



Fagor Automation S. Coop.

Manual code: 14460205

Manual version: 1604



# ENCODER HAM-D200

**MANUAL DE INSTALACIÓN**  
**INSTALLATION MANUAL**

**FAGOR AUTOMATION S. COOP.**

B° San Andrés Nº 19

Apdo de correos 144

20500 Arrasate/Mondragón

- Spain -

Web: [www.fagorautomation.com](http://www.fagorautomation.com)

Email: [info@fagorautomation.es](mailto:info@fagorautomation.es)

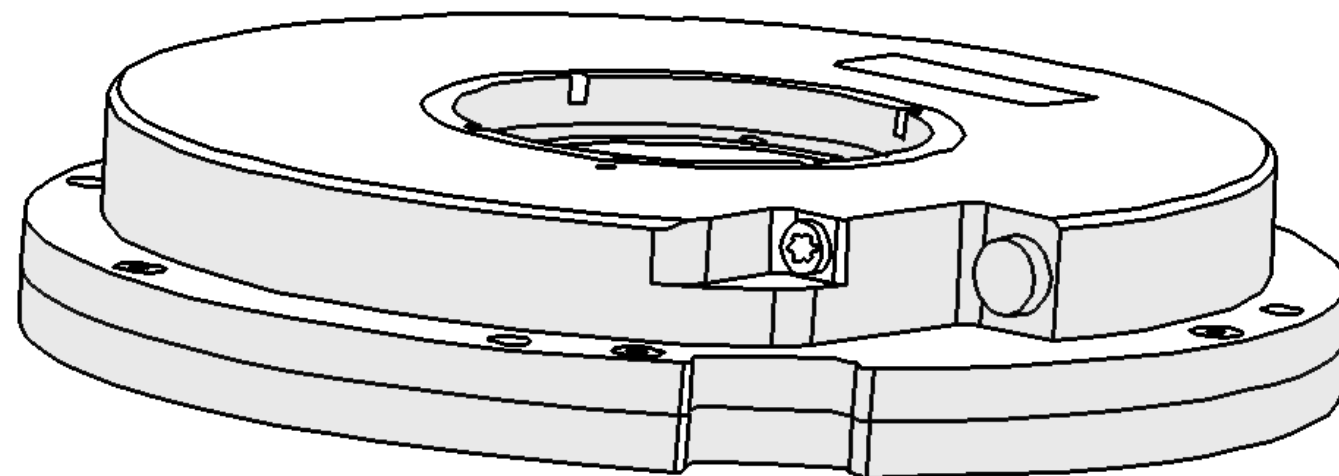
Tel.: (34) 943 719200

Fax: (34) 943 791712



Fagor Automation S. Coop.





MANUAL

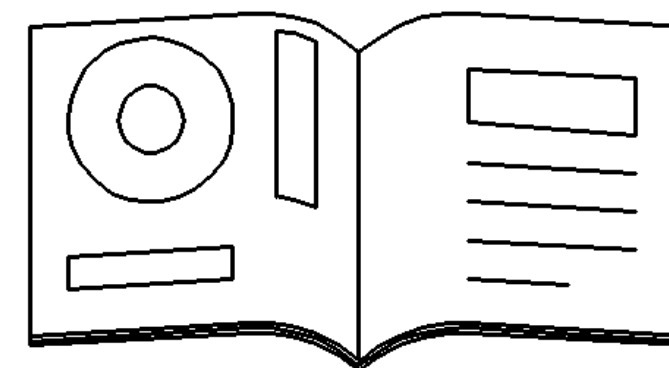
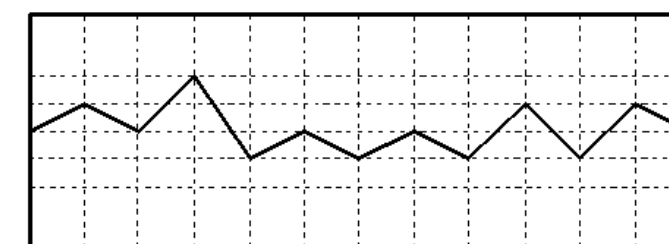
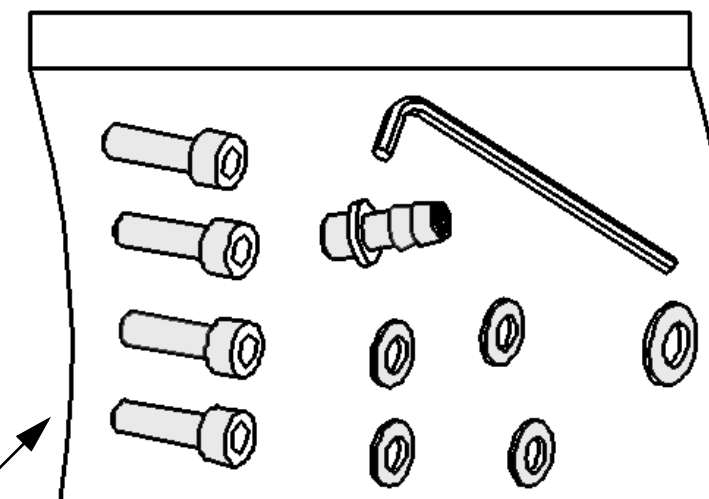


