

### Universal, type 580X (shaft) / 582X (hollow shaft)



High rotational speed



Shock/vibration resistant



Magnetic field proof



Short-circuit proof



Reverse polarity protection

#### Rugged

- Short-circuit proof outputs
- Reverse connection protection (at +V= 10-30 VDC)
- Highly flexible PUR-cable
- High shaft load
- 5803/5823: High temperature up to 230°F (110°C)
- 5826: Stainless steel housing



2/22

#### Compact

- Ø 58 mm housing, industry standard

#### Versatile

- Shaft/hollow shaft
- 5800/5820: Standard
- 5804/5824: Voltage sine wave outputs
- 5805: High resolution up to 36000 ppr
- Many variations, also customized versions

#### Mechanical characteristics:

|                                     |                                                                                                    |
|-------------------------------------|----------------------------------------------------------------------------------------------------|
| Speed with seal:                    | Shaft version: max. 12,000 RPM<br>Hollow shaft version <sup>4)</sup> : max. 6,000 RPM              |
| Speed without seal:                 | Hollow shaft version max. 12,000 RPM                                                               |
| Rotor moment of inertia:            | Shaft version: approx. 0.098 oz-in <sup>2</sup><br>(1.8 x 10 <sup>-6</sup> kgm <sup>2</sup> )      |
|                                     | Hollow shaft version: approx. 0.328 oz-in <sup>2</sup><br>(6 x 10 <sup>-6</sup> kgm <sup>2</sup> ) |
| Starting torque:                    | Shaft version: < 1.4 oz-in (< 0.01 Nm)<br>Hollow shaft version: < 7 oz-in (< 0.05 Nm)              |
| Radial load capacity of the shaft*: | 40 lbs (178 N)                                                                                     |
| Axial load capacity of the shaft*:  | 40 lbs (178 N)                                                                                     |
| Weight:                             | approx. 0.9 lbs (0.4 kg)                                                                           |

|                                              |                                                                                                |
|----------------------------------------------|------------------------------------------------------------------------------------------------|
| Protection acc. to EN 60 529 :               | IP65, IP66 for type 5826                                                                       |
| EX approval for hazardous areas:             | optional zone 2 and 22                                                                         |
| Working temperature:                         | -4 to +185°F (-20 to +85°C) <sup>1) 2) 3)</sup><br>5803/5823: -4 to +221°F<br>(-20 to + 105°C) |
| Materials:                                   | Shaft: stainless steel                                                                         |
| Shock resistance acc. to DIN-IEC 68-2-27:    | approx. 100 g (1000 m/s <sup>2</sup> ),<br>6 ms                                                |
| Vibration resistance acc. to DIN-IEC 68-2-6: | approx. 10 g (100 m/s <sup>2</sup> ),<br>10-2000 Hz                                            |

<sup>1)</sup> Constant flexing: -4 to +158°F (-20-+70°C)

<sup>2)</sup> Non-condensing

<sup>3)</sup> Hollow shaft version with seal: -4 to +176°F (-20-+80°C)

<sup>4)</sup> For continuous operation 6,000 RPM, ventilated

#### Electrical characteristics sine wave output:

|                                                                                 |                             |                             |
|---------------------------------------------------------------------------------|-----------------------------|-----------------------------|
| Output circuit:                                                                 | Sine wave<br>U = 1 Vpp      | Sine wave<br>U = 1 Vpp      |
| Supply voltage:                                                                 | 5 V (±5%)                   | 10-30 VDC                   |
| Current consumption (no load) with inverted signals:                            | typ. 65 mA /<br>max. 110 mA | typ. 65 mA /<br>max. 110 mA |
| -3 dB frequency:                                                                | ≥180 kHz                    | max. ±30 mA                 |
| Pulse frequency:                                                                | max. 300 kHz                | max. 300 kHz                |
| Signal channels A/B:                                                            | 1 Vpp (±20%)                | 1 Vpp (±20%)                |
| Signal channels 0:                                                              | 0.1-1.2 V                   | 0.1-1.2 V                   |
| Short-circuit proof outputs <sup>1)</sup> :                                     | yes                         | yes                         |
| Reverse connection protection at +V:                                            | no                          | yes                         |
| UL certified:                                                                   | File 224618                 |                             |
| Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3 |                             |                             |
| RoHS compliant acc. to EU guideline 2002/95/EG                                  |                             |                             |

