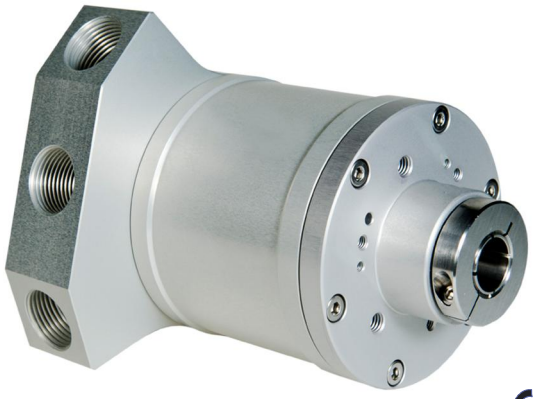
EXME SSI / Hollow Shaft Removable End Cap



EXME – SSI Removable End Cap

- **Hollow Shaft Encoder - Ø 78 mm**
- **Hollow Shaft: Ø 14 mm, Ø 16 mm and Ø 1 inch**
- **Synchronous Serial Interface (SSI) – (RS422/TTL)**
- **Resolution up to 30 bits**
- **Removable End Cap for on-site installation**
- **ATEX, IECEx, EAC certified for mining**

Electrical Specifications

Code:	Absolute – Binary or Gray Code
Interface:	Synchronous Serial (SSI) Driver meets EIA standard RS422
Resolution:	Max. 14 bit (16384) revolutions Max. 16 bit (65536) steps per rev.
Transfer Distance:	Up to 1200 m (3937 ft)
Clock Input:	RS422 compatible via optocoupler
Data Output:	Line Driver RS422
Clock Frequency:	100 kHz to 2MHz
Accuracy of Division:	+/- ½ LSB (12 bit) +/- 2 LSB (16 bit)
Cycle Time:	< 25 µs
Turn On Time:	< 1 s
Supply Voltage:	4.5 to 30 VDC (Absolute limits) According to EN 50 178
Power Consumption:	Max. 1,5 watts
Electrical Protection:	Reverse polarity and over-voltage-peak protection
Noise Immunity:	EN61000-6-2
Emitted Interference:	EN 61000-6-4

Mechanical Specifications

Material:	Housing: Stainless Steel Cap: Stainless Steel Hollow Shaft: Stainless Steel
Weight:	Stainless Steel: ~ 3100 gr (109,35 oz)
Bearing Life:	> 1,9 x 10^{10} revolutions at rated load
Hollow Shaft Speed:	6.000 rpm (max.) IP 64 3.000 rpm (max.) IP 65/66/67/68
Starting Torque:	≤ 0,01 Nm at 25° C (no seal) ≤ 0,03 Nm at 25° C (with seal)
Rotor Mass Moment of Inertia:	Face Mount B: 595 gcm² Face Mount C: 102 gcm²
Shaft Loads:	Axial: 60 N (13,50 lbs) max. Radial: 80 N (17,98 lbs) max.

Environmental Specifications

Operating Temp.:	-40° to +70° C
Storage Temp.:	-40° to +70° C
Shock:	100g @ 11 ms
Vibration:	10g @ 10-2000 Hz
Bump:	10g @ 16 ms (1000 x 3 axis)
Humidity:	98 % RH without condensation
Enclosure Rating:	IP 64 / Nema 4 (approx.) IP 65 / Nema 5 (approx.) IP 66 / Nema 6 (approx.) IP 67 / Nema 6 (approx.) IP 68 (1hour/1 meter) / Nema 6P (approx.)