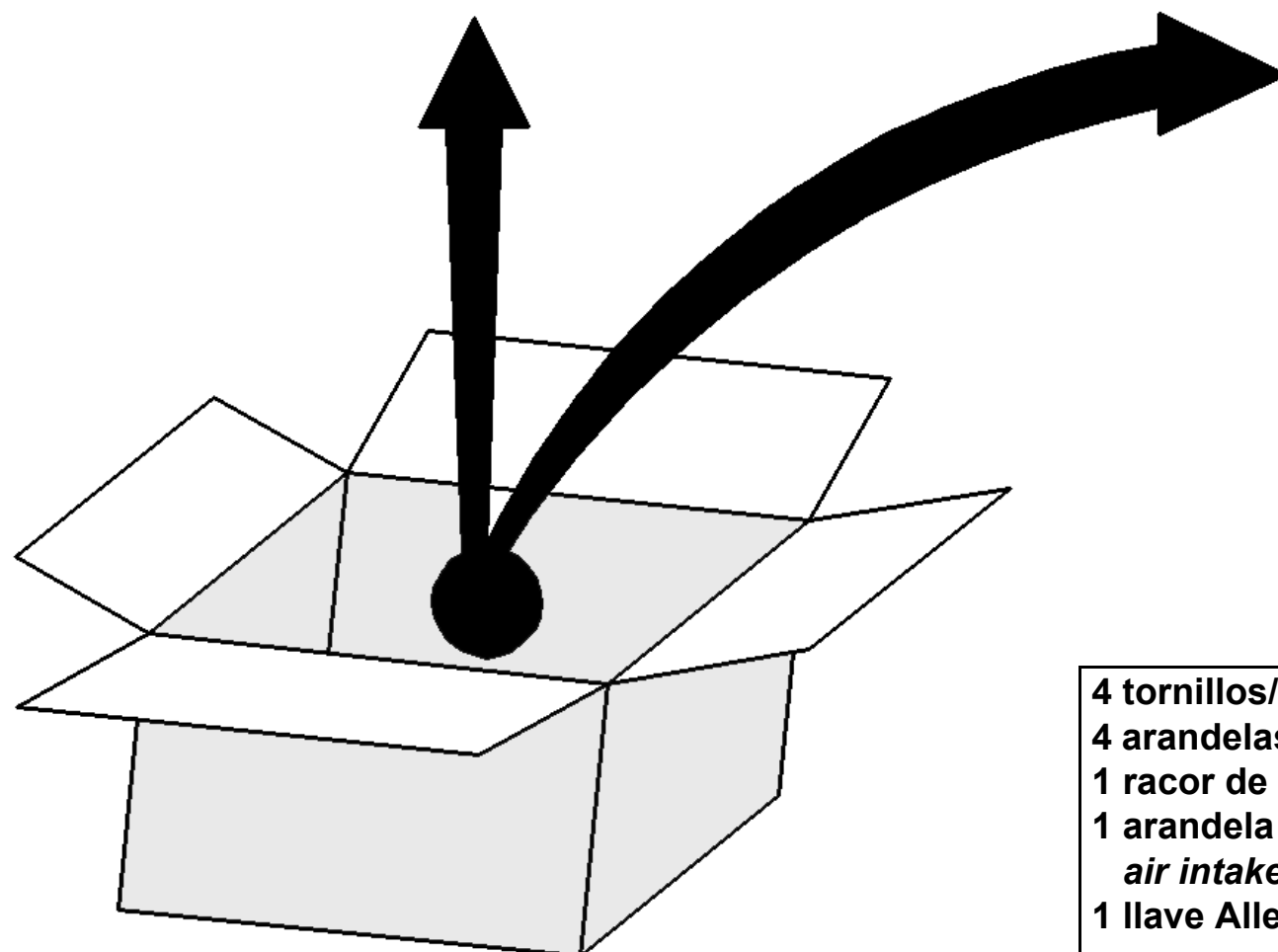
GRÁFICO  
GRAPH



ACCESORIOS  
ACCESSORIES

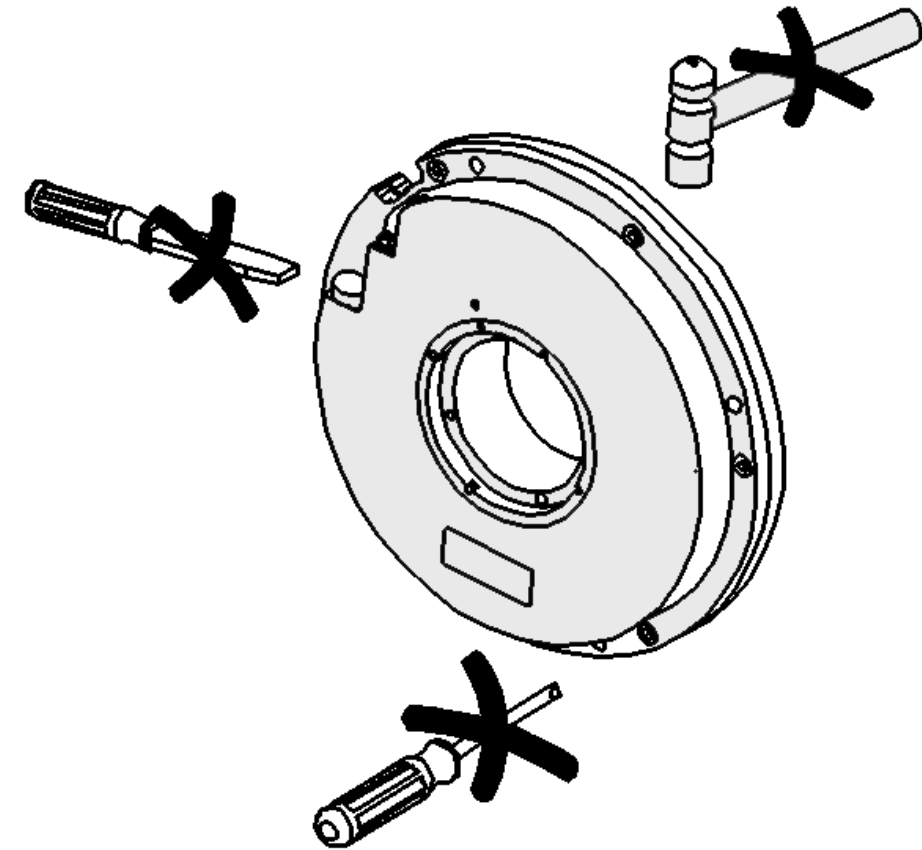
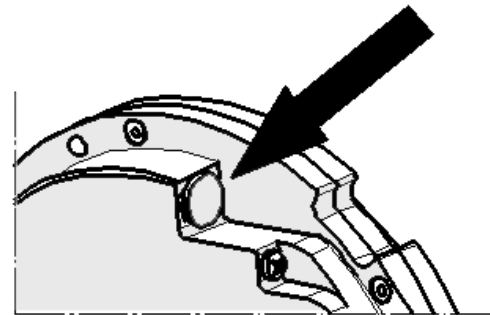
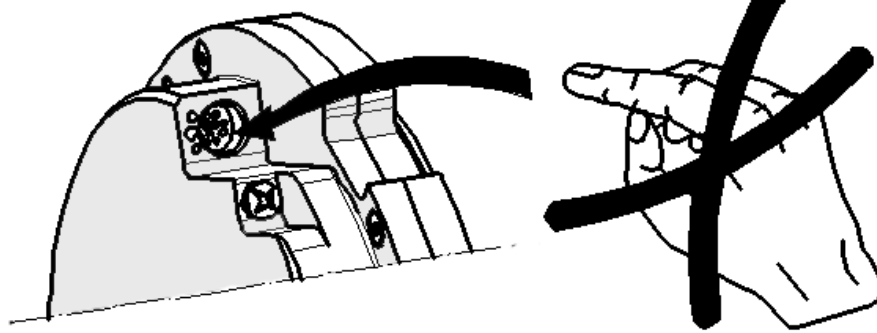
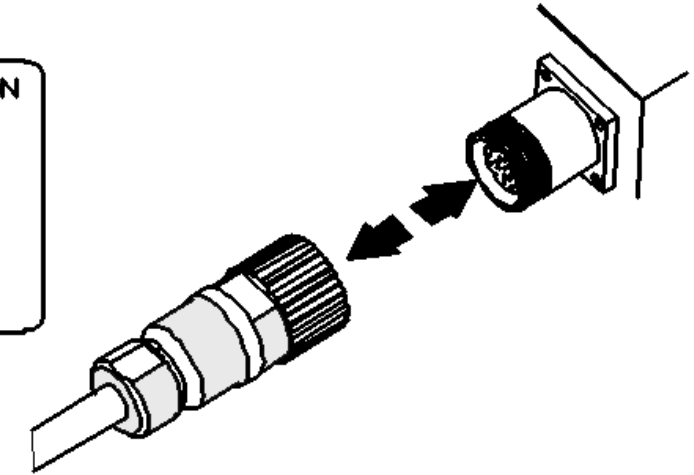
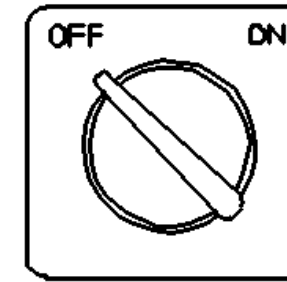
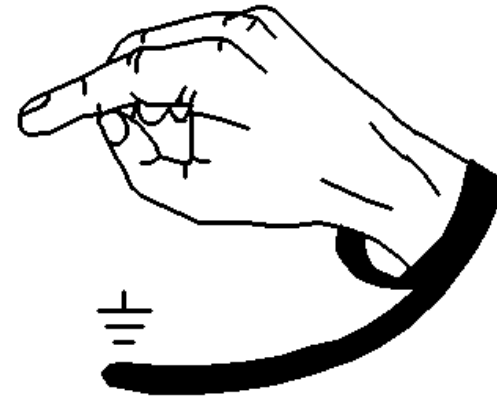


4 tornillos/bolts M5 x 25 DIN 912  
4 arandelas/washers M5 DIN 125  
1 racor de aire / air intake  
1 arandela racor de aire /  
air intake washer  
1 llave Allen / Allen wrench

