



Fagor Automation S. Coop.

Manual code: 14460143

Manual version: 1405



# ENCODER SAF-D90

MANUAL DE INSTALACIÓN  
INSTALLATION MANUAL

**FAGOR AUTOMATION S. COOP.**

B<sup>a</sup> San Andrés N<sup>o</sup> 19

Apdo de correos 144

20500 Arrasate/Mondragón

- Spain -

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

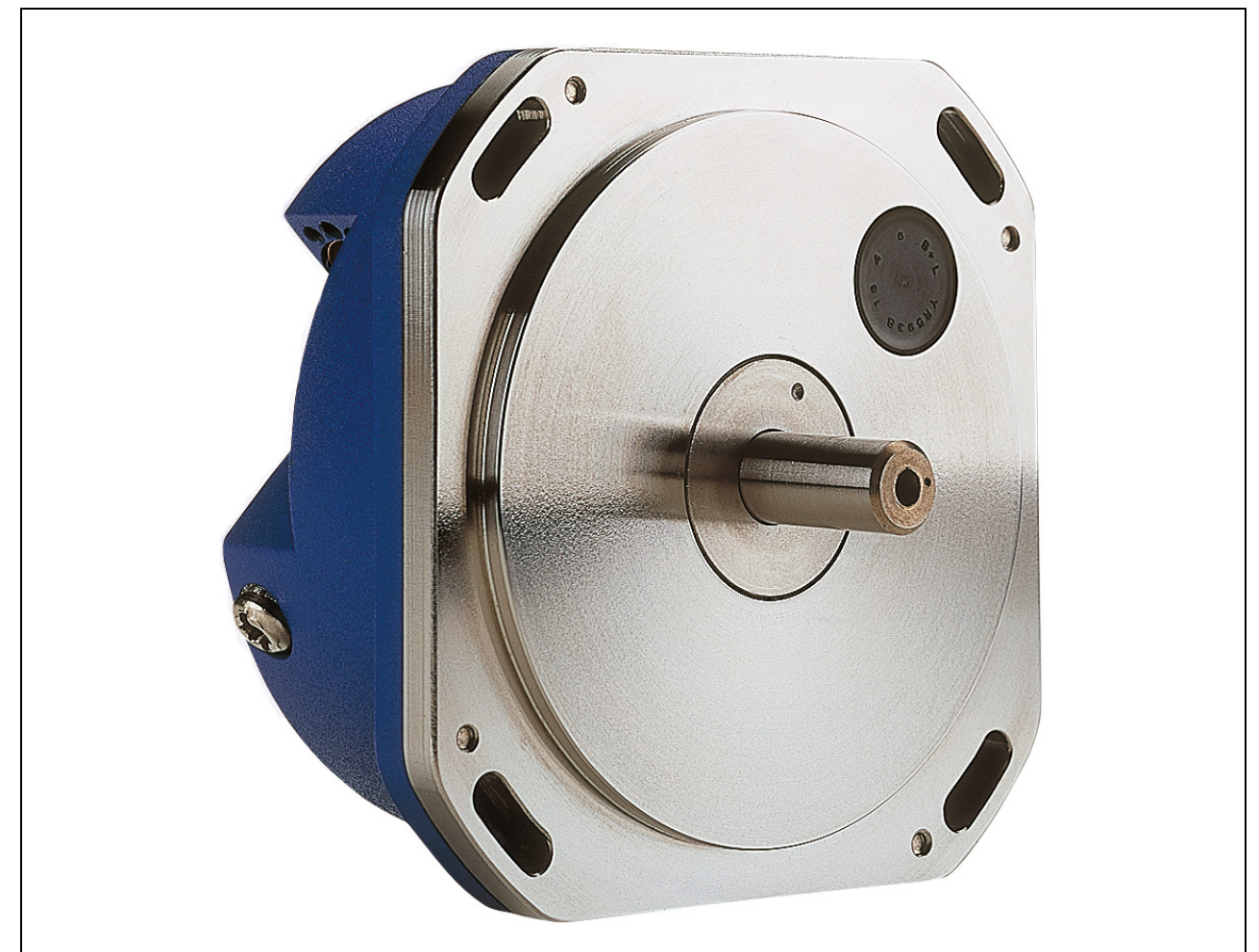
Email: [info@fagorautomation.es](mailto:info@fagorautomation.es)

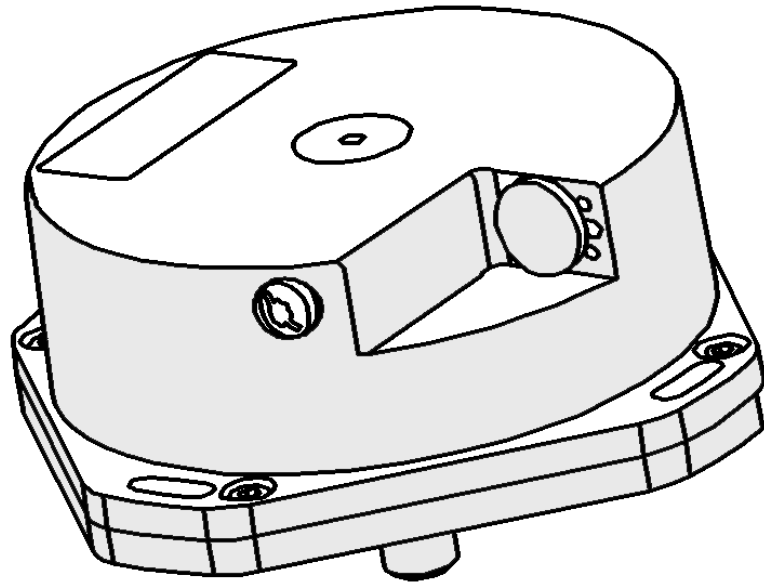
Tel.: (34) 943 719200

Fax: (34) 943 791712



Fagor Automation S. Coop.





MANUAL

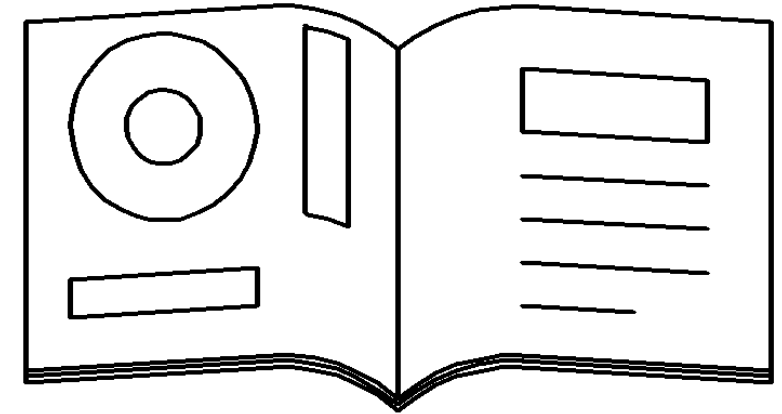
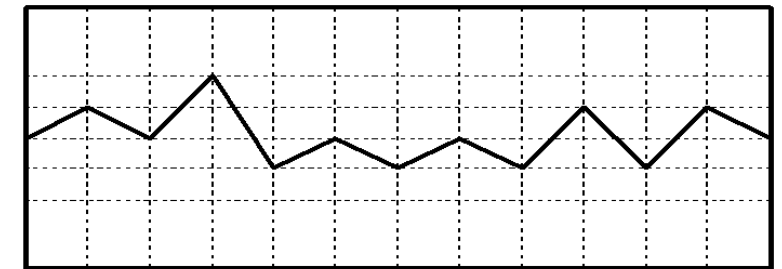
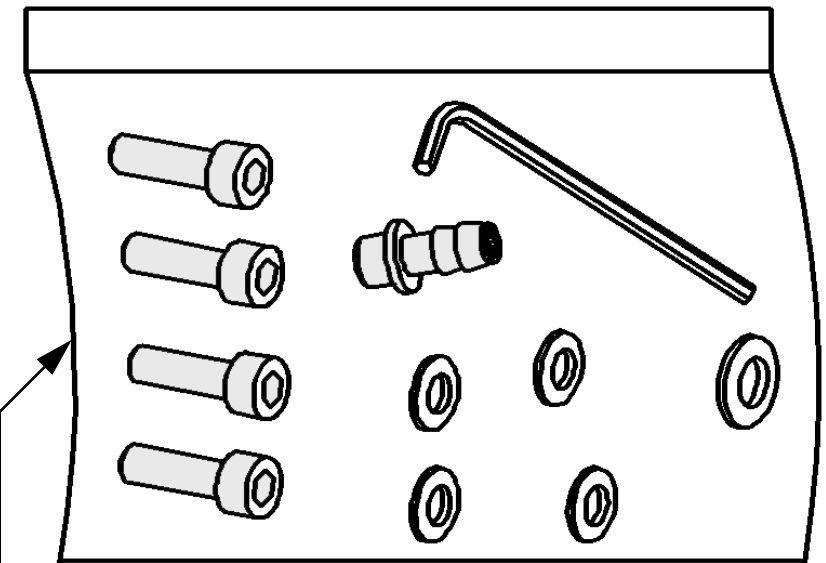