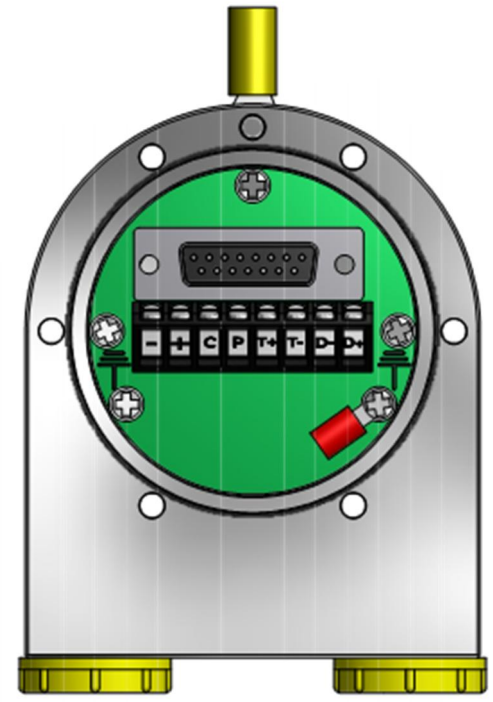
Certifications

ATEX:	Certificate No.: ITS09ATEX16925X I M2 Ex db I Mb, -40°C≤ Ta≤ +70°C
ATEX DEKRA:	Certificate No.: BVS 18 ATEX E 059 X I M2 Ex db I Mb -40°C<T.amb<+70°C
IECEx:	Certificate No.: IECEx ITS 10.0009X Ex db I Mb, -40°C≤ Ta≤ +70°C
IECEx TSA:	Certificate No.: IECEx TSA 11.0008X Ex db I Mb, -40°C≤ Ta≤ +70°C
EAC:	НАНИО «ЦСВЭ» No. ЕАЭС RU C-DK.AA87.B.00266/19 PB Ex db I Mb X -40°C<T.amb<+70°C

Interface

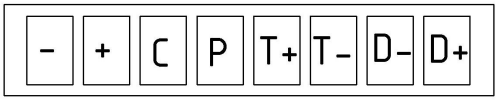
Installation

The rotary encoder is connected by one, two or three cables. This depends on whether the power supply is integrated into the bus cable or connected separately. If the power supply is integrated into the bus cable, the remaining cable glands can be fitted with a plug. Any unused cable outlets must be closed using a suitably certified - proof blind plug. The threaded entries are M20x1,5.



The connection cap can easily be opened by removing the six screws in the cap.

Pin assignments for the 8-pin terminal block are shown below.



Terminal	Description
1 (left)	0-V
2	10-30V
3	Complement (DIR-function)
4	Preset
5	T+ (Clock+)
6	T- (Clock-)
7	Data-
8 (right)	Data+

The internal earth connection (red cable shoes) is 22-16 AWG.
La connexion à la terre interne (Borne rouge) est en 22-16 AWG.

The external earth connection (yellow cable shoe) is 12-10 AWG.
La connexion de terre externe (Borne jaune) est en 12-10 AWG.

The terminal block is intended for installation a cable with wire size:
solid 0,14 mm2 – 2,5 mm2.
Stranded 0,14 mm2 - 1,5 mm2
stranded with ferrule 0,25 mm2 - 1,5 mm2.

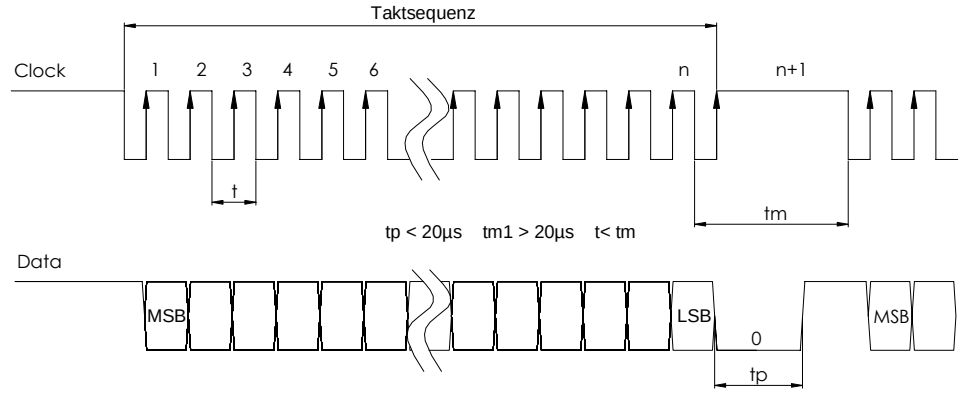
The rated wire size is AWG 22-12.

