Encoders

Magnetic Encoders

Features:
16 Lines per revolution
2 Channels
Digital output

Series IE2 – 16

		IE2 – 16	
Lines per revolution	N	16	
Signal output, square wave		2	channels
Supply voltage	V_{DD}	4 ... 18	V DC
Current consumption, typical (V_{DD} = 12 V DC)	I_{DD}	typ. 6, max. 12	mA
Output current, max. admissible	I_{OUT}	15	mA
Pulse width [2]	P	180 ± 45	°e
Phase shift, channel A to B [2]	Φ	90 ± 45	°e
Signal rise/fall time, max. (C_{LOAD} = 100 pF)	tr/tf	2,5 / 0,3	µs
Frequency range [1], up to	f	7	kHz
Inertia of code disc	J	0,11	gcm²
Operating temperature range		– 25 ... +85	°C

[1] Velocity (rpm) = f (Hz) x 60/N
[2] Tested at 2 kHz

Ordering information

Encoder type	number of channels	lines per revolution	in combination with:
IE2 – 16	2	16	**DC-Micromotors series**
			1336 ... C,
			1516 ... SR, 1524 ... SR,
			1717 ... SR, 1724 ... SR, 1727 ... C,
			2224 ... SR, 2232 ... SR, 2342 ... CR,
			2642 ... CR, 2657 ... CR,
			3242 ... CR, 3257 ... CR, 3863 ... C
			Brushless DC-Servomotors series
			1628 ... B, 2036 ... B, 2057 ... B
			2444 ... B

Features

These incremental shaft encoders in combination with the FAULHABER DC-Micromotors are used for indication and control of both, shaft velocity and direction of rotation as well as for positioning.

The encoder is integrated in the DC-Micromotors SR-Series and extends the overall length by only 1,4 mm!

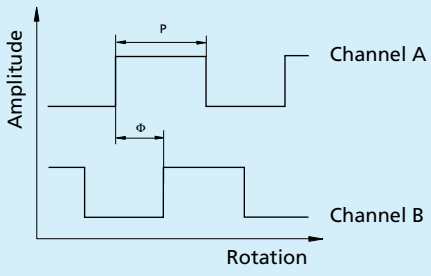
Solid state Hall sensors and a low inertia magnetic disc provide two channels with 90° phase shift.

The supply voltage for the encoder and the DC-Micromotor as well as the two channel output signals are interfaced through a ribbon cable with connector.

Details for the DC-Micromotors and suitable reduction gearheads are on separate catalogue pages.

Output signals / Circuit diagram / Connector information

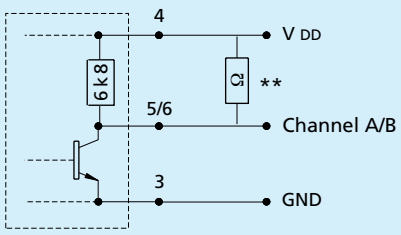
Output signals
with clockwise rotation as seen from the shaft end



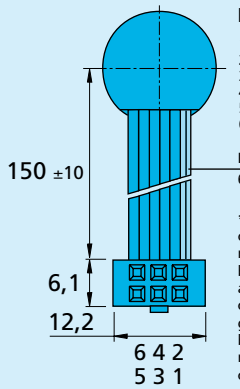
Admissible deviation of phase shift:

$$\Delta\Phi = \left| 90° - \frac{\Phi}{P} * 180° \right| \leq 45°$$

Output circuit



** An additional external pull-up resistor can be added to improve the rise time. Caution: I_{OUT} max. 15 mA must not be exceeded!