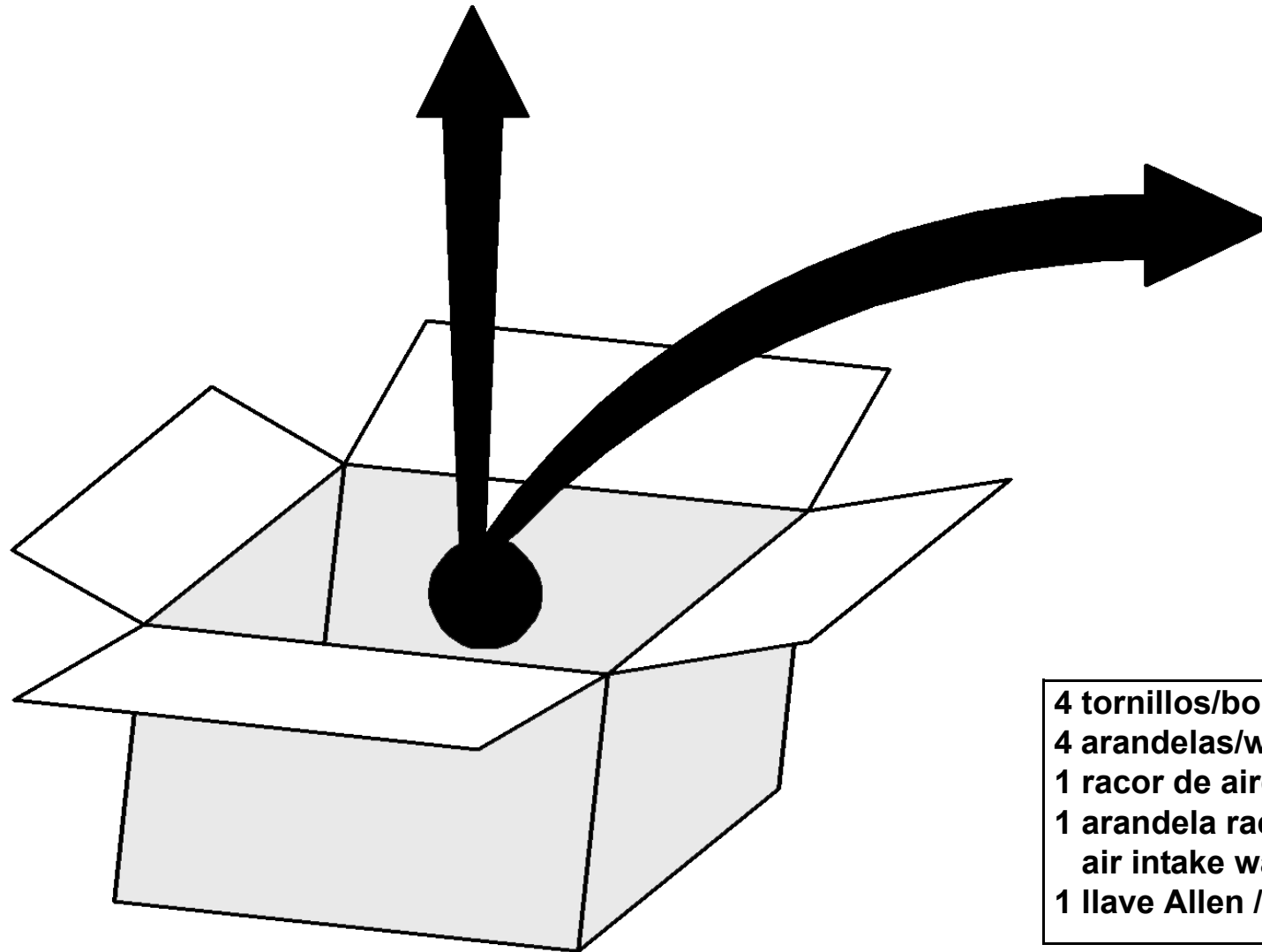
GRÁFICO  
GRAPH



ACCESORIOS  
ACCESSORIES

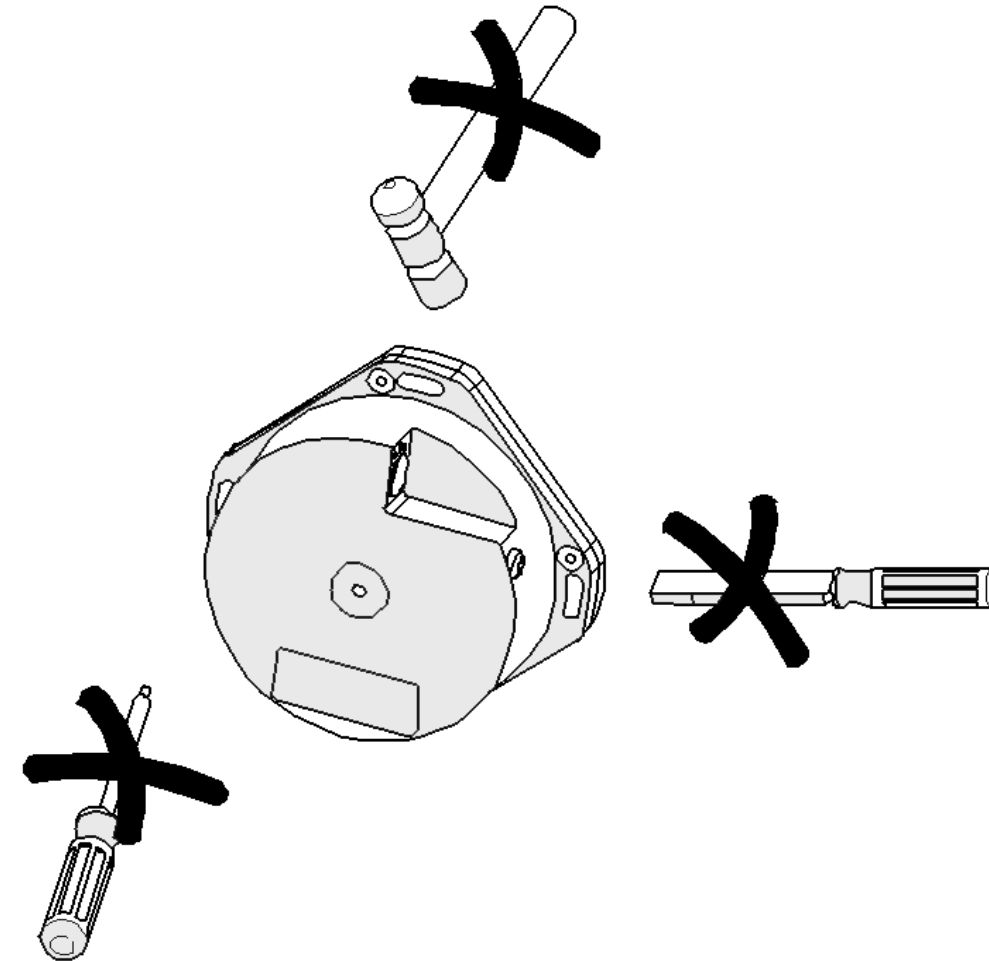
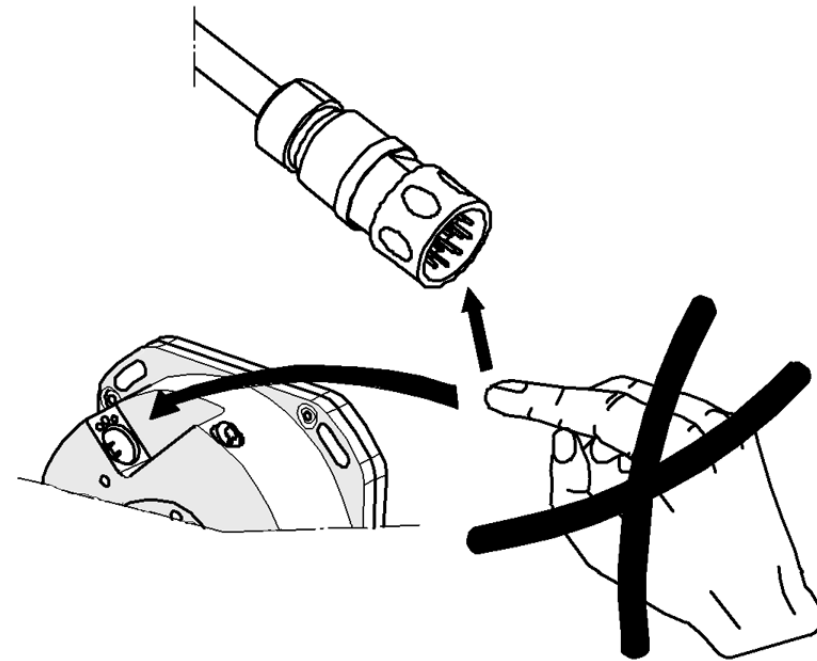
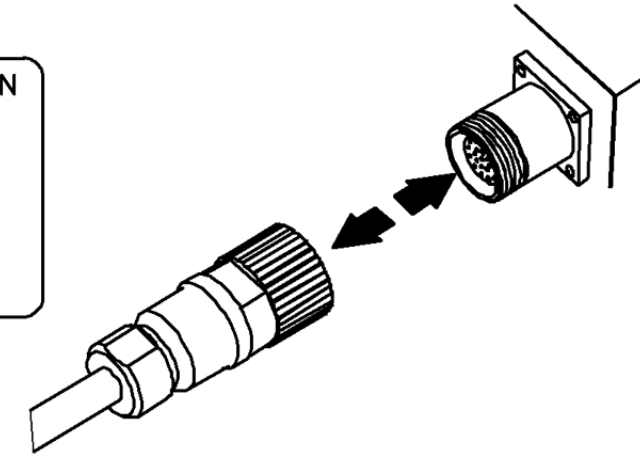
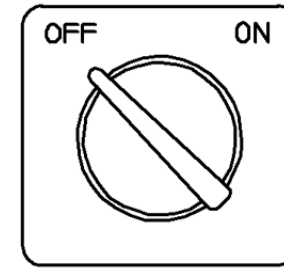
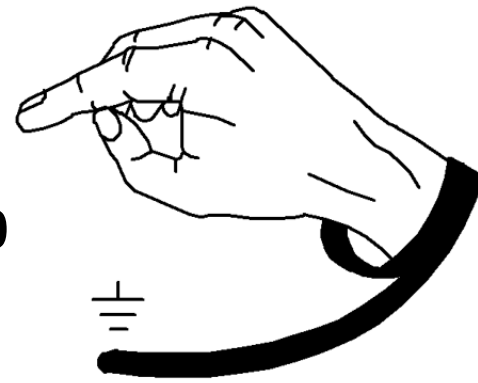


