



Type 2RMHF

- Hollow Shaft Encoder - \varnothing 24 mm
- Hollow Bore: \varnothing 2 mm to \varnothing 1/4 inch
- Resolution up to 7.500 ppr
- IP 64 rating (*IP 50 for flat cable option*)

Electrical Specifications

Code:	Incremental
Resolution:	1 to 7.500 ppr (pulses per revolution)
Supply Voltage:	4,5 Vdc min. to 30 Vdc max. (45 mA max. - no load) **
Output Voltage:	Low: 500 mV max. at 10 mA High: ($V_{in} - 0,6$) at -10 mA ($V_{in} - 1,3$) at -25 mA
Output Current:	30 mA max. load per output channel **
Frequency Response:	200 kHz max. **
Output Format:	Two channel (A, B) quadrature with Index (Z) and optional complementary (A-, B-, Z-) outputs
Phase Sense:	A leads B clockwise (CW) from the mounting end of the encoder
Index:	Gated with Channels A and B high
Accuracy:	+/- 26 arc-sec.
Outputs:	ASIC Push pull and Differential OL7272 Push-pull and Differential Line Driver 26C31 Differential Line Driver 5V output (with 5V input)
Electrical Protection:	Reverse polarity and output short circuit protected
Noise Immunity:	Tested to EN61000-6-2 : 2005 (industrial environments) Electromagnetic compatibility (EMC) and EN 61000-6-3 : 2007 (residential, commercial, and light-industrial environments) for Electromagnetic compatibility (EMC)

**= It is recommended user not to combine max. value for all 3 parameters

Mechanical Specifications

Material:	Housing: Brass Cap: Electroplated Steel Aluminum (flat cable option) Hollow Shaft: Brass
Weight:	Encoder: ~ 35 gr (1,23 oz) Cable: 50 gr / meter (1,76 oz / meter)
Bearing Life:	> 1,9 x 10 ¹⁰ revolutions at rated load
Bearing Pre-Load:	1 to 3600 ppr 4 (N) 4000 to 5000 ppr 7 (N) 7500 ppr 10 (N)
Shaft Speed:	12.000 rpm (max.)
Starting Torque:	< 0,005 Nm (0,708 oz-in) at 25° C
Mass Moment of Inertia:	1,0 gcm ² (1,42 x 10 ⁻⁵ oz-in-sec ²)
Hollow Shaft Loads:	Axial: 20 N (4,5 lbs) max. Radial: 20 N (4,5 lbs) max.

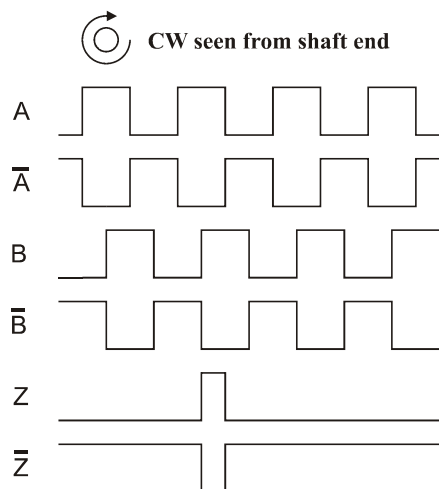
Environmental Specifications

Operating Temp.:	-40° to +85° C
Storage Temp.:	-40° to +85° C
Shock:	100 G / 11 ms
Vibration:	10-2000 Hz / 10 G
Bump:	10 G / 16 ms (1000 x 3 axis)
Humidity:	98 % RH without condensation
IP Rating:	IP 64 / Nema 4 (approx.) IP 50 / Nema 5 (approx.) – flat cable

Connection Options

Cable:	8 leads (0,05 mm ² , 30 AWG) - Differential 5 leads (0,14 mm ² , 26 AWG) - Standard twisted pairs; shielded
Connector:	5-pin M9 8-pin M9
Flat Cable:	10 lead flat cable with IDC connector