Le bornier *est conçu pour une installation d'un câble à la taille du fil:*
rigide de 0,14 mm2 - 2,5 mm2
souple 0,14 mm2 - 1,5 mm2
souple avec embout 0,25 mm2 - 1,5 mm2.

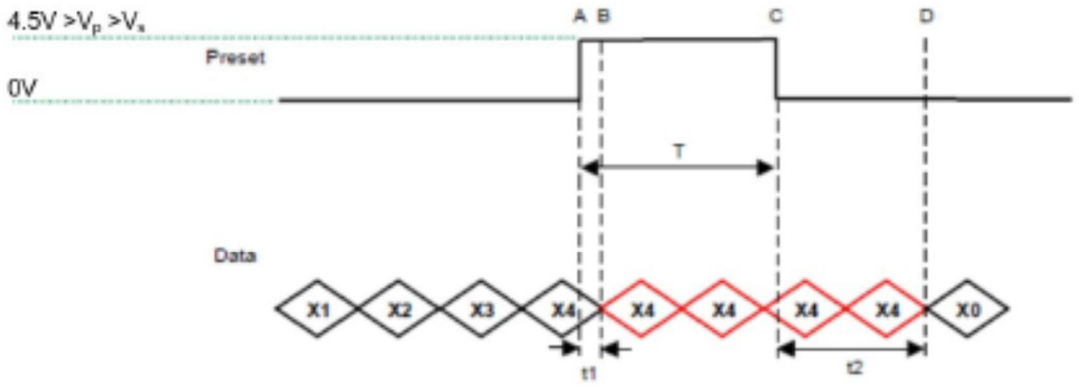
La taille de fil nominale est AWG 22-12.

Synchronous Serial Interface (SSI)	Comment
Driver	Driver meets EIA standard RS 422; transmission rates up to 10 MBits/sec.
Transfer	Transfer distance up to 1200 m (3937 ft)

Single Shift



The Preset Function allows to set the output value to zero at the present mechanical position. Input resistance is 110 kΩ.

