



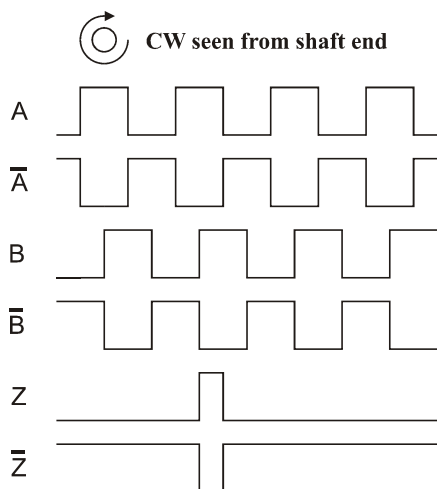
Type 2RMHF

- 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		Mechanical Specifications	
Code:	Incremental	Material:	Housing: Brass Cap: Electroplated Steel Aluminum (flat cable option) Hollow Shaft: Brass
Resolution:	1 to 7.500 ppr (pulses per revolution)	Weight:	Encoder: ~ 35 gr (1,23 oz) Cable: 50 gr / meter (1,76 oz / meter)
Supply Voltage:	4,5 Vdc min. to 30 Vdc max. (45 mA max. - no load)	Bearing Life:	$> 1,9 \times 10^{10}$ revolutions at rated 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	Bearing Pre-Load:	1 to 3600 ppr 4 (N) 4000 to 5000 ppr 7 (N) 7500 ppr 10 (N)
Output Current:	30 mA max. load per output channel	Shaft Speed:	12.000 rpm (max.)
Frequency Response:	200 kHz max.	Starting Torque:	$< 0,005$ Nm (0,708 oz-in) at 25° C
Output Format:	Two channel (A, B) quadrature with Index (Z) and optional complementary (A-, B-, Z-) outputs	Mass Moment of Inertia:	1,0 gcm ² (1,42 $\times 10^{-5}$ oz-in-sec ²)
Phase Sense:	A leads B clockwise (CW) from the mounting end of the encoder	Hollow Shaft Loads:	Axial: 20 N (4,5 lbs) max. Radial: 20 N (4,5 lbs) max.
Index:	Gated with Channels A and B high	Environmental Specifications	
Accuracy:	+/- 26 arc-sec.	Operating Temp.:	-40° to +85° C
Outputs:	ASIC Push pull and Differential OL7272 Push-pull and Differential Line Driver 26C31 Differential Line Driver 5V output (with 5V input)	Storage Temp.:	-40° to +85° C
Electrical Protection:	Reverse polarity and output short circuit protected	Shock:	100 G / 11 ms
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)	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

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

Output waveform



Channel tolerance $180^\circ \pm 36^\circ$
 Phase difference tolerance $90^\circ \pm 18^\circ$
 Z channel tolerance $90^\circ \pm 18^\circ$

Disk Resolutions (pulses per revolution)

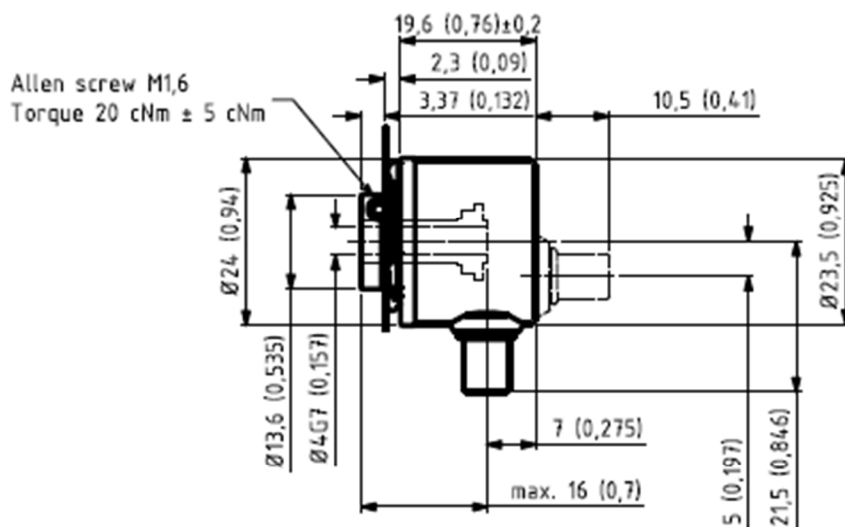
1	36	150	512	3000
4	50	180	600	3600
10	60	200	1000	5000
11	64	250	1024	7500*
12	75	256	1250	
15	90	300	1800	
20	100	360	2000	
25	125	400	2048	
30	128	500	2500	

Other options on request

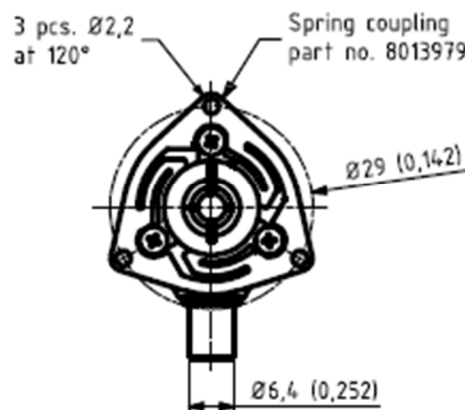
Pulses per revolution,
 min. 1 – max. 7.500

