

Industrial types



Synchro flange



Clamping flange

- Universal industry standard encoder
- Up to 40,000 steps with 10,000 pulses
- High signal accuracy
- Protection class up to IP 67
- Operating temperature up to 100 °C (RI 58-T)
- Flexible due to many flange and configuration variants
- Suitable for high shock ratings
- Application e.g.: Machine tools, CNC axes, packing machines, motors/drives, injection moulding machines, sawing machines, textile machines
- For EX version, see RX 70-I

NUMBER OF PULSES

RI 58-O

1 / 2 / 3 / 4 / 5 / 10 / 15 / 20 / 25 / 29 / 30 / 35 / 40 / 50 / 60 / 64 / 70 / 72 / 80 / 100 / 117 / 120 / 125 / 127 / 128 / 136 / 144 / 150 / 180 / 200 / 226 / 230 / 250 / 256 / 280 / 300 / 314 / 350 / 356 / 360 / 375 / 400 / 460 / 480 / 500 / 512 / 600 / 625 / 635 / 720 / 750 / 889 / 900 / 942 / 1,000 / 1,024 / 1,125 / 1,200 / 1,250 / 1,270 / 1,500 / 1,600 / 1,800 / 1,885 / 1,979 / 2,000 / 2,048 / 2,400 / 2,500 / 3,000 / 3,400 / 3,480 / 3,600 / 3,750 / 3,925 / 3,958 / 3,968 / 4,000 / 4,096 / 4,445 / 4,800 / 5,000 / 5,400 / 6,000 / 6,875 / 7,200 / 7,680 / 7,854 / 8,000 / 8,192 / 9,000 / 10,000

other numbers of pulses available on request.

RI 58-T

(high temperature): as above, but only for the range from 4 ... 2,500 pulses
other numbers of pulses available on request.

TECHNICAL DATA mechanical

Shaft diameter	6 mm/6.35 mm/7 mm/12 mm/10 mm/9.52 mm
Absolute max. shaft load	Ø 12 mm 180/140 N (39/30 lbs)
radial / axial	Ø 7...10 mm 160/107 N (35/24 lbs)
	Ø 6 mm/6.35 mm 110/60 N (24/13 lbs)
Absolute maximum speed	10,000 RPM
Torque	≤ 0.5 Ncm (IP 65), ≤ 1 Ncm (IP 67)
Moment of inertia	synchro flange 14 gcm ² approx. clamping flange 20 gcm ² approx.
Protection class (EN 60529)	Housing IP 65, bearings IP 64 Housing IP 67, bearings IP 67
Operating temperature	RI 58-O: -10 ... +70 °C; RI 58-T: -25 ... +100 °C
Storage temperature	RI 58-O: -25 ... +85 °C; RI 58-T: -25 ... +100 °C
Vibration proof (IEC 68-2-6)	100 m/s ² (10 ... 2000 Hz)
Shock resistance (IEC 68-2-27)	1,000 m/s ² (6 ms)
Type of connection	1.5 m cable ¹⁾ or connector, axial or radial
Housing	aluminium Ø 58 mm
Flange	S = synchro flange, K = clamping flange, G, Q = square flange, M = synchro clamping flange
Weight	360 g approx.
Bearing life	1 x 10 ¹⁰ revolutions (typ.) at 35 % of full rated shaft load 1 x 10 ⁹ revolutions (typ.) at 75 % of full rated shaft load 1 x 10 ⁸ revolutions (typ.) at 100 % of full rated shaft load For example 30,000 h at 6,000 RPM with a 13 lb radial load (10 mm or 9.52 mm shaft)

¹⁾ Other cable lengths on request

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TECHNICAL DATA electrical

General design	as per DIN VDE 0160, protection class III, contamination level 2, overvoltage class II		
Supply voltage (SELV)	with RS 422 + Sense (T):	5 VDC ± 10 %	
	with RS 422 + Alarm (R):	5 VDC ± 10 % oder 10 ... 30 VDC ¹⁾	
	with push-pull (K, I):	10 ... 30VDC ¹⁾	
Power consumption	40 mA (5VDC), 60 mA (10VDC), 30 mA (24 VDC)		
Standard-Output versions ²⁾	RS 422 (R):	A, B, N, \bar{A} , \bar{B} , \bar{N} , \bar{Alarm}	
	RS 422 (T):	A, B, N, \bar{A} , \bar{B} , \bar{N} , Sense	
	push-pull (K):	A, B, N, \bar{Alarm}	
	push-pull complementary (I):	A, B, N, \bar{A} , \bar{B} , \bar{N} , \bar{Alarm}	