<sup>1)</sup> If supply voltage correctly applied

### Universal, type 580X (shaft) / 582X (hollow shaft)

#### Electrical characteristics RS422 / Push-pull:

| Output circuit:                                                                 | RS 422<br>(TTL compatible) | RS 422<br>(TTL compatible) | Push-pull<br>(7272) <sup>1)</sup> | Push-pull<br>(7272) <sup>1)</sup> | Open collector<br>(7373) |
|---------------------------------------------------------------------------------|----------------------------|----------------------------|-----------------------------------|-----------------------------------|--------------------------|
| Supply voltage:                                                                 | 5 V (±5 %) or<br>10-30 VDC | 5-30 VDC                   | 10-30 VDC                         | 10-30 VDC                         | 5-30 VDC                 |
| Power consumption (no load)<br>without inverted signal:                         | -                          | -                          | typ. 55 mA /<br>max. 125 mA       | typ. 55 mA /<br>max. 125 mA       | 100 mA                   |
| Power consumption (no load)<br>with inverted signal:                            | typ. 40 mA /<br>max. 90 mA | typ. 40 mA /<br>max. 90 mA | typ. 80 mA /<br>max. 150 mA       | typ. 80 mA /<br>max. 150 mA       | 100 mA                   |
| Permissible load/channel:                                                       | max. ±20 mA                | max. ±20 mA                | max. ±30 mA                       | max. ±30 mA                       | 20 mA sink @ 30 VDC      |
| Pulse frequency:                                                                | max. 300 kHz               | max. 300 kHz               | max. 300 kHz                      | max. 300 kHz                      | max. 300 kHz             |
| Signal level high:                                                              | min. 2.5 V                 | min. 2.5 V                 | min. +V -2.5 V                    | min. +V -1.5 V                    | n/a                      |
| Signal level low:                                                               | max. 0.5 V                 | max. 0.5 V                 | max. 2.0 V                        | max. 2.0 V                        | n/a                      |
| Rise time t <sub>r</sub> :                                                      | max. 200 ns                | max. 200 ns                | max. 1 µs                         | max. 1 µs                         |                          |
| Fall time t <sub>f</sub> :                                                      | max. 200 ns                | max. 200 ns                | max. 1 µs                         | max. 1 µs                         |                          |
| Short-circuit proof outputs <sup>1)</sup> :                                     | yes <sup>2)</sup>          | yes <sup>2)</sup>          | yes                               | yes                               | yes                      |
| Reverse connection protection at +V:                                            | 5 V: no, 10-30 V: yes      | yes                        | yes                               | no                                | no                       |
| UL certified:                                                                   | File 224618                |                            |                                   |                                   |                          |
| Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3 |                            |                            |                                   |                                   |                          |
| RoHS compliant acc. to EU guideline 2002/95/EG                                  |                            |                            |                                   |                                   |                          |

<sup>1)</sup> If supply voltage correctly applied

<sup>2)</sup> Only one channel allowed to be shorted-out: (If +V = 5 V, short-circuit to channel, 0 V, or +V is permitted) (If +V = 5-30 V, short-circuit to channel or 0 V is permitted)

