



Fagor Automation S. Coop.

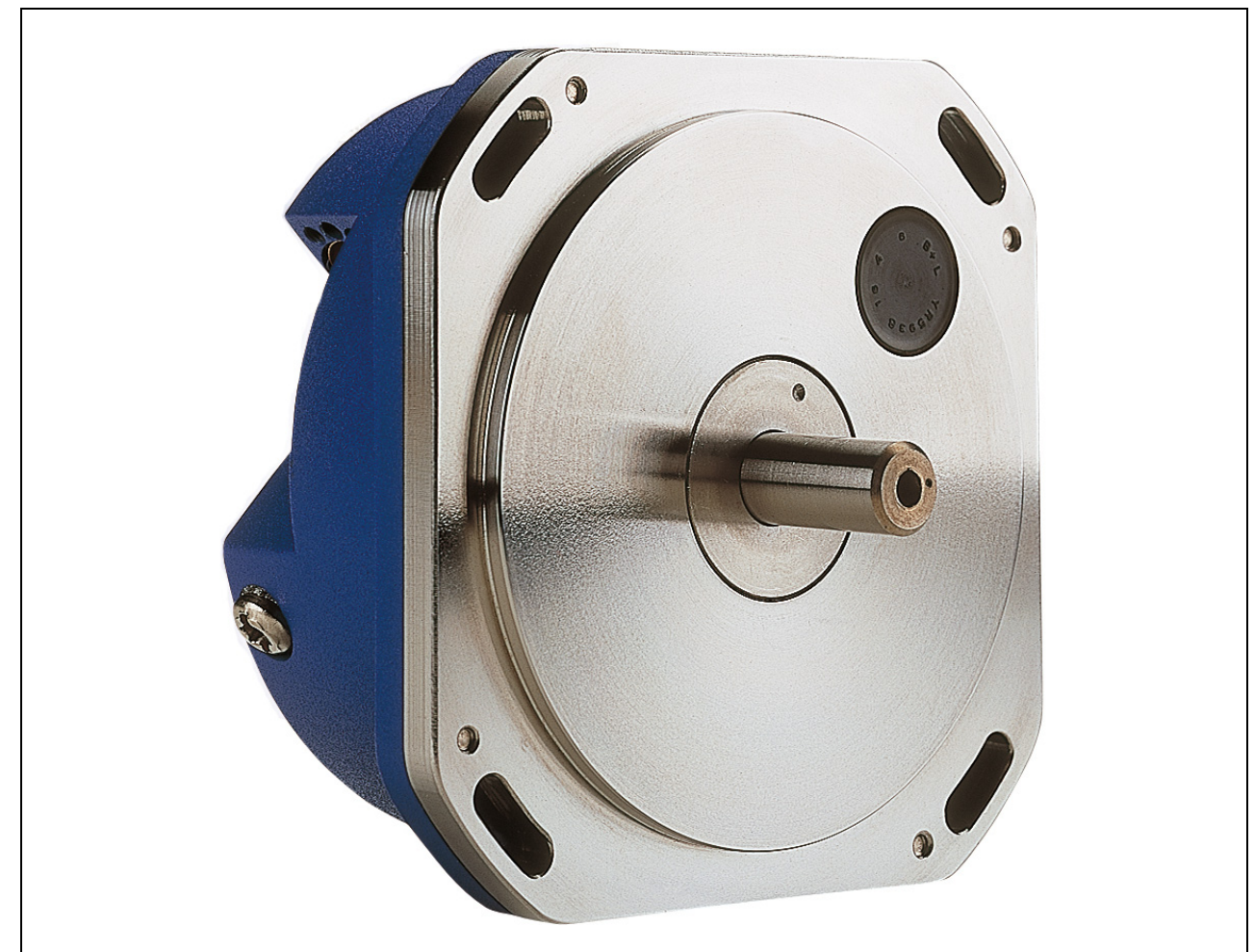
Manual code: 14460033  
Manual version: 1405



# ENCODER S-D90

## MANUAL DE INSTALACIÓN INSTALLATION MANUAL

Modelos Models	Impulsos/vuelta Pulses / rev.	Señal Signal	Impulso de referencia Reference mark
SP-18000-D90	18 000	1 Vpp seno	1
SOP-18000-D90		1 Vpp sine	Codificado/Distance coded
S-18000-D90	18 000	5 V TTL	1
SO-18000-D90			Codificado/Distance coded
S-90000-D90	90 000		1
SO-90000-D90	Codificado/Distance coded		
S-180000-D90	180 000		1
SO-180000-D90			Codificado/Distance coded



**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)

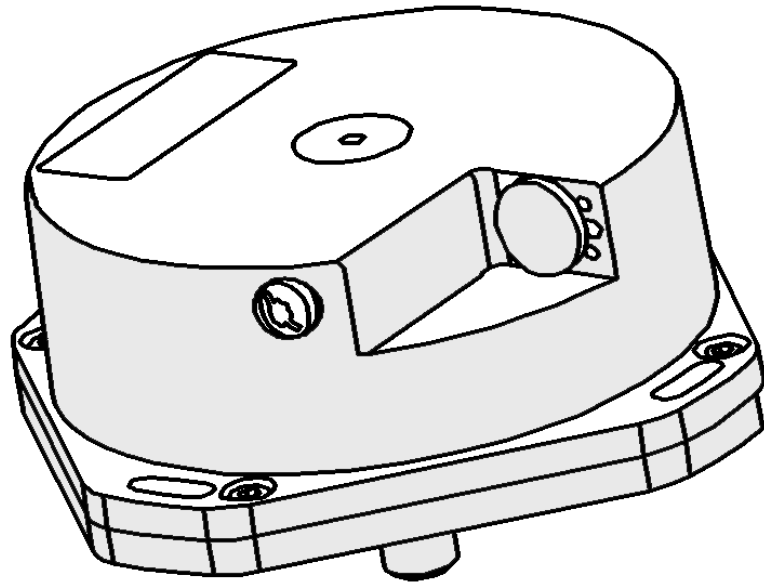
Email: [info@fagorautomation.es](mailto:info@fagorautomation.es)

Tel.: (34) 943 719200

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Fagor Automation S. Coop.



MANUAL

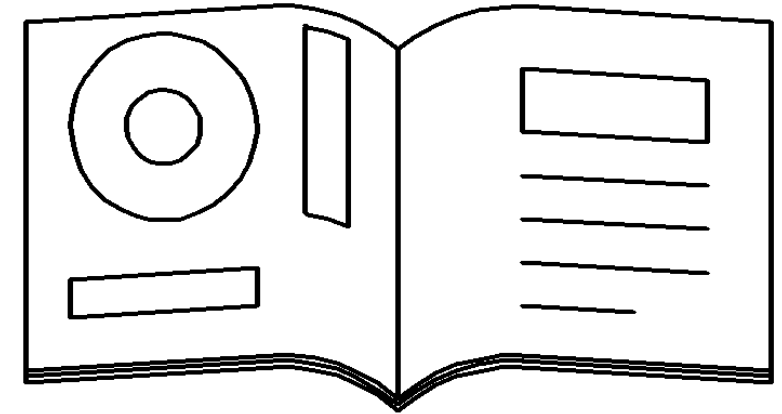
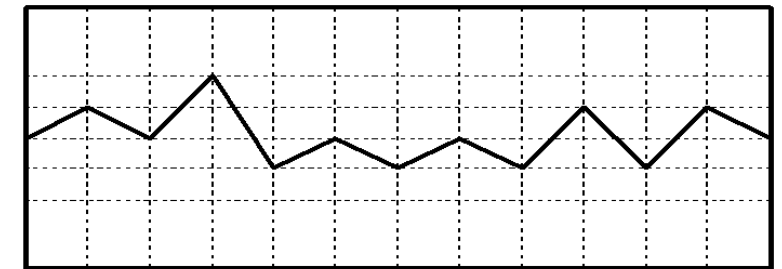
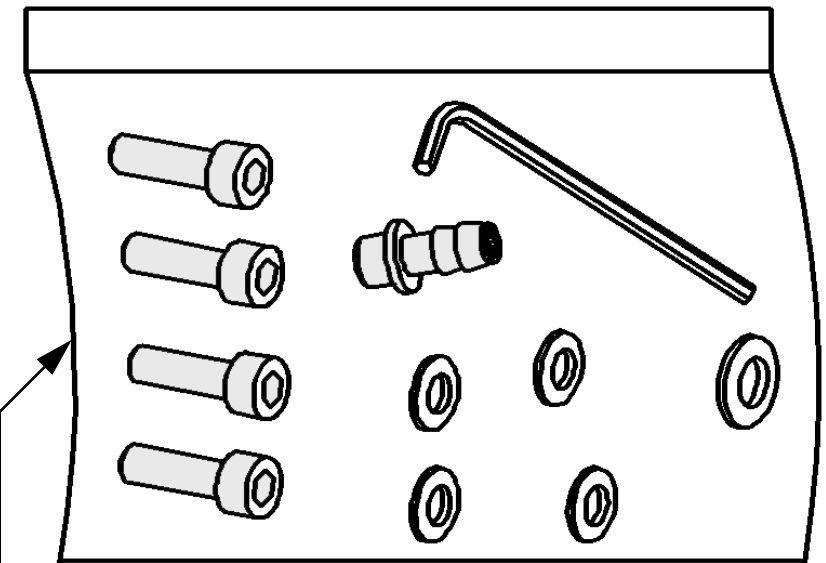