Pin Function
1 Motor – *
2 Motor + *
3 GND
4 V_{DD}
5 channel B
6 channel A

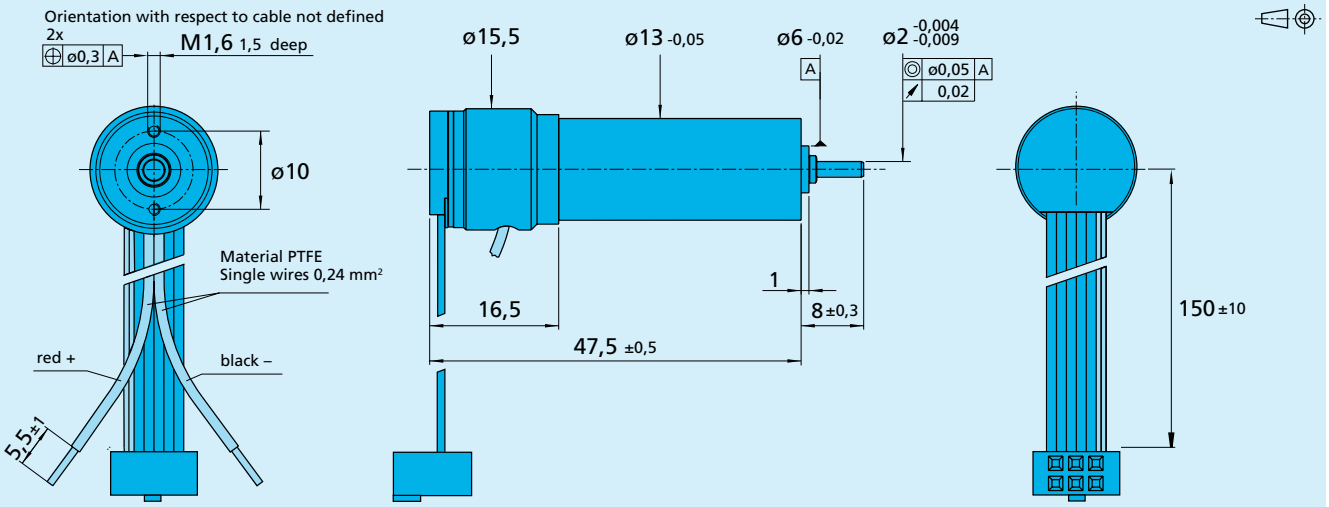
PVC-Ribbon cable
6 conductors 0,09 mm²

***Note:** The terminal resistance of all motors with precious metal commutation is increased by approx. 0.4 Ω, and the max. allowable motor current in combination is 1A. Motors with graphite commutation and brushless motors have separate motor leads and higher motor current is allowed.

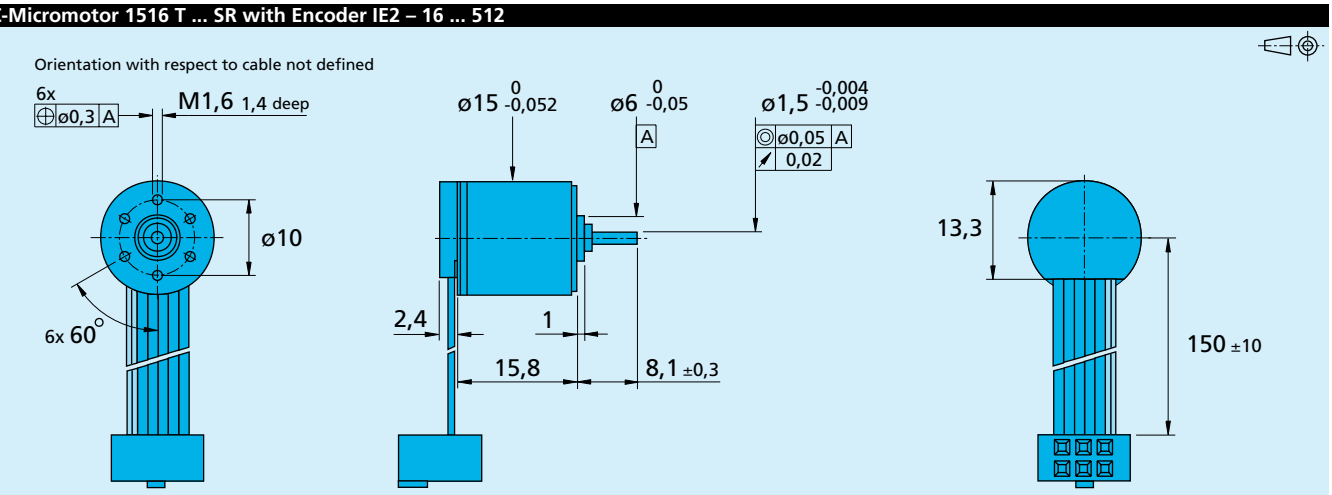
Connector
DIN-41651
grid 2,54 mm

For details on technical information and lifetime performance refer to pages 140-142.

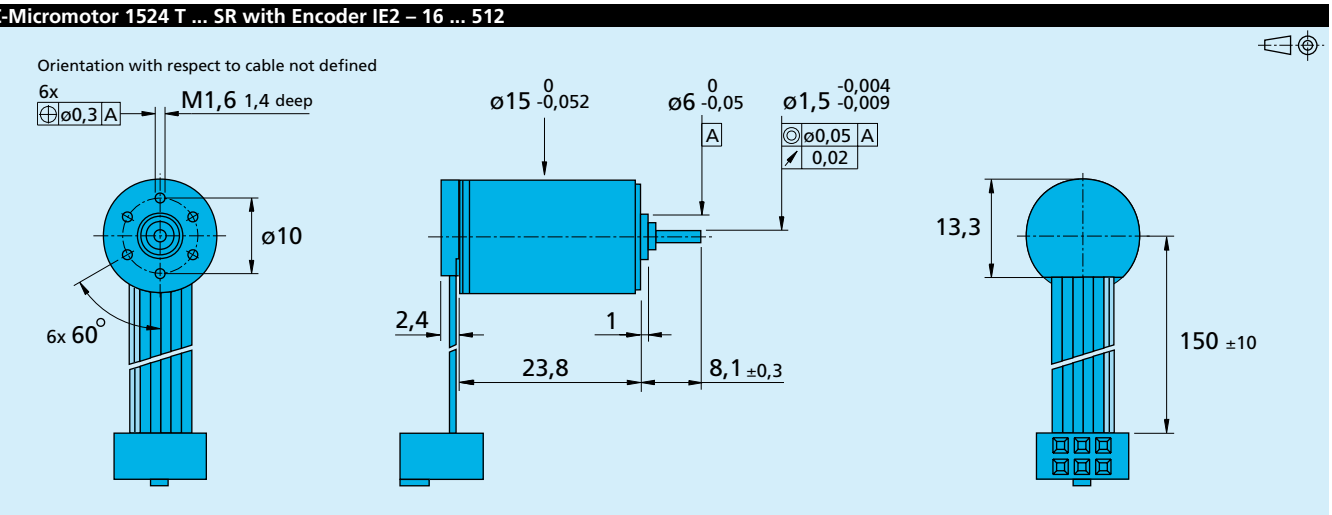
DC-Micromotor 1336 U ... C - 123 with Encoder IE2 – 16 ... 512



