

# Incremental Shaft Encoders **Type RI 76 TD**

## Industrial types **Hollow shaft**



- Through shaft with up to diameter 42 mm
- Short overall length with an outside diameter of only 76 mm
- Easy installation by means of clamping ring
- Operating temperature up to 100 °C
- Application e.g.:
  - motors
  - printing machines
  - lifts

### NUMBER OF PULSES

50 / 100 / 128 / 250 / 256 / 300 / 314 / 360 / 500 / 600 / 720 / 900 / 1000 / 1024 / 1250 / 1500 / 2048 / 2500 / 3072 / 4096 / 5000 / 8192 / 9000 / 10000  
 Other number of pulses on request

### TECHNICAL DATA mechanical

Shaft fixation	Clamping ring, front or rear
Coupling	stator coupling (hubshaft with tether)
Shaft diameter	15...42 mm (Available: 15, 16, 18, 20, 24, 25, 27, 28, 30, 32, 38, 40, 42 mm as well as $\frac{5}{8}$ " , $1\frac{5}{8}$ " , $\frac{3}{4}$ "
Minimum length of mounting shaft	
Front clamping ring	32 mm with $\emptyset$ 15...30, 35 mm with $\emptyset$ >30 ... 42
Rear clamping ring	corresponding to total length of encoder
Max. parallel shaft misalignment	
with stator coupling A (flexible)	$\pm 2.0$ mm axial, $\pm 0.15$ mm radial
with 1x stator coupling N (torsionally rigid)	$\pm 0.5$ mm axial, $\pm 0.3$ mm radial
with 2x stator coupling N (torsionally rigid)	$\pm 0.3$ mm axial, $\pm 0.2$ mm radial
Absolute max. speed	at 70 °C and IP64: 3 600 min <sup>-1</sup> für $\emptyset$ 15... 25 at 70 °C and IP64: 1 800 min <sup>-1</sup> für $\emptyset$ >25 ... 42 at 70 °C and IP40: 6 000 min <sup>-1</sup> für $\emptyset$ 15... 42 at 100 °C always: 1 800 min <sup>-1</sup> für $\emptyset$ 15... 42
Torque	3...10 Ncm (depending on version )
Moment of inertia	140...420 gcm <sup>2</sup> (depending on version)
Protection class (EN 60529)	Housing IP50, bearings IP40 Option: Housing IP65, bearings IP64
Operating temperature	-25 ... +100 °C
Storage temperature	-25 ... +100 °C
Vibration resistance (IEC 68-2-6)	10 g = 100 m/s <sup>2</sup> (10... 2000 Hz)
Shock resistance (IEC 68-2-27)	100 g = 1000 m/s <sup>2</sup> (6 ms)
Connection	1.5 m cable <sup>1</sup> radial
Housing	Aluminium
Weight	320 - 580 g (depending on version)