Output waveform



Channel tolerance **180 e° +/- 36 e°**
Phase difference tolerance **90 e° +/- 18 e°**
Z channel tolerance **90 e° +/- 18 e°**

Disk Resolutions (pulses per revolution)

1	36	150	512	3000
4	50	180	600	3600
10	60	200	1000	5000
11	64	250	1024	7500*
12	75	256	1250	
15	90	300	1800	
20	100	360	2000	
25	125	400	2048	
30	128	500	2500	

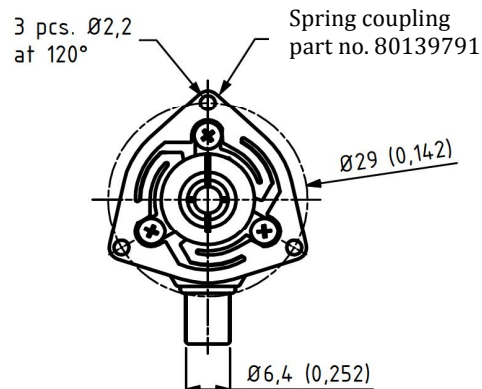
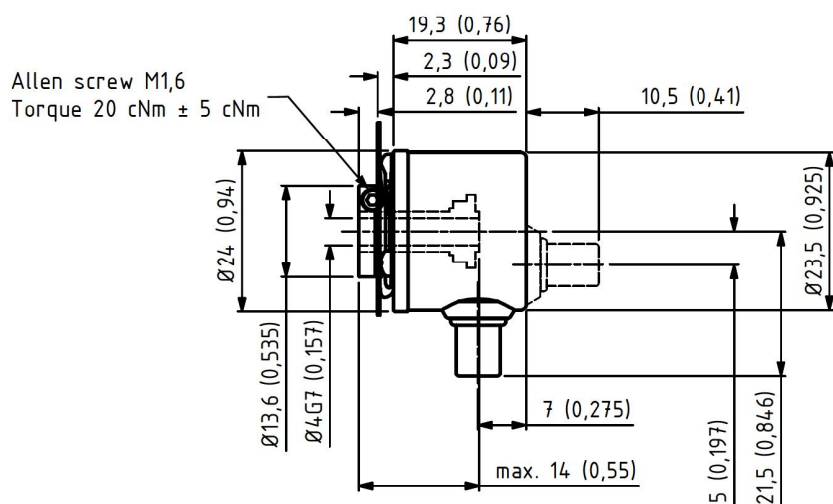
Other options on request

Pulses per revolution,
min. 1 – max. 7.500

* Operating temperature: -20° C to 50° C

Mechanical Dimensions

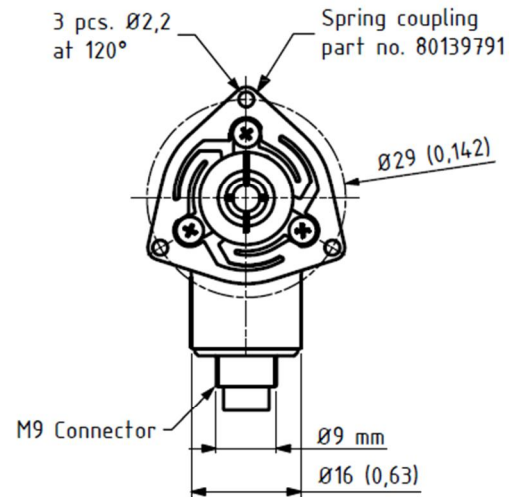
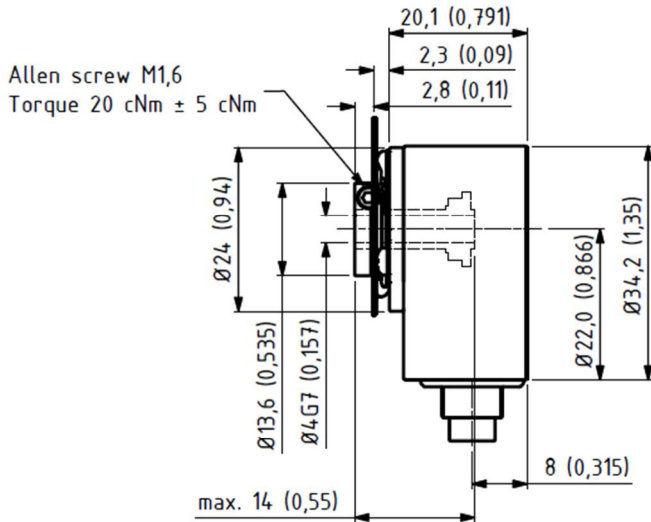
Tolerances according to ISO 2768 f