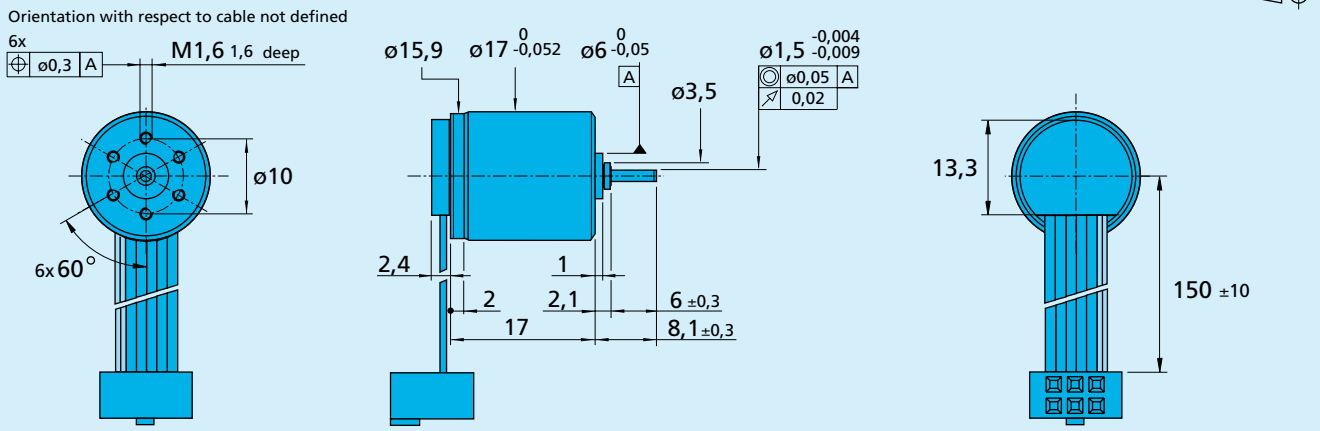
DC-Micromotor 1516 T ... SR with Encoder IE2 – 16 ... 512



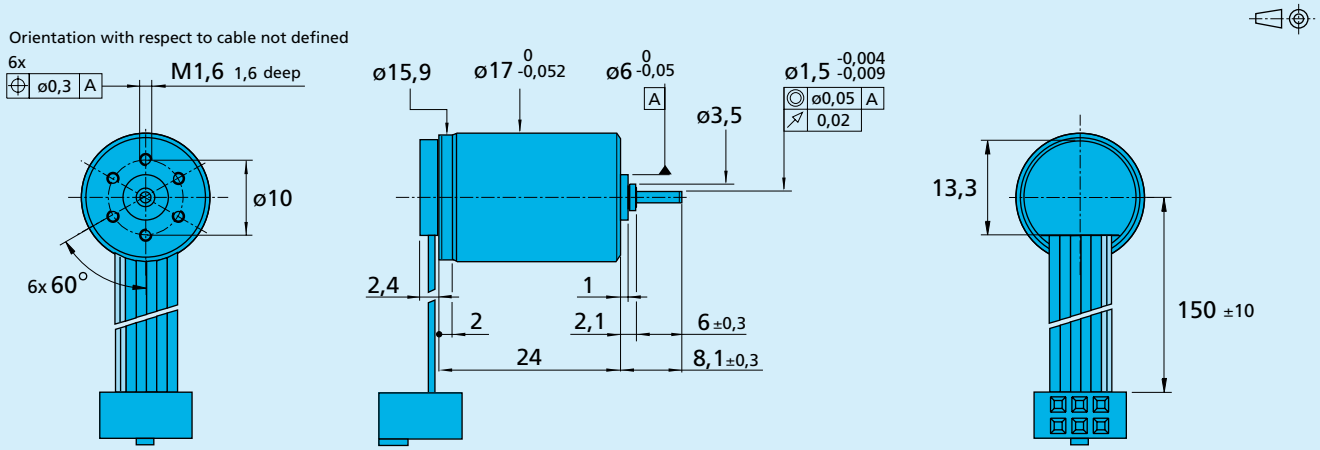
DC-Micromotor 1524 T ... SR with Encoder IE2 – 16 ... 512