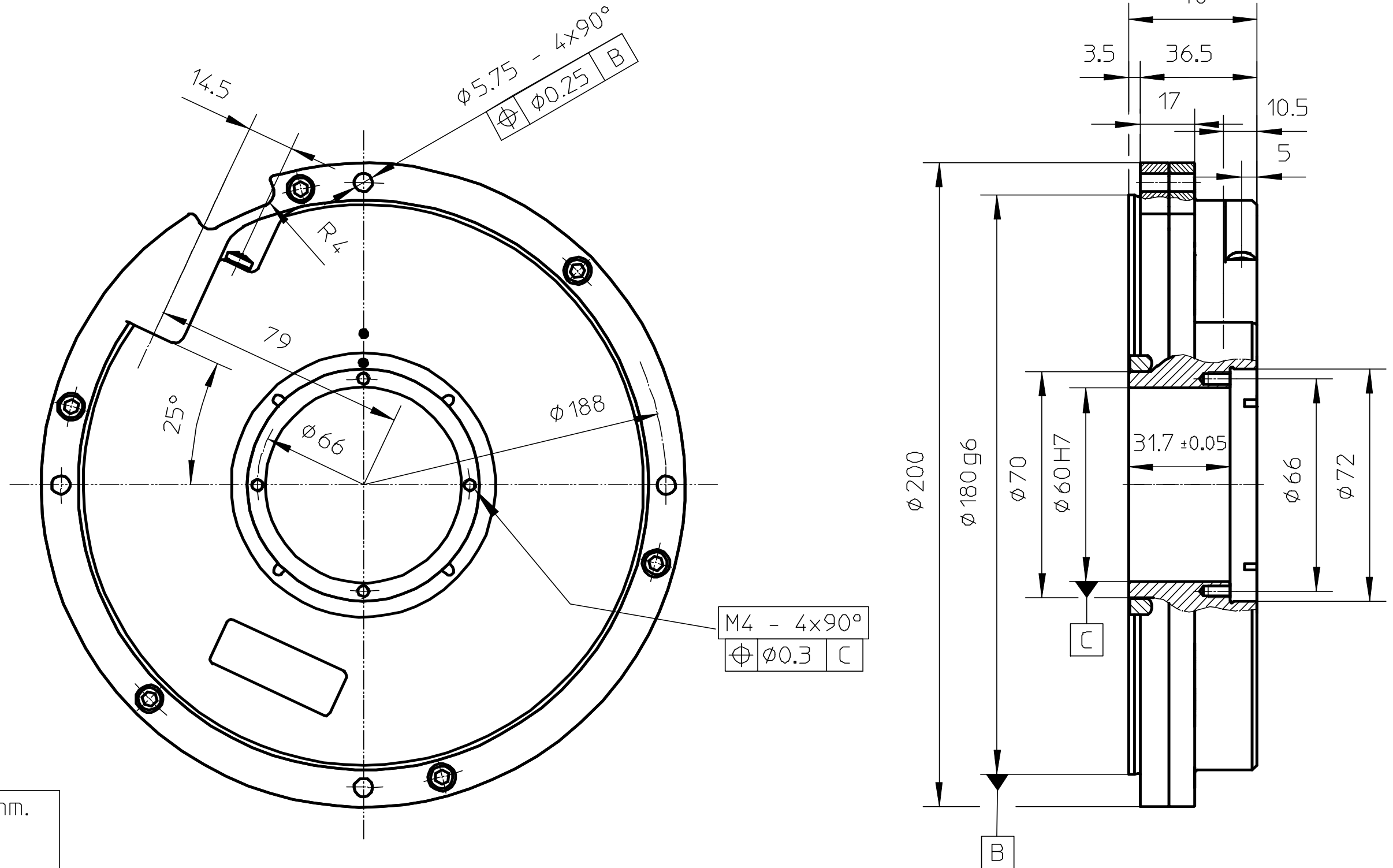




DIN EN 100



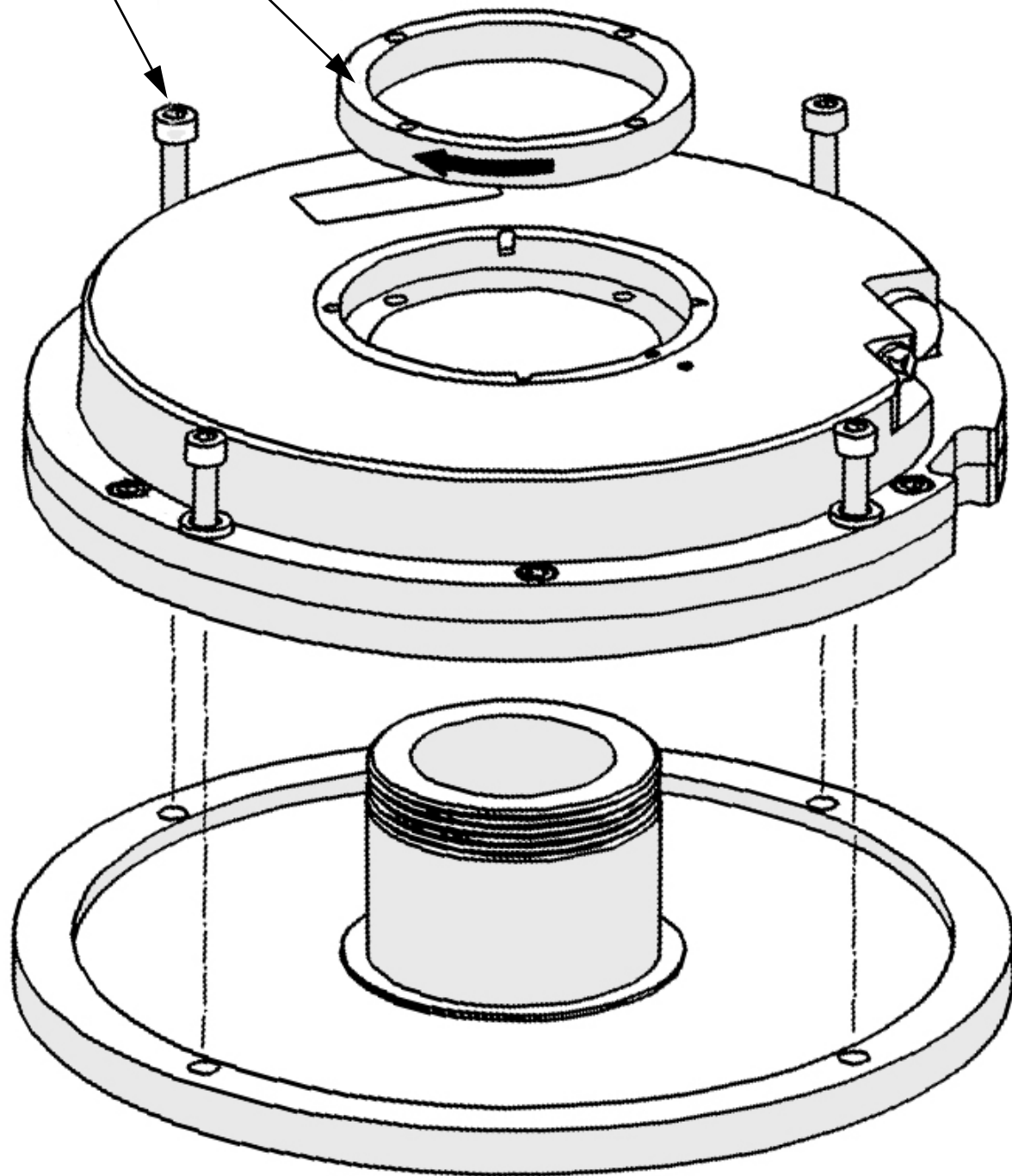
# GENERAL DIMENSIONS



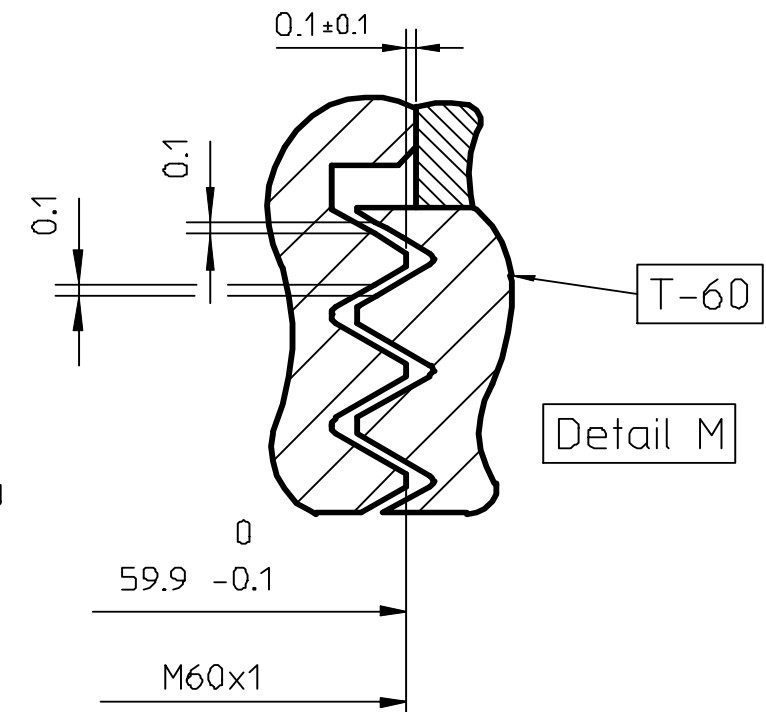
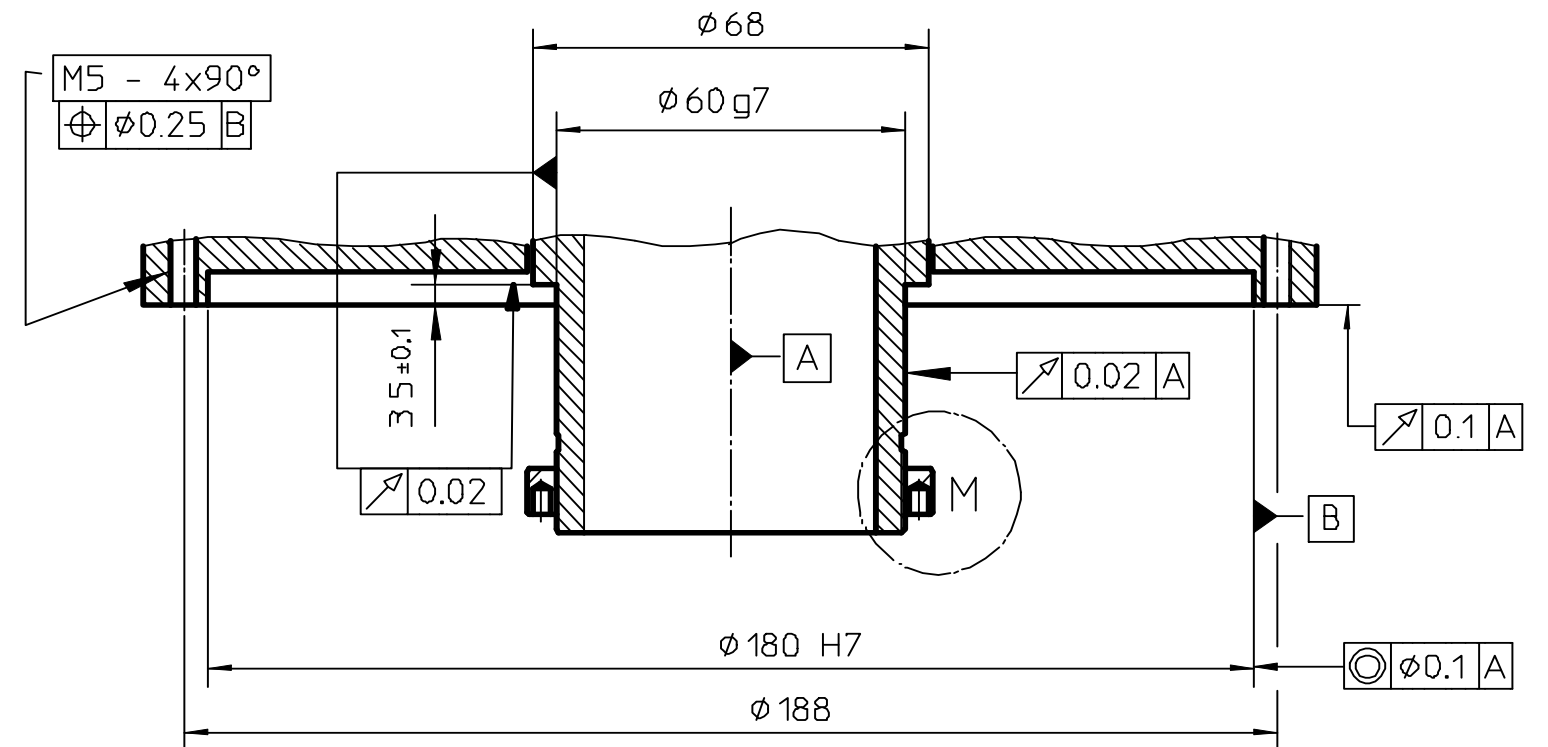
Dimensions in mm.  
  