#### Standard wiring / pin configuration:

| Output:                | Case Ground  | Common (0 V) | +V | A  | $\bar{A}$ | B  | $\bar{B}$ | Z  | $\bar{Z}$ | -  | -  | Com / Sensor | +V Sensor |
|------------------------|--------------|--------------|----|----|-----------|----|-----------|----|-----------|----|----|--------------|-----------|
| M23 <b>multifast</b> ® | Coupling Nut | 10           | 12 | 5  | 6         | 8  | 1         | 3  | 4         | -  | -  | 11           | 2         |
| MS 7-pin               | G            | F            | D  | A  | -         | B  | -         | C  | -         | -  | -  | -            | E         |
| MS 10-pin              | J            | F            | D  | A  | G         | B  | H         | C  | I         | -  | -  | -            | E         |
| M12 <b>eurofast</b> ®  | Coupling Nut | 1            | 2  | 3  | 4         | 5  | 6         | 7  | 8         | -  | -  | -            | -         |
| Cable:                 | Shield/Drain | WH           | BN | GN | YE        | GY | PK        | BU | RD        | BK | VT | GY/PK        | RD/BU     |

#### Special connector pin configuration:

|             | Output:                | Case Ground  | Common (0 V) | +V | A | $\bar{A}$ | B | $\bar{B}$ | Z | $\bar{Z}$ | - | - |
|-------------|------------------------|--------------|--------------|----|---|-----------|---|-----------|---|-----------|---|---|
| Output Code | 07 M23 <b>eurofast</b> | Coupling Nut | 7            | 2  | 1 | 3         | 4 | 5         | 6 | 8         | - | - |
|             | 02 MS 7-pin            | G            | F            | D  | A | C         | B | E         | - | -         | - | - |
|             | 03 MS 7-pin            | G            | F            | D  | A | -         | B | -         | C | -         | - | - |
|             | 04 MS 7-pin            | G            | F            | D  | A | C         | B | E         | - | -         | - | - |
|             | 05 MS 7-pin            | G            | F            | D  | A | -         | B | -         | C | -         | - | - |
|             | 06 MS 10-pin           | G            | F            | D  | A | H         | B | I         | C | J         | - | - |

#### Wiring diagrams:

| Male encoder view                 |                                  |                                 |                                  |
|-----------------------------------|----------------------------------|---------------------------------|----------------------------------|
|                                   |                                  |                                 |                                  |
| M12 <b>eurofast</b> pinout        | M23 <b>multifast</b> pinout      | MS pinout (7-pin)               | MS pinout (10-pin)               |
| Mating cordset:<br>E-RKC 8T-930-* | Mating cordset:<br>E-CK 12-931-* | Mating cordset:<br>E-MK 7-930-* | Mating cordset:<br>E-MK 10-931-* |

\* Length in meters.

### Universal, type 580X (shaft) / 582X (hollow shaft)

Part number key: 580X shaft version

**T8.580X.XXXX.XXXX.PXXXX**

Options for special output only.

#### Type

- 0 = standard
- 3 = high temperature
- 4 = sine wave
- 5 = high resolution

#### Flange

- 1 = Ø 58 clamping flange
- 2 = Ø 58 servo flange
- M = 2.5" (Ø 63.5 mm) square flange
- P = 2.5" (Ø 63.5 mm) servo flange
- S = 2.62" (Ø 66.5 mm) servo flange
- Z = 2.5" (63.5 mm) square flange with shaft seal

#### Shaft (Ø x L)

- 1 = Ø 6 mm x 10 mm
- 2 = Ø 10 mm x 20 mm
- B = Ø 1/4" x 7/8"
- P = Ø 3/8" x 7/8"
- W = Ø 8 mm x 20.5 mm

#### Output and voltage supply

##### Type 5800

- 4 = 5 VDC, RS422 \*
- 5 = 10-30 VDC, RS422 \*
- 6 = 10-30 VDC, push-pull \*
- 7 = 10-30 VDC, push-pull \*\*
- 8 = 5-30 VDC, push-pull
- 9 = 5-30 VDC, push-pull \*
- R = 5-30 VDC, open collector (7273)
- T = 5-30 VDC, push-pull \*

##### Type 5803 and 5805<sup>2)</sup>

- 4 = 5 VDC, RS422 \*
- 5 = 10-30 VDC, RS422 \*
- 6 = 10-30 VDC, push-pull \*
- 7 = 10-30 VDC, push-pull \*\*
- 9 = 5-30 VDC, push-pull (IC-WE)
- R = 5-30 VDC, open collector (7273)
- T = 5-30 VDC, line driver (7272)
- Y = 5-30 VDC, RS422 \*