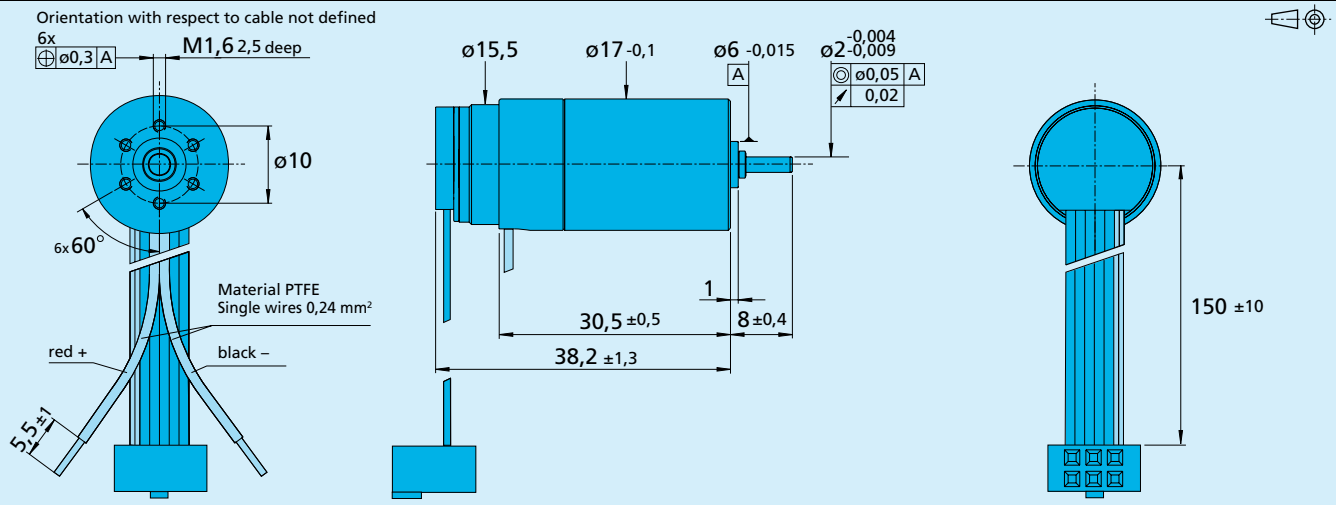
DC-Micromotor 1717 T ... SR with Encoder IE2 – 16 ... 512