 Tolerance ISO 8015  
 ISO 2768 - m H

# MONTAJE / MOUNTING

4 M5 DIN 125  
 4 M5 DIN 912, T = 5 Nm  
 T = 20 Nm T-60 (ver página 10 / see page 10)



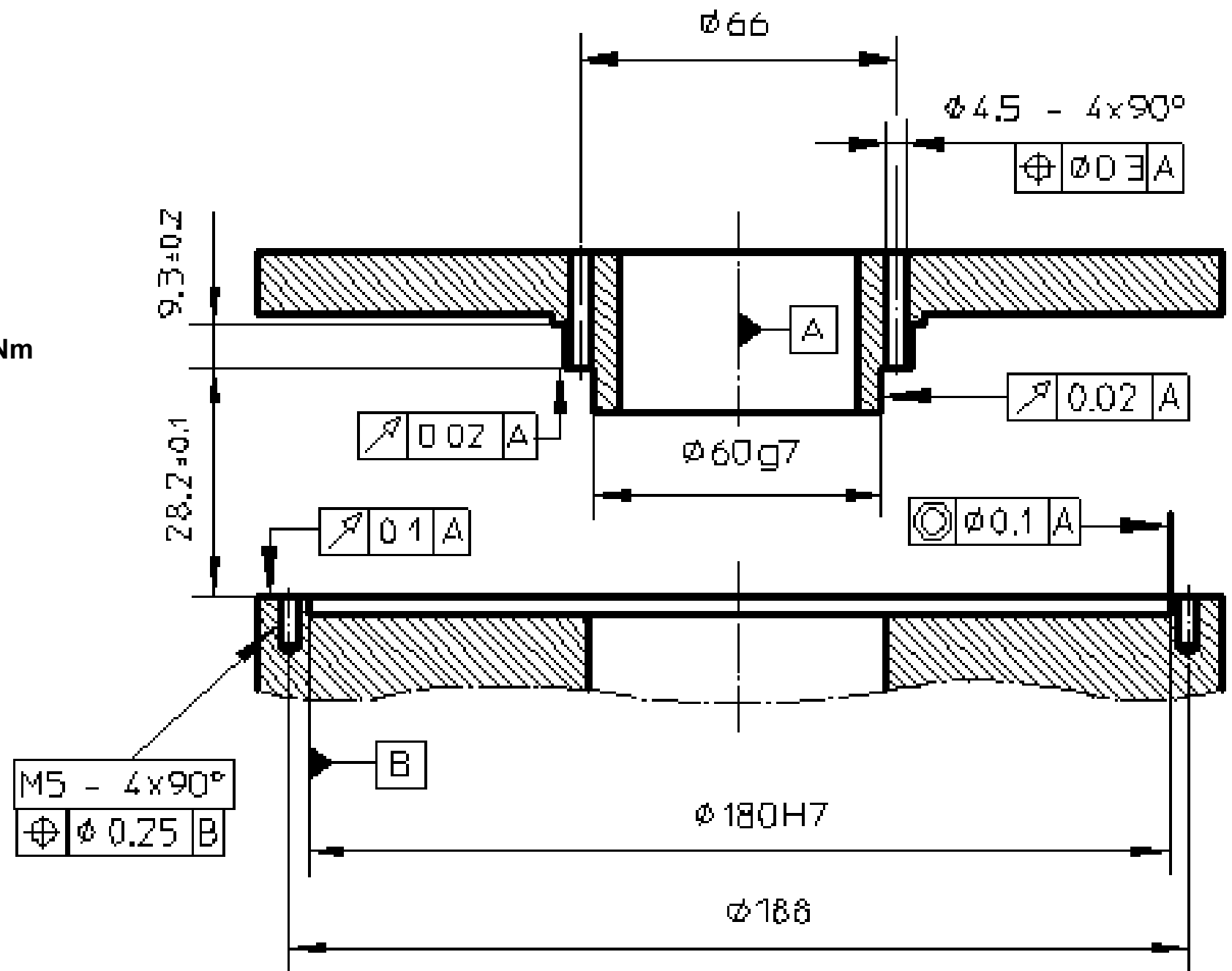
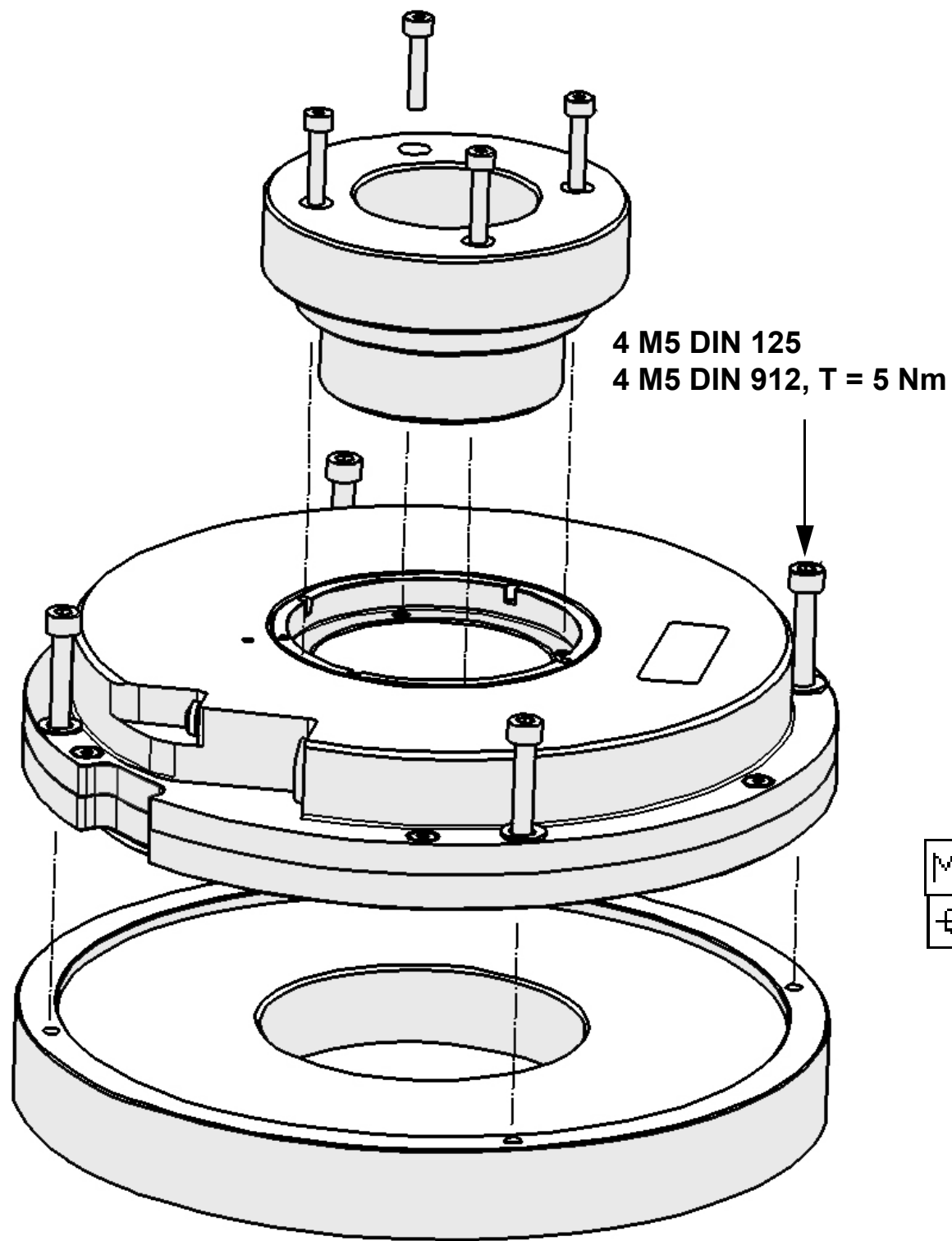
# Cotas de montaje / Mounting dimensions



