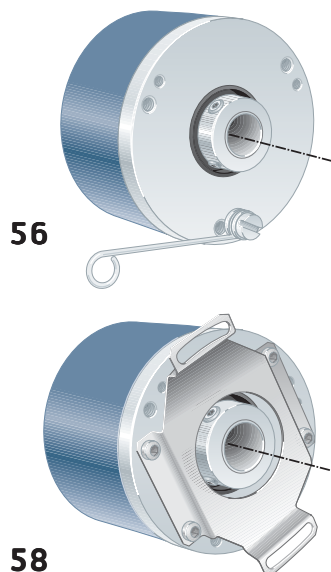


# 507 — Ruggedized Hollow shaft encoder, Absolute BiLL



## Short description:

- >> 13 bit BiLL output
- >> IP 67 at housing, IP 66 at shaft inlet
- >> 9...36 Vdc
- >> Robust housing for harsh environment
- >> Shock and vibration protected

## Suitable applications:

- >> Standard to demanding industrial applications
- >> Positioning applications
- >> Printing machines
- >> Packaging machines

## General information

| Encoder data             |  |
|--------------------------|--|
| Type                     | RHA 507  |
| Operating temperature    | -40°C .. +80°C   |
| Storage temperature      | -30°C .. +80°C   |
| Ingress protection class | IP-67 according to IEC 60529                                     |
| At shaft inlet           | IP-66 according to IEC 60529                                     |
| Vibration (55 to 2000Hz) | < 300 m/s <sup>2</sup> according to IEC 60068-2-6 <sup>(1)</sup> |
| Shock (6ms)              | < 2000 m/s <sup>2</sup> according to IEC 60068-2-27              |
| Cover material           | Aluminium  |
| Cover surface treatment  | Coated and cromated or anodized                                  |
| Weight                   | Approx. 300g   |
| Accuracy and resolution  |  |
| Resolution               | 13 Bit, 8192 positions per revolution                            |
| Accuracy                 | ± 1 LSB  |

## Flange option

| Flange type       | 56, hollow-shaft | 58, hollow-shaft |
|-------------------|------------------|------------------|
| Type              | Standard         | Standard         |
| Diameter          | ø58mm            | ø58mm            |
| Flange material   | Aluminium        | Aluminium        |
| Surface treatment | Anodized         | Anodized         |
| Torque support    | Torque arm       | Stator coupling  |

## Shaft option

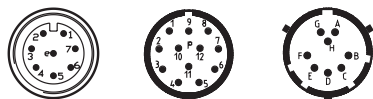
| Hollow-shaft type       | Ø 8 mm                                  | Ø 10 mm                                 | Ø 12 mm                                 | Ø 14 mm                                 |
|-------------------------|---|---|---|---|
| Axial shaft load        | 10 N                                    | 10 N                                    | 10 N                                    | 10 N                                    |
| Radial shaft load       | 20 N                                    | 20 N                                    | 20 N                                    | 20 N                                    |
| Mech. permissible speed | 6000 rpm (12 000)                       | 6000 rpm (12 000)                       | 6000 rpm (12 000)                       | 6000 rpm (12 000)                       |
| Shaft material          | Stainless steel                         | Stainless steel                         | Stainless steel                         | Stainless steel                         |
| Moment of inertia       | 1,9 x 10 <sup>-6</sup> kgm <sup>2</sup> | 1,9 x 10 <sup>-6</sup> kgm <sup>2</sup> | 2,0 x 10 <sup>-6</sup> kgm <sup>2</sup> | 2,0 x 10 <sup>-6</sup> kgm <sup>2</sup> |

<sup>(1)</sup><150m/s<sup>2</sup> on encoders with connectors



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## Connection option

| Connector type       | Cable    | 8 pin M12 | 12 pin EML | 8 pin PT |
|----------------------|----------|-----------|------------|----------|
| Function             | Colour   | PIN       | PIN        | PIN      |
| Address Bit 0        | White    | 1         | 1          | A        |
| Address Bit 1        | Brown    | 2         | 2          | B        |
| Address Bit 2        | Grey     | 3         | 3          | C        |
| Address Bit 3        | Pink     | 4         | 4          | D        |
| Address 0V           | Blue/Red | NA        | 11         | NA       |
| RS485-B              | Green    | 5         | 8          | G        |
| RS485-A              | Yellow   | 6         | 9          | H        |
| 0V                   | Blue     | 7         | 10         | F        |
| +EV                  | Red      | 8         | 12         | E        |
| Housing              | Shield   | Chassis   | Chassis    | Chassis  |
| Connecting direction |          |           |            |          |
| Axial                | Yes      | Yes       | Yes        | Yes      |
| Radial               | Yes      | Yes       | Yes        | Yes      |