DC-Micromotor 1724 T ... SR with Encoder IE2 – 16 ... 512

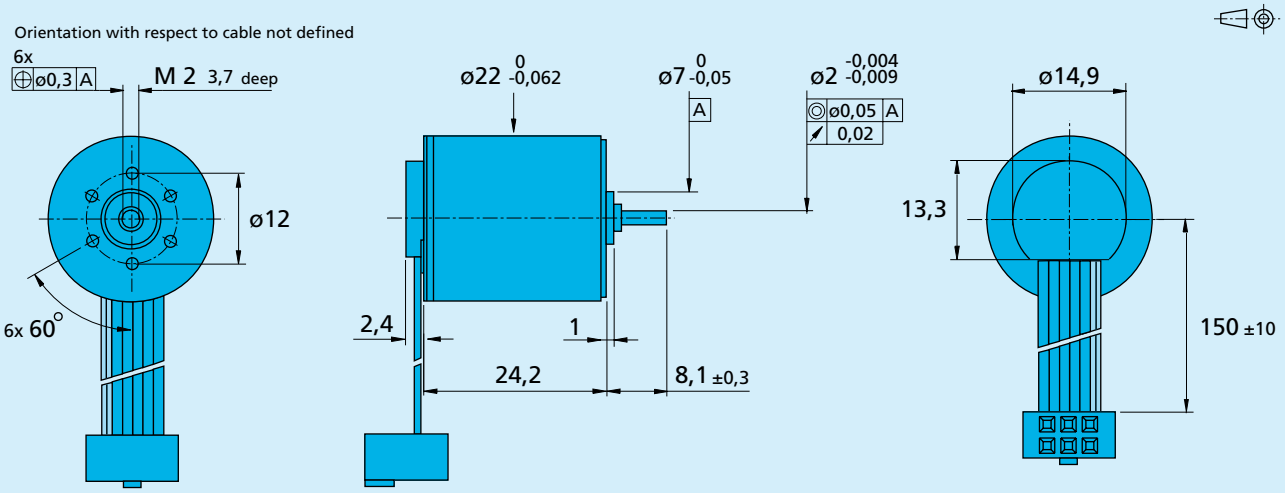


DC-Micromotor 1727 U ... C - 123 with Encoder IE2 – 16 ... 512

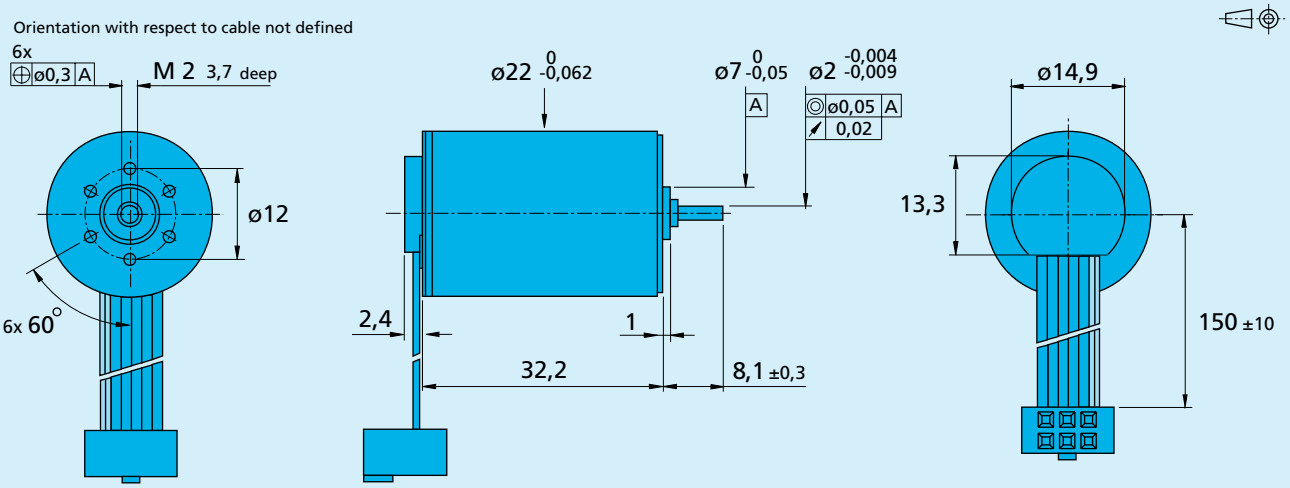


For details on technical information and lifetime performance refer to pages 140-142.

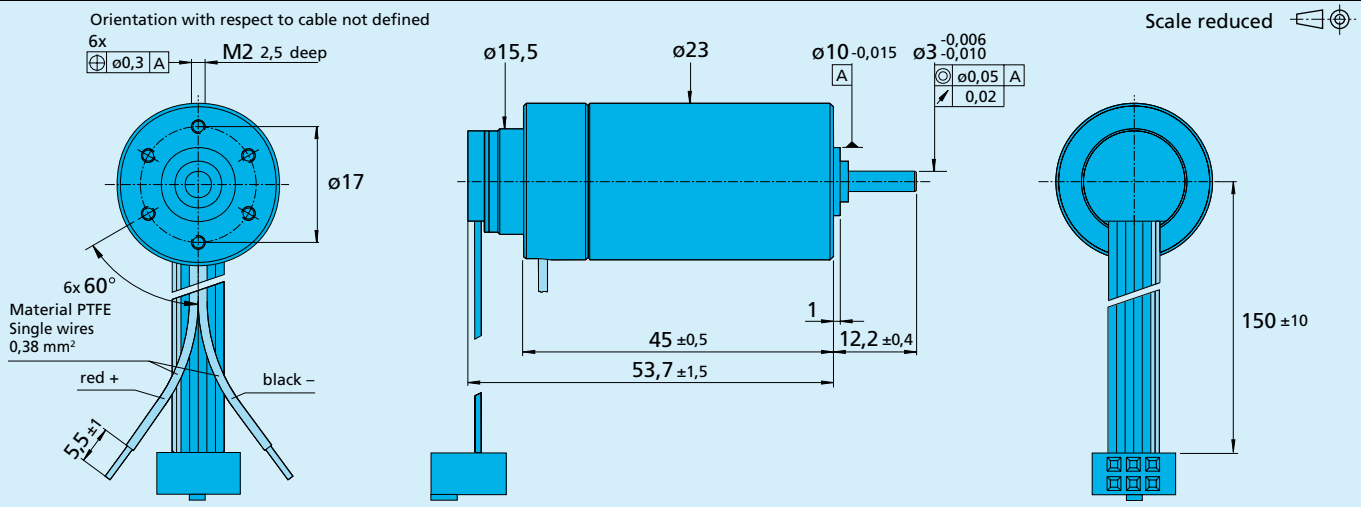
DC-Micromotor 2224 U ... SR with Encoder IE2 – 16 ... 512