- 4 tornillos/bolts M4 x 16 DIN 912
- 4 arandelas/washers M4 DIN 125
- 1 racor de aire / air intake
- 1 arandela racor de aire /  
air intake washer
- 1 llave Allen / Allen wrench

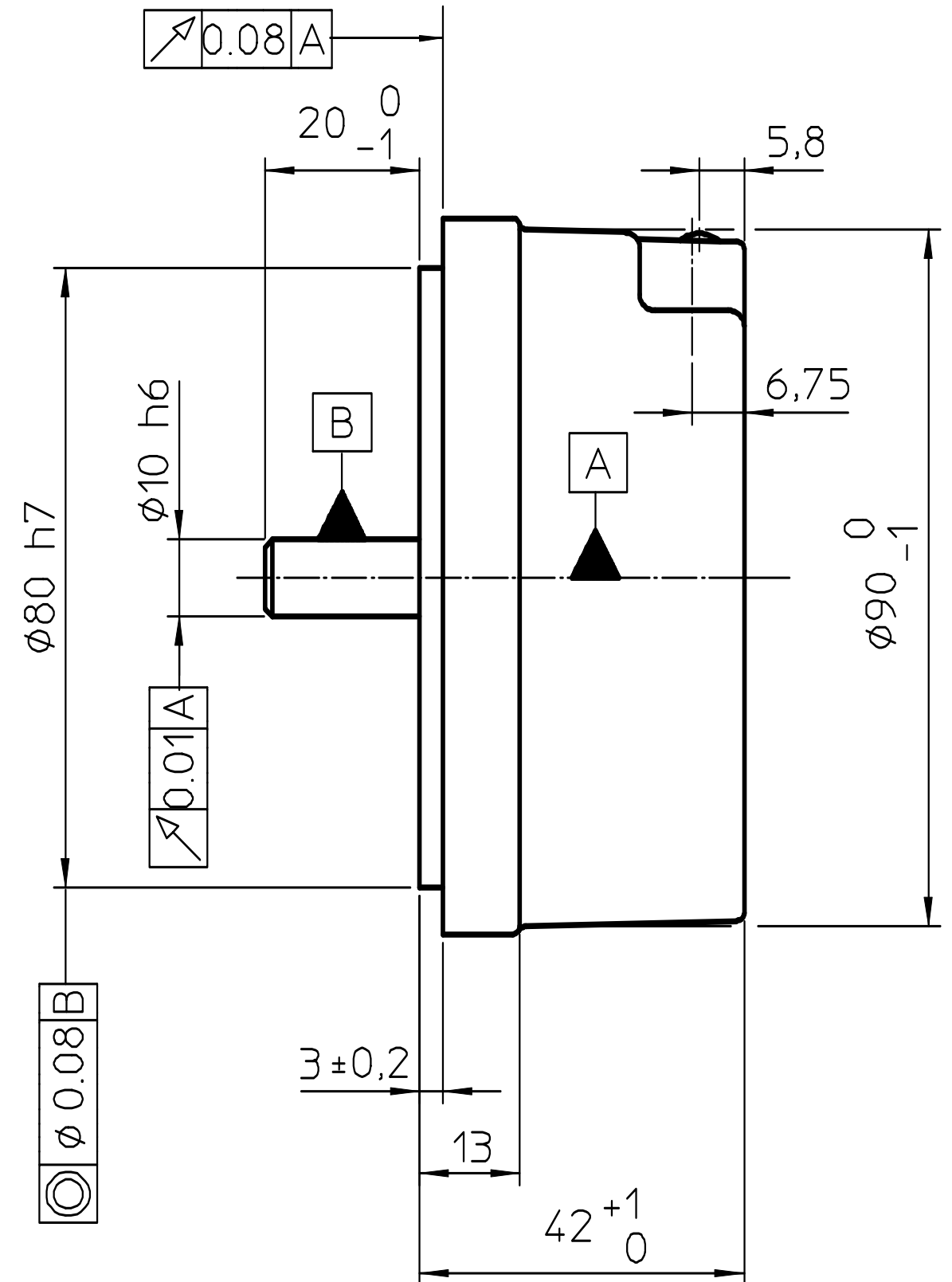
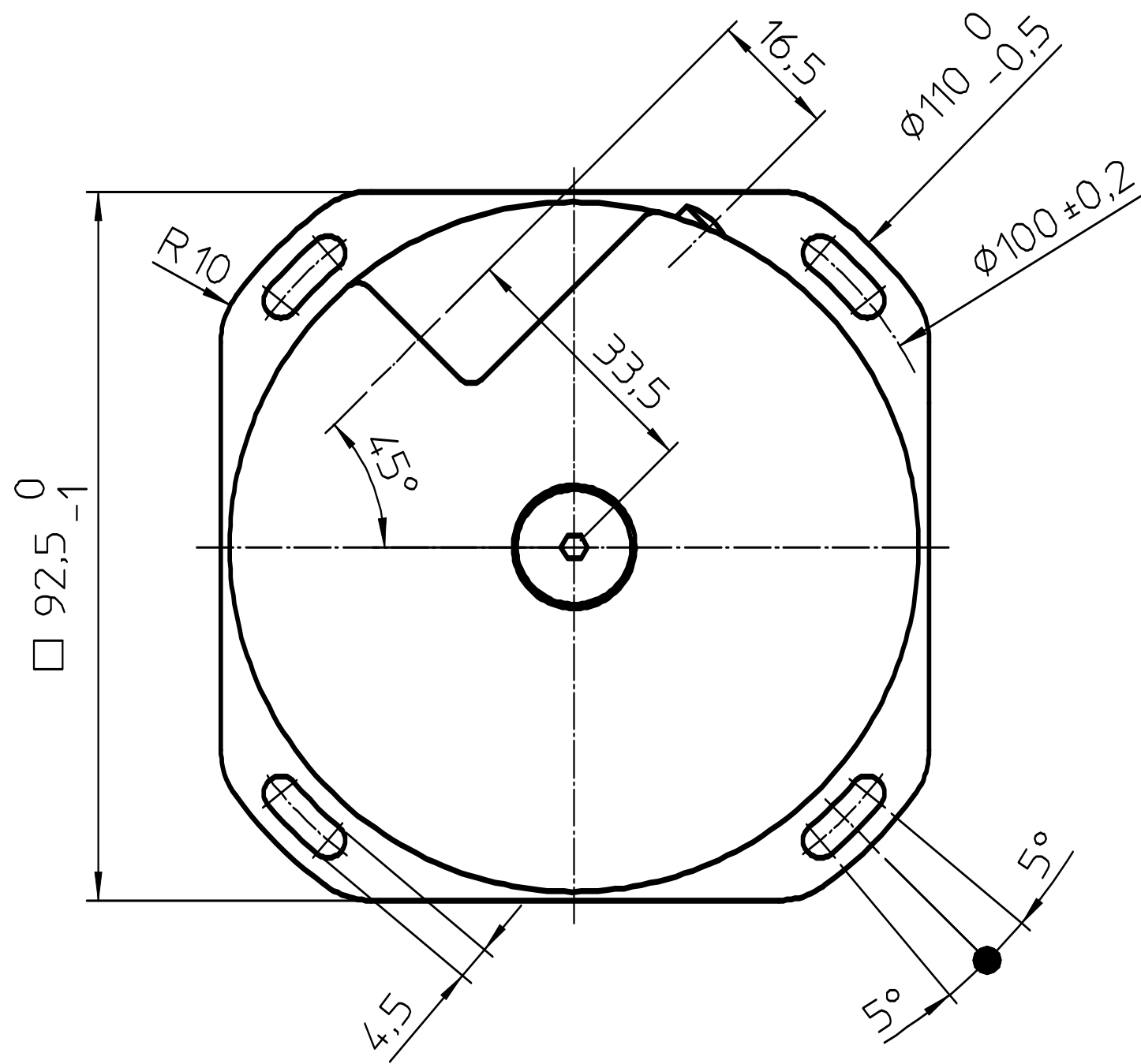