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

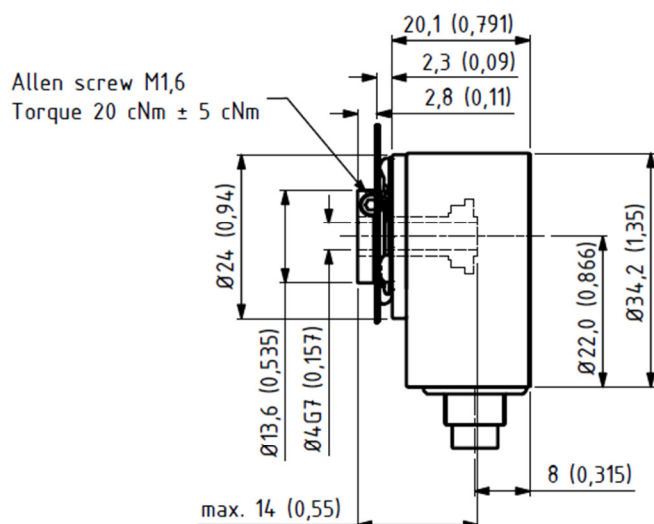
Mechanical Dimensions



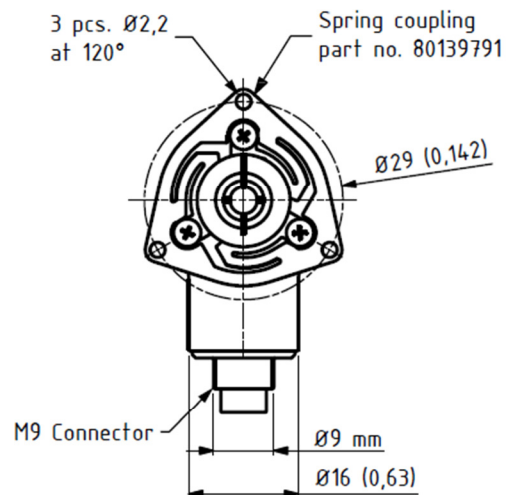
Standard Cable Gland
 Side (S) or Back (B)



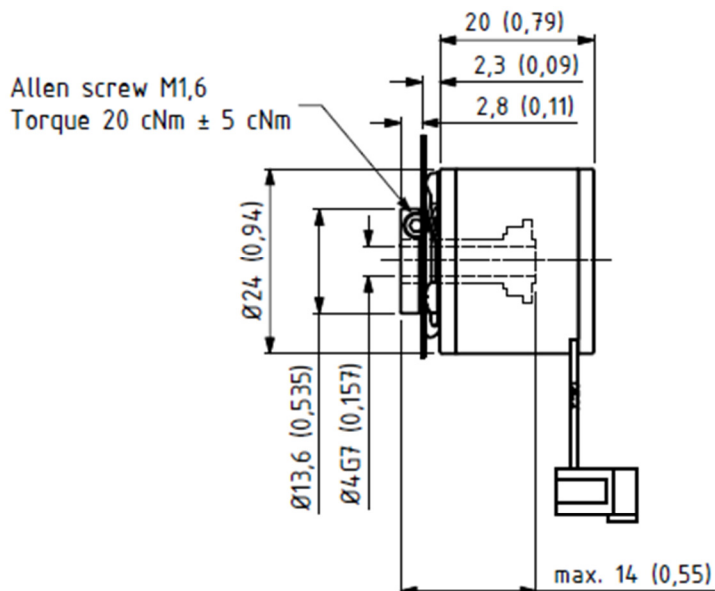
mm (inches)



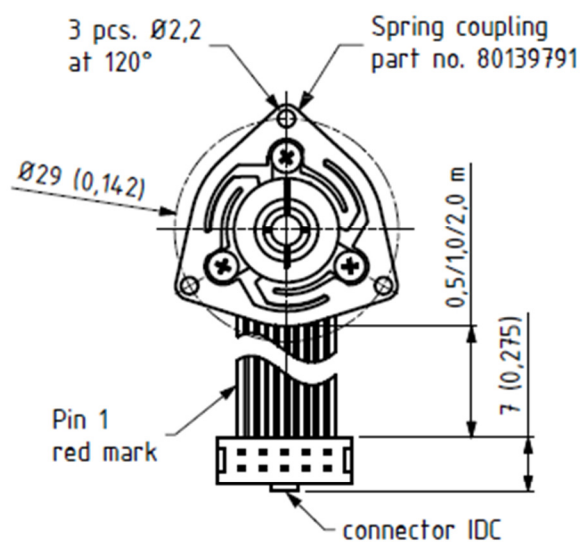
M9 Connector



mm (inches)



Flat Ribbon Cable with IDC connector



mm (inches)

Output Terminations

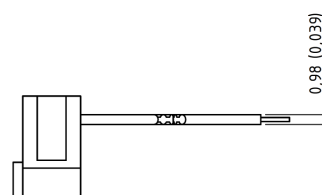
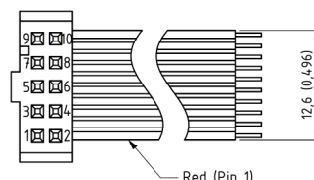
Channel	Standard Cable	
	Standard Output	Differential Output
Wire Color		
A	Green	Pink
A -	NC*	Gray
B	Yellow	Green
B -	NC*	Yellow
Z	Gray	White
Z -	NC*	Brown
Vsup	Brown	Red
GND	White	Blue

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

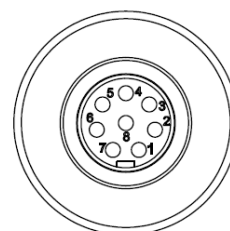
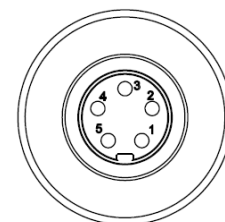


- IP 50 rating
- CE mark not available
- 0,5 m, 1 m, or 2 m cable length only

Cable Tolerances		
	Cable Length	Tolerances
Flat Cable	0,5 (= 0,5 m)	+/- 10 mm
	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

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