DC-Micromotor 2232 U ... SR with Encoder IE2 – 16 ... 512

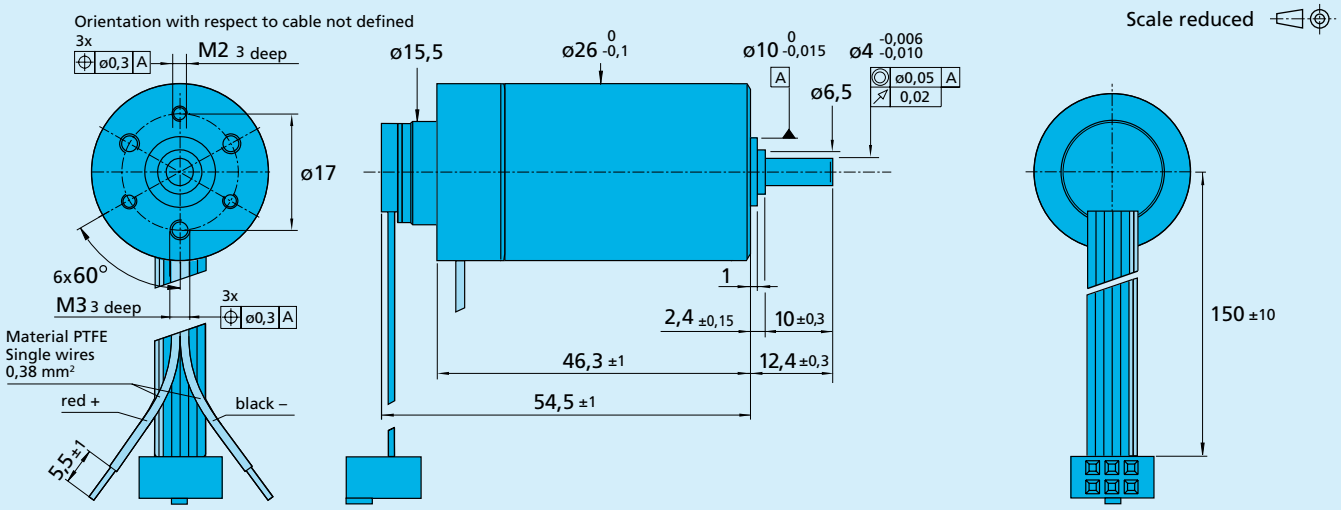


DC-Micromotor 2342 S ... CR with Encoder IE2 – 16 ... 512

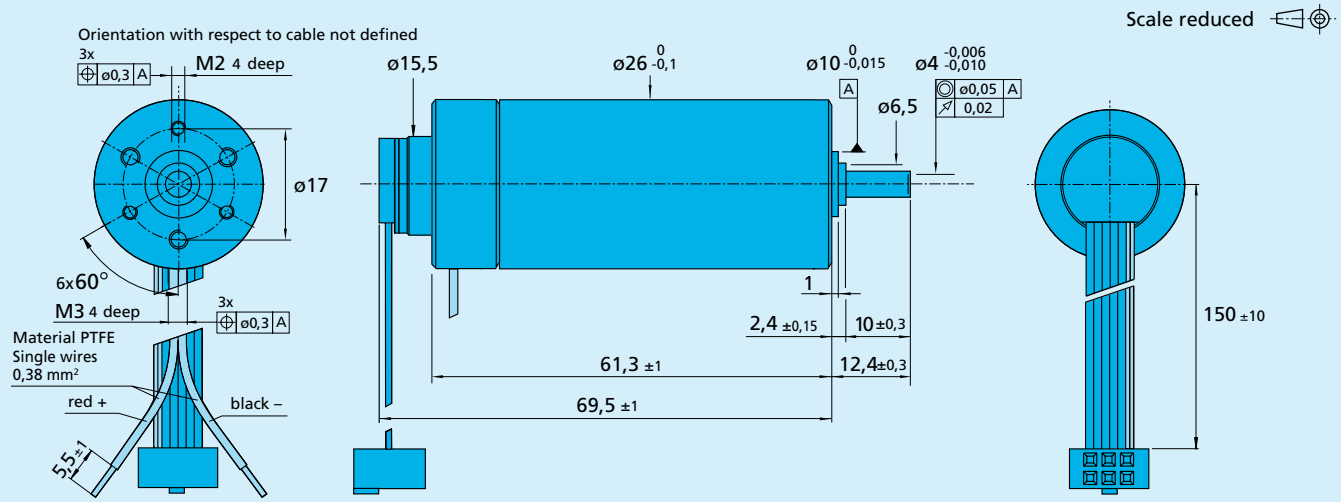


For details on technical information and lifetime performance refer to pages 140-142.

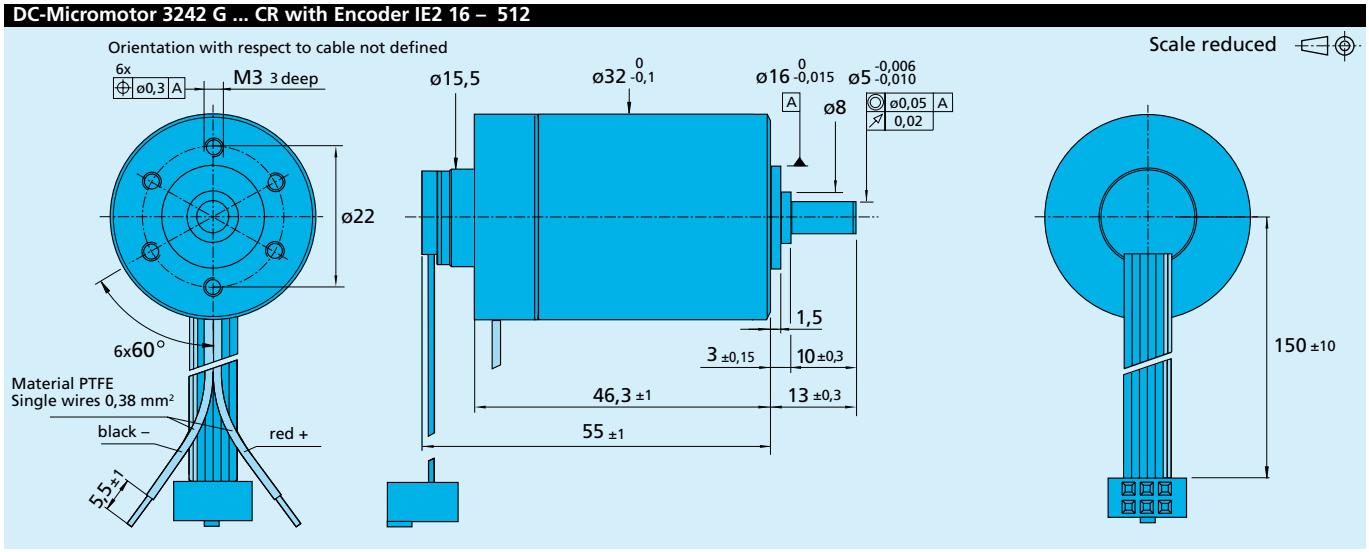
DC-Micromotor 2642 W ... CR with Encoder IE2 16 – 512