A Rodamiento / Roller bearing

# MONTAJE / MOUNTING

# Cotas de montaje / Mounting dimensions



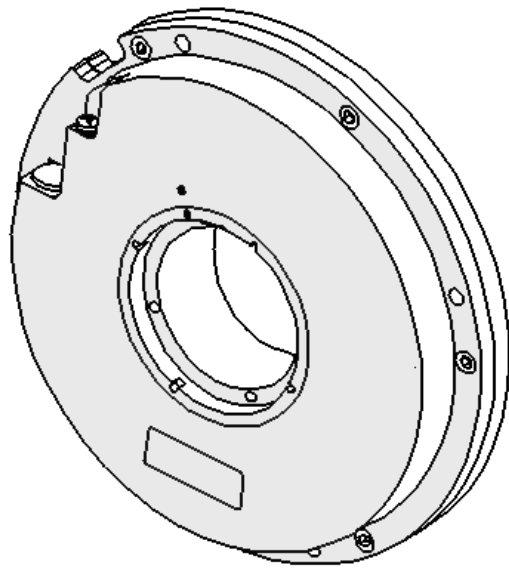


## CARACTERÍSTICAS MECÁNICAS MECHANICAL CHARACTERISTICS

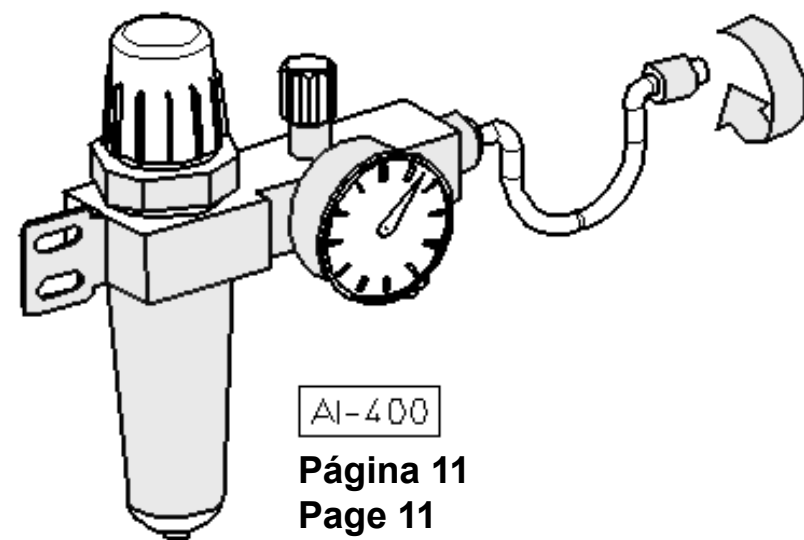
Modelo	HAM-27-D200-2	HAM-27-D200-1	Model
Precisión	±2"	±1"	Accuracy
Maxima velocidad de giro	1000 rpm *		Max. Turning speed
Momento de inercia del eje	10000 gr.cm <sup>2</sup>		Inertia of the rotor
Par (20°C)	< 0.05 Nm		Torque
Frecuencia natural	> 1000 Hz		Natural frequency
Peso	3.2 kg		Weight
Estanqueidad	IP-64 (DIN 40050)		Sealing protection
Vibración (55 - 2000 Hz)	100 m/s <sup>2</sup> (IEC 60 068-2-6)		Vibration (50 - 2000 Hz)
Impacto (6ms)	1000 m/s <sup>2</sup> (IEC 60 068-2-27)		Impact (6 ms)
Temperatura de funcionamiento	0 °C ... 50 °C (32 °F ... 122 °F)		Operating temperature
Temperatura de almacenamiento	-30 °C ... 80 °C (-22 °F ... 176 °F)		Storage temperature

\* Limitación eléctrica = 750 rpm / Electrical limitation = 750 rpm

**Nivel máximo: IP 64**  
**Maximum level IP 64**

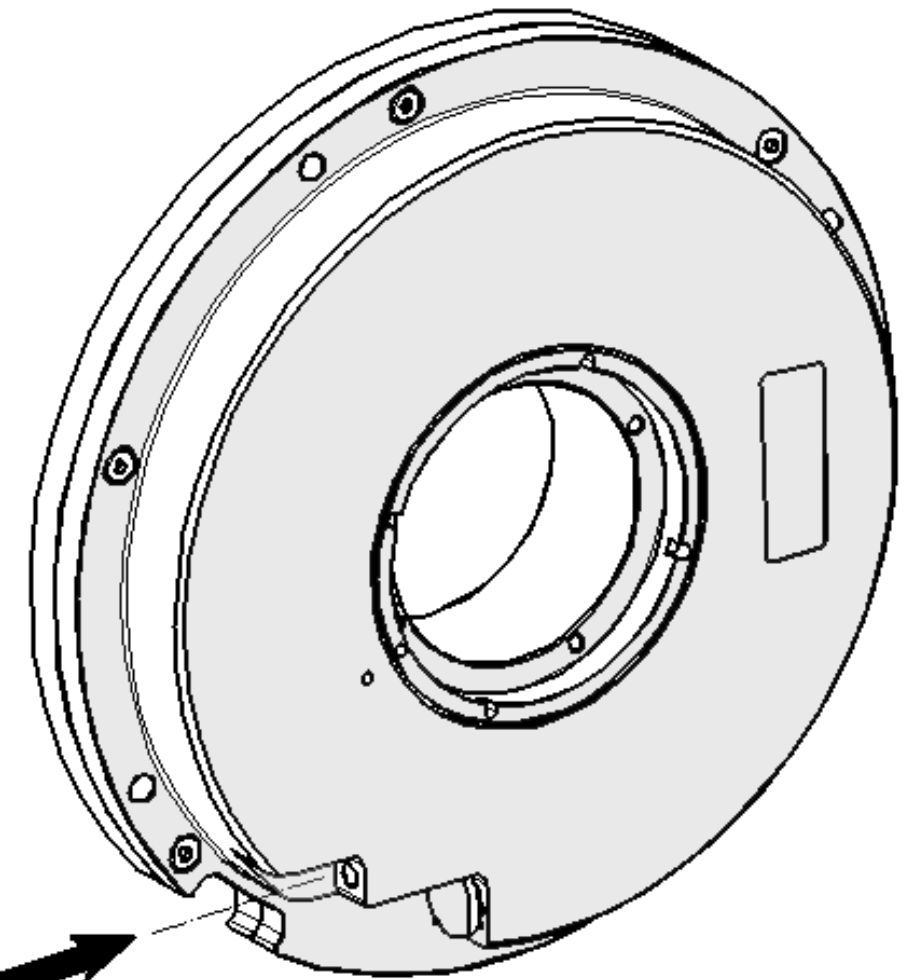


**> IP 64**



AI-400

Página 11  
 Page 11



(A)

**(A) AIR CONDITIONS**

**DIN ISO 8573 - 1**

Class 1 - Particle Max. 0.1  $\mu\text{m}$

Class 4 (7 bar) - Punto rocío / Dewpoint 3  $^{\circ}\text{C}$

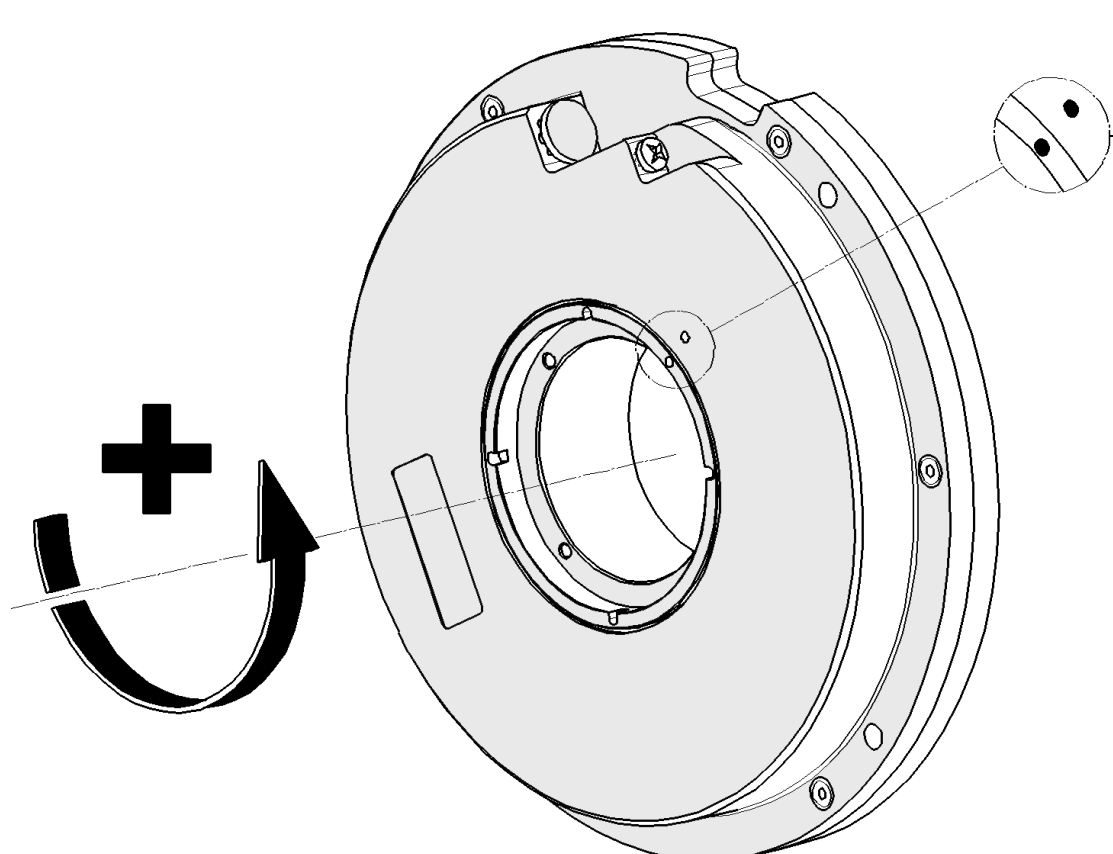
Class 1 - Max. Oil concentration 0,01  $\text{mg}/\text{m}^3$