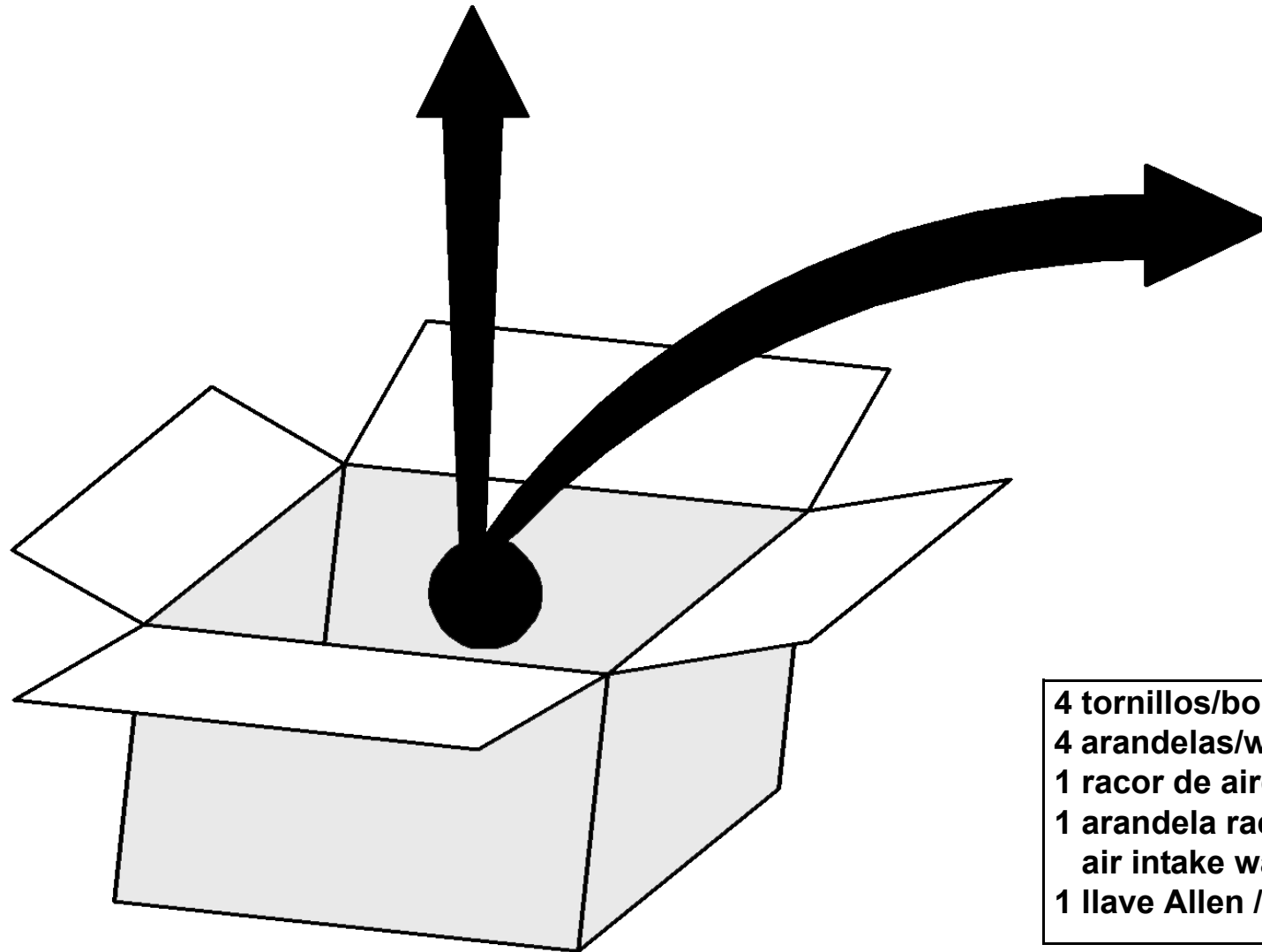
GRÁFICO  
GRAPH



ACCESORIOS  
ACCESSORIES

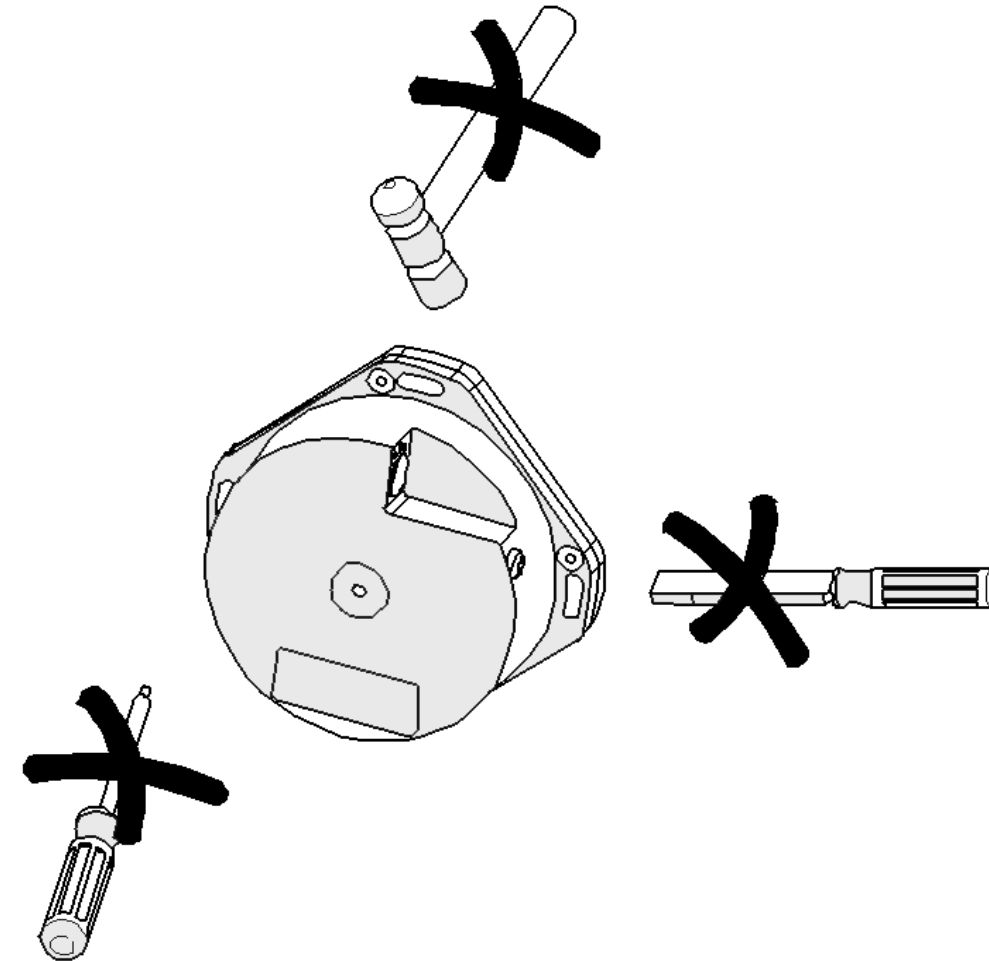
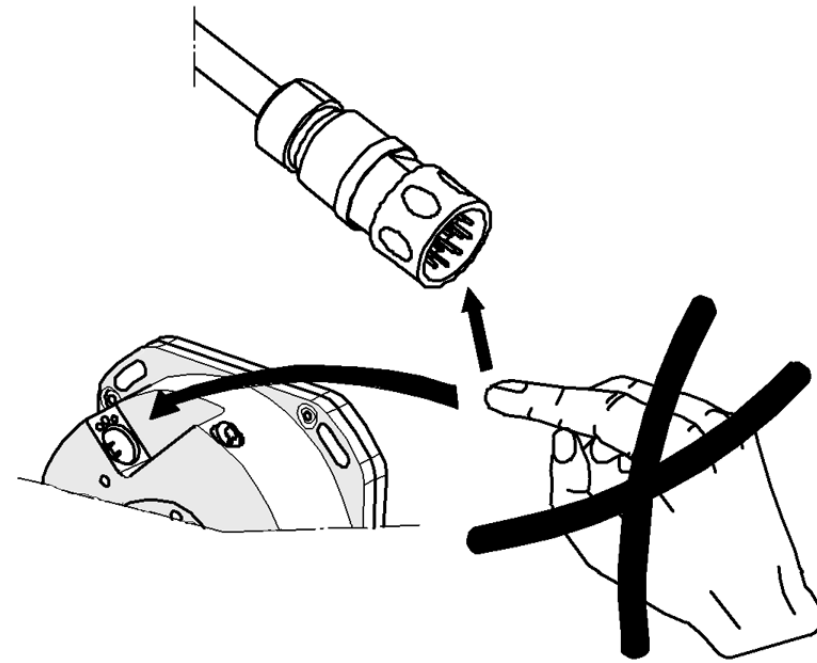
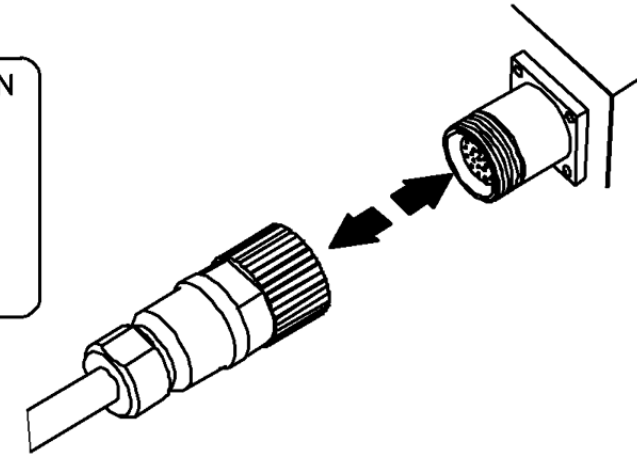
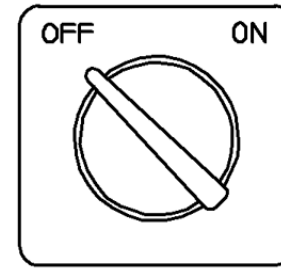
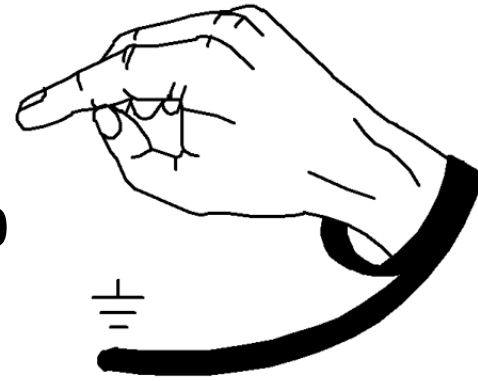