##### Type 5804<sup>2)</sup>

- 1 = 5 VDC, sine, 1 Vpp \*
- 2 = 10-30 VDC, sine, 1 Vpp \*

#### Special connector pin configuration

See page C25

#### Special Output Signal Formats

See page C42

#### Pulse rate

- 1, 5, 10, 15, 20, 25, 30, 50, 60, 100, 125, 200, 250, 256, 300, 360, 500, 512, 600, 700, 720, 800, 900, 1000, 1024, 1200, 1250, 1500, 1800, 2000, 2048, 2400, 2500, 3000, 3600, 4000, 4096, 5000

**Type 5805:** 6000, 7200, 8000, 8192, 9000, 10000, 18000, 20000, 36000  
(e.g. 250 pulses => 0250)  
Other pulse rates available on request

#### Type of connection

- 1 = axial cable (1 m PUR cable)
- 2 = radial cable (1 m PUR cable)
- 3 = axial 12-pin M23 **multifast**® plug without mating connector
- 5 = radial 12-pin M23 **multifast** plug without mating connector
- D = axial MS, 10-pin (MS 3102R18-1P)
- G = radial 8-pin M12 **eurofast**® connector
- T = axial 8-pin M12 **eurofast** connector
- W = radial 7-pin plug, "MIL"-specified<sup>1)</sup> without mating connector
- Y = radial 10-pin plug, "MIL"-specified<sup>1)</sup> without mating connector
- Z = axial MS, 7-pin (MS 3102R165-1P)

<sup>1)</sup> Only for type 5800

<sup>2)</sup> P04XX is the only option code for 5804 and 5805

\* With inverted signal

\*\* Without inverted signal

Part number key: 582X hollow shaft version

**T8.582X.XXXX.XXXX.PXXXX**

Options for special output only.

#### Type

- 0 = standard
- 3 = high temperature
- 4 = sine wave
- 5 = high resolution
- 6 = stainless steel

#### Flange

- 1 = flange for through shaft
- 2 = flange for blind hollow shaft<sup>1)</sup>
- 3 = flange for through shaft and flex mount
- 4 = flange for blind hollow shaft and flex mount<sup>1)</sup>  
length of drive shaft ≤ 30 mm

#### Hollow shaft

- 1 = Ø 6 mm without seal
- 2 = Ø 6 mm with seal
- 3 = Ø 8 mm without seal
- 4 = Ø 8 mm with seal
- 5 = Ø 10 mm without seal
- 6 = Ø 10 mm with seal<sup>2)</sup>
- 7 = Ø 12 mm without seal
- 8 = Ø 12 mm with seal<sup>2)</sup>
- A = Ø 1/2"
- B = Ø 1/4"
- K = Ø 3/8" with seal
- R = Ø 3/8"
- S = Ø 1/4" with seal
- U = Ø 1/2" with seal

<sup>1)</sup> Not for type 5826

<sup>2)</sup> For type 5826 only.

\* With inverted signal.

#### Accessories:

- See page J1, Connectivity, for cables and connectors
- See page E1, Accessories, for mounting attachments and couplings

#### Special connector pin configuration

See page C25

#### Special Output Signal Formats

See page C42

#### Pulse rate

- 1, 5, 10, 15, 20, 25, 30, 50, 60, 100, 120, 125, 150, 180, 200, 240, 250, 256, 300, 360, 400, 500, 512, 600, 700, 720, 800, 900, 1000, 1024, 1200, 1250, 1500, 1800, 2000, 2048, 2400, 2500, 3000, 3600, 4000, 4096, 5000

**Type 5825:** 6000, 7200, 8000, 8192, 9000, 10000, 18000, 20000, 36000  
(e.g. 250 pulses => 0250)  
Other pulse rates available on request