¹⁾ Pole protection with supply voltage 10...30 VDC

²⁾ Output description and technical data see section „output“.

CONNECTION DIAGRAM CABLE PVC

cable PVC (A, B)	Output (R, T)	push-pull (K)	push-pull complementary (I)
red	5/10...30 VDC=	10...30 VDC=	10...30 VDC=
yellow/red	Sense V _{cc}		Sense V _{cc}
white	Channel A	Channel A	Channel A
white/brown	Channel \bar{A}		Channel \bar{A}
green	Channel B	Channel B	Channel B
green/brown	Channel \bar{B}		Channel \bar{B}
yellow	Channel N	Channel N	Channel N
yellow/brown	Channel \bar{N}		Channel \bar{N}
black	GND	GND	GND
yellow/black	$\bar{Alarm/Sense}$ GND ¹⁾	\bar{Alarm}	\bar{Alarm}
Screen ²⁾	Screen ²⁾	Screen ²⁾	Screen ²⁾

¹⁾ depending on ordering code

²⁾ connected to housing

CONNECTION DIAGRAM CABLE TPE

cable TPE (E, F)	Output (R, T)	push-pull (K)	push-pull complementary (I)
brown/green	5/10...30 VDC=	10...30 VDC=	10...30 VDC=
blue	Sense V _{cc}		Sense V _{cc}
brown	Channel A	Channel A	Channel A
green	Channel \bar{A}		Channel \bar{A}
grey	Channel B	Channel B	Channel B
pink	Channel \bar{B}		Channel \bar{B}
red	Channel N	Channel N	Channel N
black	Channel \bar{N}		Channel \bar{N}
white/green	GND	GND	GND
violet (white) ¹⁾	$\bar{Alarm/Sense}$ GND ²⁾	\bar{Alarm}	\bar{Alarm}
Screen ³⁾	Screen ³⁾	Screen ³⁾	Screen ³⁾

¹⁾ white for RS 422 + Sense (T)

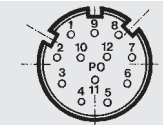
²⁾ depending on ordering code

³⁾ connected to housing

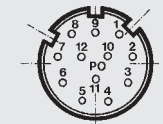
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CONNECTOR 12 POLE (CONIN)

Pin	RS 422 + Sense (T)	RS 422 + Alarm (R)	push-pull (K)	push-pull complementary
1	Channel \bar{B}	Channel \bar{B}	N.C.	Channel \bar{B}
2	Sense V_{CC}	Sense V_{CC}	N.C.	Sense V_{CC}
3	Channel N	Channel N	Channel N	Channel N
4	Channel \bar{N}	Channel \bar{N}	N.C.	Channel \bar{N}
5	Channel A	Channel A	Channel A	Channel A
6	Channel \bar{A}	Channel \bar{A}	N.C.	Channel \bar{A}
7	N.C.	Alarm	Alarm	Alarm
8	Channel B	Channel B	Channel B	Channel B
9	N.C. ¹⁾	N.C. ¹⁾	N.C. ¹⁾	N.C. ¹⁾
10	GND	GND	GND	GND
11	Sense GND	N.C.	N.C.	N.C.
12	5 VDC =	5/10...30 VDC=	10...30 VDC=	10...30 VDC=



Pin-assignment connector counter clockwise (ccw)



connector clockwise (cw)

¹⁾ Screen for cable with CONIN connector

CONNECTOR 10 POLE (MIL)