**Presión / Pressure** 1  $\text{kg}/\text{cm}^2$

**Flujo / Flow** 10 l./min/encoder



# CARACTERÍSTICAS ELÉCTRICAS / ELECTRICAL CHARACTERISTICS

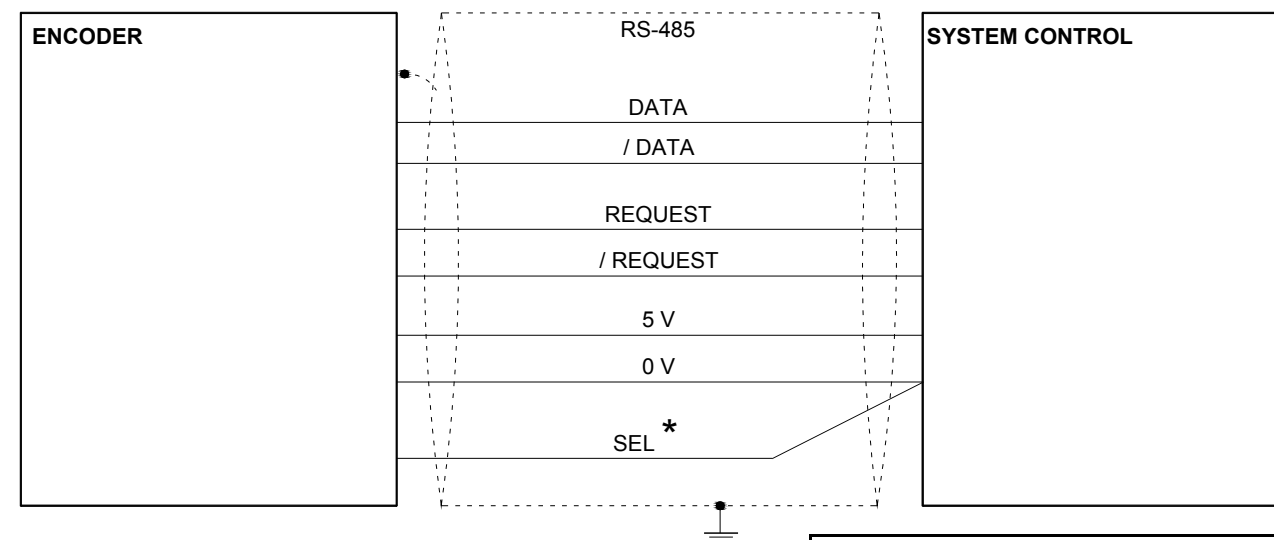


Posición del origen 0°  
0° origin position

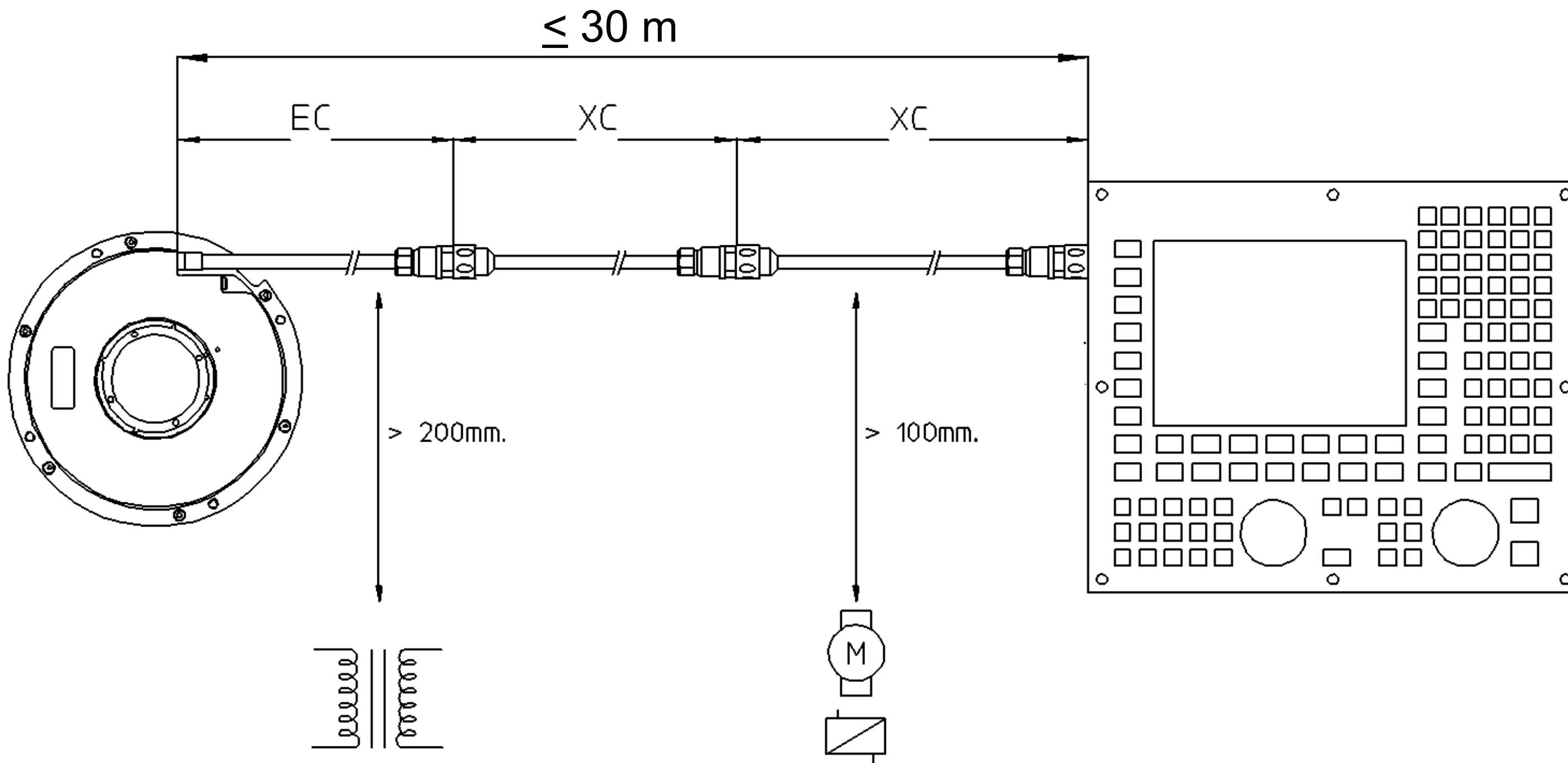
Girar eje para alinear puntos  
Turn the shaft lining up the dots

## HAM-27-D200

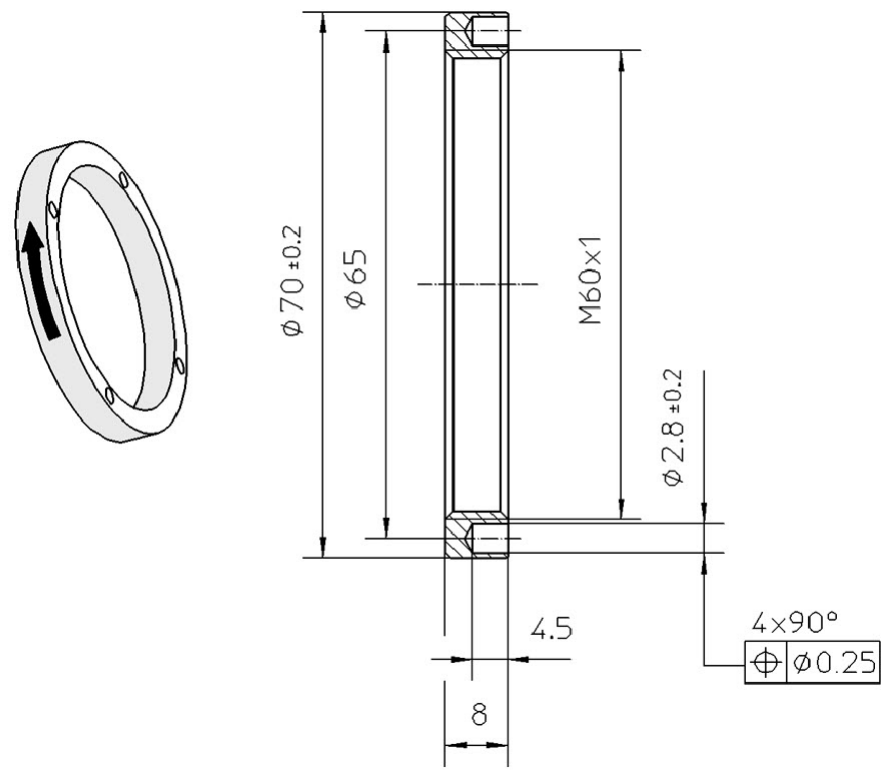
Resolución <i>Resolution</i>	27 bit (134 217 728) Pulsos / vuelta <i>pulses / turn</i>
Alimentación <i>Power supply</i>	3.6 V ... 5.25 V, <300 mA
Conexión <i>Connection</i>	Con conector incorporado <i>With built-in connector</i>
Longitud de cable <i>Cable length</i>	30 m 99 feet