DIN EN 100

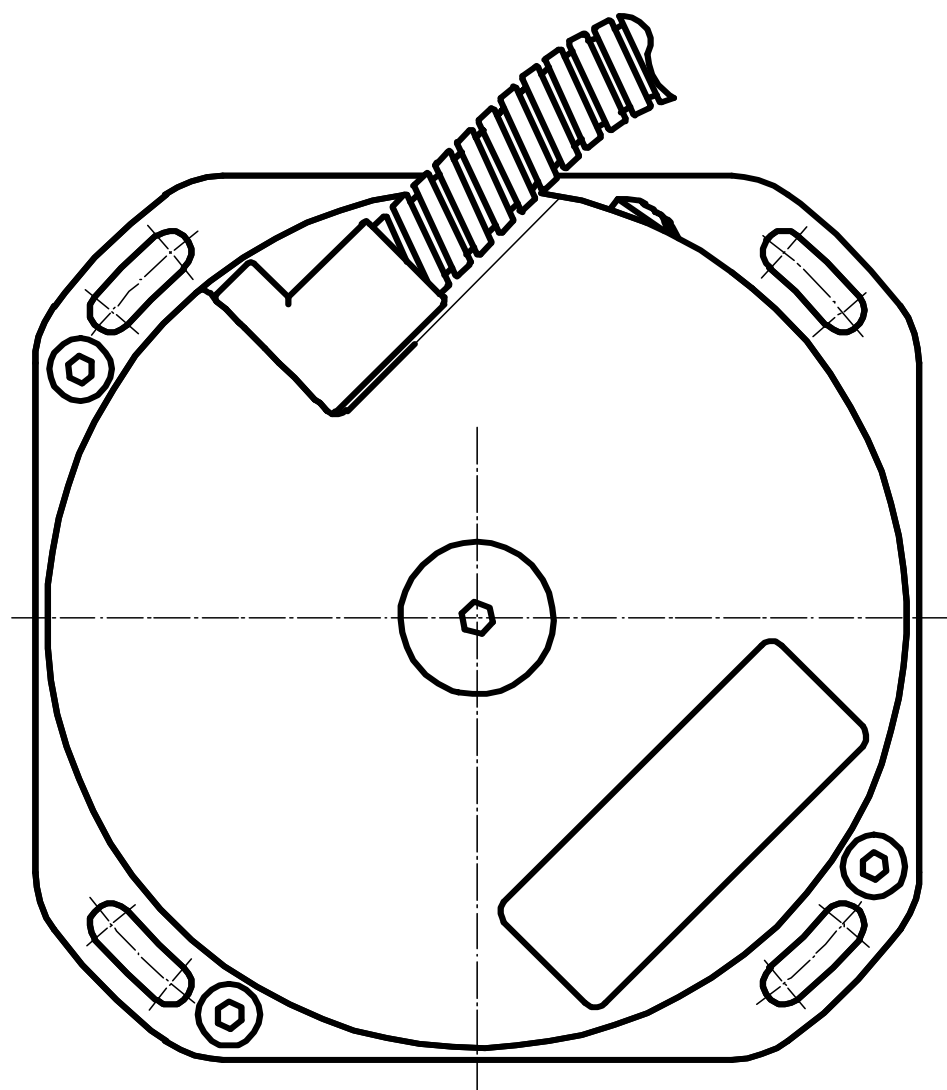


# GENERAL DIMENSIONS

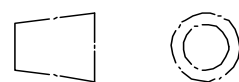


# MONTAJE / MOUNTING

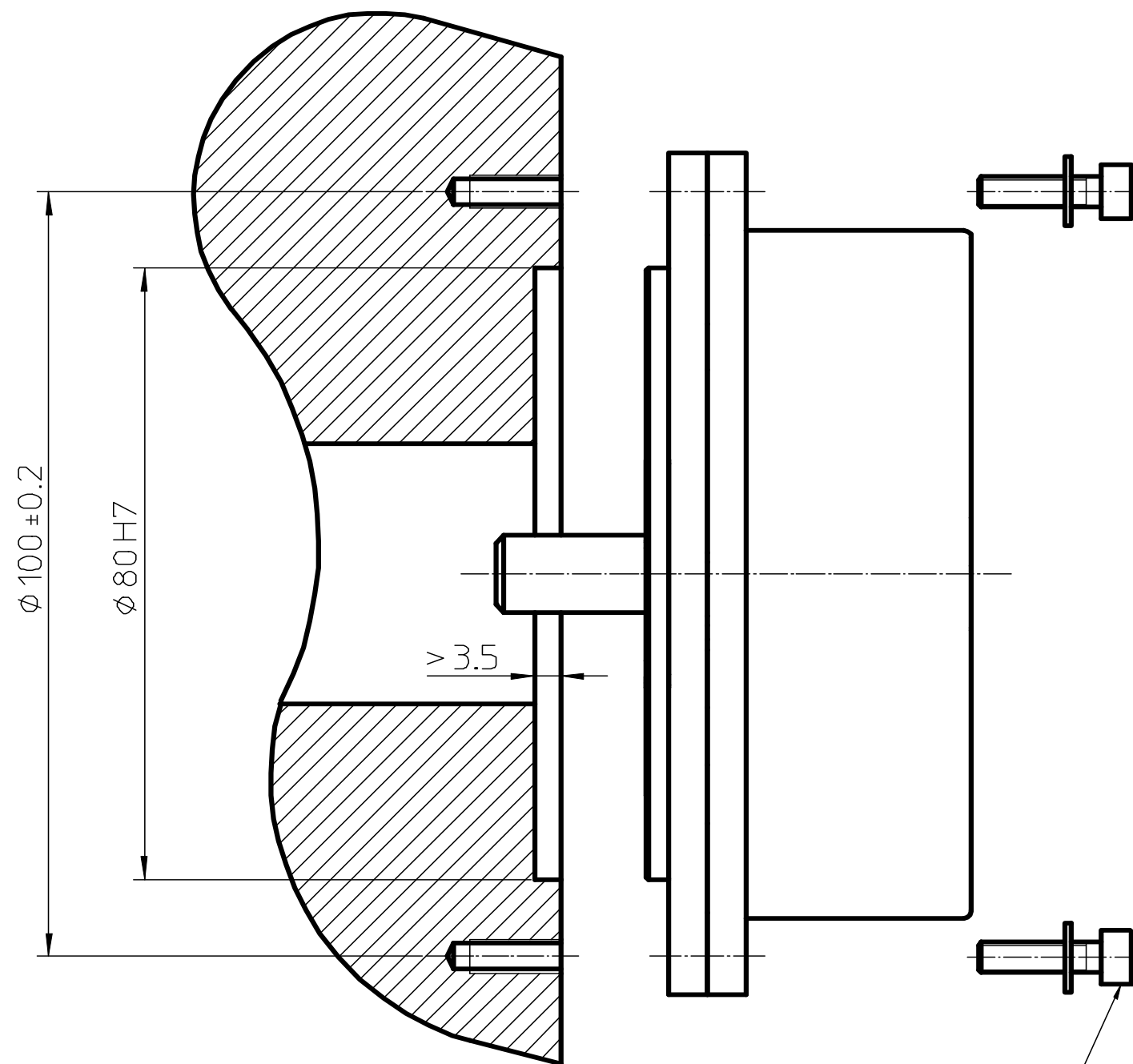
# Cotas de montaje / Mounting dimensions



Dimensions in mm.