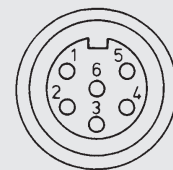
Pin	RS 422/Push-pull complementary Euro-pinout (connection codes O and K)	Push-pull (O and K)	RS 422/Push-pull complementary US-pinout (R and T)
1/A	Channel A	Channel A	Channel A
2/B	Channel B	Channel B	Channel B
3/C	Channel N	Channel N	Channel N
4/D	5/10...30 VDC =	10...30 VDC =	5/10...30 VDC =
5/E	Alarm	Alarm	Alarm
6/F	GND	GND	GND
7/G	Channel \bar{A}	Screen	Screen
8/H	Channel \bar{B}	N.C.	Channel \bar{A}
9/I	Channel \bar{N}	N.C.	Channel \bar{B}
10/J	Screen	Screen	Channel \bar{N}

CONNECTOR 6/7 POLE (MIL)

	MIL 6 pole	MIL 7 pole
Pin	Push-pull	Push-pull
1/A	10...30 VDC	Channel A
2/B	Channel A	Channel B
3/C	Channel B	Channel N
4/D	Channel N	10...30 VDC =
5/E	GND	Alarm
6/F	Screen	GND
7/G	-	Screen

CONNECTOR 6 POLE (BINDER)

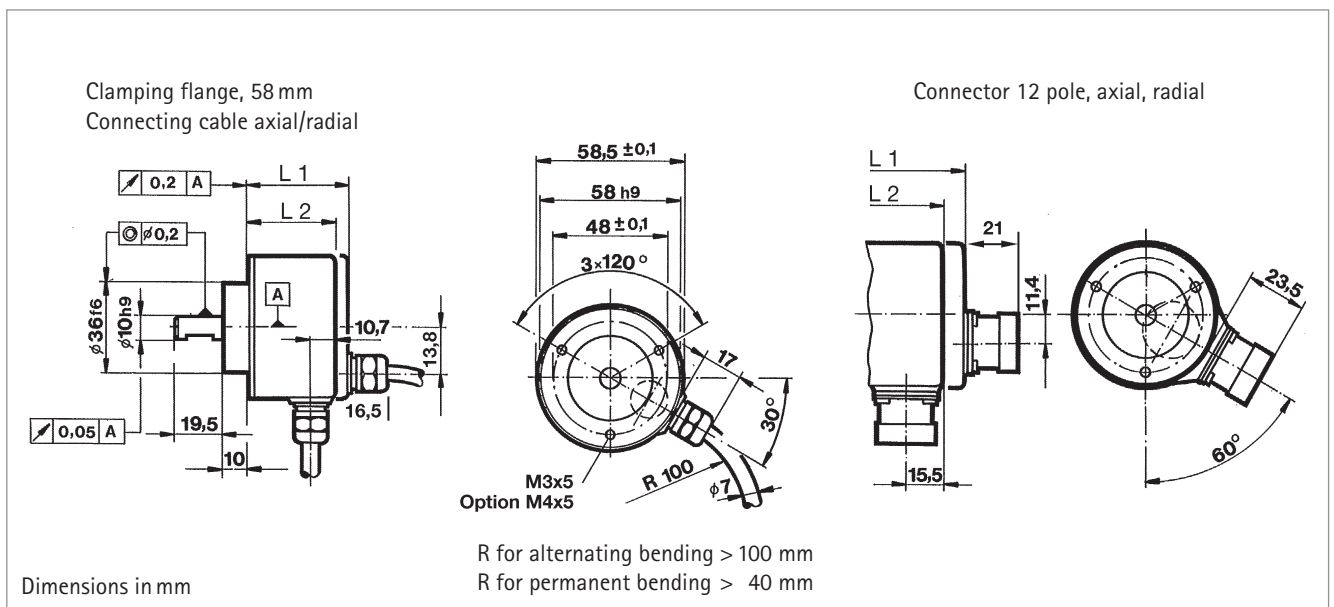
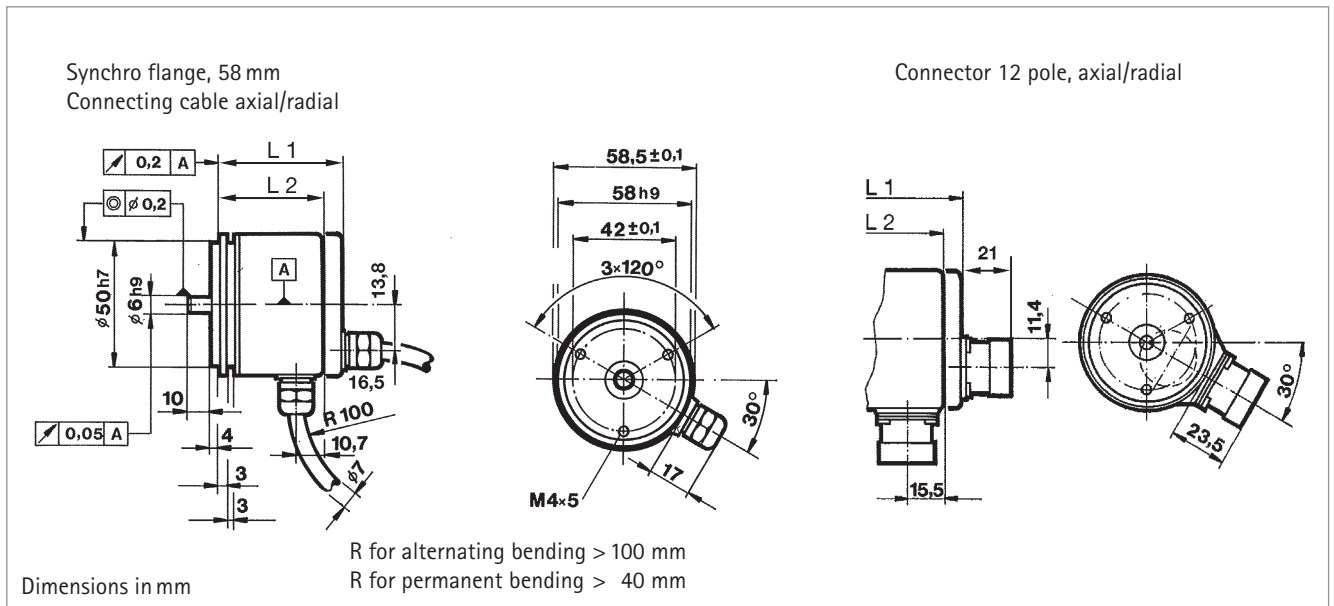
Description (push-pull)	Pin
10 ... 30 VDC	1
Channel A	2
Channel N	3
Channel B	4
Alarm	5
GND	6