- 4 tornillos/bolts M4 x 16 DIN 912
- 4 arandelas/washers M4 DIN 125
- 1 racor de aire / air intake
- 1 arandela racor de aire /  
air intake washer
- 1 llave Allen / Allen wrench





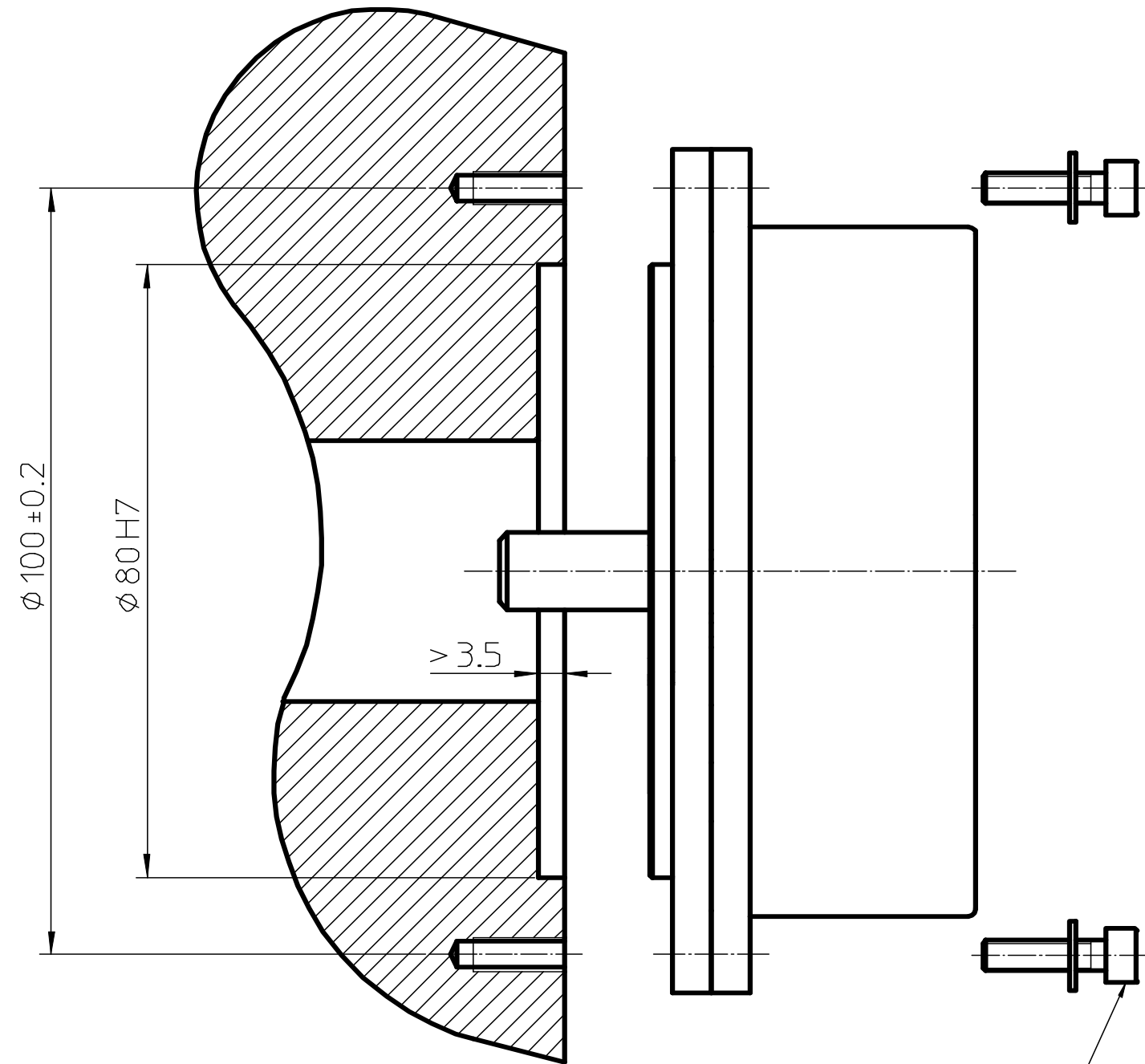
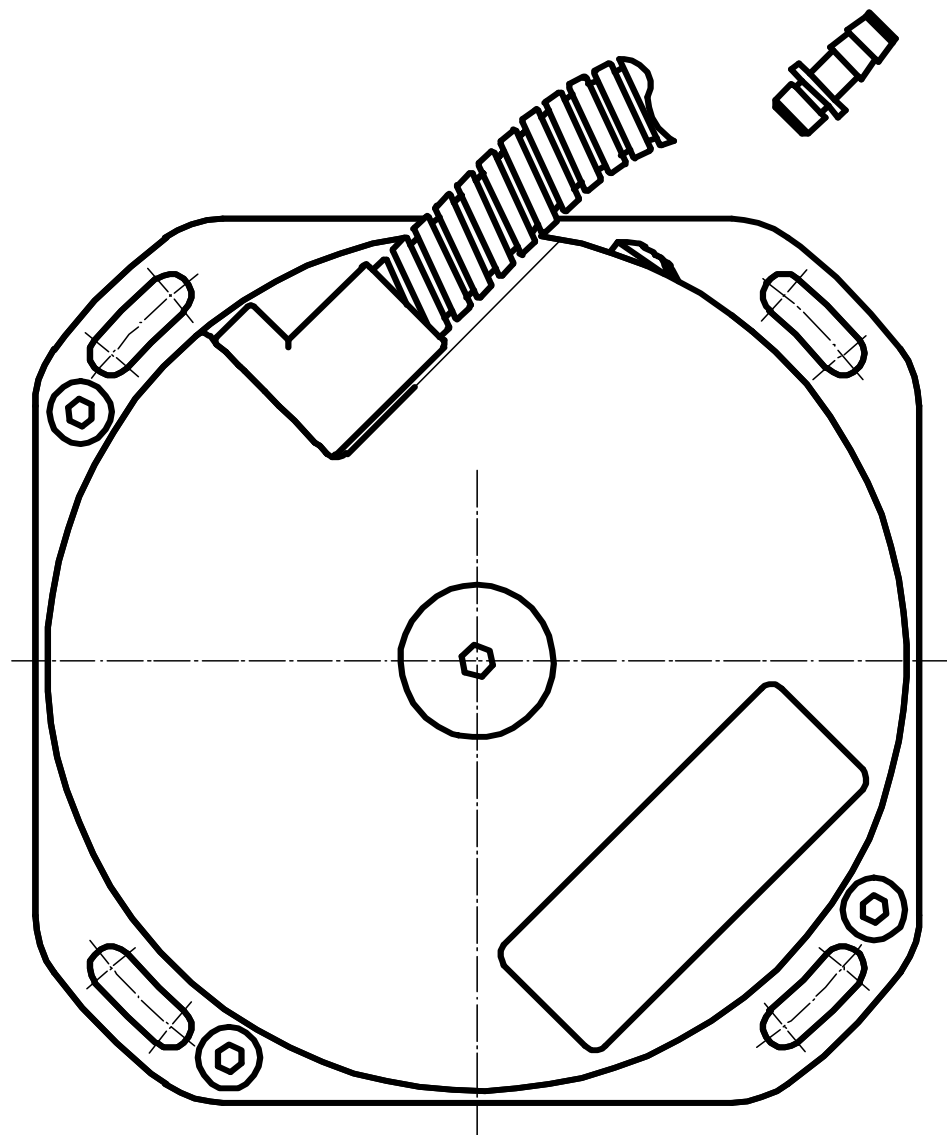
DIN EN 100



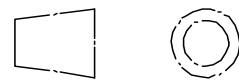


# MONTAJE / MOUNTING

# Cotas de montaje / Mounting dimensions



Dimensions in mm.