<sup>1</sup> Other cable length on request

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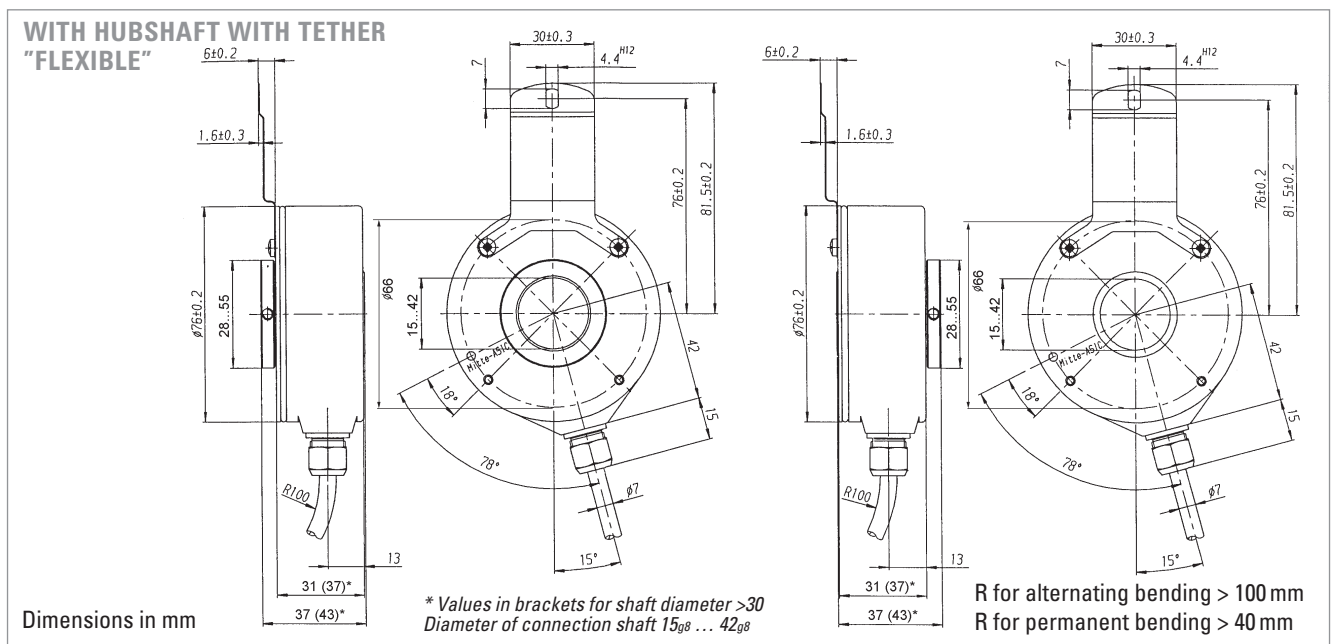
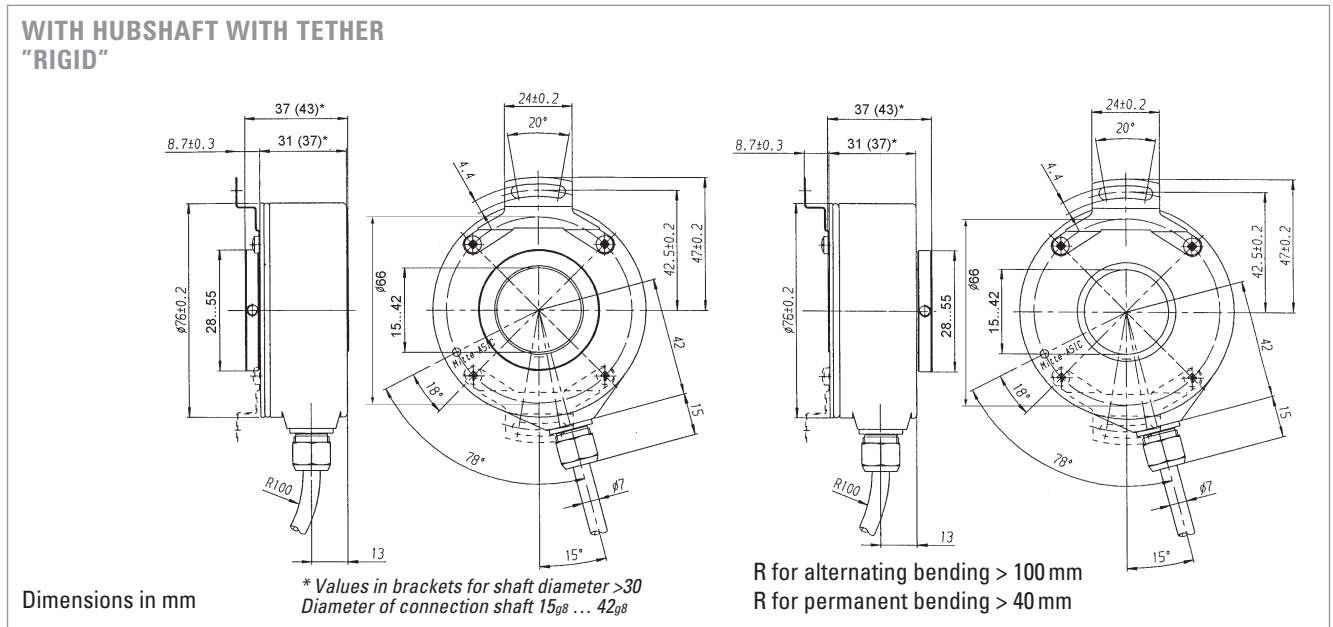
### TECHNICAL DATA electrical

General design	as per DIN EN 61010-Part 1, 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 <sup>1</sup> with push-pull (K, I): DC 10 - 30 V <sup>1</sup>	
Max. current w/o load	max. 60 mA (DC 5V), 60 mA (DC 10V), 35 mA (DC 24 V)	
Standard output versions <sup>2</sup>	RS 422 (R):	A, B, N, $\bar{A}$ , $\bar{B}$ , $\bar{N}$ , Alarm
	RS 422 (T):	A, B, N, $\bar{A}$ , $\bar{B}$ , $\bar{N}$ , Sense
	push-pull (K):	A, B, N, Alarm
	push-pull complementary (I):	A, B, N, $\bar{A}$ , $\bar{B}$ , $\bar{N}$ , Alarm

<sup>1</sup> Pole protection with supply voltage DC 10 - 30 V

<sup>2</sup> Output description and technical data see chapter "Technical basics"

### DIMENSIONAL DRAWINGS



## Industrial types

## Hollow shaft

### SHAFT CONNECTION

Shaft fixing is done through a clamping ring either on the flange or cap side. As a rule, flange side clamping is better for smaller motors as the available shaft stub is correspondingly shorter.