NA=Not available

## Electrical option

|                          |   |
|--------------------------|---|
| <b>Power supply</b>      | <b>9-36Vdc</b>                                  |
| Polarity protected       | Yes   |
| <b>Output interface</b>  | <b>RS-485 , BiLL</b>                            |
| Short circuit protected  | Yes   |
| Current consumption      | 100mA @ 24Vdc                                   |
| Max current consumpt.    | 150mA   |
| Physical interface       | RS-485  |
| Baud rate <sup>(1)</sup> | 4,8-38,4 kBit/s                                 |
| Node adress              | Hardware adjustable                             |
| Code type                | Binary  |
| Programmable parameters  | Direction, Offset, Preset<br>Scaling parameters |
| Position update freq.    | 1kHz  |
| Start up delay           | 1s  |

<sup>(1)</sup> Default baud rate 19,2 kBit/s

## Accessories

| Accessories                | Part number             |
|----------------------------|-------------------------|
| Mating connector 8 pin M12 | 00201081 <sup>(1)</sup> |
| 8 pin PT                   | 00201009 <sup>(1)</sup> |
| 12 pin EML                 | 01209090 <sup>(1)</sup> |
| Torque support M6          | 01209143 <sup>(2)</sup> |
| Torque arm M6              | 01208014 <sup>(3)</sup> |

<sup>(1)</sup> Also available with assembled cable.

<sup>(2)</sup> Only for 56 flange.

<sup>(3)</sup> Length 70-1000mm available, specify when ordering.

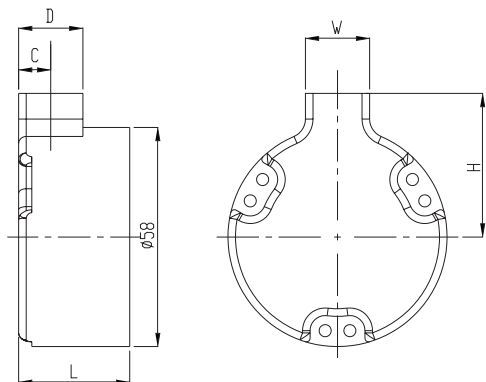
For additional accessories like assembled cables and torque arms please advise separate datasheets for accessories.

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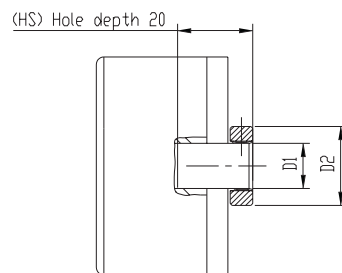
## Dimensions



| Connector | Orientation | L    | H  | W  | D  | C    |
|-----------|-------------|------|----|----|----|------|
| Cable     | Radial      | 29,4 | 34 | 17 | 17 | 8,5  |
|           | Axial       | 38,9 |    |    |    |      |
| EML       | Radial      | 29,4 | 32 | 27 | 27 | 13,5 |
|           | Axial       | 38,9 |    |    |    |      |
| 8p M12    | Radial      | 29,4 | 38 | 27 | 27 | 9,5  |
|           | Axial       | 38,9 |    |    |    |      |
| 8p PT     | Radial      | 29,4 | 41 | 27 | 27 | 13,5 |
|           | Axial       | 38,9 |    |    |    |      |

Note: For complete encoder dimension please add connector and flange dimensions.