Standard Cable Gland
Side (S) or Back (B)

mm (inches)

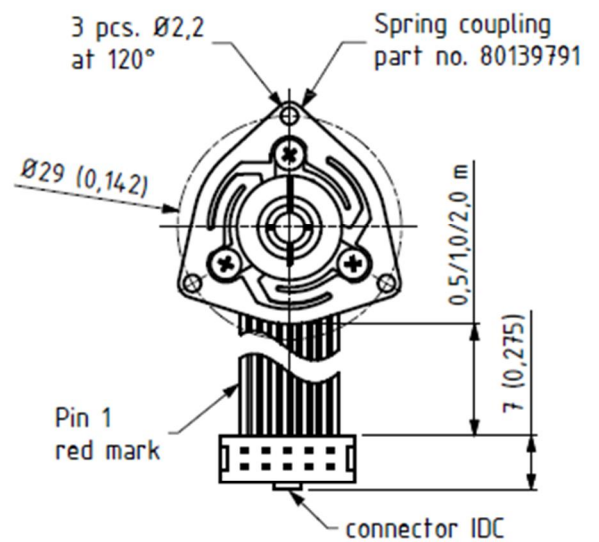
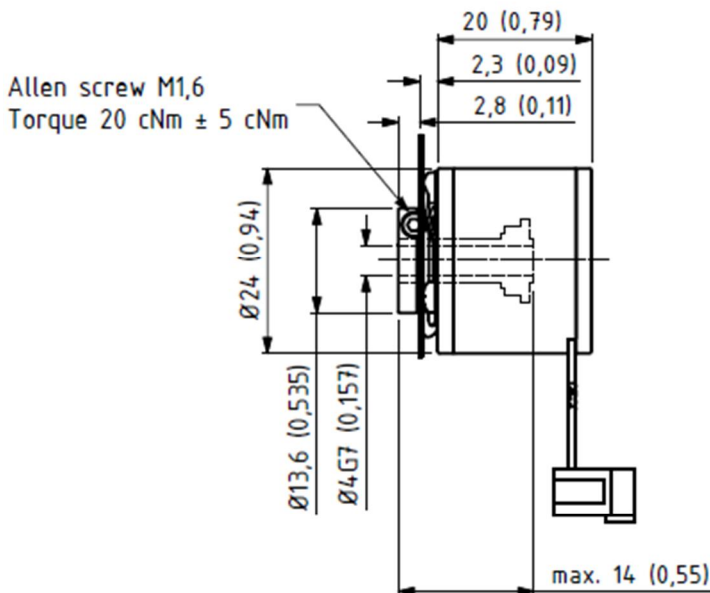
Tolerances according to ISO 2768 f



M9 Connector

mm (inches)

Tolerances according to ISO 2768 f



Flat Ribbon Cable with IDC connector

mm (inches)

Output Terminations

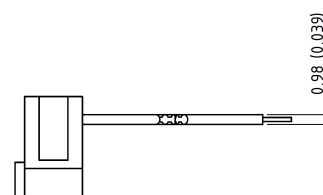
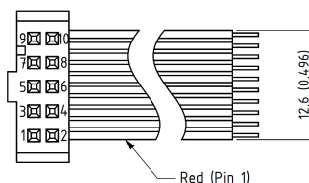
Channel	Standard Cable	
	Standard Output	Differential Output
Channel	Wire Color	
A	Green	Pink
A -	NC*	Gray
B	Yellow	Green
B -	NC*	Yellow
Z	Gray	White
Z -	NC*	Brown
Vsup	Brown	Red
GND	White	Blue

