Industrial types Solid shaft

Synchro flange

Clamping flange

- Universal industry standard encoder
- Up to 40000 steps with 10000 pulses
- High signal accuracy
- Protection class up to IP67
- 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 axles, 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 / 30 / 35 / 40 / 45 / 50 / 60 / 64 / 70 / 72 / 80 / **100** / 125 / 128 / 144 / 150 / 180 / 200 / 230 / **250** / 256 / 300 / 314 / 350 / 360 / 375 / 400 / 460 / 480 / **500** / 512 / 600 / 625 / 635 / 720 / 750 / 900 / **1000** / **1024** / 1200 / **1250** / 1500 / 1600 / 1800 / 2000 / 2048 / **2500** / 3000 / 3480 / **3600** / 3750 / 3968 / 4000 / **4096** / 4800 / **5000** / 5400 / 6000 / 7200 / 7680 / 8000 / 8192 / 9000 / 10000
Other number of pulses on request
Preferably available versions are printed in bold type.

RI 58-T

(high temperature) as above, but only for the range from 4 … 2500 pulses
Other number of pulses 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 Ø 7…10 mm Ø 6 mm / 6.35 mm	radial 80 N/axial 60 N radial 60 N/axial 40 N radial 40 N/axial 20 N
Absolute max. speed	10000 min^{-1}	
Torque	≤ 0.5 Ncm, ≤ 1 Ncm (IP67)	
Moment of inertia	Synchro flange approx. 14 gcm^2 Clamping flange approx. 20 gcm^2	
Protection class (EN 60529)	Housing IP65, bearings IP64 Housing IP67, bearings IP67	
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 resistance (IEC 68-2-6)	100 m/s^2 (10 … 2000 Hz)	
Shock resistance (IEC 68-2-27)	1000 m/s^2 (6 ms)	
Connection	1.5 m cable [1] or connector, axial oder radial	
Housing	Aluminium Ø 58 mm	
Flange	S = synchro flange, K = clamping flange, G, Q = square flange, M = synchro clamping flange	
Weight	approx. 360 g	

[1] Other cable length on request

Industrial types Solid shaft

TECHNICAL DATA electrical

General design	as per DIN VDE 0160, protection class III, Contamination level 2, over voltage level II	
Supply voltage (SELV)	with RS 422 + Sense (T):	DC 5 V ± 10 %
	with RS 422 + Alarm (R):	DC 5 V ± 10 % oder DC 10 - 30 V [1]
	with push-pull (K, I):	DC 10 - 30 V [1]
Max. current w/o load	40 mA (DC 5 V), 60 mA (DC 10 V), 30 mA (DC 24 V)	
Standard output versions [2]	RS 422 (R):	A, B, N, $\overline{A}$, $\overline{B}$, $\overline{N}$, $\overline{Alarm}$
	RS 422 (T):	A, B, N, $\overline{A}$, $\overline{B}$, $\overline{N}$, Sense
	push-pull (K):	A, B, N, $\overline{Alarm}$
	push-pull complementary (I):	A, B, N, $\overline{A}$, $\overline{B}$, $\overline{N}$, $\overline{Alarm}$

[1] Pole protection with supply voltage DC 10 - 30 V
[2] Output description and technical data see chapter “Technical basics”

PIN ASSIGNMENT Cable PVC

Cable PVC (A, B) Colour	Output RS 422 (R, T)	push-pull (K)	push-pull complementary (I)
red	DC 5 / 10 - 30 V	DC 10 - 30 V	DC 10 - 30 V
yellow/red	Sense V_{CC}		Sense V_{CC}
white	Channel A	Channel A	Channel A
white/brown	Channel $\overline{A}$		Channel $\overline{A}$
green	Channel B	Channel B	Channel B
green/brown	Channel $\overline{B}$		Channel $\overline{B}$
yellow	Channel N	Channel N	Channel N
yellow/brown	Channel $\overline{N}$		Channel $\overline{N}$
black	GND	GND	GND
yellow/black	$\overline{Alarm}$ /Sense GND [1]	$\overline{Alarm}$	$\overline{Alarm}$
screen [2]	screen [2]	screen [2]	screen [2]