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DIMENSIONED DRAWINGS



DIMENSIONS

Type	Connection	Output ¹⁾	axial L ₁	radial L ₂
Synchro flange, 58 mm	cable	R (with U _b = 5 V), T, K, I	51.5	41.5
		R (with U _b = 10...30 V)	56	56
	connector	R (with U _b = 5 V), T, K, I	57.5	51.5
		R (with U _b = 10...30 V)	57.5	56
Clamping flange, 58 mm	cable	R (with U _b = 5 V), T, K, I	45.5	35.5
		R (with U _b = 10...30 V)	50	50
	connector	R (with U _b = 5 V), T, K, I	51.5	45.5
		R (with U _b = 10...30 V)	51.5	50

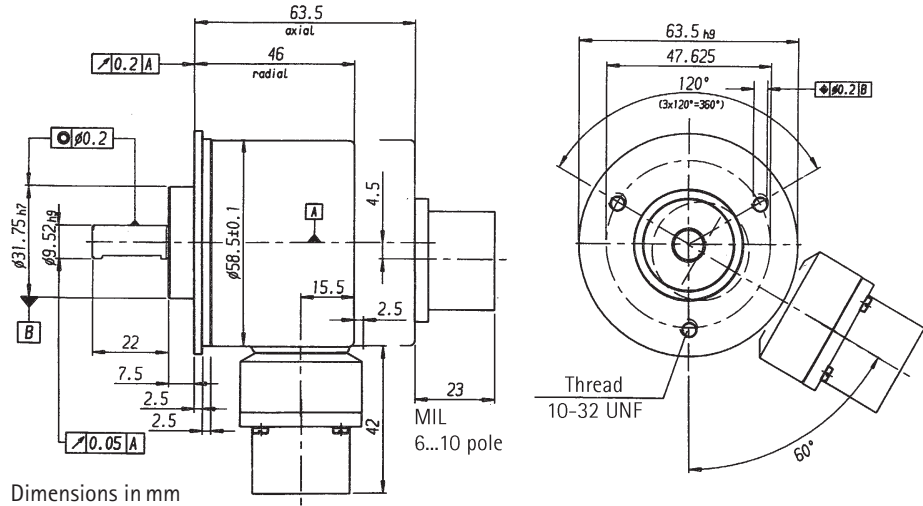
¹⁾ R = RS 422 + Alarm, T = RS 422 + Sense, K = push-pull, I = push-pull complementary