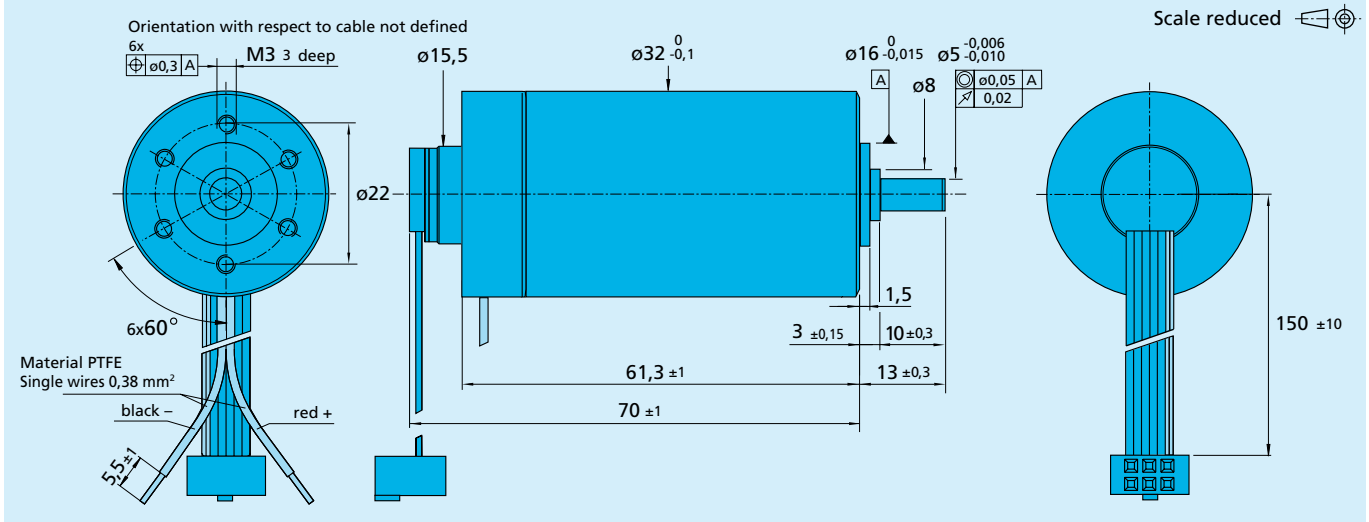
DC-Micromotor 2657 W ... CR with Encoder IE2 16 – 512



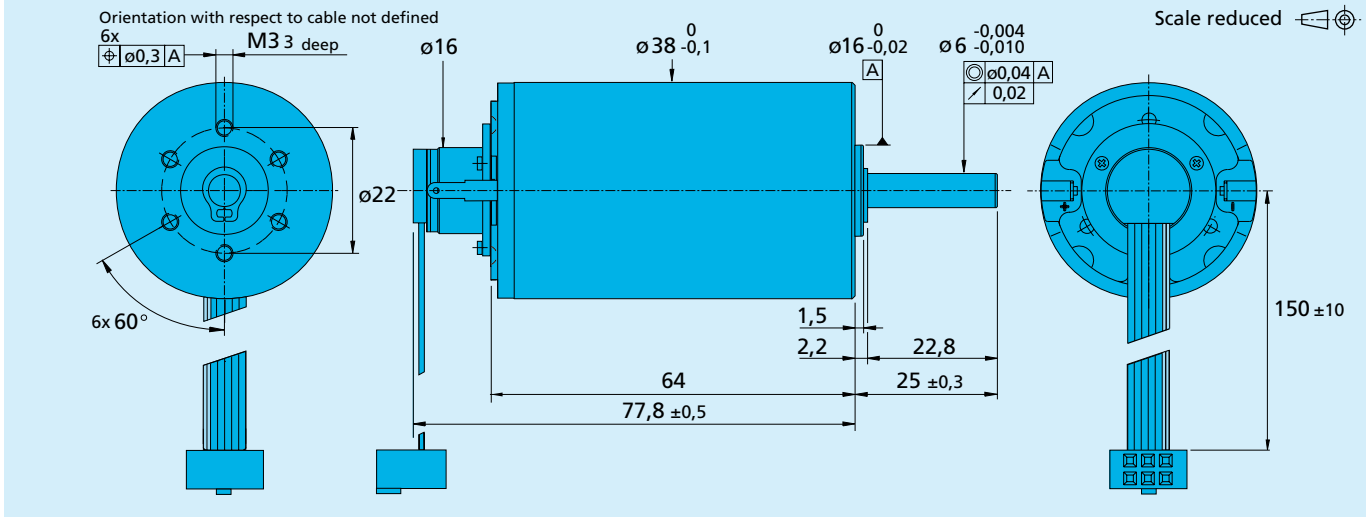
DC-Micromotor 3242 G ... CR with Encoder IE2 16 – 512