[1] depending on ordering code
[2] connected with encoder housing

PIN ASSIGNMENT Cable TPE

Cable TPE (E, F) Colour	Output RS 422 (R, T)	push-pull (K)	push-pull complementary (I)
brown/green	DC 5 / 10 - 30 V	DC 10 - 30 V	DC 10 - 30 V
blue	Sense V_{CC}		Sense V_{CC}
brown	Channel A	Channel A	Channel A
green	Channel $\overline{A}$		Channel $\overline{A}$
grey	Channel B	Channel B	Channel B
pink	Channel $\overline{B}$		Channel $\overline{B}$
red	Channel N	Channel N	Channel N
black	Channel $\overline{N}$		Channel $\overline{N}$
white/green	GND	GND	GND
violet (white) [1]	$\overline{Alarm}$ /Sense GND [2]	$\overline{Alarm}$	$\overline{Alarm}$
screen [3]	screen [3]	screen [3]	screen [3]

[1] white with RS 422 + Sense (T)
[2] depending on ordering code
[3] connected with encoder housing

CONNECTOR 12 POLE (CONIN)

Pin	RS 422 + Sense (T)	RS 422 + Alarm (R)	push-pull (K)	push-pull complementary (I)
1	Channel $\overline{B}$	Channel $\overline{B}$	N.C.	Channel $\overline{B}$
2	Sense V_{CC}	Sense V_{CC}	N.C.	Sense V_{CC}
3	Channel N	Channel N	Channel N	Channel N
4	Channel $\overline{N}$	Channel $\overline{N}$	N.C.	Channel $\overline{N}$
5	Channel A	Channel A	Channel A	Channel A
6	Channel $\overline{A}$	Channel $\overline{A}$	N.C.	Channel $\overline{A}$
7	N.C.	$\overline{Alarm}$	$\overline{Alarm}$	$\overline{Alarm}$
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	DC 5 V	DC 5/10 - 30 V	DC 10 - 30 V	DC 10 - 30 V

Pin assignment connector counter clockwise (CCW)

connector clockwise (cw)

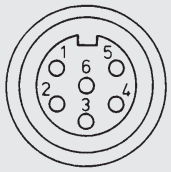
[1] screen for cable with CONIN connector

CONNECTOR 10 POLE (MIL)

Pin	Description RS 422/Euro-pinout (Connection codes O and K)	push-pull	push-pull complementary
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	DC 5/10 - 30 V	DC 10 - 30 V	DC 10 - 30 V
5/E	$\overline{Alarm}$	$\overline{Alarm}$	$\overline{Alarm}$
6/F	GND	GND	GND
7/G	Channel $\overline{A}$	screen	Channel $\overline{A}$
8/H	Channel $\overline{B}$	N.C.	Channel $\overline{B}$
9/I	Channel $\overline{N}$	N.C.	Channel $\overline{N}$
10/J	screen	screen	screen

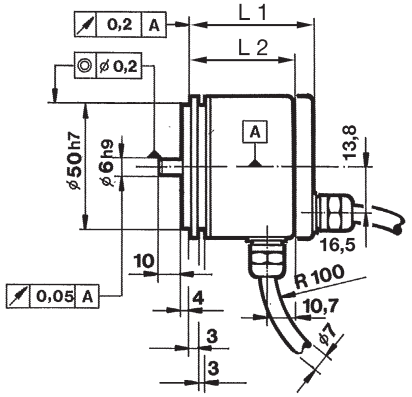
CONNECTOR 6 POLE (BINDER)

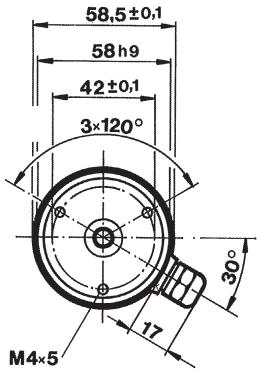
Description (push-pull)	Pin (Stifte)
DC 10 - 30 V	1
Channel A	2
Channel N	3
Channel B	4
$\overline{Alarm}$	5
GND	6