Incremental Shaft Encoders Industrial types

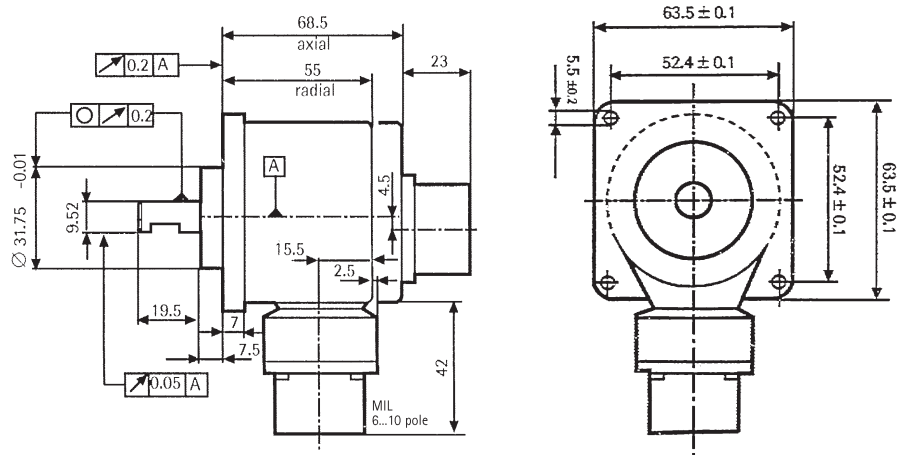
Type RI 58

DIMENSIONED DRAWINGS

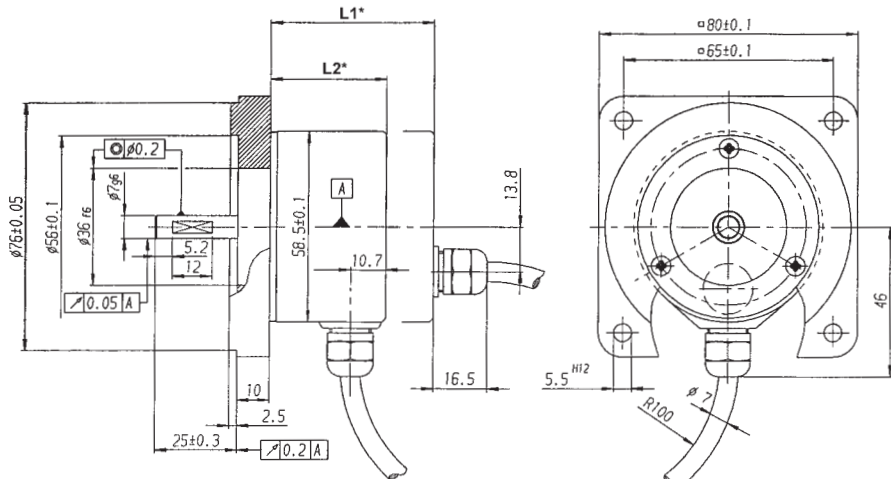
Synchro clamping
flange, 63.5 mm



Square flange 63.5 x 63.5 mm



Square flange, 80 x 80 mm



R for alternating bending > 100 mm
R for permanent bending > 40 mm