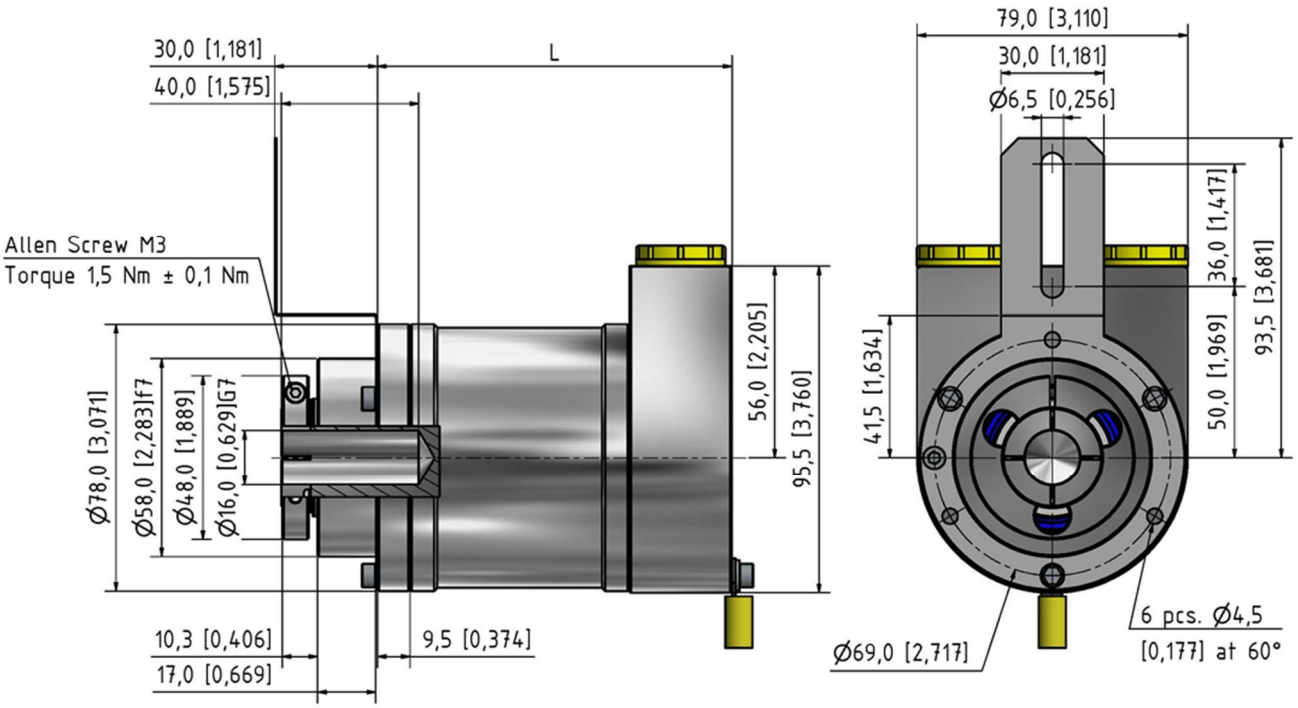


T = 103msec +/- 2msec
t1 = 3msec +/- 2msec
T+t2 = 225msec (+/- 13msec)

The DIR-function allows to change the encoder counting direction.

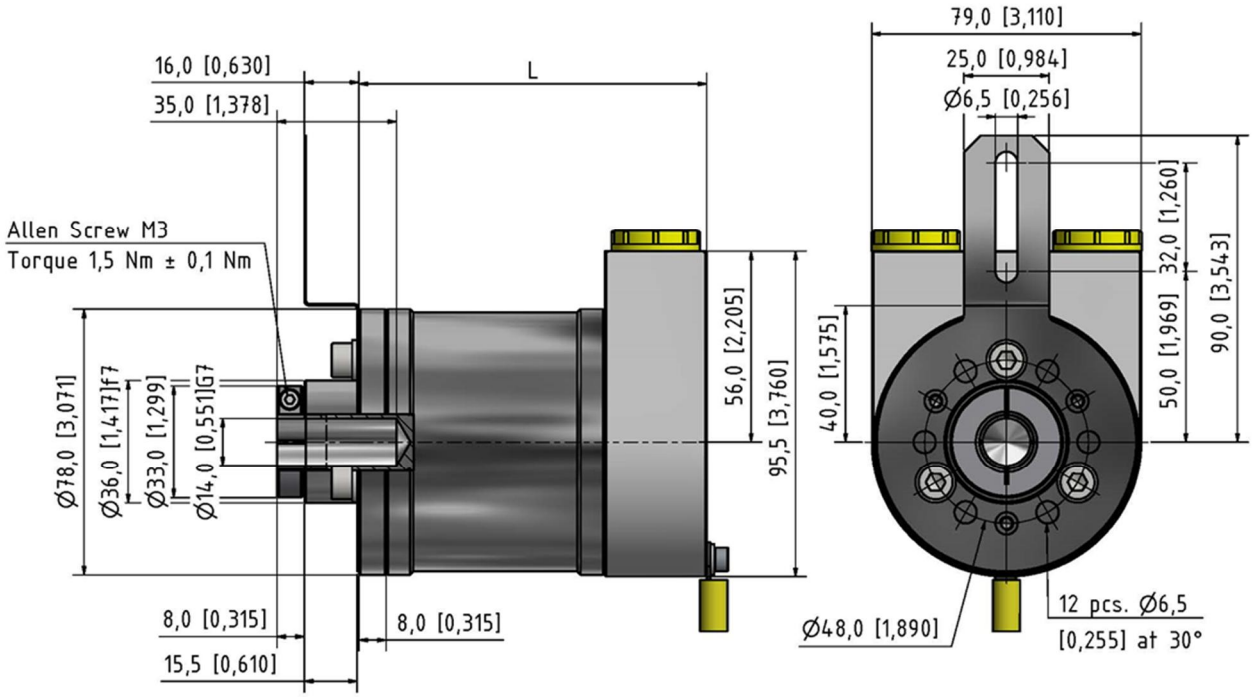
0 (open or GND)	Increasing Values Turning Clockwise (Viewed from Flange Side)
1 (4.5 V to Vs)	Decreasing Values Turning Clockwise (Viewed from Flange Side)
Input Resistance	60 kΩ