#### Type of connection

- 1 = radial cable (1 m PVC-cable)
- 2 = radial 12-pin M23 **multifast** plug without mating connector
- C = radial 8-pin M12 **eurofast** connector

#### Output and voltage supply

##### Type 5820 and 5826

- 1 = 5 VDC, RS422 \*
- 3 = 10-30 VDC, push-pull \*
- 4 = 10-30 VDC, RS422 \*
- 6 = 5-30 VDC, push-pull \*
- 7 = 5-30 VDC, RS422 \*

##### Type 5823 and 5825

- 1 = 5 VDC, RS422 \*
- 3 = 10-30 VDC, push-pull \*
- 4 = 10-30 VDC, RS422 \*

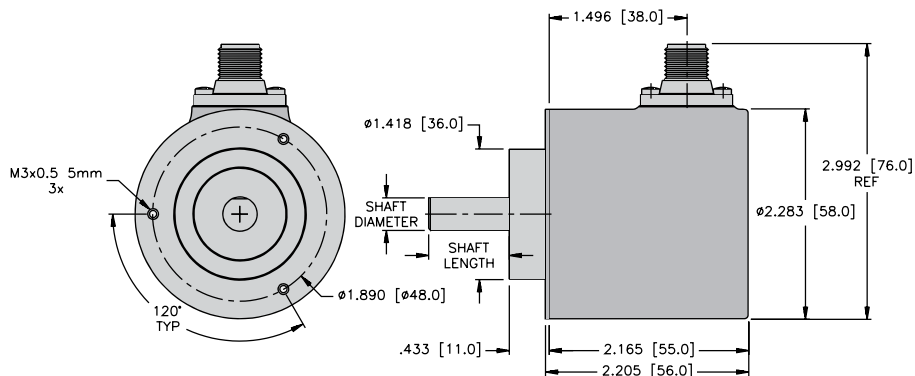
##### Type 5824

- 1 = 5-30 VDC, sine, 1 Vpp \*
- 2 = 10-30 VDC, sine, 1 Vpp \*

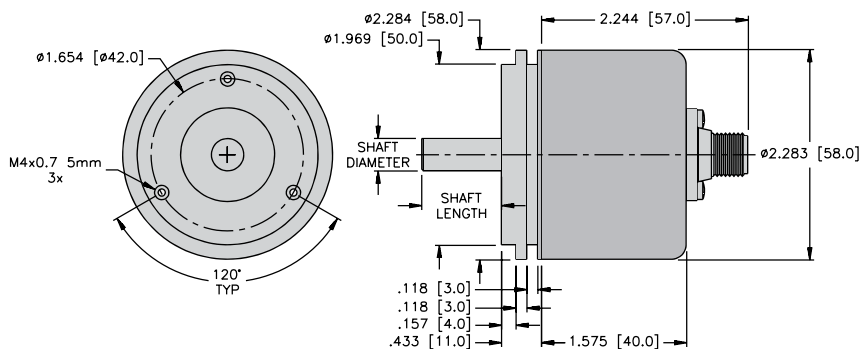
### Universal, type 580X (shaft) / 582X (hollow shaft)

