8060 FL SYSTEM

FAGOR AUTOMATION

INDEX

SYSTEM OVERVIEW

- The modern solution for standard lathe and milling application

- The evolution from 8055 family to the state of the art 806x family

- More than one CNC.
  A complete system globally optimized

SYSTEM OVERVIEW

- SET UP TIME REDUCTION
  - Components reduction with MAB
  - Reduced Cabinet size

- COMMISIONING TIME REDUCTION
  - PLC Wizard
  - Automatic tuning tools -> FineTune
  - One single family

- SERVICE , BETTER, FASTER
  - Black Box
  - Telediagnosis
  - Email alerts

TARGET MACHINES

- Standard milling and lathe applications
- Lathes
  - Max spindle power 15Kw
  - 3* axis + 1 Spindle + Live Tool
  - C Axis
- Milling
  - 4* axis + 1 Spindle
    (Example: X,Y,Z,S + Tool Changer)

CNC 8060 FL

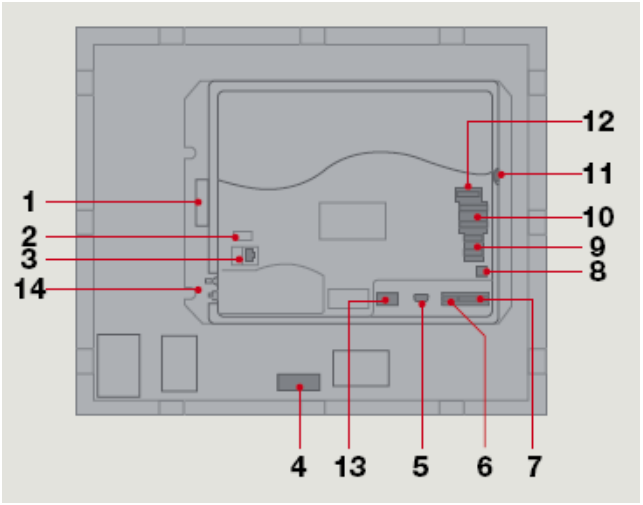

FAGOR
HELP
FOCUS
F12
F11
F10
F9
F8
NEXT
Tools
Tool 17
Edge. Geometry (mm) + Monitoring
Find
Add tool
F1
F2
F3
F4
F5
F6
F7
AUTO
MANUAL
EDIT
MDI
TABLES
TOOLS
UTILITIES
CUSTOM
MAIN MENU
ESC
CALC
ENTER
CAPS
SHIFT
CTRL
HOME
RECALL
ALT
END
INS
SPACE
BACK SPACE
DELETE
ZERO
SINGLE
RESET
CSS
JOG
FEED

DESIGNED FOR EASIER INTEGRATION

- Jog integrated
- Compact design with 58 mm width
- 8055 frame compatible to ease migration

Especially adapted to industrial environments

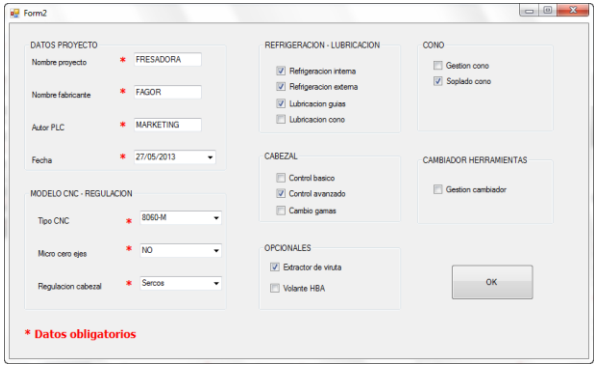
- Built for tough industrial environments, IP65 (NEMA 12) sealing standard
- No Fan is required to refrigerate the CNC
- No battery is required to save data
- I/Os connectors optimized for an easy and fast installation
- Standard connections
  - Compact flash expansion.
  - Front and rear USB ports.
  - Ethernet.
  - Handwheel input
  - Probe input / Local feedback input

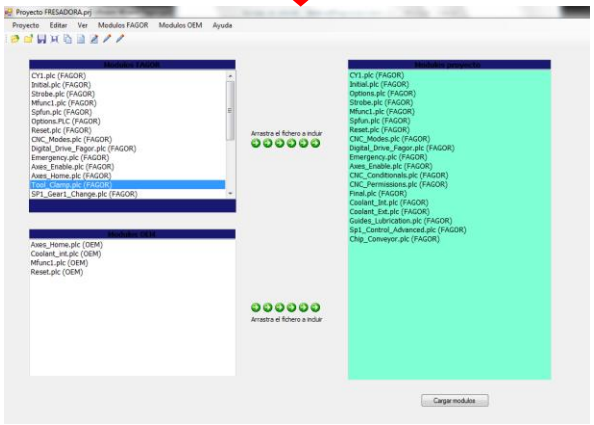


Wizard PLC

- This software offers a PLC program based on the characteristics defined by the customer.