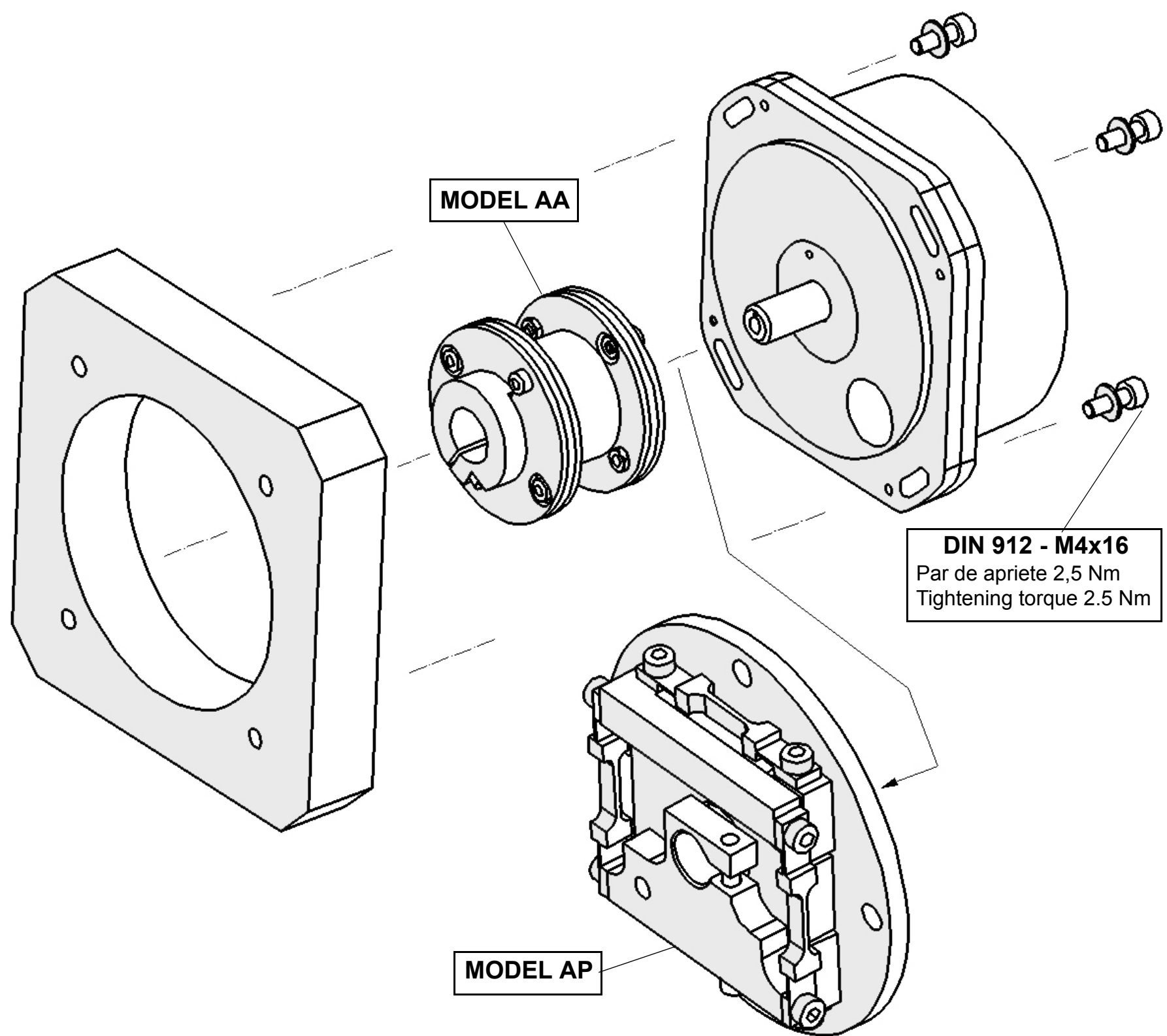
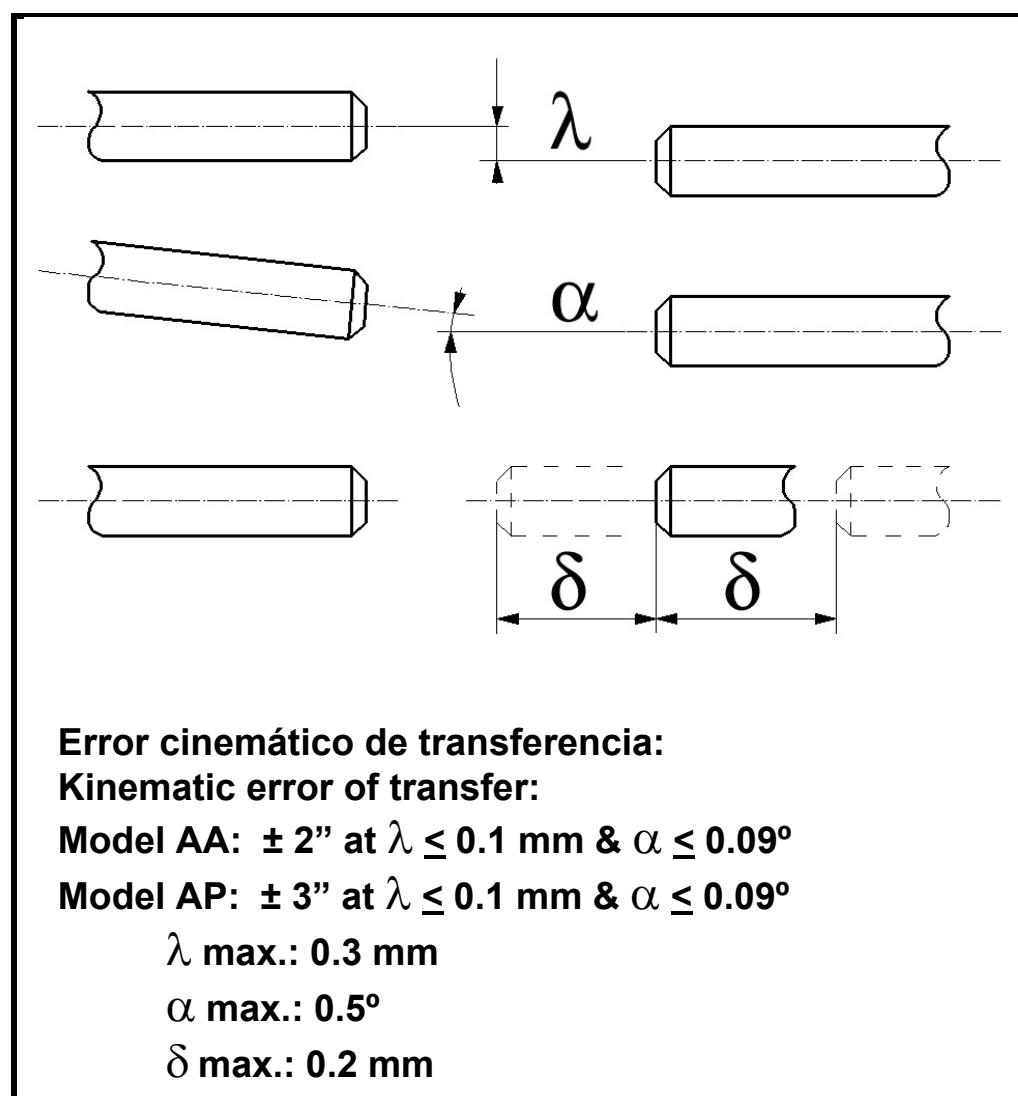
Tolerance ISO 8015  
ISO 2768 - m H