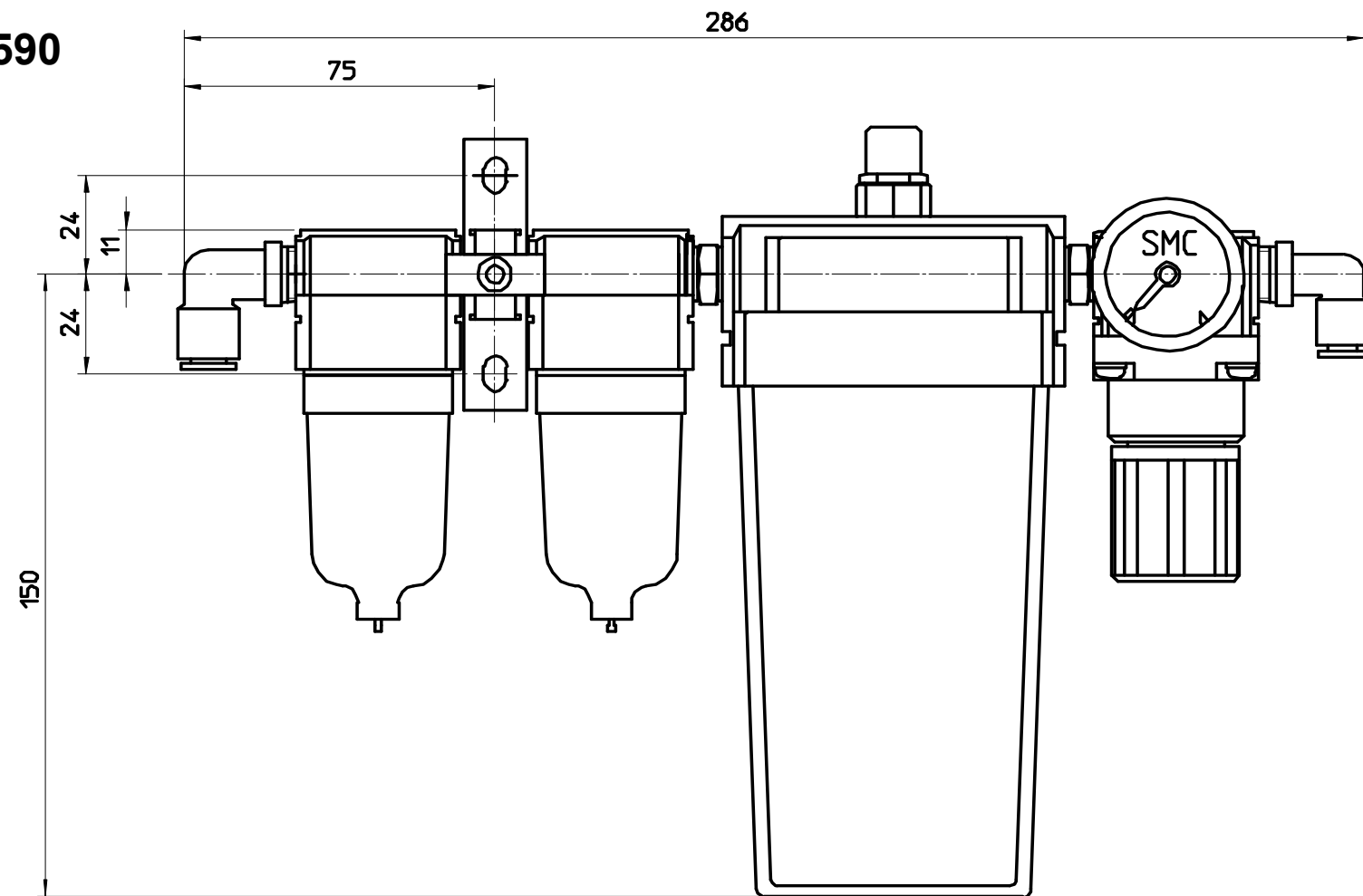
\* La comunicación por defecto es full duplex.  
*Full duplex is the default communication.*  
Para comunicación half duplex contactar con Fagor.  
*Contact Fagor for half duplex communication.*



# TUERCA / NUT



AI 590

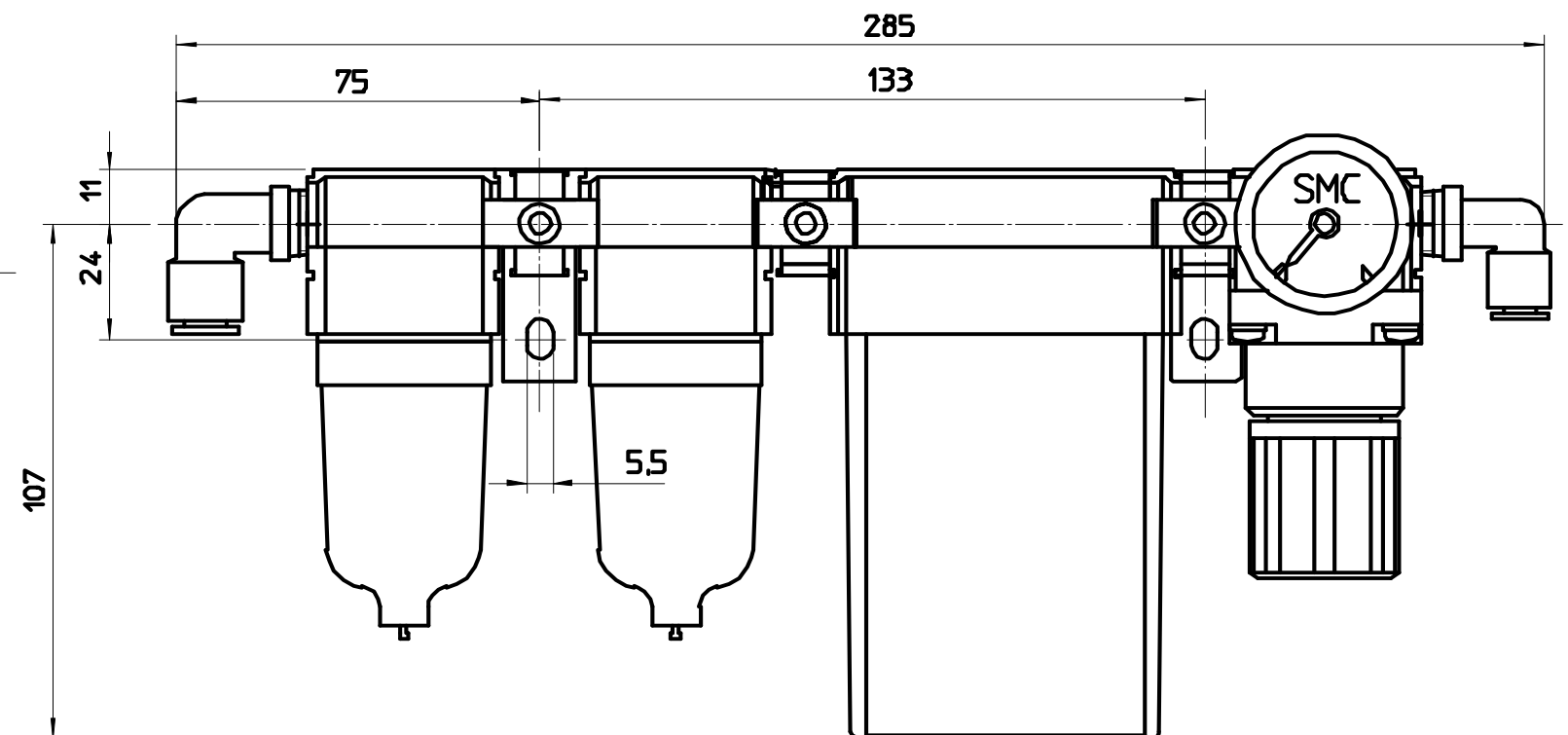
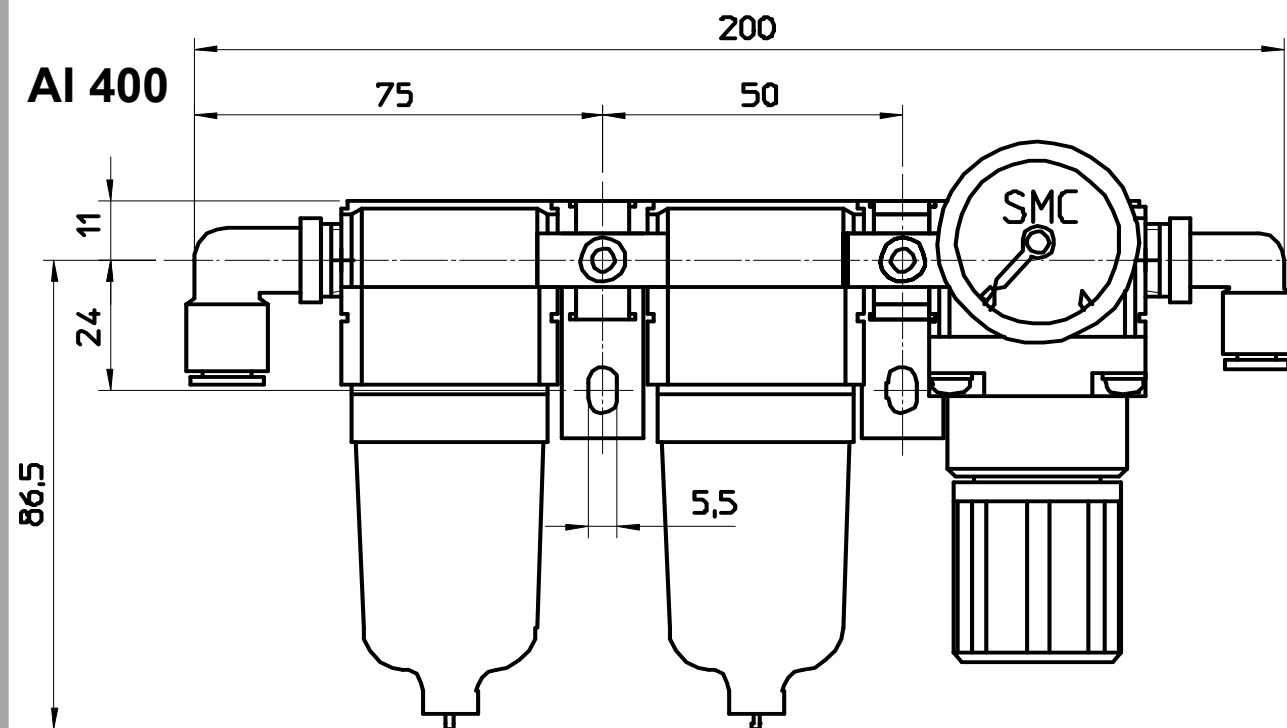


### FILTROS DE AIRE / AIR FILTERS

02200000	AI 400	25 l/min
02200001	AI 525	25 l/min
02200002	AI 550	50 l/min
02200003	AI 590	90 l/min

AI 525 / AI 550

AI 400

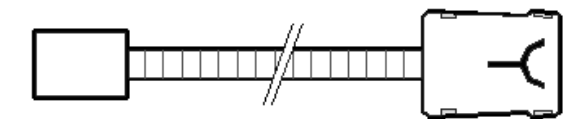


# MITSUBISHI: CONEXIONES / CONNECTIONS

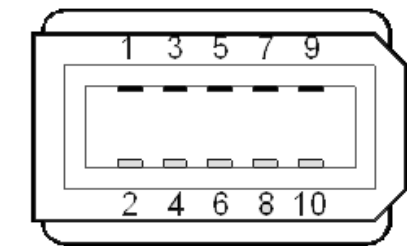
## EC...AM...MB :

Cable para **conexión directa** a sistemas absolutos MITSUBISHI full duplex. Con ferrita. Disponible en 1, 3, 6 and 9 metros.  
 Cable for **direct connection** to full-duplex MITSUBISHI absolute systems. With ferrite. Available in 1, 3, 6 and 9 meters.