#### Dimensions: 580X shaft version

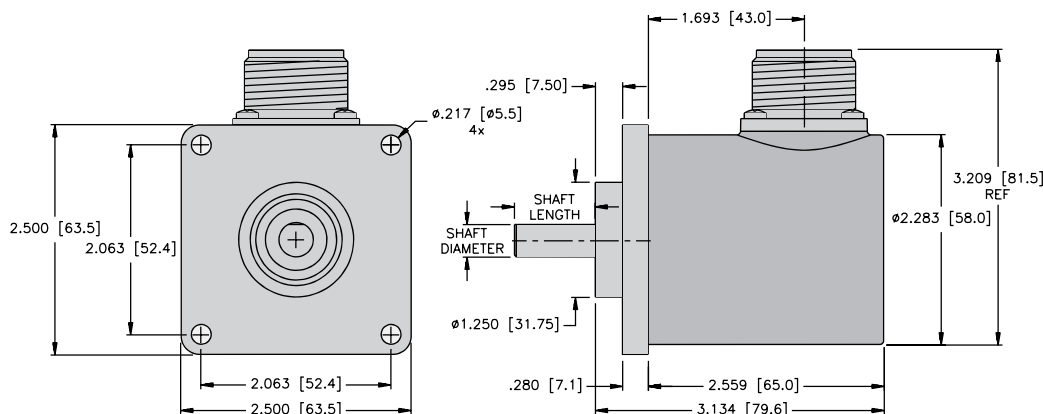
##### 580X flange 1 Connection G



##### 580X flange 2 Connection T



##### 580X flange M & Z Connection W & Y



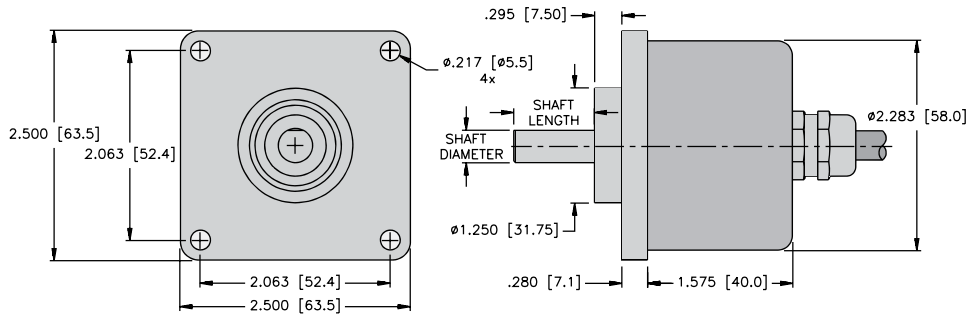
#### Mounting advice:

The flanges and shafts of the encoder and drive should not be rigidly coupled together at the same time. We recommend the use of suitable couplings (see page E1, Accessories).

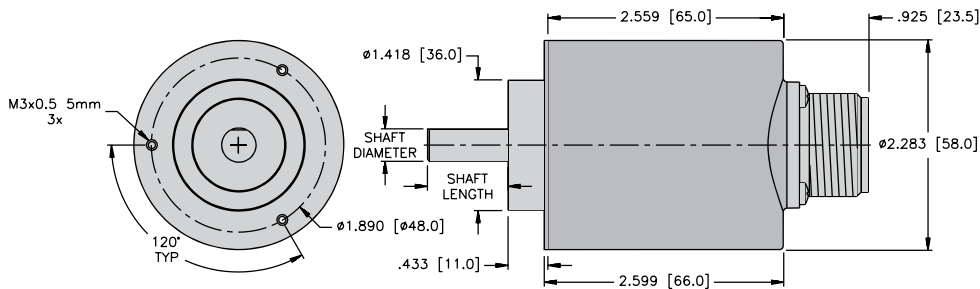
### Universal, type 580X (shaft) / 582X (hollow shaft)