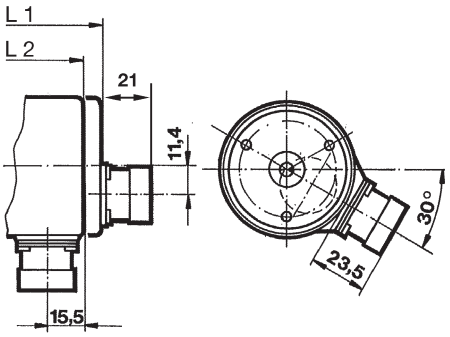
DIMENSIONAL DRAWINGS

Synchro flange, 58 mm
Connecting cable, axial/radial





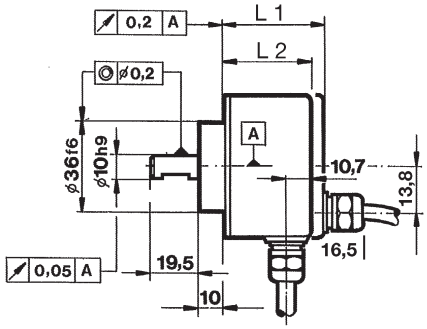
Connector 12 pole, axial/radial

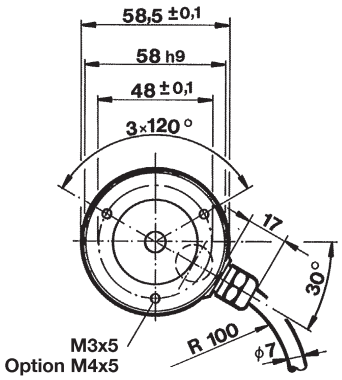


R for alternating bending > 100 mm
R for permanent bending > 40 mm

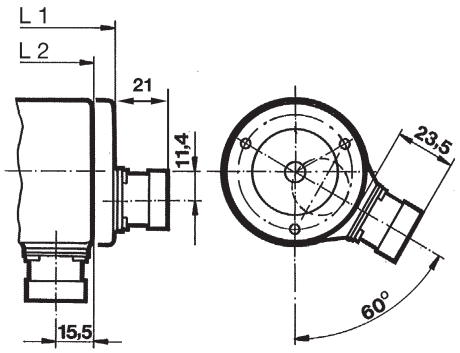
Dimensions in mm

Clamping flange, 58 mm
Connecting cable, axial/radial





Connecting cable 12 pole, axial, radial



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

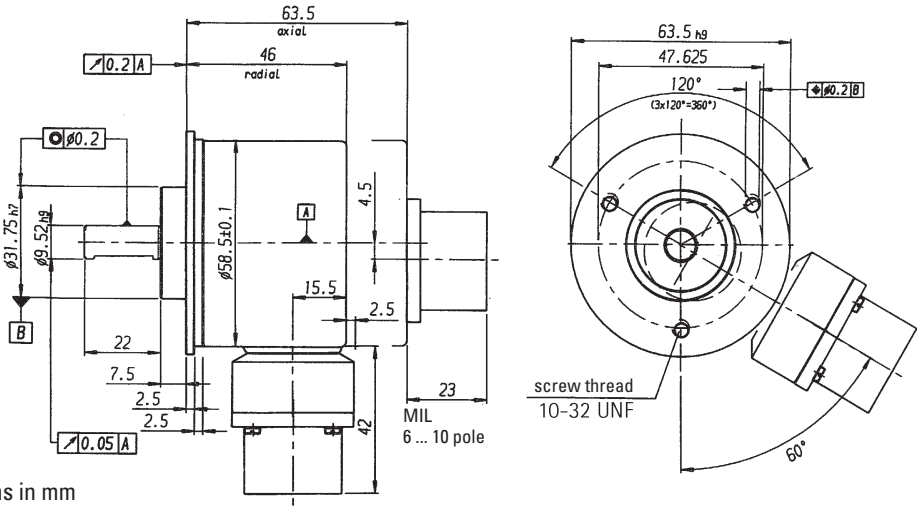
Dimensions in mm

DIMENSIONS

Typ	Connection	Output	axial L1 mm	radial L2 mm
Synchro flange, 58 mm	cable	R (with U_B = DC 5 V), T, K, I	51.5	41.5
		R (with U_B = DC 10 - 30 V)	56	56
	connector	R (with U_B = DC 5 V), T, K, I	57.5	51.5
		R (with U_B = DC 10 - 30 V)	57.5	56
Clamping flange, 58 mm	cable	R (with U_B = DC 5 V), T, K, I	45.5	35.5
		R (with U_B = DC 10 - 30 V)	50	50
	connector	R (with U_B = DC 5 V), T, K, I	51.5	45.5
		R (with U_B = DC 10 - 30 V)	51.5	50