GND = Circuit Ground

* Internally connected as GND

Flat Cable w/ IDC Connector	
Differential Output *	
Position	Channel
1	NC
2	Vsup
3	GND
4	NC
5	A
6	A -
7	B
8	B -
9	Z -
10	Z

* Hewlett Packard (HP) compatible



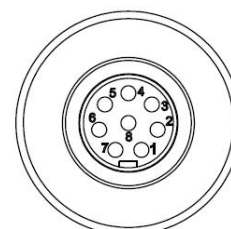
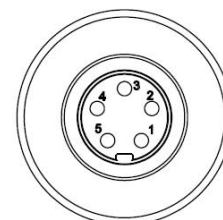
- IP 50 rating
- CE mark not available
- 0,5 m, 1 m, or 2 m cable length only

Cable Tolerances

	Cable Length	Tolerances
	Flat Cable	0,5 (= 0,5 m)
01 (= 1 m)		+/- 15 mm
02 (= 2 m)		+/- 20 mm
Round Cable	01 (= 1 m)	Min. XX - 15 mm
	XX (specified length)	
	XX ≤ 500 mm w/ connector	Min. XX - 10 mm
	500 ≤ XX ≤ 1000 mm w/ connector	Min. XX - 15 mm
	XX > 1000 mm w/ connector	Min. XX - 20 mm



Position	M9 5 - pin Standard Output	M9 8 - pin Differential Output
	Channel	Channel
1	VDD	VDD
2	GND	GND
3	A	A
4	B	A -
5	Z	B
6		B -
7		Z
8		Z -



GND = Circuit Ground

Ordering Code

Example: 2RMHF – 1024 – D – 04 – 14 – 64 – 01 – S – 00 – S5

2RMHF - [] - [] - [] - 14 - [] - [] - [] - [] - []

Pulses per Revolution

See table

Output

Hollow Shaft Dia.

Hollow Shaft Length

IP Rating

Cable Length

Cable Takeout

Connector

Spring Coupling

Standard	N
Standard – Open Collector NPN	NON
Standard – Open Collector PNP	NOP
Differential	D
26C31 Line Driver 5V / 5V only	L
OL 7272 Line Driver	M
Standard - with built-in TSM **	T

IP 50	50*
IP 64	64

* = Only flat cable

<u>Standard Cable</u>	
Standard is 1 meter	01
Specify length	XX
No Cable	00
<u>Flat Cable w/ IDC</u>	
0,5 meter	0,5
1 meter	01
2 meters	02

<u>Cable</u>	
Side (radial)	S
Back (axial)	B
Flat Cable (radial)	SF
<u>Connector</u>	
Side (radial)	S

2 mm x 14 mm	02	-	14
3 mm x 14 mm	03	-	14
4 mm x 14 mm	04	-	14
5 mm x 14 mm	05	-	14
6 mm x 14 mm	06	-	14
3/16 in x 14 mm	3/16	-	14
1/4 in x 14 mm	1/4	-	14

<u>Standard Cable</u>		
M9 5-pin		M9/5
M9 8-pin		M9/8
No Connector		00
<u>Flat Cable</u>		
IDC on flat cable*		IDC

* = Only IP 50

1 hole	p/n 70137434	S1
1 hole	p/n 80147180	S2
2 holes	p/n 80149654	S3
2 holes	p/n 80149578	S4
3 holes	p/n 80139791	S5
3 holes	p/n 80131377	S6
2 holes	p/n 80140700	S7
3 holes	p/n 80141752	S8
No spring coupling		00

Other options on request:
Please contact Scancon A/S

** Designed specifically for Wind Power applications.

See SCA24 COC under Industries – Wind Power – SCA24 for additional conformity standards testing.

TSM = Transient Suppression Module

Available only as Standard output

See Accessories for drawings