#### Dimensions: 580X shaft version

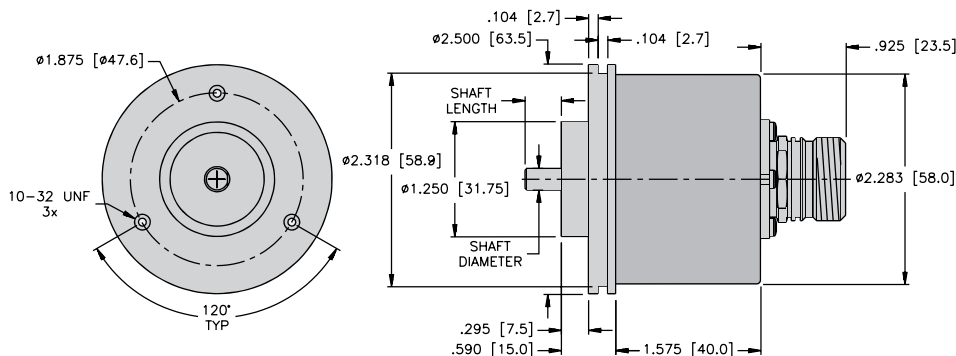
##### 580X flange M & Z Connection 1



##### 580X flange 1 Connection D & Z



##### 580X flange P Connection 3



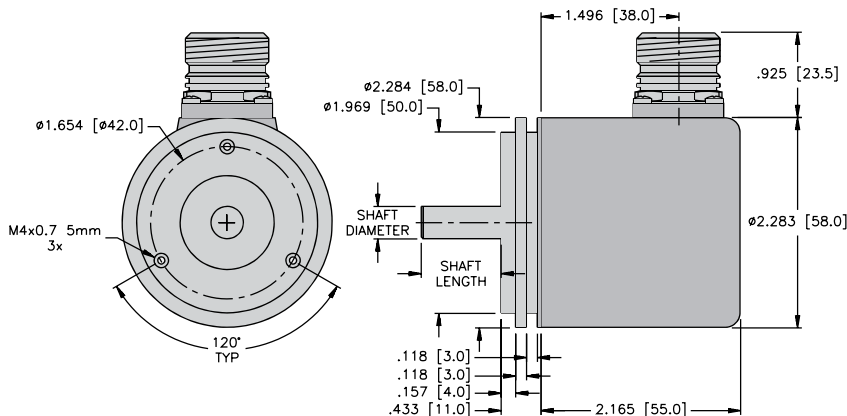
#### Mounting advice:

The flanges and shafts of the encoder and drive should not be rigidly coupled together at the same time. We recommend the use of suitable couplings (see page E1, Accessories).

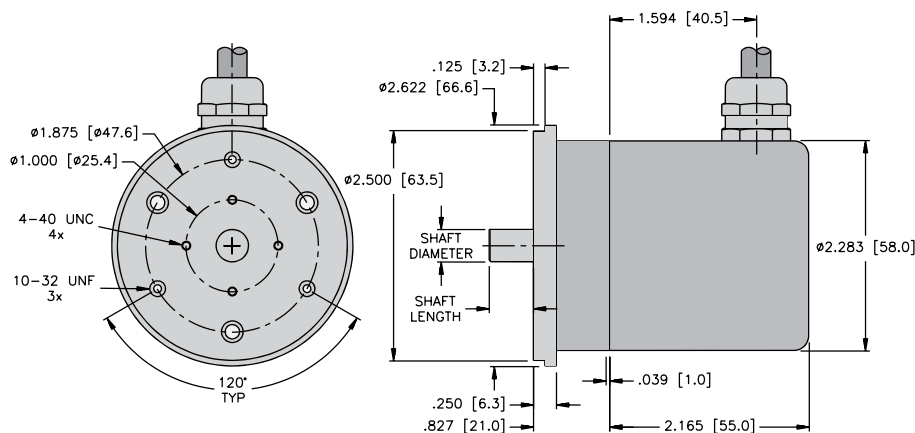
### Universal, type 580X (shaft) / 582X (hollow shaft)