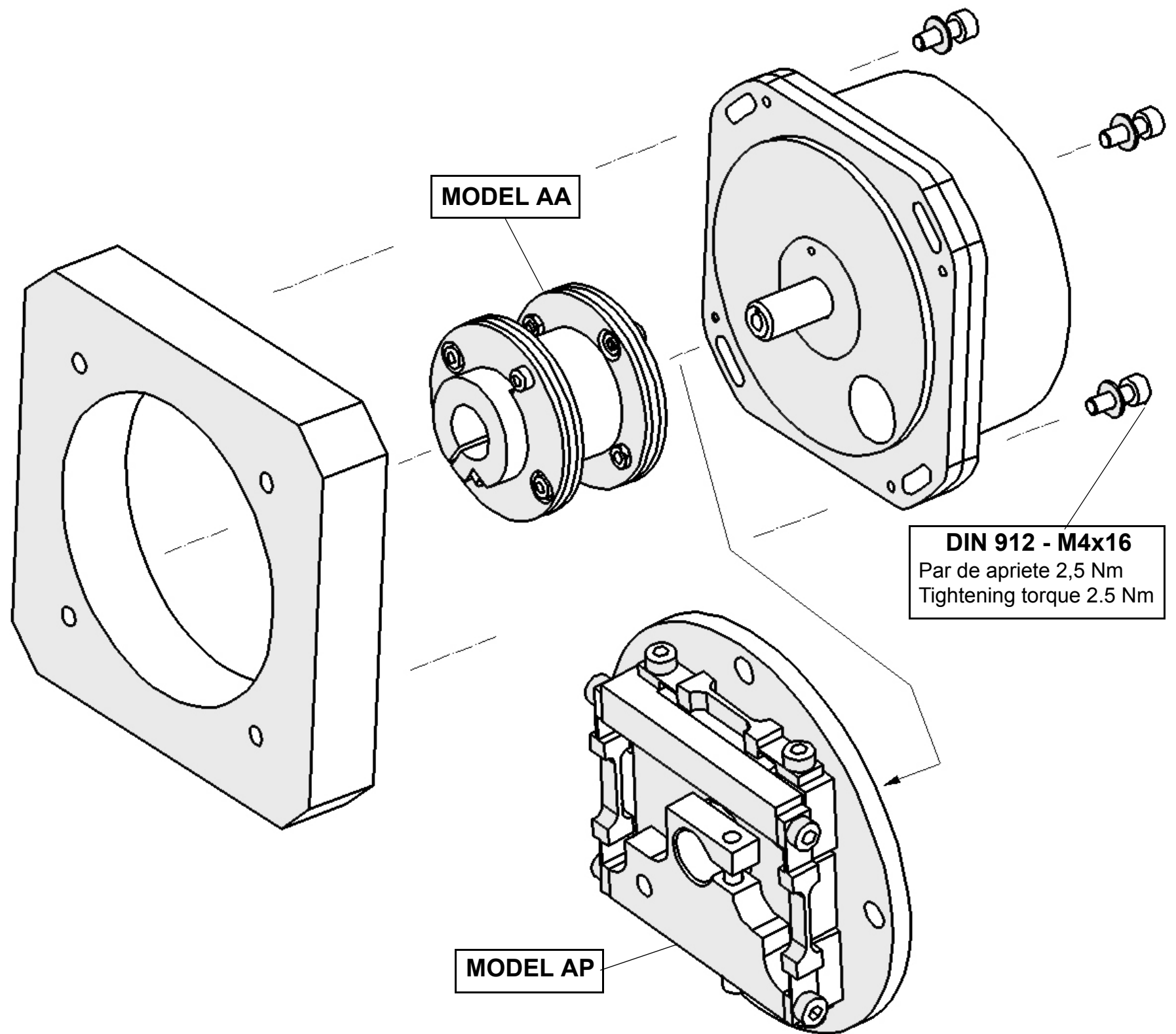
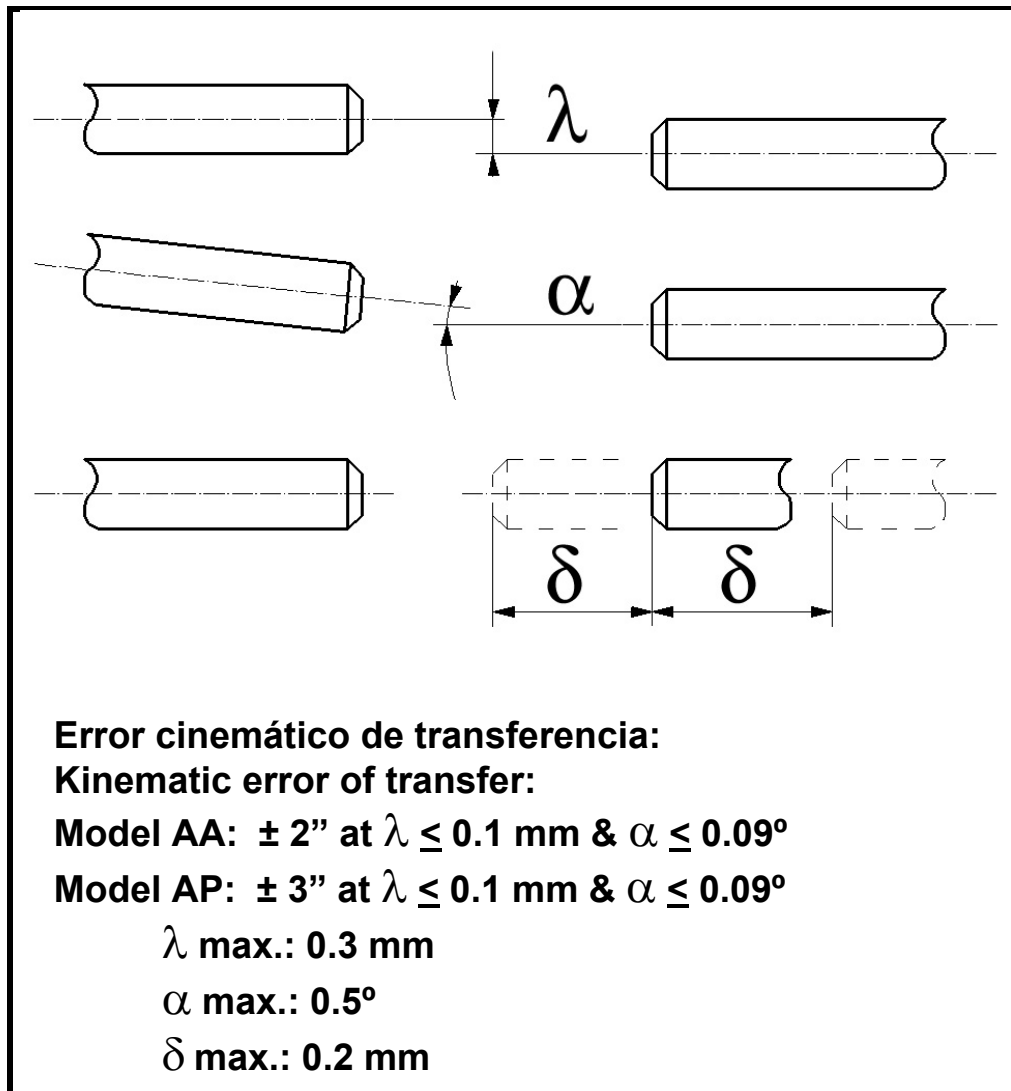
Tolerance ISO 8015  
ISO 2768 - m H



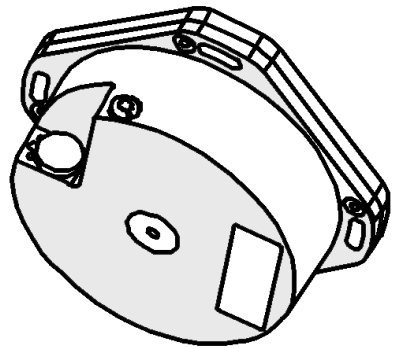
**DIN 912 - M4x16**  
Par de apriete 2,5 Nm  
Tightening torque 2.5 Nm

## MONTAJE / MOUNTING

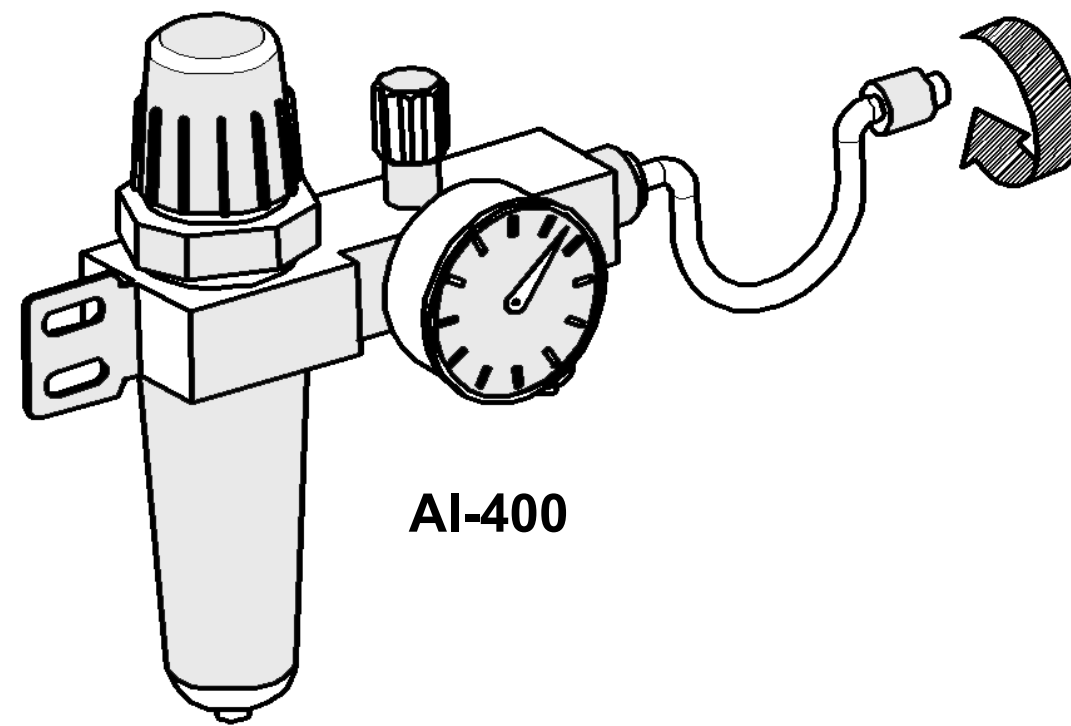
## Acoplamiento / Coupling



Nivel máximo: IP 64  
Maximum level IP 64

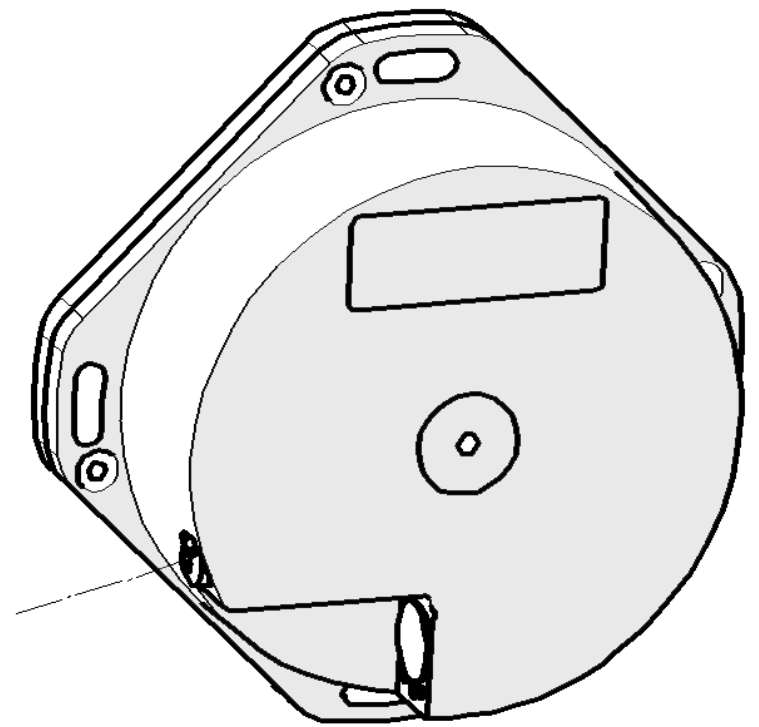


> IP 64



AI-400

(A)



(A) AIR CONDITIONS	
DIN ISO 8573 -1	
Class 1 - Particule Max. 0.1 μ	
Class 4 (7 bar) - Punto rocío / dewpoint 3 °C	
Class 1 - Max. Concentration oil 0.01 mg/m3	
Presión / Pressure	1 Kg / cm3
Flujo / Flow	10 l. / min. / encoder

