil@fagorautomation.es

EUROPE

DE- Fagor Automation GmbH (Göppingen)
Tel. 49 7161 15 685-0 Fax: 49 7161 15 685 79

ES- Fagor Automation Catalunya (Barcelona)
Tel. 34 934 744 375 Fax: 34 934 744 327

FR- Fagor Automation France S.à.r.l. (Clermont Ferrand)
Tel. 33 473 277 916 Fax: 33 473 150 289

GB- Fagor Automation UK Ltd. (West Midlands)
Tel. 44 1327 300 067 Fax: 44 1327 300 880

IT- Fagor Italia S.R.L. (Milano)
Tel. 39 0295 301 290 Fax: 39 0295 301 298

PO- Fagor Automation Ltda. (Leça da Palmeira)
Tel. 351 229 968 865 Fax: 351 229 960 719

RU- Fagor Automation Russia (Moscow)
Tel. 7 926 795 29 12

AMERICA

BR- Fagor Automation do Brasil Com. Imp. Exp. Ltda. (São Paulo)
Tel. 55 11 56 94 08 22 Fax: 55 11 56 81 62 71

CA- Fagor Automation Ontario (Mississauga)
Tel. 1 905 670 74 48 Fax: 1 905 670 74 49

Fagor Automation Quebec (Montreal)
Tel. 1 450 227 05 88 Fax: 1 450 227 61 32

Fagor Automation Windsor (Canada)
Tel. 1 519 944 56 74 Fax: 1 519 944 23 69

US- Fagor Automation Corp. (Chicago)
Tel. 1 847 98 11 500 Fax: 1 847 98 11 311

Fagor Automation West Coast (California)
Tel. 1 714 957 98 85 Fax: 1 714 957 98 91

Fagor Automation East Coast (New Jersey)

Tel. 1 973 773 35 25 Fax: 1 973 773 35 26

Fagor Automation Ohio Branch (Ohio)

Tel. 1 614 855 5720 Fax: 1 614 855 5928

Fagor Automation South East (Florida)

Tel. 1 813 654 45 99 Fax: 1 813 654 3387

ASIA

CN- Beijing Fagor Automation Equipment Co., Ltd. (Beijing)
Tel. 86 10 84505858 Fax: 86 10 84505860

Beijing Fagor Automation Equipment Ltd. (Nanjing)

Tel. 86 25 83 32 82 59 Fax: 86 25 83 32 82 60

Beijing Fagor Automation Equipment Ltd. (Chengdu)

Tel. 86 28 66 13 20 81 Fax: 86 28 66 13 20 82

Beijing Fagor Automation Equipment Co., Ltd. (Guangzhou)

Tel. 86 20 86 55 31 24 Fax: 86 20 86 55 31 25

Beijing Fagor Automation Equipment Co., Ltd. (Shanghai)

Tel. 86 21 63 53 90 07 Fax: 86 21 63 53 88 40

HK- Fagor Automation (Asia) Ltd., (Hong Kong)

Tel. 852 23 89 16 63 Fax: 852 23 89 50 86

IN- Fagor Control System Pvt. Ltd. (Bangalore)

Tel. +91 (0)8042682828 Fax: +91 (0)8042682816

KR- Fagor Automation Korea, Ltd. (Seoul)

Tel. (822) 21130341 / 2113 0342 Fax: (82 2) 2113 0343

MY- Fagor Automation (M) SDN.BHD. (Kuala Lumpur)

Tel. 60 3 8062 2858 Fax: 60 3 8062 3858

SG- Fagor Automation (S) Pte. Ltd. (Singapore)

Tel. 65 68417345 / 68417346 Fax: 65 68417348

TW- Fagor Automation Taiwan Co. Ltd. (Taichung)

Tel. 886 4 23851558 Fax: 886 4 23851598

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MONDRAGON

Finance Industry Management



FAGOR AUTOMATION

Worldwide reliability