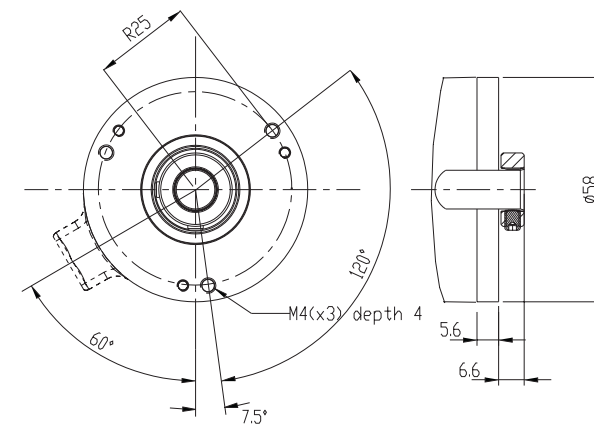
## Shafts



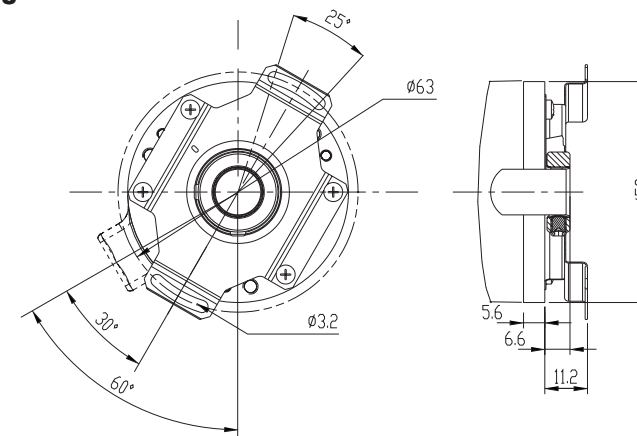
|       | D1     | D2  |
|-------|--------|-----|
| ø8mm  | ø8 G7  | ø19 |
| ø10mm | ø10 G7 | ø19 |
| ø12mm | ø12 G7 | ø21 |
| ø14mm | ø14 G7 | ø23 |

## Flanges

56



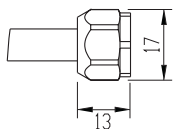
58



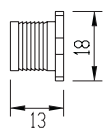


## Connectors

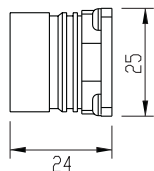
**Cable**  
16x0,25 shielded



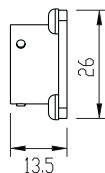
**8pin M12**



**12pin EML**

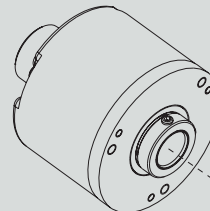


**8pin PT**

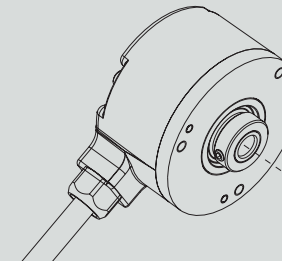


## Various combinations/examples

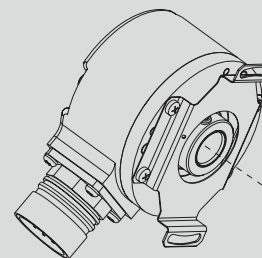
**RHA 507 56 12 mm , axial EML**



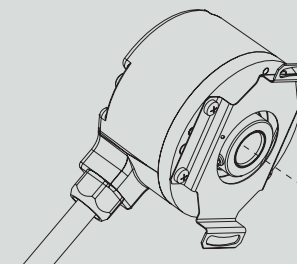
**RHA 507 56 8 mm , radial cable**



**RHA 507 58 10 mm , radial EML**



**RHA 507 58 10 mm , radial cable**



## Ordering information Tick your choice

|                      |                      |              |              |              |  |
|----------------------|----------------------|--------------|--------------|--------------|--|
| Type                 | RHA 507              |              |              |              |  |
| Flange               | 56, HS               | 58, HS       |              |              |  |
| Shaft                | Ø8mm                 | Ø10mm        | Ø12mm        | Ø14mm        |  |
| Electronics          | 9-36Vdc              |              |              |              |  |
| Supply               | SBB, BiLL            |              |              |              |  |
| Output               | SBB, BiLL            |              |              |              |  |
| Connection           | Cable <sup>(1)</sup> | 8 pin M12    | 12 pin EML   | 8 pin PT     |  |
| Connecting direction | Axial/Radial         | Axial/Radial | Axial/Radial | Axial/Radial |  |
| Resolution           | 13 bit               |              |              |              |  |

<sup>(1)</sup> Note: Please specify cable length when ordering

Ordering example: RHA 507 56 ø10 9-36Vdc SBB 12 pin EML Radial 13bit  
Assembly drawing is available upon request from Leine & Linde AB