## CARACTERÍSTICAS MECÁNICAS MECHANICAL CHARACTERISTICS

Modelo	SAF-D90-27	SAF-D90-23	Model
Precisión	±2.5"	±5"	Accuracy
Maxima velocidad de giro	10000 rpm *		Max. Turning speed
Momento de inercia del eje	240 gr.cm <sup>2</sup>		Inertia of the rotor
Par (20°C)	≤ 0.01 Nm		Torque
Carga axial en el eje	10 N		Axial shaft load
Carga radial al final del eje	10 N		Radial load at the end of the shaft
Peso	1.2 kg		Weight
Estanqueidad	IP64 (DIN 40050)		Sealing protection
Vibración (50-2000 Hz)	100 m/s <sup>2</sup> (IEC 68-2-6)		Vibration (50-2000 Hz)
Impacto (6ms)	1000 m/s <sup>2</sup> (IEC-68-2-27)		Shock (6 ms)
Temperatura de funcionamiento	0 °C ... 50°C (32 °F ... 122 °F)	-20°C ... 70°C (-4°F ... 158°F)	Operating temperature
Temperatura de almacenamiento	-30 °C ... 80 °C (-22 °F ... 176 °F)		Storage temperature

\* Limitación eléctrica = 1500 rpm / *Electrical limitation = 1500 rpm*

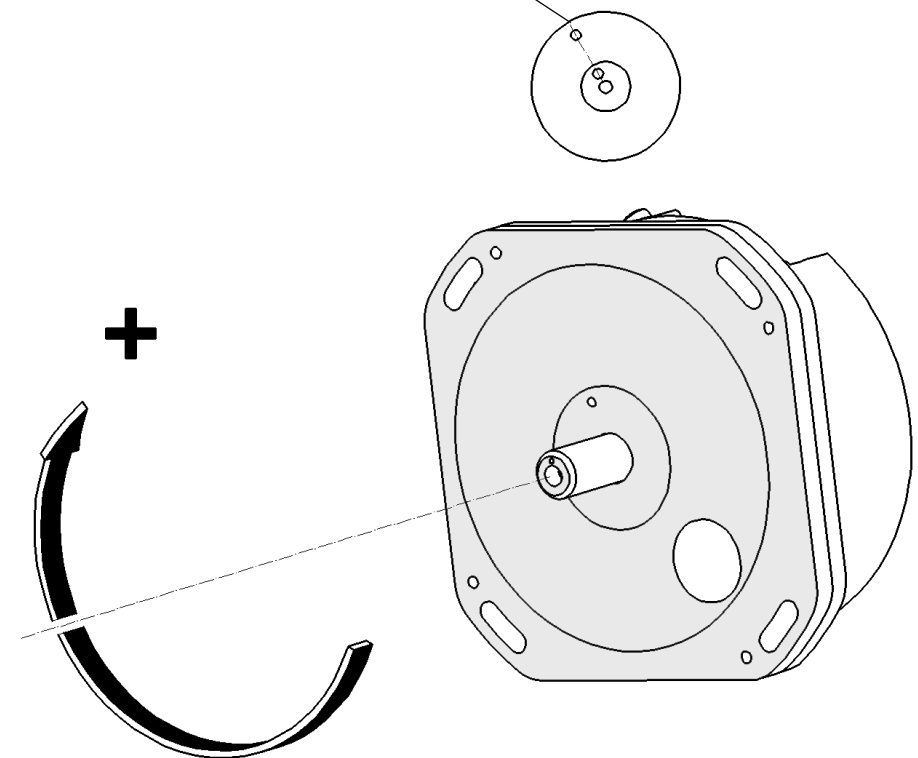
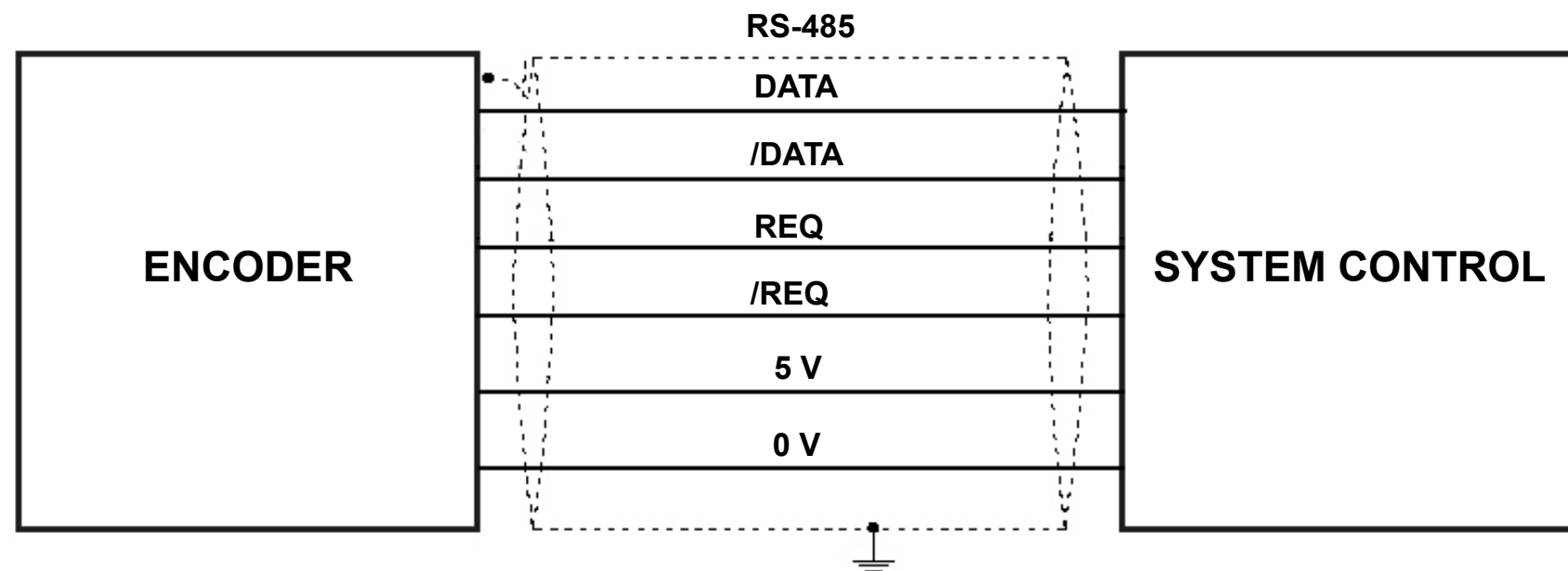


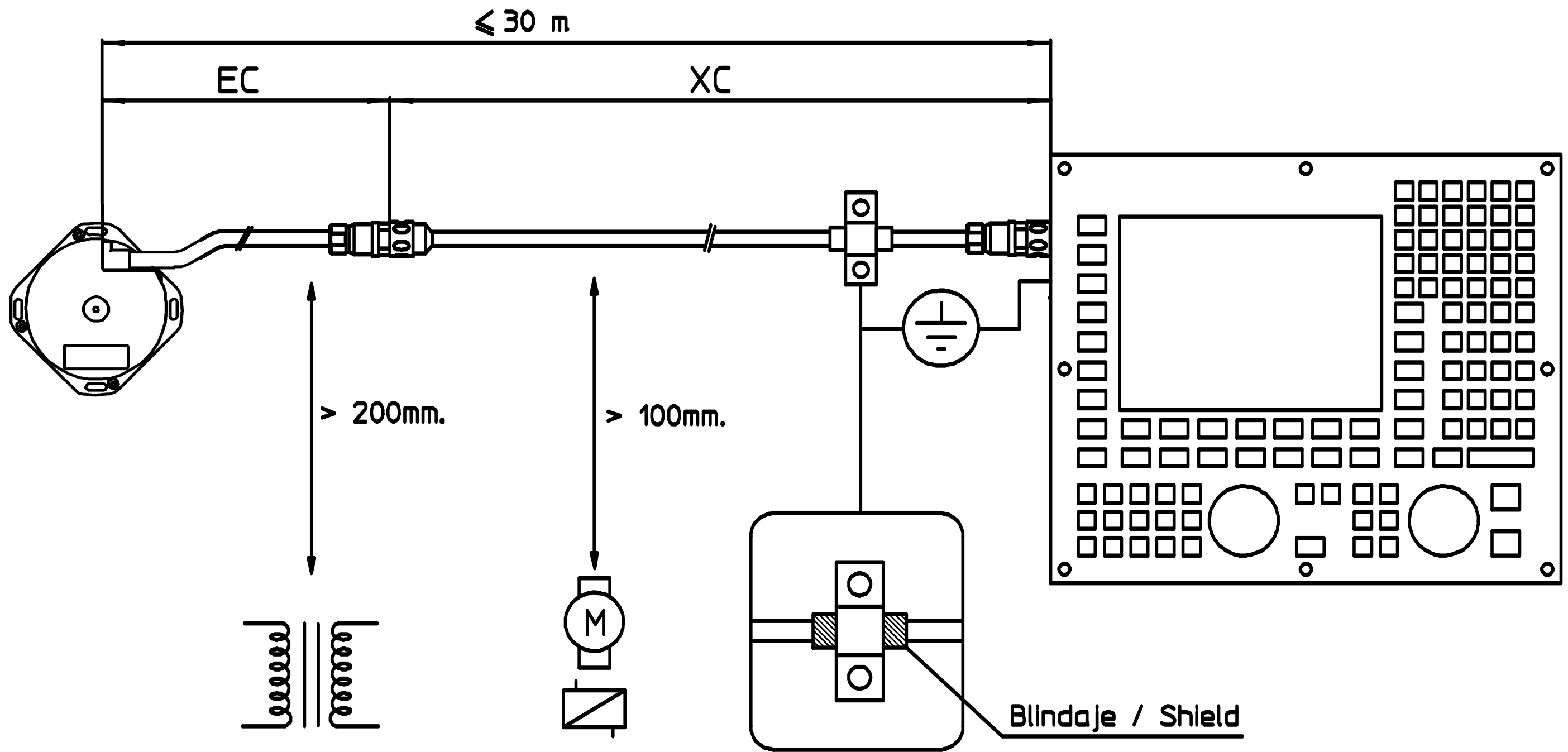
# CARACTERÍSTICAS ELÉCTRICAS / ELECTRICAL CHARACTERISTICS