Face mounts



Face Mount B
Clamping Flange

mm (inches)

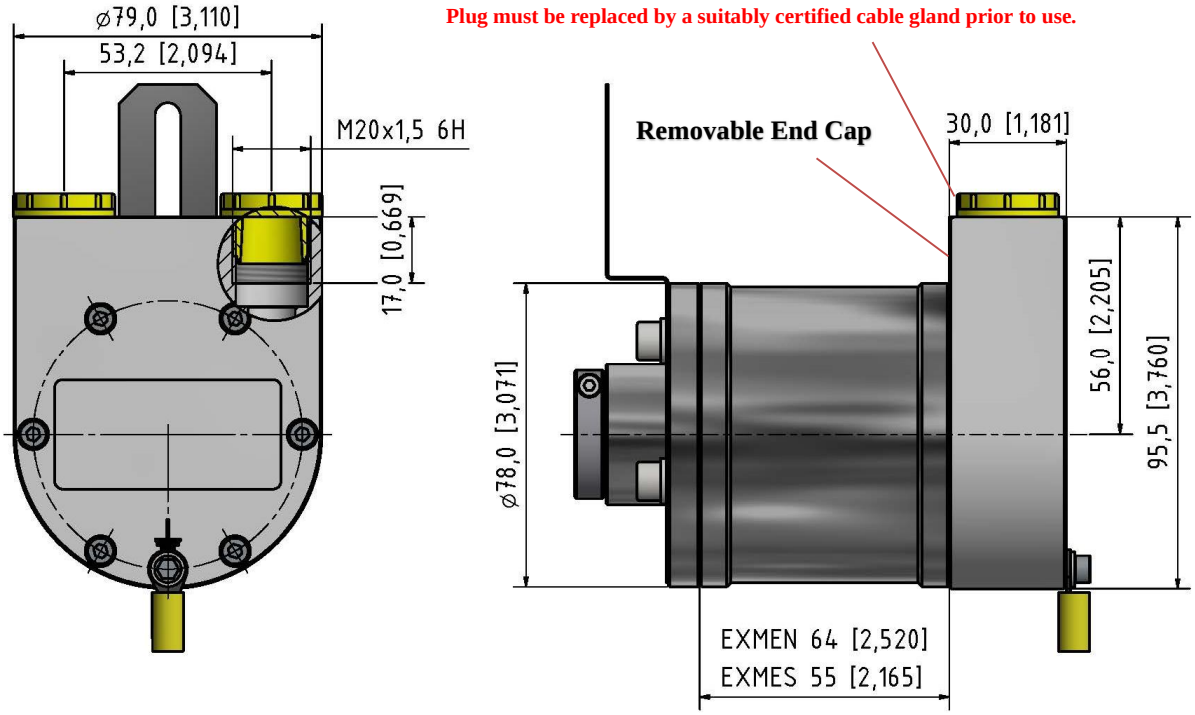


Face Mount C
Clamping Flange

mm (inches)