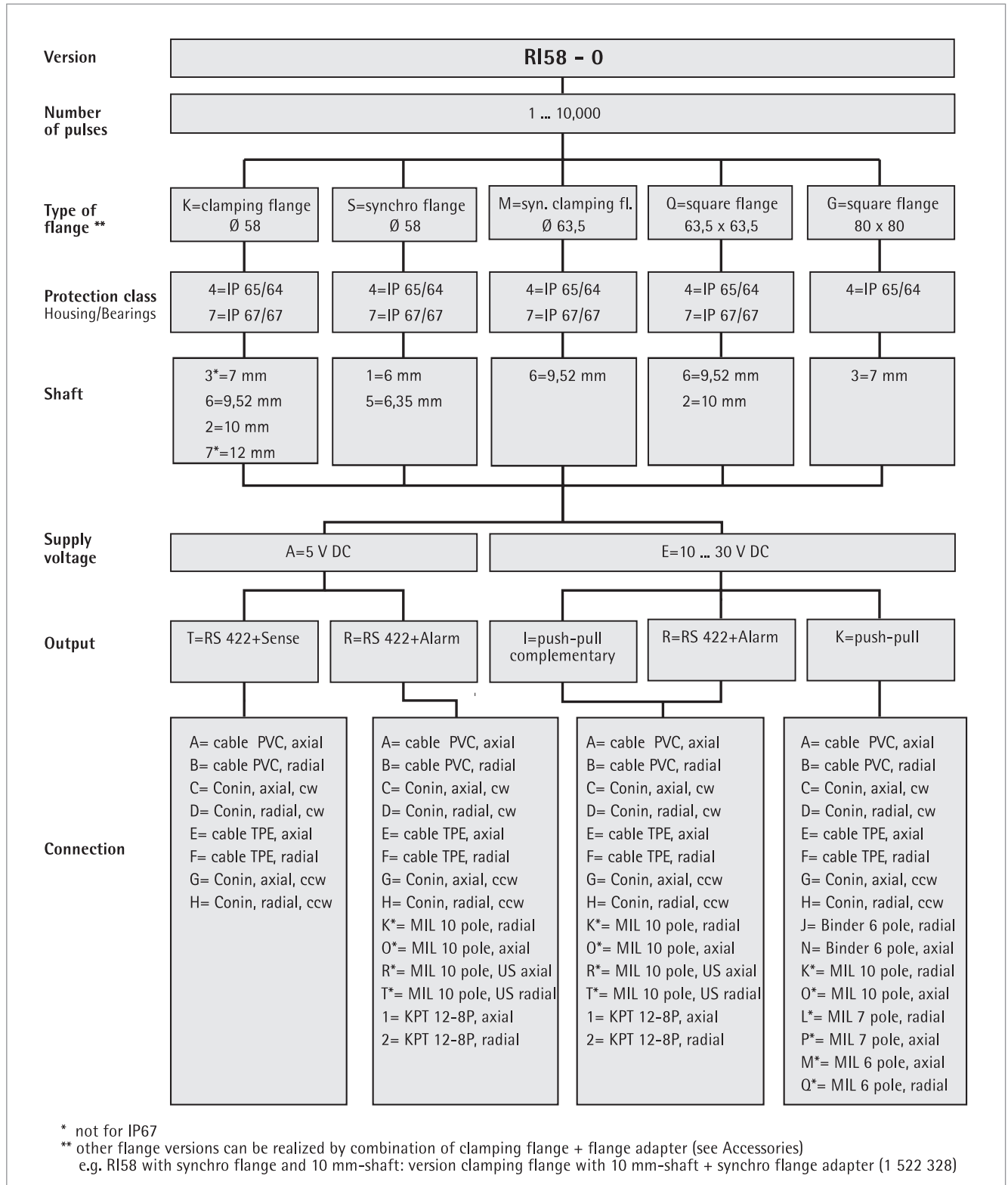
Incremental Shaft Encoders

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Type RI 58

STANDARD VERSIONS

Guide for selection of RI 58-O



Incremental Shaft Encoders Industrial types

Type RI 58

STANDARD VERSIONS
Guide for selection of RI 58-T