<b>PIN</b>	7	8	3	4	1	2	Carcasa / Housing
<b>SEÑAL SIGNAL</b>	SD	/SD	REQ	/REQ	+5V	0V	Tierra / Ground
<b>COLOR</b>	Verde Green	Amarillo Yellow	Gris Grey	Rosa Pink	Marrón + Violeta Brown + Purple	Blanco+Negro+Azul White+Black+Blue	Malla / Shield



EC - ...AM - MB



## Alargaderas / Extension cables

CABLE		EXTENSION CABLE / ALARGADERA			TOTAL LENGTH LONGITUD TOTAL
Reference	Connector	Connector	Reference	Connector	
EC-1B-C9-F	C9	C8	XC-C8-x-MB	Mitsubishi	* 30 m
EC-1B-C9-N-F	Round 17-PM/RM	Round 17-PH/RH	XC-C8-xF-C9	C9-Round 17-PM/RM	

Round = Circular, PM = Male pins; RM = Male thread, PH = Female pins, RH = Female thread, M = Male, H = Female  
 PM = Pines macho, RM = Rosca Macho, PH = Pines hembra, RH = Rosca hembra, M= Macho, H = Hembra

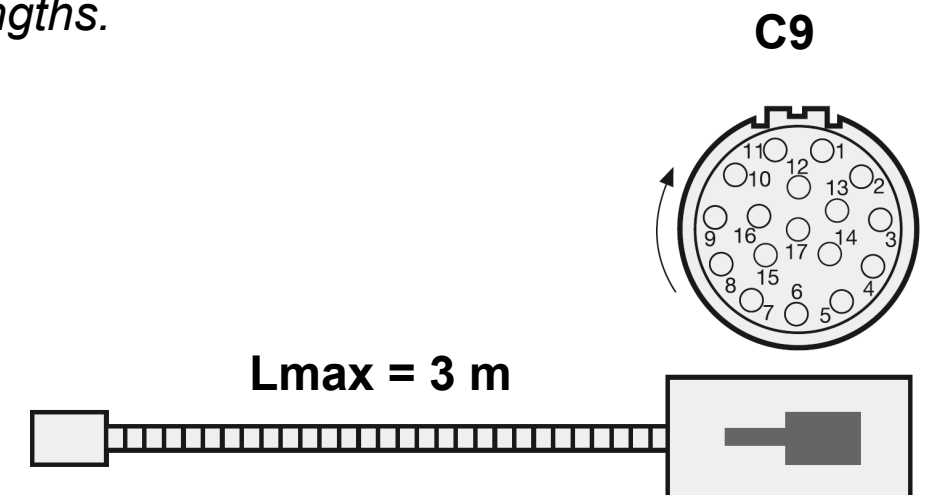
## MITSUBISHI: CONEXIONES / CONNECTIONS

También se puede utilizar la combinación de un cable **EC...B...C9-F** con una **alargadera XC...C8...MB** para otras longitudes.  
*A combination of EC...B...C9-F cable and an XC...C8...MB extension cable may be used for other lengths.*

**EC...B...C9-F** Cable disponible en 1 y 3 metros con ferrita. Contactar con FAGOR para otras longitudes.  
*Cable available in 1 and 3 meters with ferrite. Contact FAGOR for other lengths.*

### Conector (C9) macho circular 17 male connector

<b>PIN</b>	14	17	8	9	7	1	10	4	Caperuza Housing	
<b>SEÑAL SIGNAL</b>	REQ	/REQ	SD	/SD	+5V	+5V sensor	0V	0V sensor	Tierra Ground	
<b>COLOR</b>	Gris Grey	Rosa Pink	Negro Black	Violeta Purple	Marrón Brown	Verde claro Light green	Blanco White	Naranja Orange	Malla externa External shield	



### XC...C8...MB

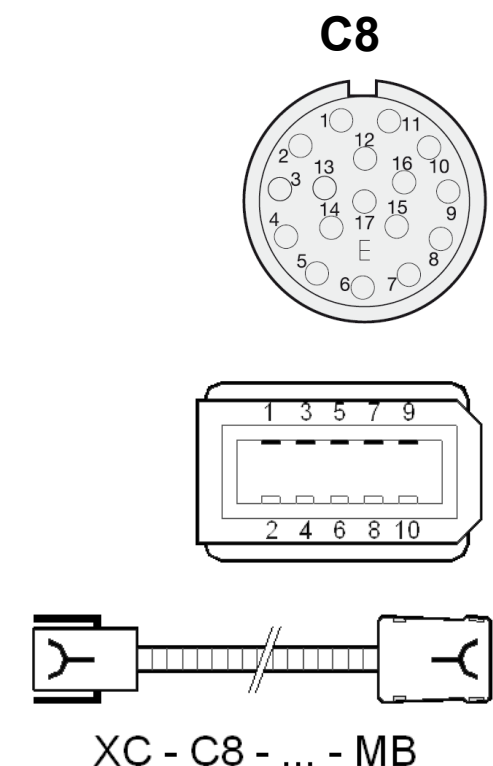
Alargadera para conexión directa a sistemas absolutos MITSUBISHI full duplex.  
 Disponible en 5, 10, 15, 20 y 25 metros.  
*Extension cable for direct connection to MITSUBISHI full-duplex absolute systems.  
 Available in 5, 10, 15, 20 and 25 meters.*

### Conector (C8) hembra circular 17 female connector

<b>PIN</b>	8	9	14	17	7	1	10	4	12	Caperuza Housing
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### Conector (MB) hembra rectangular female rectangular connector

<b>PIN</b>	7	8	3	4	1	1	2	2	2	16
<b>SEÑAL SIGNAL</b>	SD	/SD	REQ	/REQ	+5V	+5V Sensor	0V	0V sensor	SEL	Tierra Ground
<b>COLOR</b>	Gris Grey	Rosa Pink	Violeta Purple	Amarillo Yellow	Marrón-verde Brown-green	Azul Blue	Blanco-verde White-green	Blanco White	Negro Black	Malla Shield





## GARANTIA

- \*Plazo: 12 meses a partir de la fecha de expedición de fábrica.
- \*Cubre gastos de Materiales y Mano de Obra de reparación en FAGOR AUTOMATION.
- \*Los gastos de desplazamiento son a cargo del cliente.
- \*No cubre averías por causas ajenas a FAGOR AUTOMATION, como: golpes, manipulación por personal no autorizado, etc.

## DECLARACION DE CONFORMIDAD

**Fabricante: Fagor Automation, S. Coop.**  
Barrio de San Andrés 19, C.P. 20500, Mondragón -Guipúzcoa- (ESPAÑA)

Declaramos bajo nuestra exclusiva responsabilidad la conformidad del producto al que hace referencia este manual

**Nota.** Algunos caracteres adicionales pueden seguir a las referencias de los modelos indicados en este manual. Todos ellos cumplen con las siguientes normas:


### COMPATIBILIDAD ELECTROMAGNÉTICA:

EN 61000-6-2:2005 Norma de Inmunidad en entornos industriales  
EN 61000-6-4:2007 Norma de Emisión en entornos industriales

De acuerdo con las disposiciones de la Directiva Comunitaria: 2004/108/CE de Compatibilidad Electromagnética.

Mondragón a 1 de abril de 2016

Fagor Automation, S. Coop.

  
Director Gerente  
Pedro Ruiz de Aguirre

## WARRANTY

- \*Term: 12 months from factory invoice date.
- \*It covers parts and labor at FAGOR AUTOMATION.
- \*Travel expenses are payable by the customer.
- \*Damages due to causes external to FAGOR AUTOMATION, such as unauthorized handling, blows, etc. are not covered.

## DECLARATION OF CONFORMITY

**Manufacturer: Fagor Automation, S. Coop.**  
Barrio de San Andrés 19, C.P. 20500, Mondragón -Guipúzcoa- (SPAIN)

We declare under our exclusive responsibility the conformity of the product referred to in this manual.

**Note.** Some additional characters may follow the model references indicated in this manual. They all comply with the following regulations:

### ELECTROMAGNETIC COMPATIBILITY:

EN 61000-6-2:2005 Standard on immunity in industrial environments  
EN 61000-6-4:2007 Standard on emission in industrial environments

According to the European Directive: 2004/108/CE on electromagnetic compatibility.

Mondragón, april 1st 2016

**NOTAS DE USUARIO / USER NOTES**

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**NOTAS DE USUARIO / *USER NOTES***

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