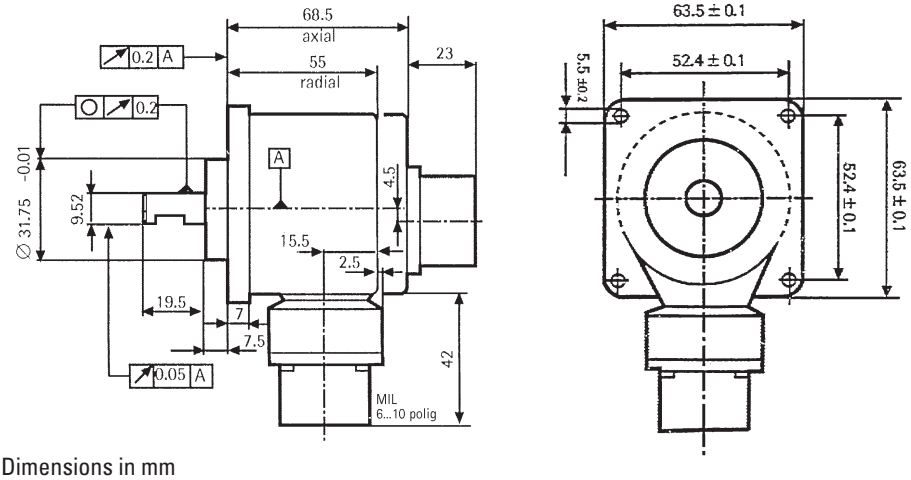
DIMENSIONAL DRAWINGS

Synchro clamping flange, 63.5 mm (2.5")



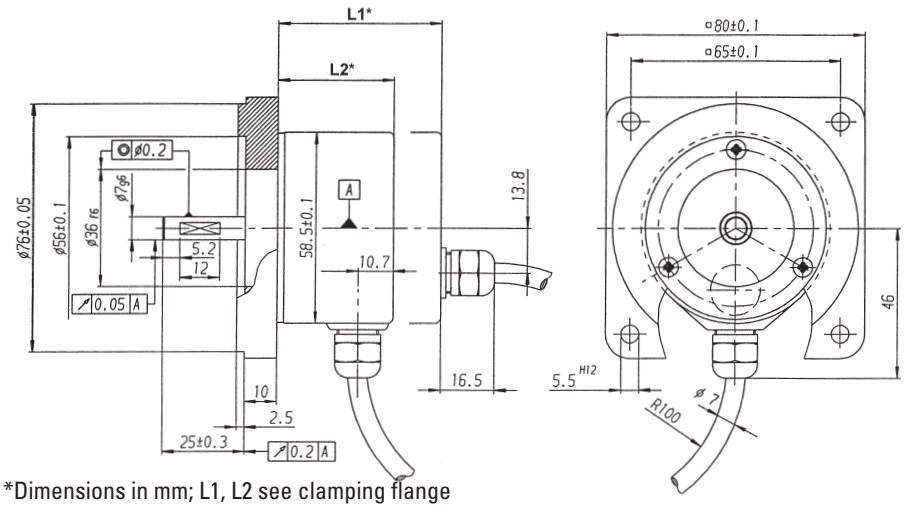
Dimensions in mm

Square flange, 63.5 x 63.5 mm (2.5" x 2.5")