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

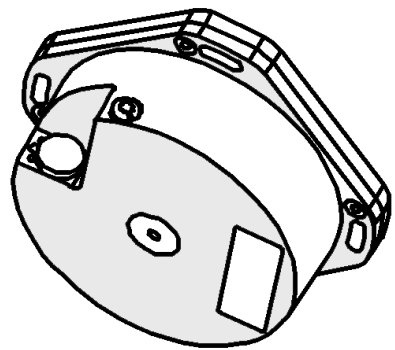


## MONTAJE / MOUNTING

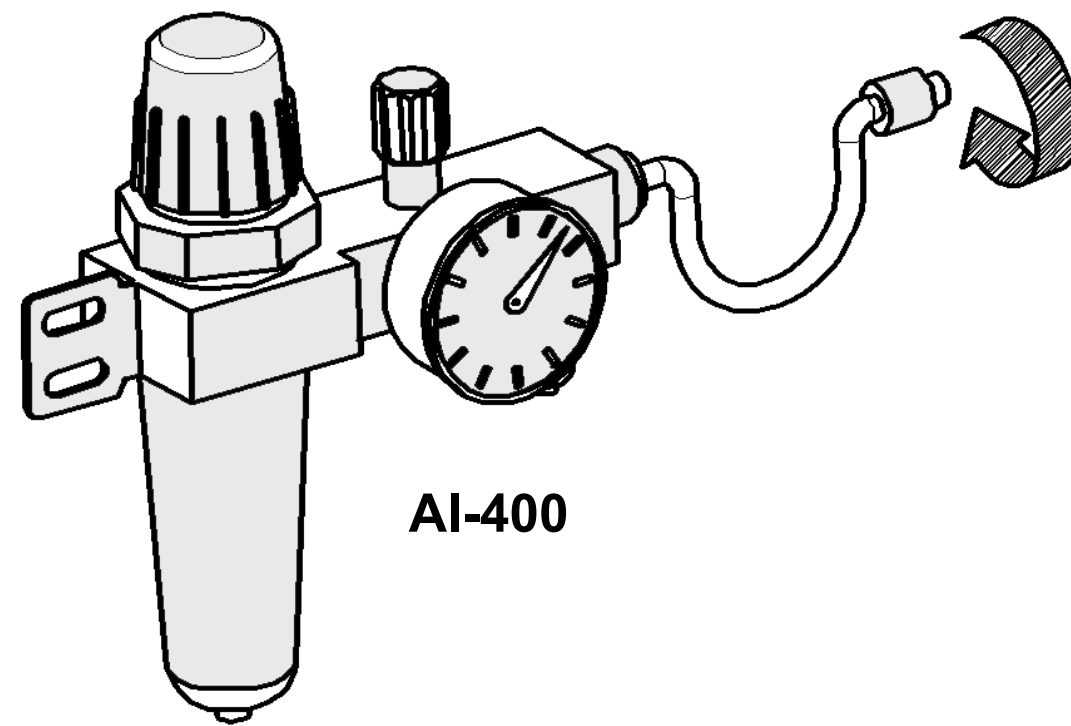
## Acoplamiento / Coupling



Nivel máximo: IP 64  
Maximum level IP 64

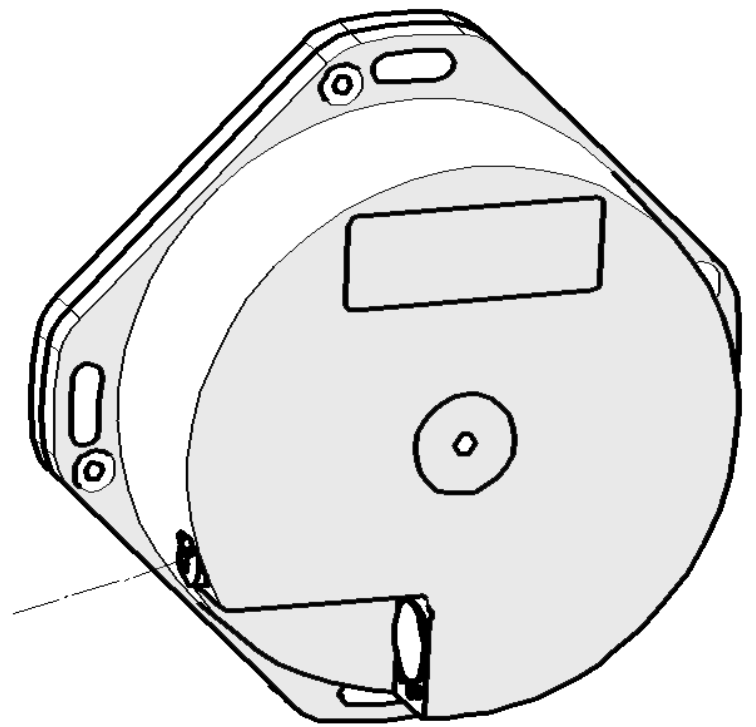


> IP 64



AI-400

(A)

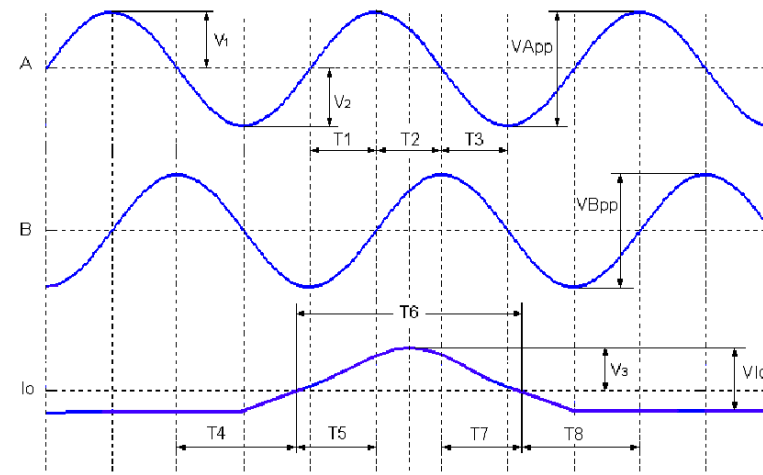
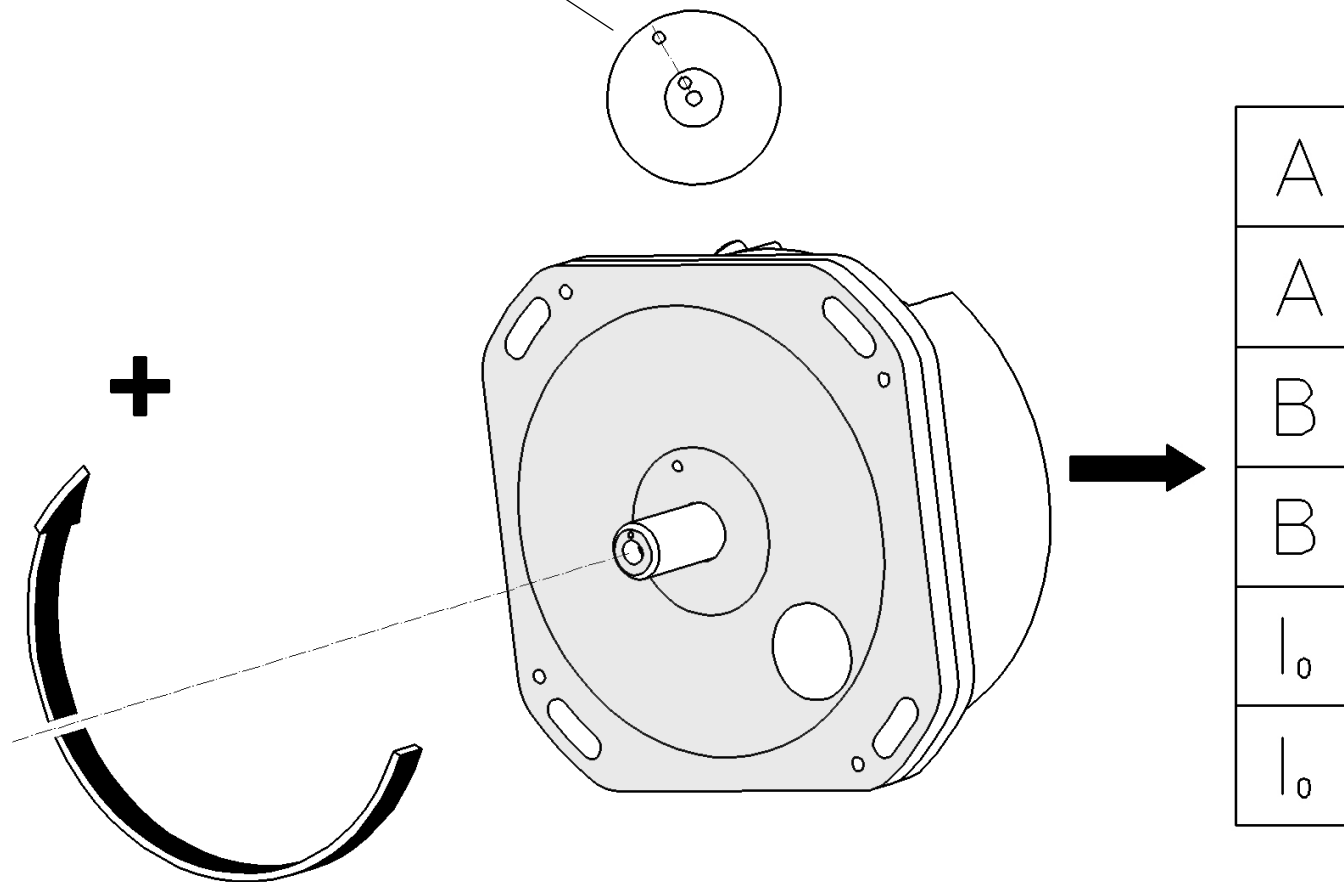