Machine details



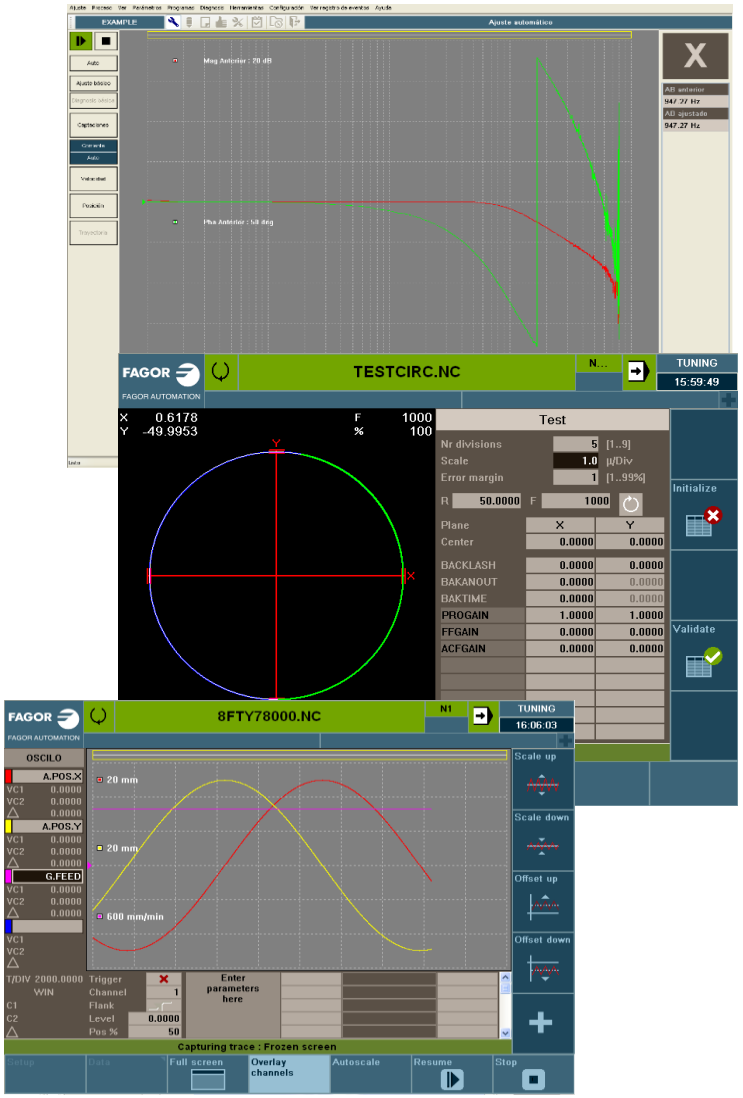


Auto-tuning software - Finetune

- Standard tool for 806x family
- Automatically tunes the machine
- Fast process
- Without advanced knowledge of tuning
- Optimal adjust for each machine
- Free of human errors in the process
- All these reduces the cost of the commissioning process

Bode / Circularity Test / Oscilloscope

- Bode diagram
  - Measures the frequency response of the machine
  - Allows compensate vibrations coming from the mechanical design
- The circularity (roundness) test
  - Helps to improve the behavior of the axes when reversing their moving direction.
- Oscilloscope
  - Very helpful to assist you when tuning the axes
  - It corrects dynamically the behavior of the machine.



One Family for all machines

- From 8060 to 8065 all the machine range with one family
- Same PLC programming
- Same tuning environment
- Same programming environment

Maintenance tools

- Tele diagnosis (Freeware)

  The OEM can connect directly with the CNC of the customer solving any issue he may have.

- Process Informer (Freeware)

  This feature allows to send emails informing about the machine status to take immediate corrective actions.

- Black box

- File Encryption

  OEMs can protect their “know-how” using the Fagor encryption system.