	SAF-27-D90-2	SAF-23-D90
Resolución <i>Resolution</i>	27 bit (134 217 728) Pulsos / vuelta <i>pulses / turn</i>	23 bit (8 388 608) 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>	100 m 300 feet	

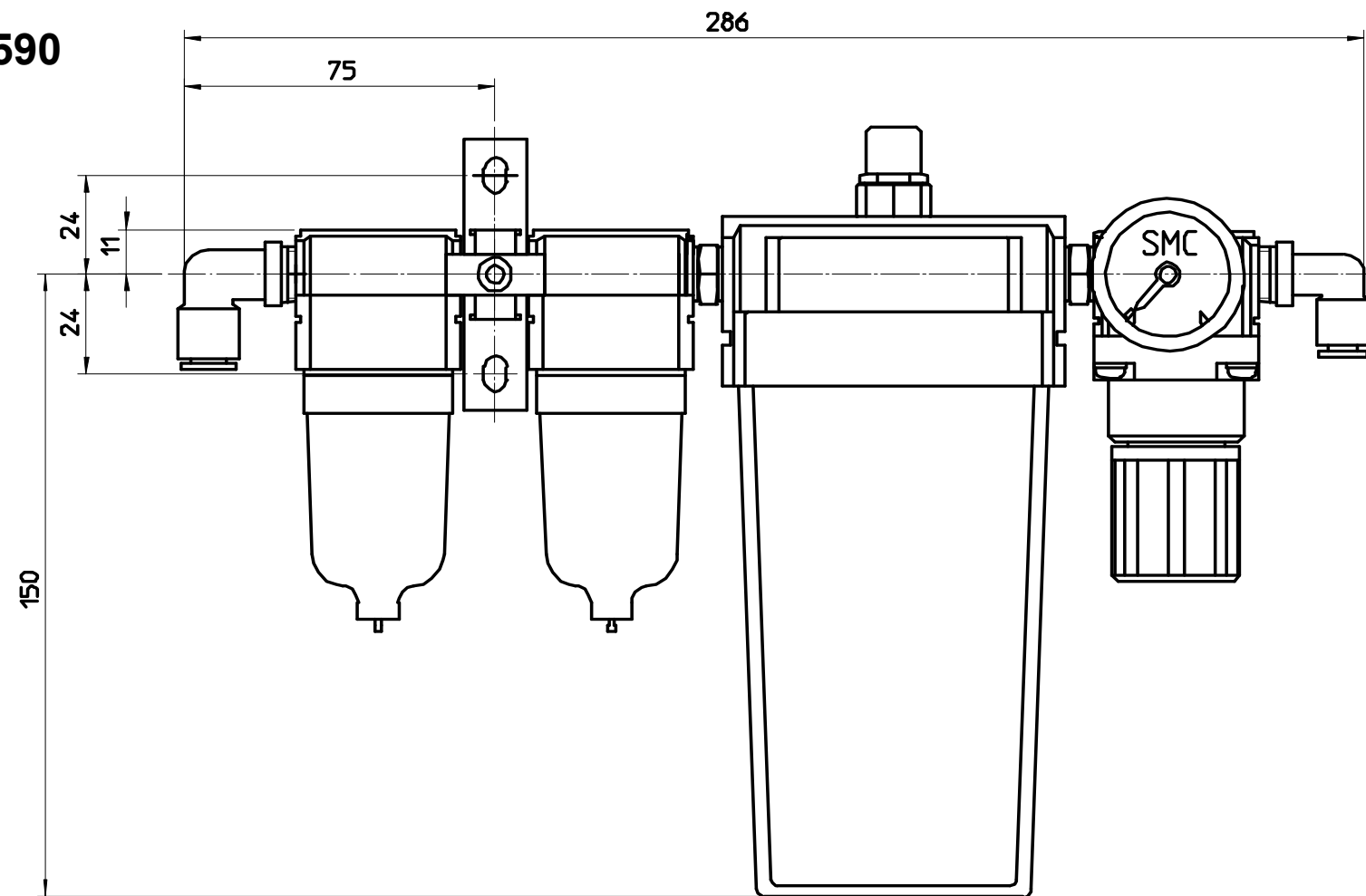
Posición del origen 0°  
0° origin position

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





AI 590

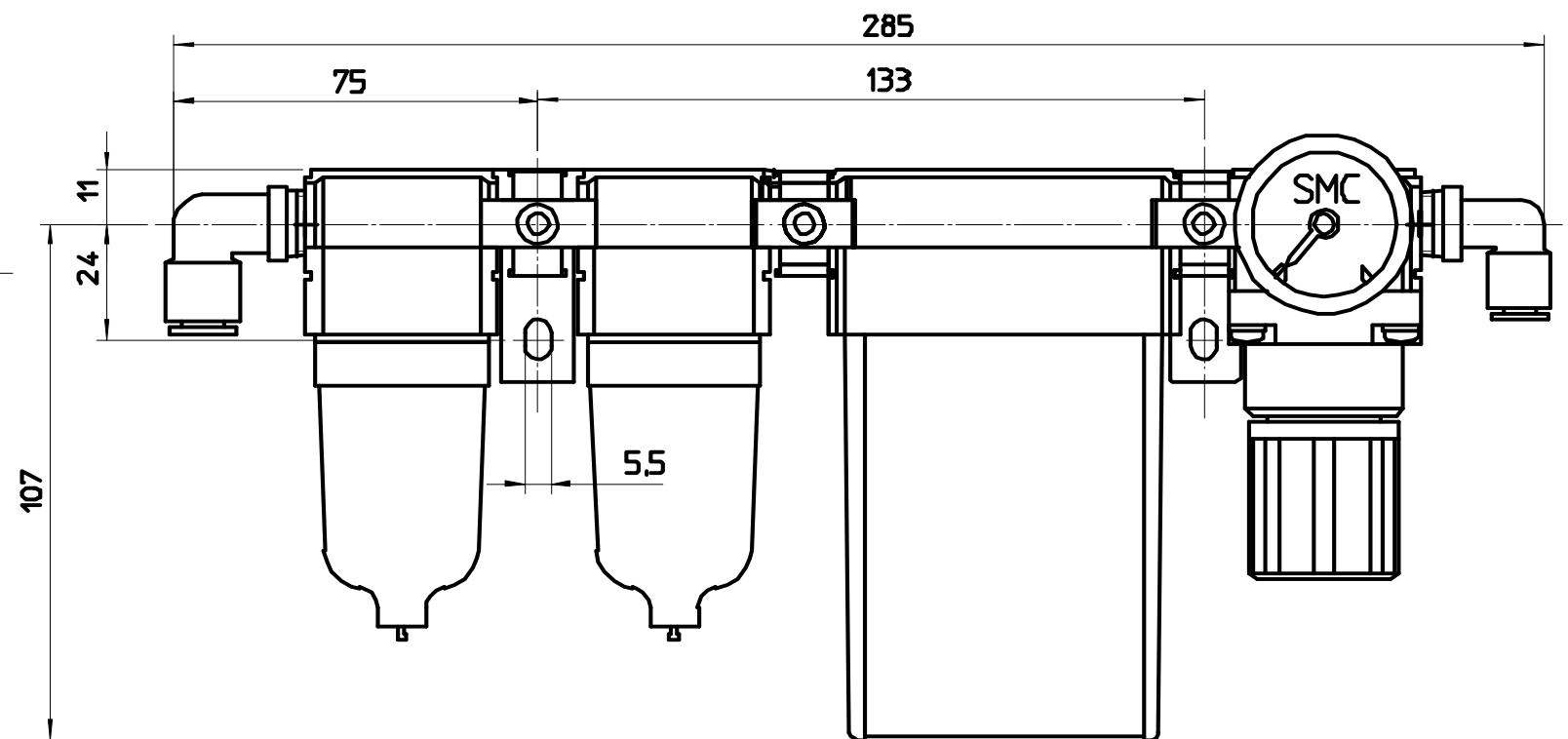
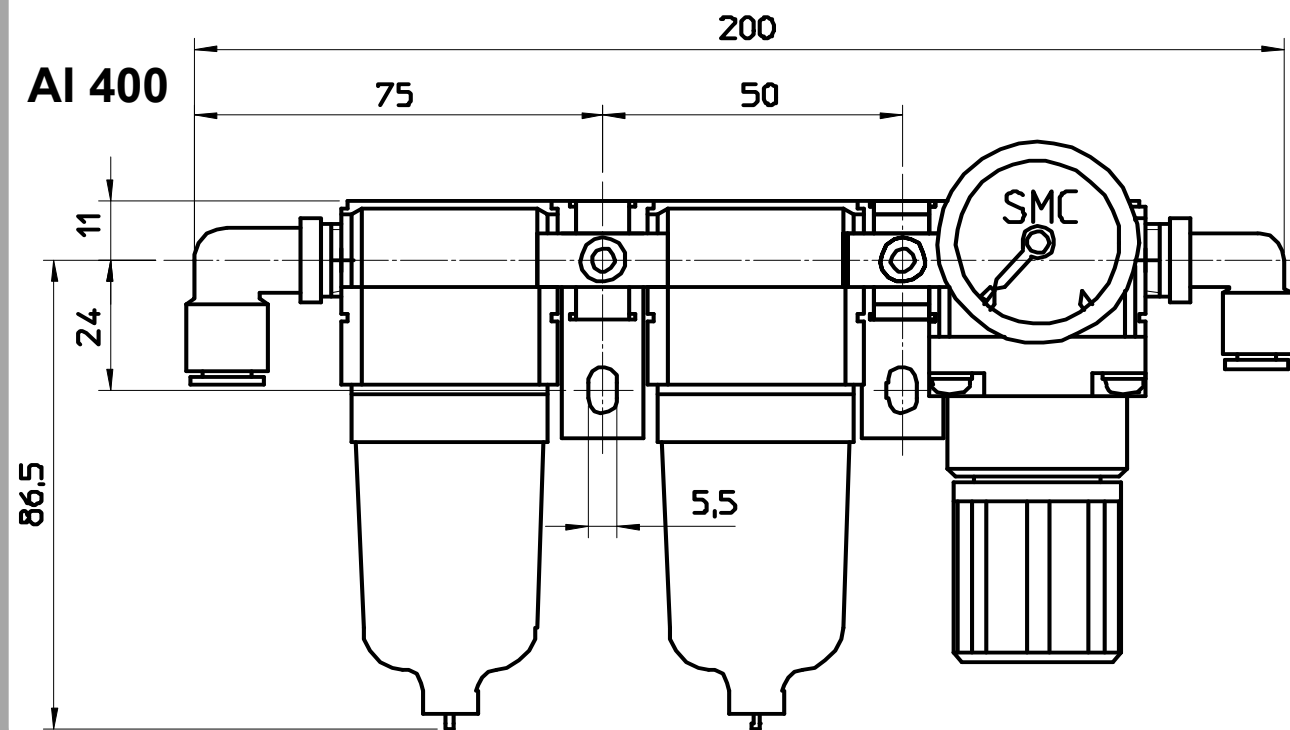