(A) AIR CONDITIONS	
DIN ISO 8573 -1	
Class 1 - Particule Max. 0.1 μ	
Class 4 (7 bar) - Punto rocío / dewpoint 3 °C	
Class 1 - Max. Concentration oil 0.01 mg/m3	
Presión / Pressure	1 Kg / cm3
Flujo / Flow	10 l. / min. / encoder

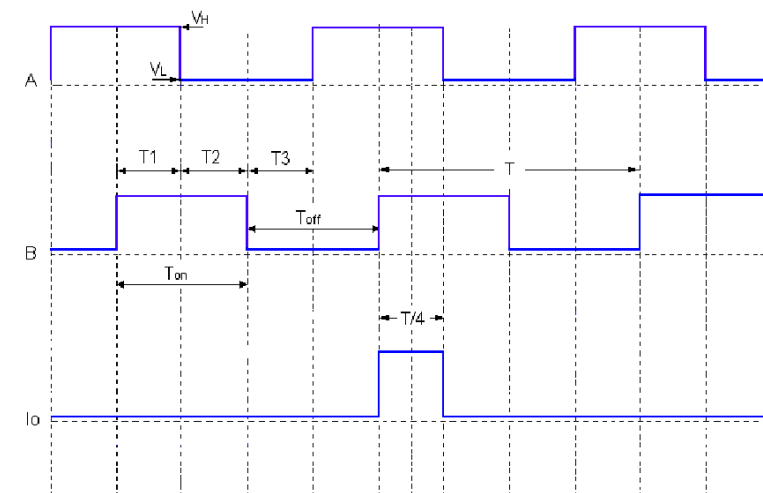
# CARACTERÍSTICAS ELÉCTRICAS / ELECTRICAL CHARACTERISTICS

Orientación del impulso de referencia (I<sub>o</sub>)  
Reference mark (I<sub>o</sub>) orientation

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





$V_{App} = V_{Bpp} = 1 V_{pp}$   
 $V_{Io}: 0.2 V \div 0.85 V$   
 $T_{Io}: T - 180^\circ \leq I_o \leq T + 180^\circ$   
 $f_{max} = 180 kHz$

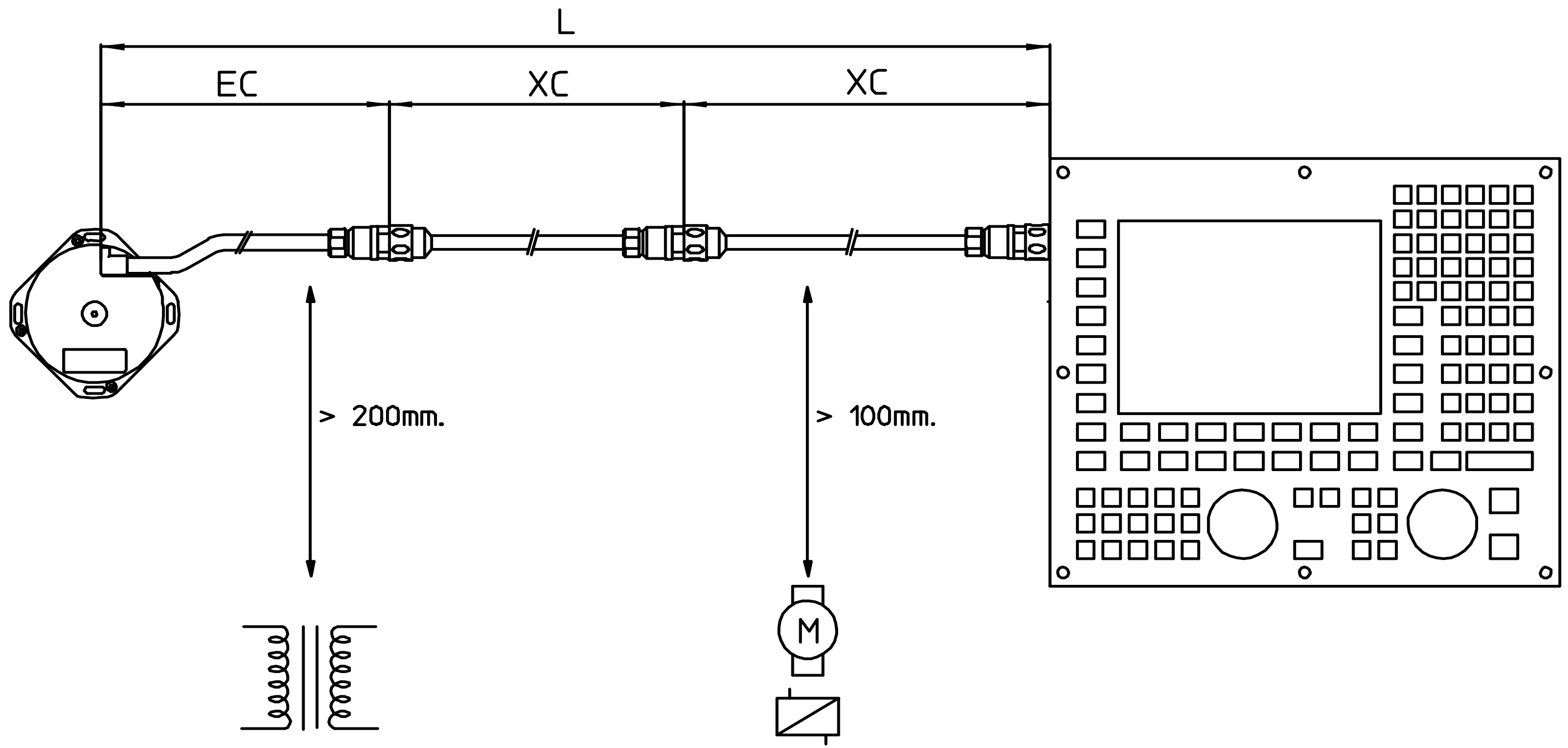


$V_{0L} \leq 0.5 V, V_{0H} \geq 2.5 V$   
 $T_{Io}: 90^\circ$   
 $f_{max} = 1 MHz$

$V_{dc} = 5 V \pm 10\%, I_{max} = 150 mA$



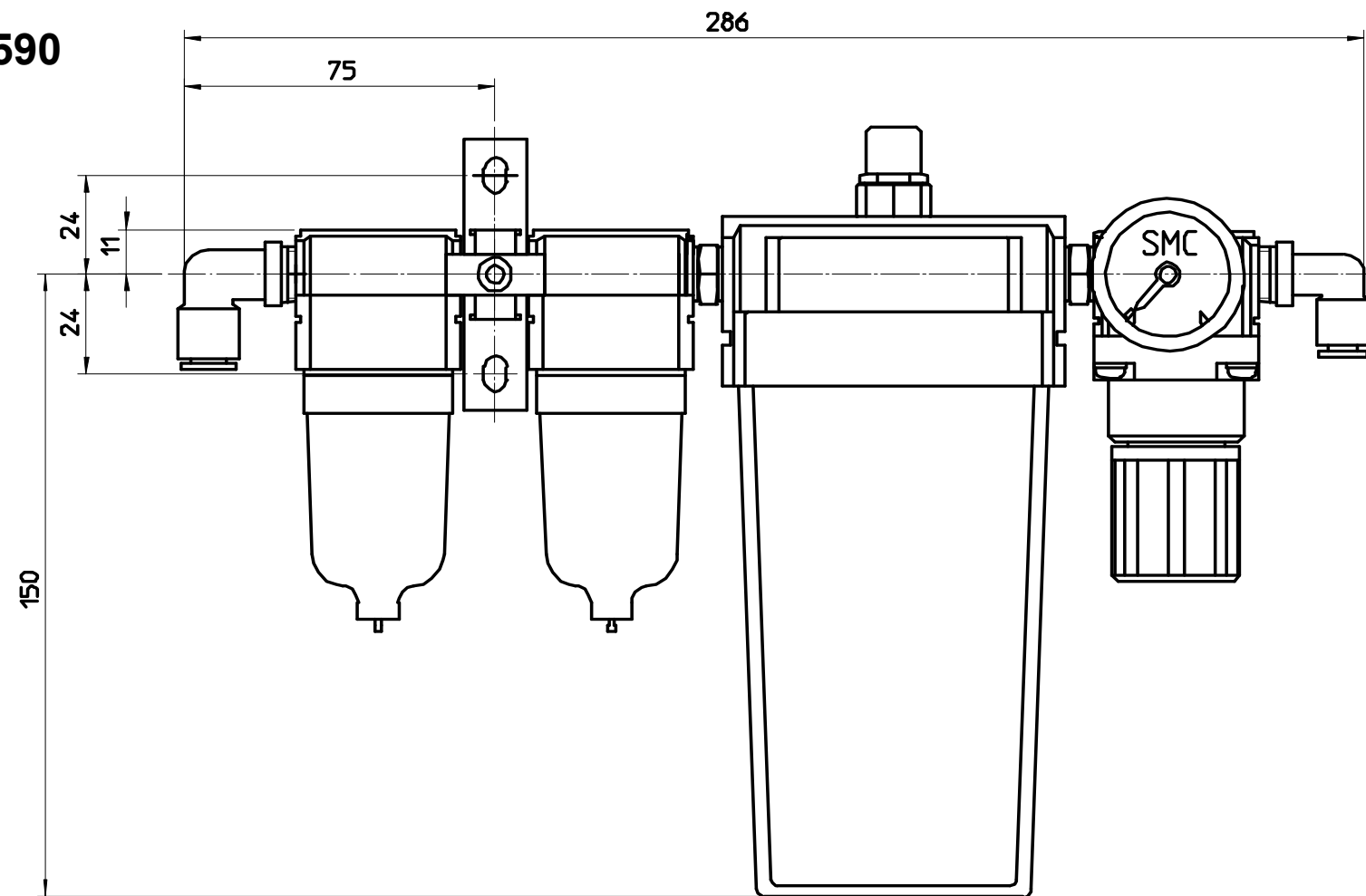
1 V<sub>pp</sub>  L<sub>max</sub> = 150 m **Detalle de cables: página 11**  
 TTL  L<sub>max</sub> = 50 m **Cable details: page 11**