Latest technology with 806x family

- HSSA (High Speed Surface Accuracy)
  - Nanometric interpolation
  - Advanced algorithms for smoothing tool's speed
  - Advanced look ahead algorithms to optimize part time
  - Optimized HSC modes for each machining condition
- Free PC simulator for programs and quotations
- Simulation channel
- Advanced tool management
- And many more…

8060 FL Technical characteristics

- Max. Nr. Of axes = Up to 4
- Max. Nr. Of Spindles = 1 (+Live Tool for lathe)
- Max . Nr. Of axes + Spindles = Up to 5
- Max. Nr. Of channels = 1
- Max. Nr. Of magazines = 1
- Block processing time : 2 ms
- Look ahead blocks : Up to 100
- Multi Axis Box drive System - MAB

Multi Axis Box - MAB

Tailored to your machine

Multi Axis Box – MAB Technical characteristics

- One spindle
- 2/3/4* servo motors
- Regenerative or Non regenerative model
- Second feedback for spindle
- HD Sub-D M15 connectors for motor encoders
- New compact and fast to setup connectors for safety wiring
- Compact design, reducing setting up time and cabinet size

One model for each machine

- 8 different models -> One model for each machine
- Spidle optimized for 7,5kw or 15kw
- Regenerative or Non regenerative models
- 2/3/4* servo motors with up to 23 Nm

* With extra AXD drive

MAB	-	1	-	2	-	3

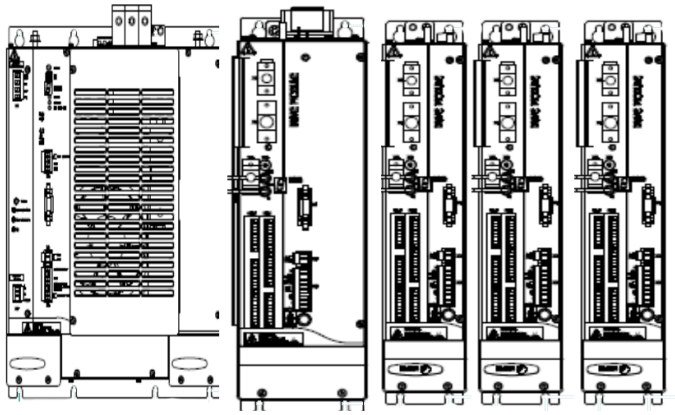
#	DESCRIPTION	OPTION	SYMBOL
1	POWER SUPPLY	No regenerative	
		Regenerative	R
2	SPINDLE POWER	7,5 kW	75
		15 kW	150
3	SERVO DRIVES	2 axes	2
		3 axes	3

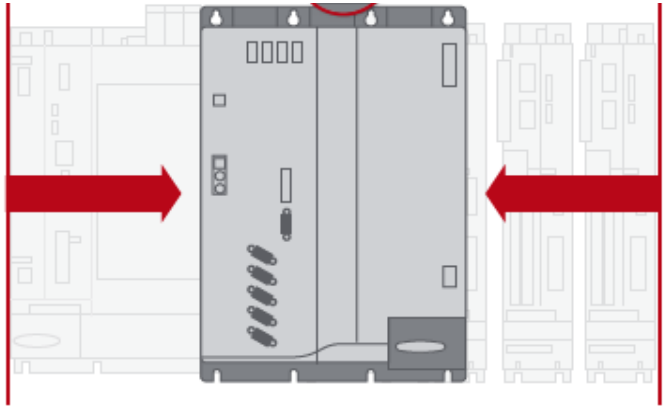
MODELS	Mains Power Kw	Spindle Power Kw	Drive 1 Arms	Drive 2 Arms	Drive 3 Arms	Extra Drive Max Arms	Size Reduction %
Spindle + 2 axis No regenerative							
MAB--075-2	15	7,5	7,5	7,5	-	-	12%
MAB--150-2	29	15	17,5	17,5	-	-	30%
Spindle + 2 axis Regenerative							
MAB-R-075-2	15	7,5	7,5	7,5	-	-	36%
MAB-R-150-2	29	15	17,5	17,5	-	-	53%
Spindle + 3/4 axis No regenerative							
MAB--075-3	23	7,5	7,5	7,5	7,5	17,5	29%
MAB—150-3	32	15	17,5	17,5	17,5	17,5	42%
Spindle + 3/4 axis Regenerative							
MAB-R-075-3	23	7,5	7,5	7,5	7,5	17,5	46%
MAB-R-150-3	32	15	17,5	17,5	17,5	17,5	59%