### FILTROS DE AIRE / AIR FILTERS

2200000	AI 400	25 l/min
2200001	AI 525	(25l/min)
2200002	AI 550	(50 l/min)
2200003	AI 590	(90 l/min)

AI 525 / AI 550

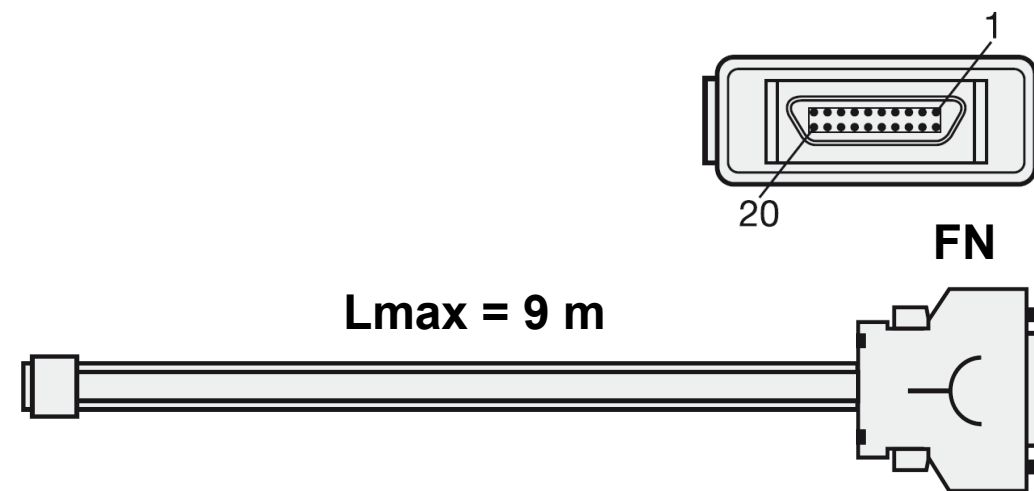
AI 400



## FANUC: CONEXIONES / CONNECTIONS

**EC...PA...FN** Cable para **conexión directa** a controles absolutos FANUC (segunda captación). Disponible en 1, 3, 6 and 9 metros.  
 Cable for **direct connection** to FANUC absolute controllers (second feedback). Available in 1, 3, 6 and 9 meters.

Conector hembra tipo HONDA/HIROSE <i>type female connector</i>									
<b>PIN</b>	9	18-20	12	14	1	2	5	6	16
<b>SEÑAL SIGNAL</b>	+5V	+5V sensor	0V	0V sensor	DATA	/DATA	REQUEST	/REQUEST	Tierra Ground
<b>COLOR</b>	Marrón Brown	Gris Grey	Blanco White	Rosa Pink	Verde Green	Amarillo Yellow	Azul Blue	Rojo Red	

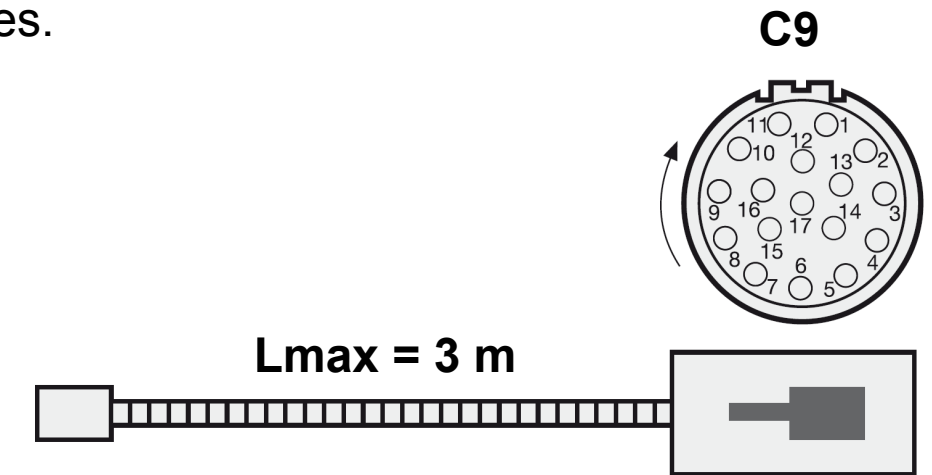


# FANUC: CONEXIONES / CONNECTIONS

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

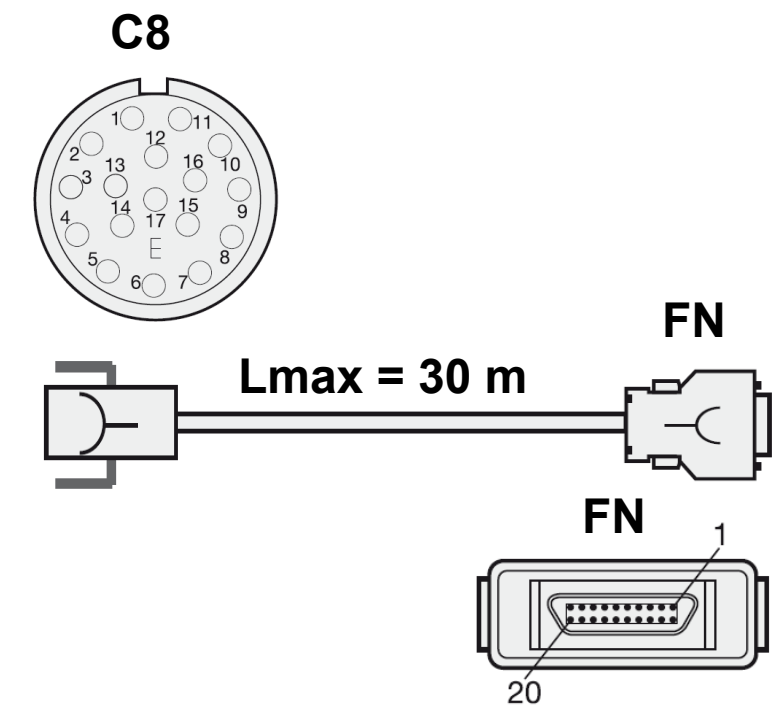
**EC...B...C9** Cable disponible en 1 y 3 metros. Contactar con FAGOR para otras longitudes.  
*Cable available in 1 and 3 meters. Contact FAGOR for other lengths.*

Conector macho circular 17 male connector									
<b>PIN</b>	7	1	10	4	14	17	8	9	Caperuza Housing
<b>SEÑAL SIGNAL</b>	+5V	+5V sensor	0V	0V sensor	DATA	/DATA	REQUEST	/REQUEST	Tierra Ground
<b>COLOR</b>	Marrón Brown	Gris claro Light grey	Blanco White	Naranja Orange	Gris Grey	Rosa Pink	Negro Black	Violeta Purple	Malla interna Internal shield



**XC...C8...FN** Alargadera disponible en 5, 10, 15, 20 y 25 metros.  
*Extension cable available in 5, 10, 15, 20 and 25 meters.*

Conector (C8) hembra circular 17 female connector									
<b>PIN</b>	7	1	10	4	14	17	8	9	Caperuza Housing
Conector (FN) hembra rectangular 20 HONDA/HIROSE female rectangular connector									
<b>PIN</b>	9	18-20	12	14	1	2	5	6	16
<b>SEÑAL SIGNAL</b>	+5V	+5V Sensor	0V	0V sensor	DATA	/DATA	REQUEST	/REQUEST	Malla Shield
<b>COLOR</b>	Marrón-verde Brown-green	Azul Blue	Blanco-verde White-green	Blanco White	Gris Grey	Rosa Pink	Violeta Purple	Amarillo Yellow	Negro Black



## 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 Mayo de 2011

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 May 1st 2011

**NOTAS DE USUARIO / USER NOTES**

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