**Dimensions: 580X shaft version**

**580X flange 2**  
**Connection 5**



### 580X flange S Connection 2



**Mounting advice:**

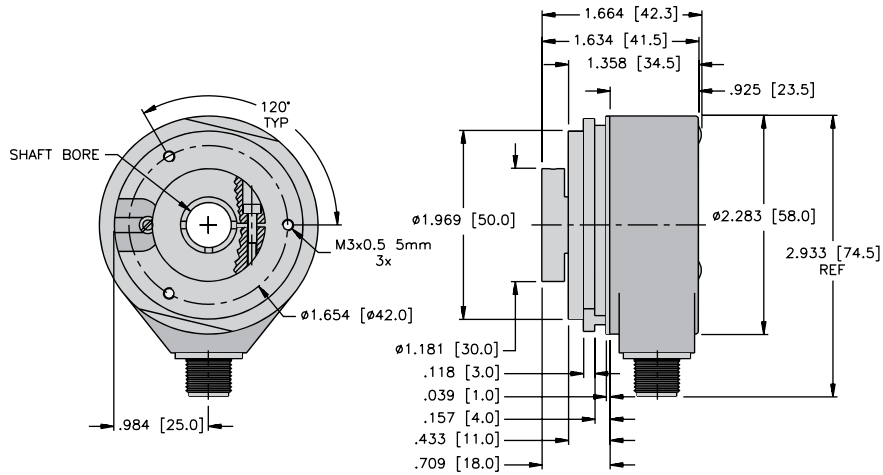
The flanges and shafts of the encoder and drive should not be rigidly coupled together at the same time. We recommend the use of suitable couplings (see page E1, Accessories).

### Universal, type 580X (shaft) / 582X (hollow shaft)

#### Dimensions: 582X hollow shaft version

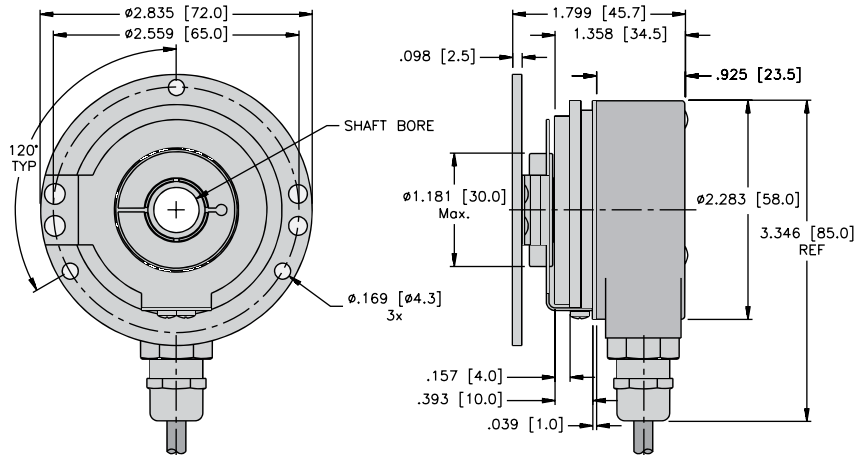
##### 582X flange 1

##### Connection 2



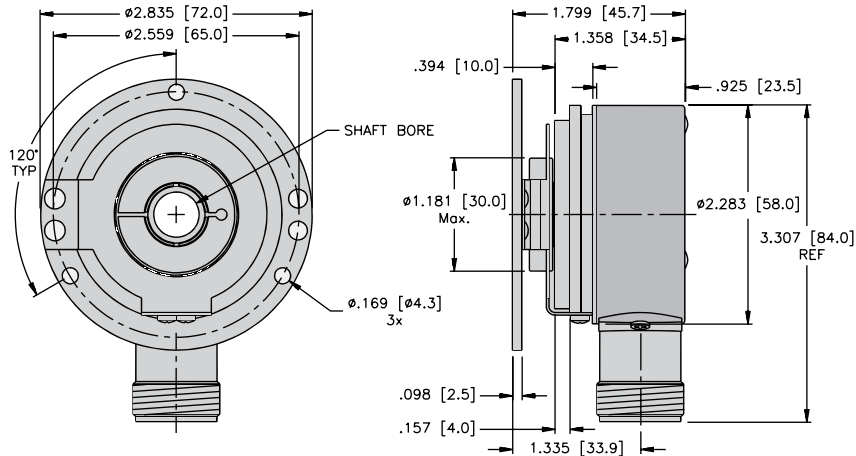
##### 582X flange 3

##### Connection 1



##### 582X flange 2

##### Connection C



#### Mounting advice:

The flanges and shafts of the encoder and drive should not be rigidly coupled together at the same time.

When mounting a hollow shaft encoder, we recommend using a torque stop pin or a flex bracket (see page E1, Accessories).