End Caps with Cable Outlets

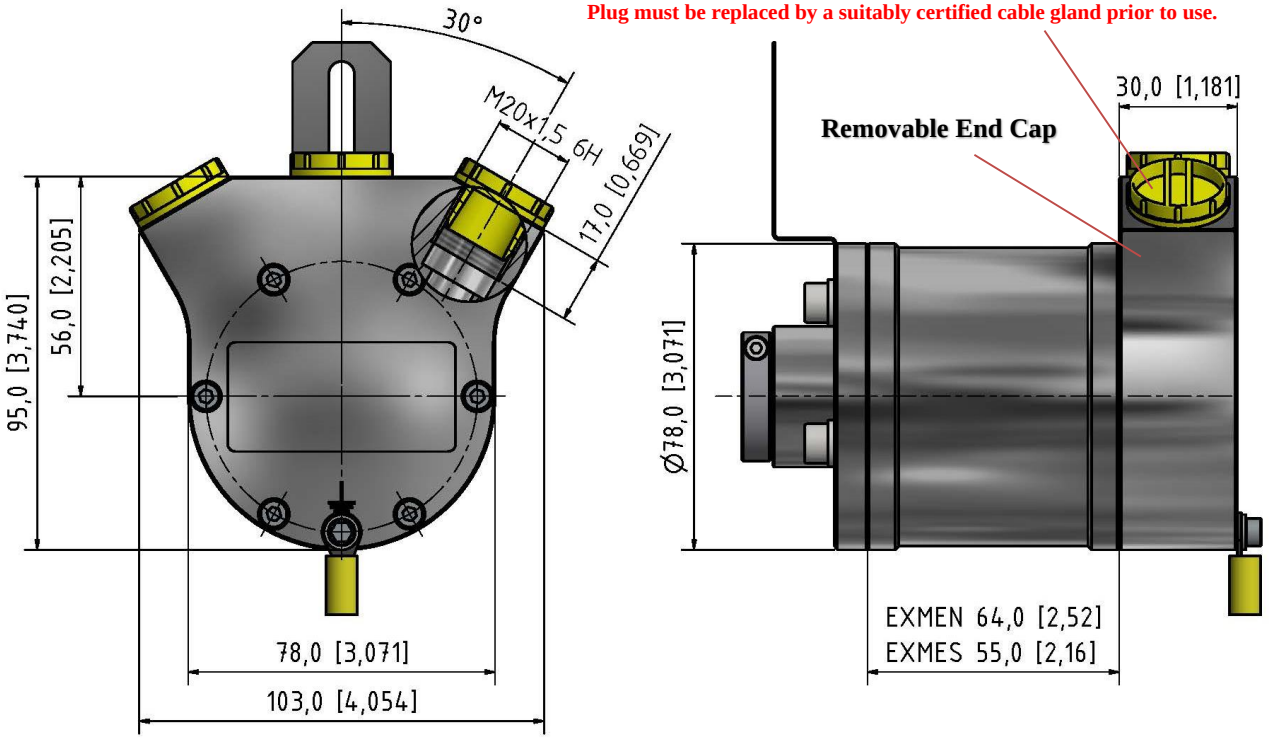
Plastic screw plug is for cable outlet protection during shipping and storage.
Plug must be replaced by a suitably certified cable gland prior to use.



Side Standard End Cap (FZ)

mm (inches)

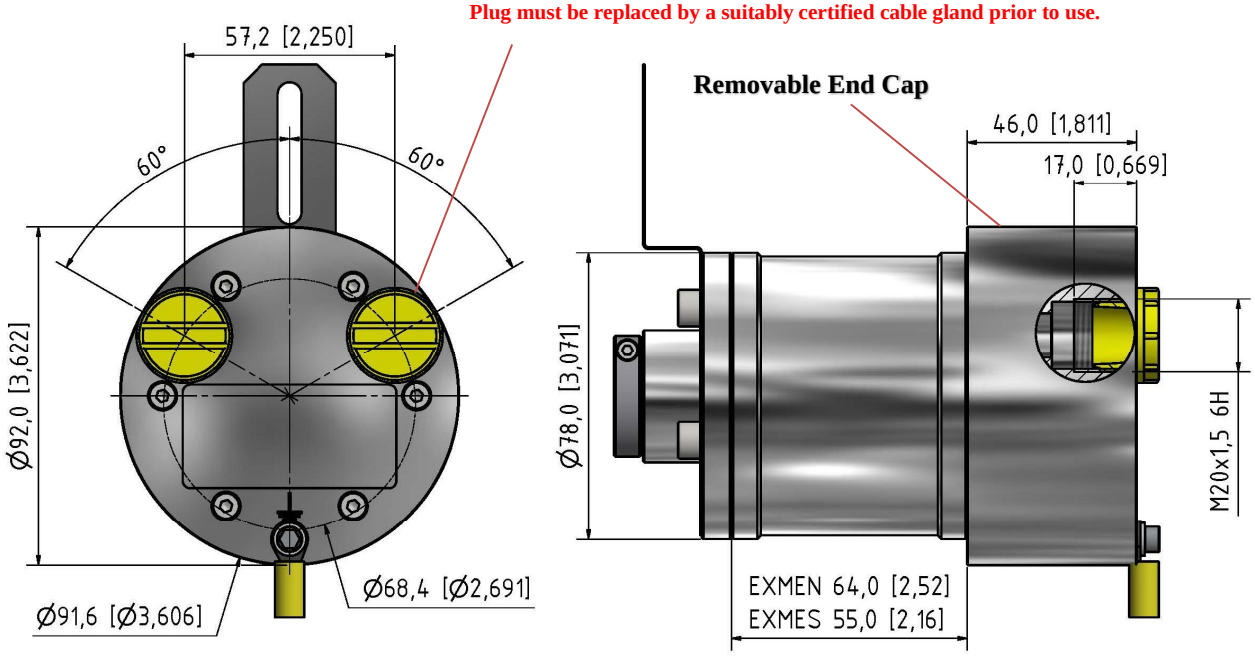
Plastic screw plug is for cable outlet protection during shipping and storage.
Plug must be replaced by a suitably certified cable gland prior to use.