## CARACTERÍSTICAS MECÁNICAS MECHANICAL CHARACTERISTICS

Precisión	±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	10N	Axial shaft load
Carga radial al final del eje	10N	Radial load at the end of the shaft
Peso	1.2 Kg	Weight
Estanqueidad	IP-64 (DIN 40050)	Sealing protection
Vibración (50-2000 Hz)	100 m/sec <sup>2</sup> (IEC 68-2-6)	Vibration (50-2000 Hz)
Impacto (6ms)	1000 m/sec <sup>2</sup> (IEC-68-2-27)	Impact (6 ms)
Temperatura de funcionamiento	-20°C ... 70°C (-4°F ... 158°F)	Operating temperature
Temperatura de almacenamiento	-30°C ... 80°C (-22°F ... 176°F)	Storage temperature

**AI 590**

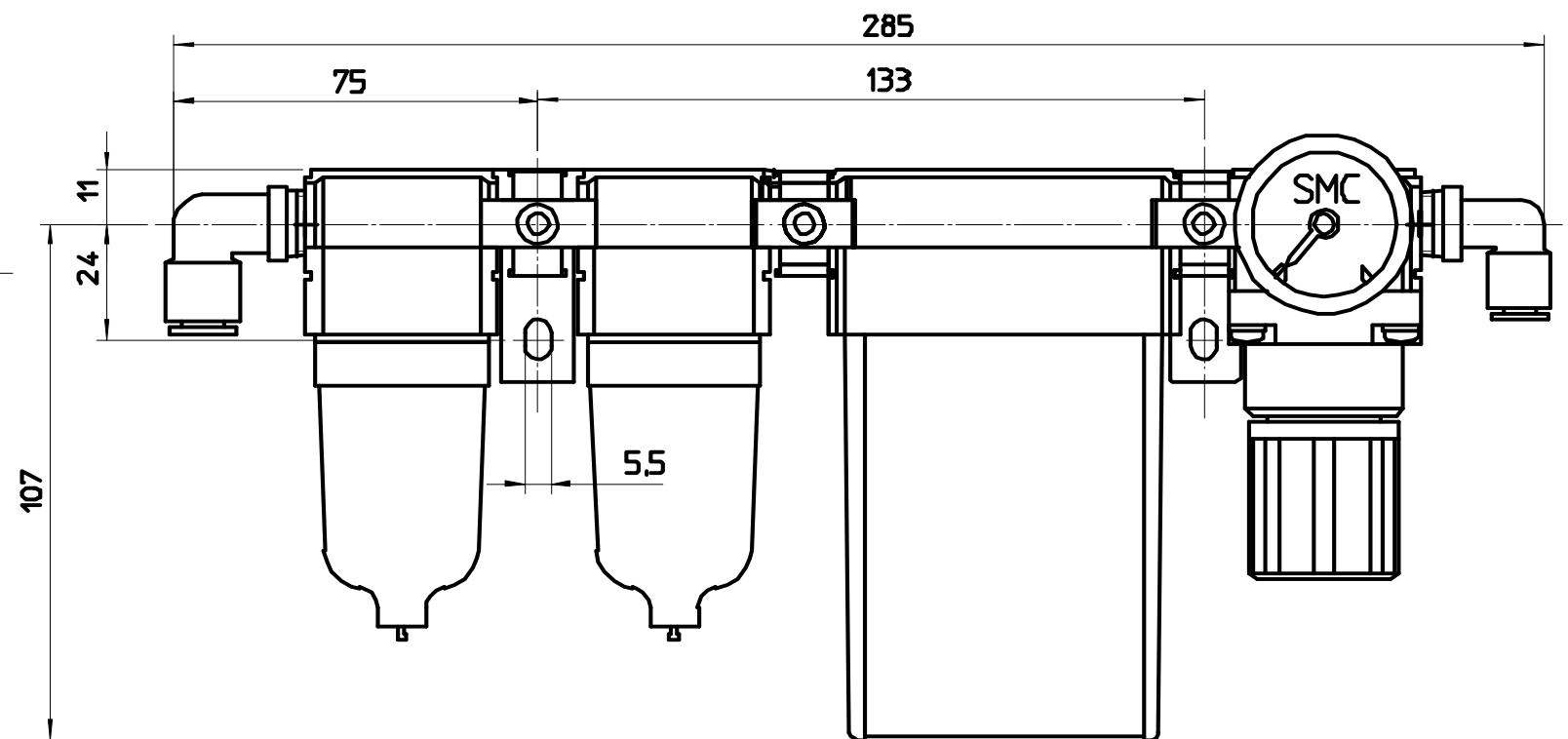
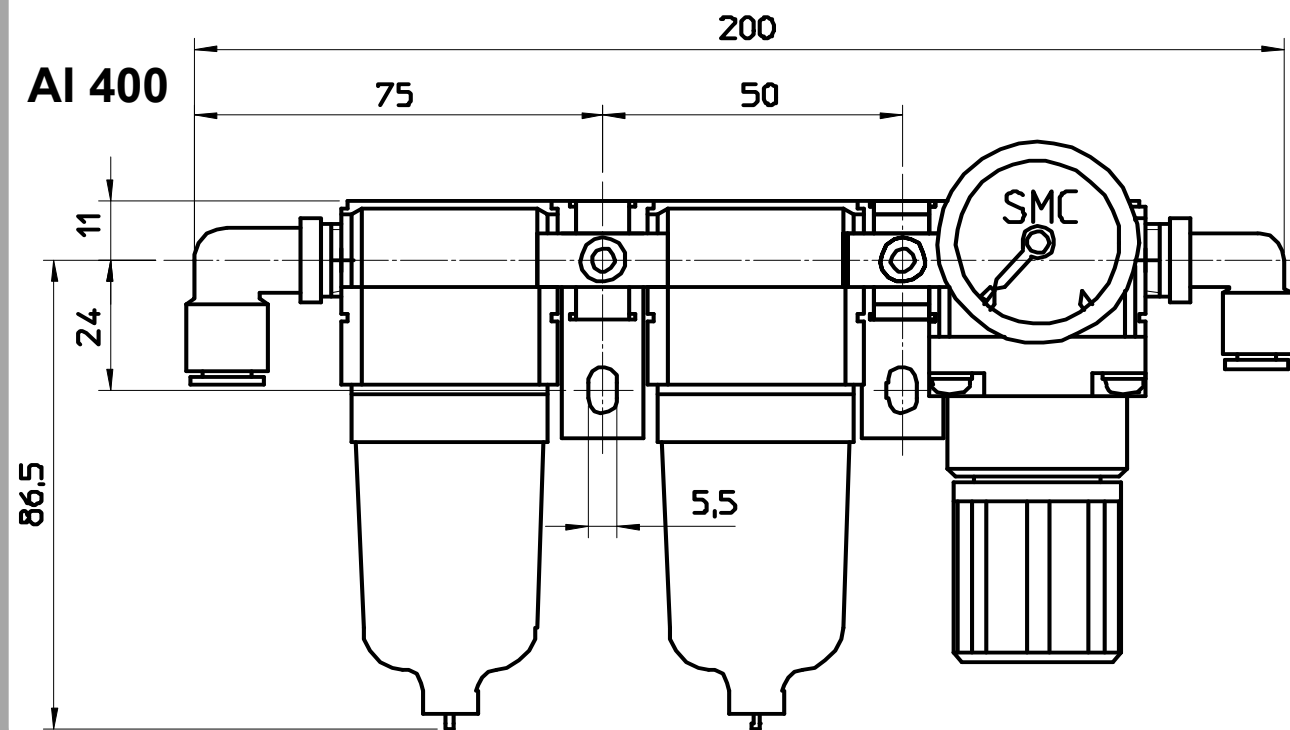