On the other hand, cap side clamping is easier when there is sufficient shaft length available.

### MOUNTING NECESSITIES

In order to compensate for axial and radial shaft eccentricity as well as any angle offset, the encoder flange must not be rigidly mounted. Please mount the flange with a flexible stator coupling (e.g. hubshaft with tether) as torque support.

There are two flexible mounting plates:

- A flexible hubshaft with tether (A) for higher levels of play and lower requirements for accuracy.
- A rigid hubshaft with tether (N) for reduced play and rigid connection with reduced swing angle. This is suitable in the case of higher accuracy and dynamics requirements.

### PIN ASSIGNMENT

#### Cable TPE

Colour (TPE)	Output circuit			
	RS 422 + Sense (T)	RS 422 + Alarm (R)	push-pull (K)	push-pull complementary (I)
brown	Channel A	Channel A	Channel A	Channel A
green	Channel $\bar{A}$	Channel $\bar{A}$		Channel $\bar{A}$
grey	Channel B	Channel B	Channel B	Channel B
pink	Channel $\bar{B}$	Channel $\bar{B}$		Channel $\bar{B}$
red	Channel N	Channel N	Channel N	Channel N
black	Channel $\bar{N}$	Channel $\bar{N}$		Channel $\bar{N}$
violet (white) <sup>2</sup>	Sense GND	Alarm	Alarm	Alarm
blue	Sense V <sub>CC</sub>	Sense V <sub>CC</sub>		Sense V <sub>CC</sub>
brown/green	DC 5 V	DC 5/10 .- 30 V	DC 10 - 30 V	DC 10 - 30 V
white/green	GND	GND	GND	GND
Cable screen <sup>1</sup>	Cable screen <sup>1</sup>	Cable screen <sup>1</sup>	Cable screen <sup>1</sup>	Cable screen <sup>1</sup>

<sup>1</sup> connected with encoder housing

<sup>2</sup> white for version Sense (T)

### ACCESSORIES

Hubshaft with tether flexible	ordering code 1 533 079
Hubshaft with tether rigid	ordering code 1 533 078

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### ORDERING INFORMATION

Type	Model	Number of pulses	Supply voltage	Flange	Protection	Stator coupling	Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>RI76</b>	<b>TD</b> High temperature, direct hollow shaft	<b>1...10 000</b>	<b>A</b> DC 5 V <sup>1</sup> <b>E</b> DC 10-30 V <sup>2</sup>	Clamping shaft with <b>D</b> Front clamping ring <b>H</b> Rear clamping ring	<b>1</b> IP40 <b>4</b> IP64	<b>O</b> without <b>A</b> flexible <b>N</b> rigid	<b>15...42</b> metric in mm <b>50...99</b> coded by inches <b>50</b> = 5/8" <b>51</b> = 1 5/8" <b>52</b> = 3/4"	<b>R</b> RS 422 + Alarm <b>T</b> RS 422 + Sense <b>K</b> push-pull <b>I</b> push-pull complementary	<b>F</b> TPE cable radial
<p><sup>1</sup> only with output R, T, <sup>2</sup> only with output R, K, I <sup>3</sup> Available with front clamping ring and IP40:    <b>15, 20, 24, 25, 27, 28, 30, 38, 40, 42, 50</b> (5/8"), <b>51</b> (1 5/8") Available with front clamping ring and IP64:    <b>15, 16, 18, 20, 24, 25, 27, 28, 30, 32, 38, 40, 42, 50</b> (5/8"), <b>51</b> (1 5/8"), <b>52</b> (3/4") Available with rear clamping ring and IP40:    <b>25, 28, 30, 32, 38, 40, 42</b> Available with rear clamping ring and IP64:    <b>20, 25, 30, 32, 38, 40, 42</b></p> <p>Preferably available versions are printed in bold type. Others: please request delivery time</p>									