Dimensions in mm

Square flange, 80 x 80 mm

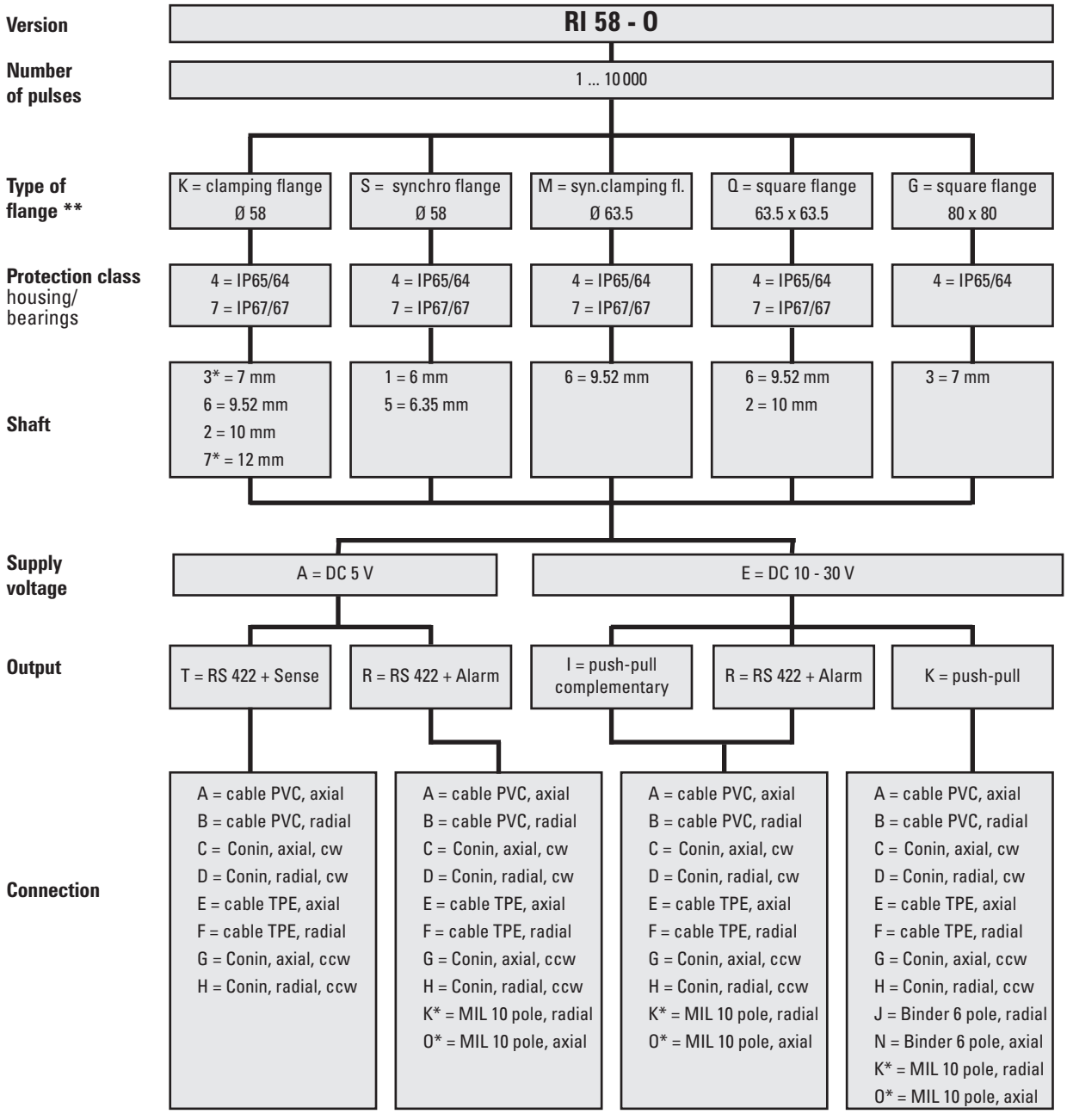


R for alternating bending > 100 mm
R for permanent bending > 40 mm

*Dimensions in mm; L1, L2 see clamping flange

Guide for selection Solid shaft

STANDARD VERSIONS

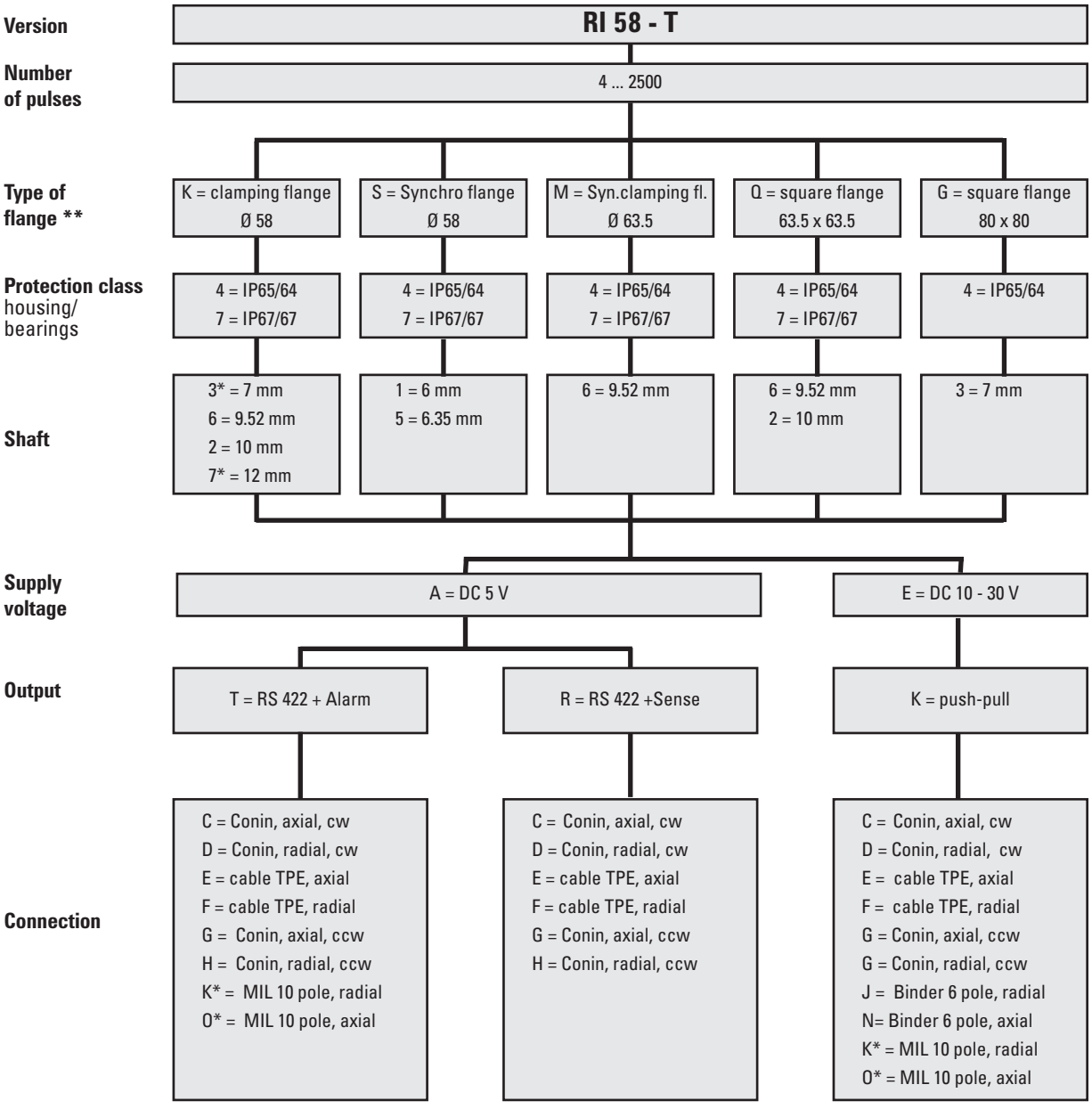


* not for IP67

** other flange versions can be realized by combination of clamping flange + flange adapter (see Accessories)
e.g. RI58 with synchro flange and 10 mm-shaft: version clamping flange with 10 mm-shaft + synchro flange adapter (1 522 328)

Guide for selection Solid shaft

STANDARD VERSIONS
100 °C max. operation temperature



* not for IP67

** other flange versions can be realized by combination of clamping flange + flange adapter (see Accessories)
e.g. RI58 with synchro flange and 10 mm-shaft: version clamping flange with 10 mm-shaft + synchro flange adapter (1 522 328)

Further versions on request

Industrial types Solid shaft

ORDERING INFORMATION

Please check „selection guide" on previous pages as not all combinations are possible!