**FILTROS DE AIRE / AIR FILTERS**

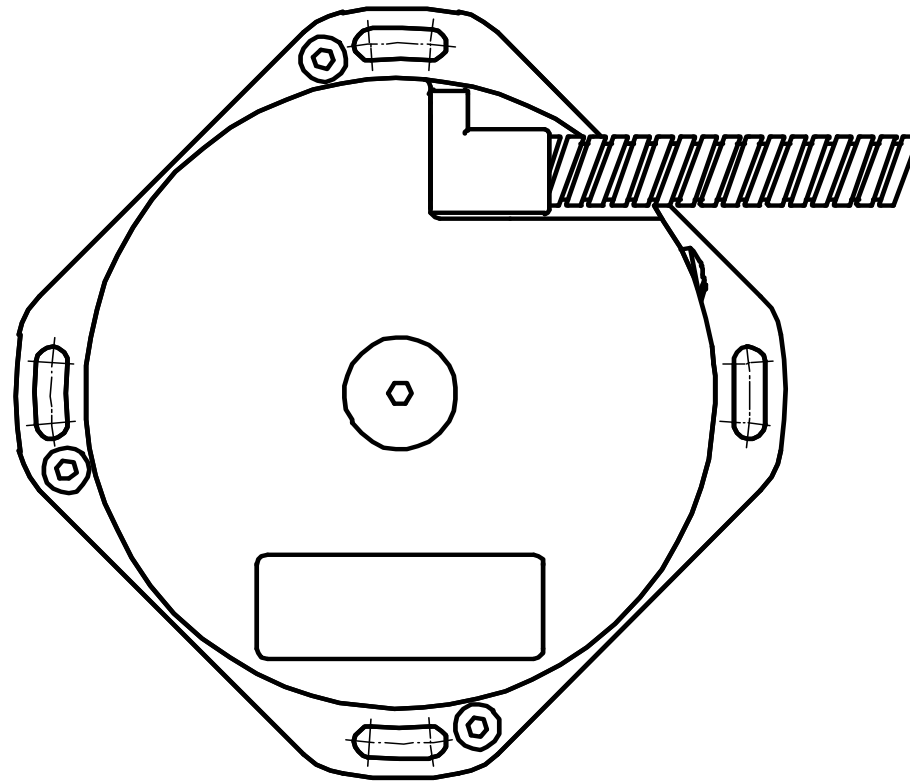
2200000	AI 400	25 l/min
2200001	AI 525	(25l/min)
2200002	AI 550	(50 l/min)
2200003	AI 590	(90 l/min)

**AI 525 / AI 550**

**AI 400**



## CABLES



	< 12 m	< 26 m	26 - 150 m	SA
Application	Cable EC*	Cable EC + XC**	Cable EC + XC + XC	
8070, 8040, 8055i, AXD, SPD, MCP	EC-...-P-D	EC-1A-C1+ XC-C2-...-D	EC-1A-C1+ XC-C1 + XC-C2-...-D	
8055, 8050, 8030, 8025	EC-...-P-D	EC-1A-C1+ XC-C2-...-D	EC-1A-C1+ XC-C1 + XC-C2-...-D	+ SA-P-FS
11 $\mu$ A applications using CONNEI 9	EC-...-P-D	EC-1A-C1+ XC-C2-...-D	EC-1A-C1+ XC-C1 + XC-C2-...-D	+ SA-P-C
1 Vpp applications using CONNEI 12	EC-...A-C1	EC-1A-C1+ XC-C2-...-C1	EC-1A-C1+ XC-C1 + XC-C2-...-C1	
TNC 1 Vpp	EC-...AS-H	EC-1A-C1+ XC-C2-...-H	EC-1A-C1+ XC-C1 + XC-C2-...-H	
Aplicaciones de terceros (conector indefinido) 3rd party applications (undefined connector)	EC-...P-O	EC-1A-C1+ XC-C2-...-D***	EC-1A-C1+ XC--C2-C1 + XC-C2-...-D***	

\* Cables EC: 1, 3, 6, 9, 12 m

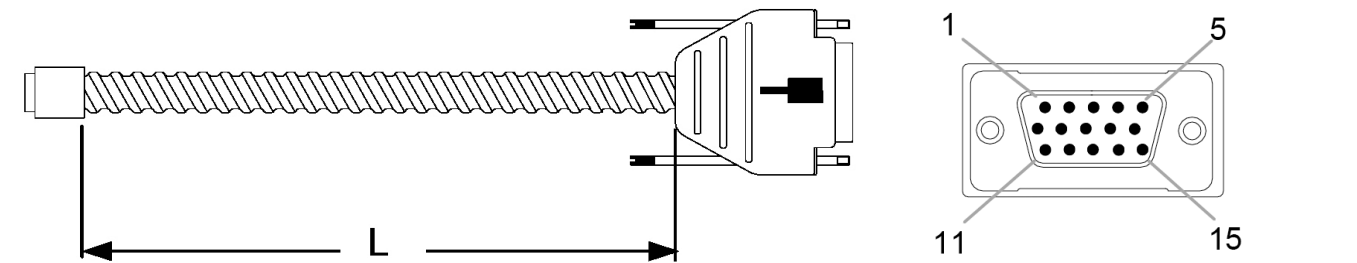
\*\* Cables XC: 5, 10, 15, 20, 25 m

\*\*\* Quitar conector / Remove connector

# CONEXIONES / CONNECTIONS

## EC-P-D

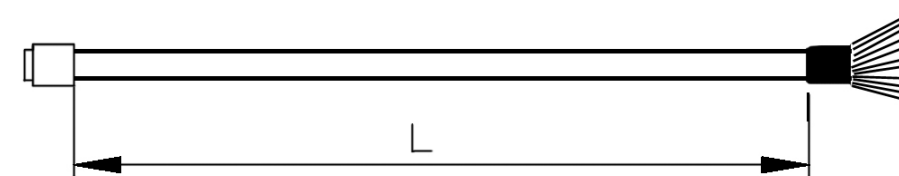
A	/A	B	/B	Io	/Io	+5 V	0 V	Malla / Shield
1	2	3	4	5	6	9	11	15 / Caperuza 15 / Housing
Verde Green	Amarillo Yellow	Azul Blue	Rojo Red	Gris Grey	Rosa Pink	Marrón Brown	Blanco White	Rosa / Malla Pink / Shield



L = 1, 3, 6, 9 & 12 m con o sin tubo metálico / with or without armor

## EC-P-O

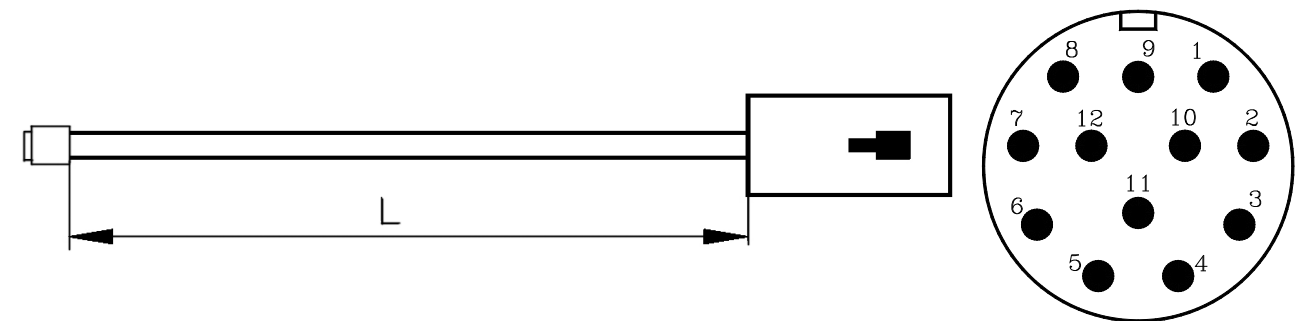
A	/A	B	/B	Io	/Io	+ 5 V	0 V
4	5	6	7	8	9	1	2
Verde Green	Amarillo Yellow	Azul Blue	Rojo Red	Gris Grey	Rosa Pink	Marrón Brown	Blanco White



L = 1, 3, 6, 9 & 12 m con o sin tubo metálico / with or without armor

## EC-...A-C1

A	/A	B	/B	Io	/Io	/Alarm	+ 5 V	0 V	
5	6	8	1	3	4	7	2, 12	10, 11	Caperuza Housing
Verde Green	Amarillo Yellow	Azul Blue	Rojo Red	Gris Grey	Rosa Pink	Violeta Purple	Marrón Brown	Blanco White	Malla Shield



L = 1, 3 & 6 m con o sin tubo metálico / with or without armor

## 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 Septiembre de 2009

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 September 1st 2009