POWER SUPPLY+ SPINDLE DRIVE + 3 x AXIS DRIVE

Compact design

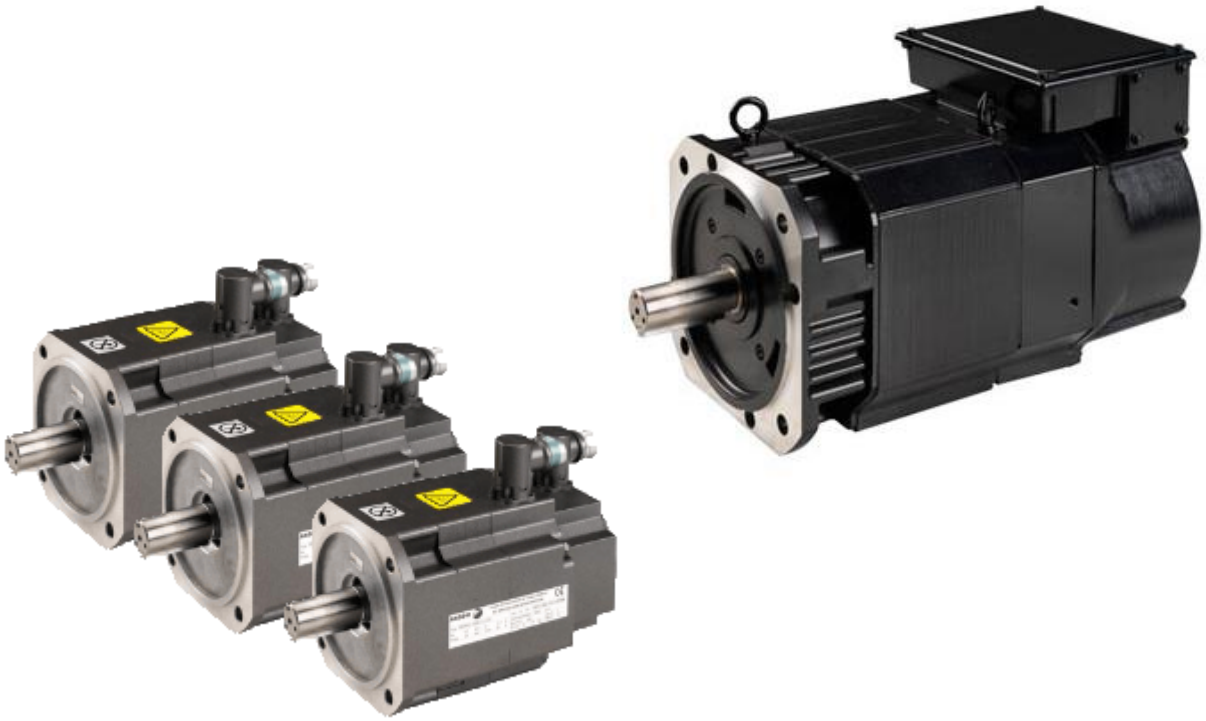
- 15% - 60% reduction in cabinet width
- Reduction from 5 modules to 1
- Reduction in setting up time





MAB-R-150-3

Servo and Spindle Motors



FKM Family Servo Motors

- Up to 23 Nm FKM servo motors
- Incremental / Multiturn absolute encoders
- Key / keyless
- Optional brake
- IP64 / IP65

FKM series

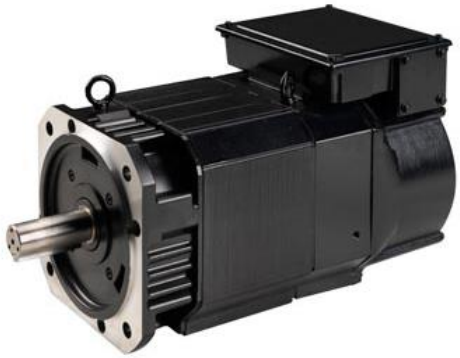
MODEL	Stall torque [Nm]	Peak torque [Nm]	Stall current [Arms] / Peak current [Arms]						Inertia / with brake [kg cm²]
			2000 rpm	3000 rpm	4000 rpm	4500 rpm	5000 rpm	6000 rpm	
FKM 21	1.7	7						2.8 / 11	1.6 / 1.72
FKM 22	3.2	13		2.4 / 10			4.0 / 16	4.5 / 18	2.9 / 3.02
FKM 42	6.3	25		4.6 / 19		6.9 / 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

FM7 Spindle motors

- One series for each application
  - E01 series with Y winding
  - E03 series with Y-Delta wiring
  - HS03 series direct drive motors with hollow shaft
- Up to 15 Kw Spindles with MAB system
- Up to 15.000 rpms
- Sinusoidal encoder as option

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 cm²]
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 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 cm²]
		Y	Δ	Y	Δ	Y	Δ	Y	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

System Overview

- First line to standard lathe and milling applications
- Latest technology
- Globally optimized to minimize
  - Set up time
  - Commissioning time
  - Service
- One family for all machines

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THANK YOU