Type	Model	Number of pulses	Supply voltage	Flange, Protection [1], Shaft [2]	Output	Connection
RI58-	**O** Standard **T** High temperature	RI58-O: **1 … 10 000** RI58-T: **4 … 2 500**	**A** DC 5 V **E** DC 10 - 30 V (only with push-pull)	**K.43** Clamping Ø58 , IP65/64, 7 mm **K.46** Clamping Ø58 , IP65/64, 9.52 mm **K.42** Clamping Ø58 , IP65/64, 10 mm **K.47** Clamping Ø58 , IP65/64, 12 mm **K.76** Clamping Ø58 , IP67/67, 9.52 mm **K.72** Clamping Ø58 , IP67/67, 10 mm **S.41** Synchro Ø58 , IP65/64, 6 mm **S.45** Synchro Ø58 , IP65/64, 6.35 mm **S.71** Synchro Ø58 , IP67/67, 6 mm **S.75** Synchro Ø58 , IP67/67, 6.35 mm **M.46** Syn.clamping Ø63.5, IP65/64, 9.52 mm **M.76** Syn.clamping Ø63.5, IP67/67, 9.52 mm **Q.46** Square 63.5 x 63.5, IP65/64, 9.52 mm **Q.42** Square 63.5 x 63.5, IP65/64, 10 mm **Q.76** Square 63.5 x 63.5, IP67/67, 9.52 mm **Q.72** Square 63.5 x 63.5, IP67/67, 10 mm **G.43** Square 80 x 80, IP67/67, 7 mm	**T** RS 422 + Sense **K** push-pull, short circuit proof **I** push-pull complementary **R** RS 422 + Alarm	**A** PVC cable, axial **B** PVC cable, radial **C** CONIN [3], axial, cw **D** CONIN [3], radial, cw **E** TPE cable, axial **F** TPE cable, radial **G** CONIN [3], axial, ccw **H** CONIN [3], radial, ccw **J** BINDER [3], 6 pole, radial **N** BINDER [3], 6 pole, axial **O** MIL MS [3], 10 pole, axial **K** MIL MS [3], 10 pole, radial

[1] Housing/ bearings
[2] other flange versions can be realized by combination of clamping flange + flange adapter (see Accessories)
e.g. RI58 with synchro flange and 10 mm-shaft: version clamping flange with 10 mm-shaft + synchro flange adapter (1 522 328)
[3] encoder connector with pins

ACCESSORIES

Clamping eccentric (set of three)
Ordering code 0 070 655

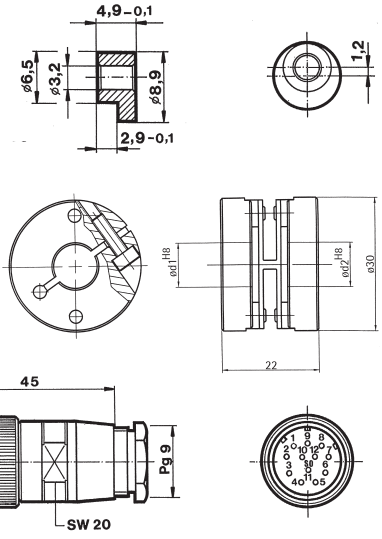
Spring washer coupling
hole 6/6 mm
Ordering code 3 520 081

hole 10/10 mm
Ordering code 3 520 088

Cable plug connector
for connector (CONIN),
cw (type of connection C, D)
Ordering code 3 539 202

for connector (CONIN),
ccw (type of connection G, H)
Ordering code 3 539 229

Mounting spanner
for CONIN connectors
Ordering code 3 539 343



Extension cables (TPE) 12 pole plug (socket) on one end	clockwise (C,D) **Ordering code**	counter clockwise (G,H) **Ordering code**
L = 3 m	**1 522 348**	**1 522 394**
L = 5 m	**1 522 349**	**1 522 395**
L = 10 m	**1 522 350**	**1 522 396**
TPE cable (not made up with connectors)	**3 280 112** + state requied length	
For more detailed specifications and other accessories see chapter "Accessories"