Side Triple End Cap (FE)

mm (inches)

Plastic screw plug is for cable outlet protection during shipping and storage.
Plug must be replaced by a suitably certified cable gland prior to use.



Back Round End Cap (FG)

mm (inches)

Encoder Length

Housing N (Table 1)
(64 mm)

Total Encoder Length

End Cap	Clamping Flange B	Clamping Flange C
FZ	103,5 mm (4,07 in)	102 mm (4,02 in)
FE	103,5 mm (4,07 in)	102 mm (4,02 in)
FG	119,5 mm (4,70 in)	118 mm (4,65 in)

Housing S (Table 2)
(55 mm)

Total Encoder Length

End Cap	Clamping Flange B	Clamping Flange C
FZ	94,5 mm (3,72 in)	93 mm (3,66 in)
FE	94,5 mm (3,72 in)	93 mm (3,66 in)
FG	110,5 mm (4,35 in)	109 mm (4,29 in)

EXME SSI / Hollow Shaft Removable End Cap

Ordering Code

Example: EXMEN – S101B – 12 – 16 – H – VA – 01 – 66 – 00 – FZ – C – S1

EXME		-	S101	B	-		-		-	H	-		-		-		-	00	-		-		-	
	1			2		3		4				5		6		7		8		9		10		11

1. Housing

64 mm length ..... **N**
55 mm length …… **S**

See Table 1 & 2

2. Interface

Vers. …..... **S101/**
Code …….. Binary **B**
Code ……. Grey **G**

3. Revolution

Single Turn..... **00**
Multiturn 12 bits (4096) **12**
Multiturn 14 bits (16384..... **14**

4. Steps per revolution

12 bits (4096) (0.09^0)..... **12**
13 bits (8192) (0.04^0)..... **13**
16 bits (65536) (0.005^0)... **16**

5. Composition

Stainless Steel* ..... **VA**
Stainless Steel** ..... **SA**

** AISI 303*
*** AISI 316*

6. Hollow Shaft *(diameter)*

14 mm ……..... **01**
16 mm *Face Mount B only*…….... **02**
14 mm *Face mount B* …..……... **03**
1 inch *Face mount B only*…….. **04**

7. IP Rating

IP 64 ……..…….... **64**
IP 65 ……..…….... **65**
IP 66 ……..…… **66**
IP 67 ……..…… **67**
IP 68* ……...…… **68**

*1 meter/1 hour

8. Cable

No cable……..…….... **00**

9. Cable Outlets

Side Standard *2 outlets* …… .. **FZ**
Side Triple *3 outlets*……..... **FE**
Back Round *2 outlets*.....…. **FG**

10. Face mount

Clamping flange ……..... **B**
Clamping flange ……..... **C**

11. Accessory

Spring Coupling
1 hole *Flange C p/n 80131046*…**S1**
1 hole *FlangeB p/n 80131342*....**S2**