DC-Micromotor 3257 G ... CR with Encoder IE2 16 – 512



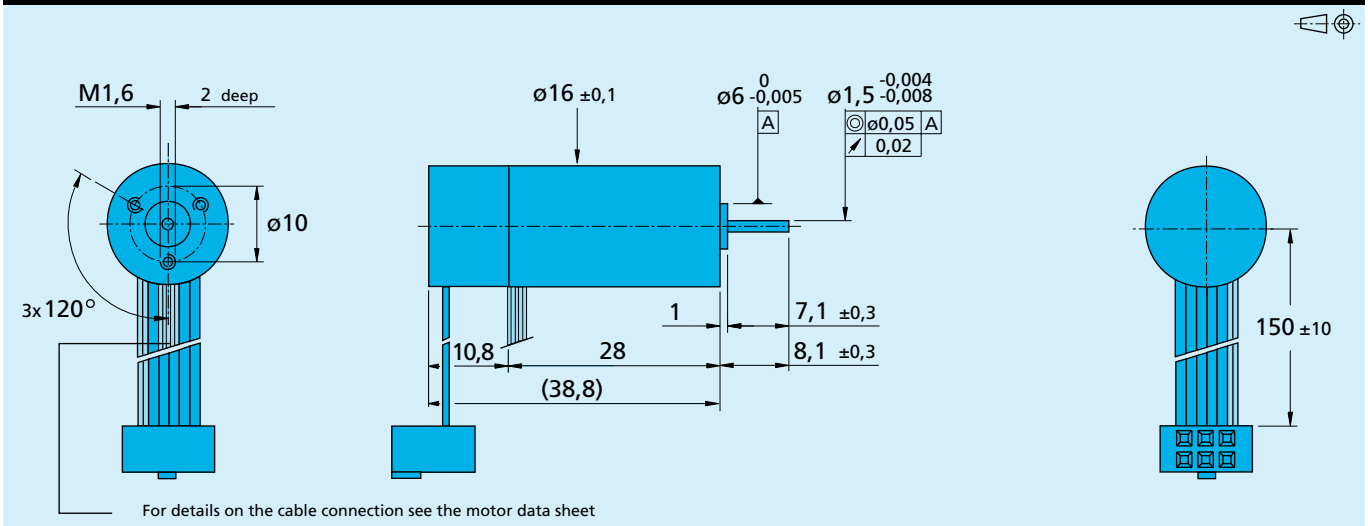
DC-Micromotor 3863 H ... C - 2016 with Encoder IE2 16 – 512



For details on technical information and lifetime performance refer to pages 140-142.

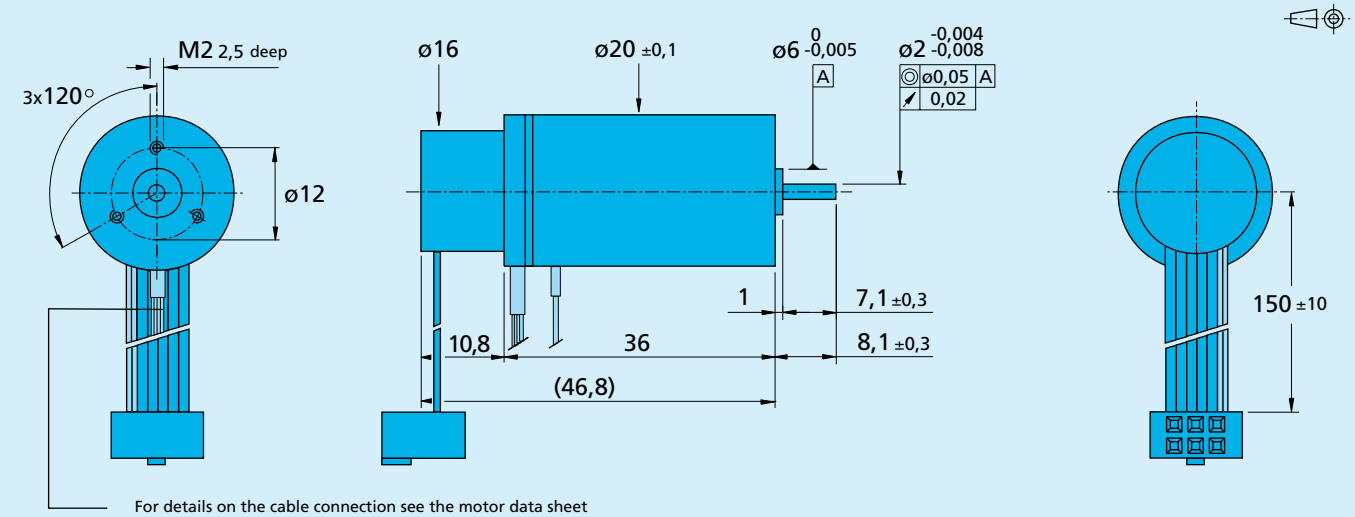
Specifications subject to change without notice.

Brushless DC-Servomotor 1628 T ... B - K313 with Encoder IE2 – 16 ... 512



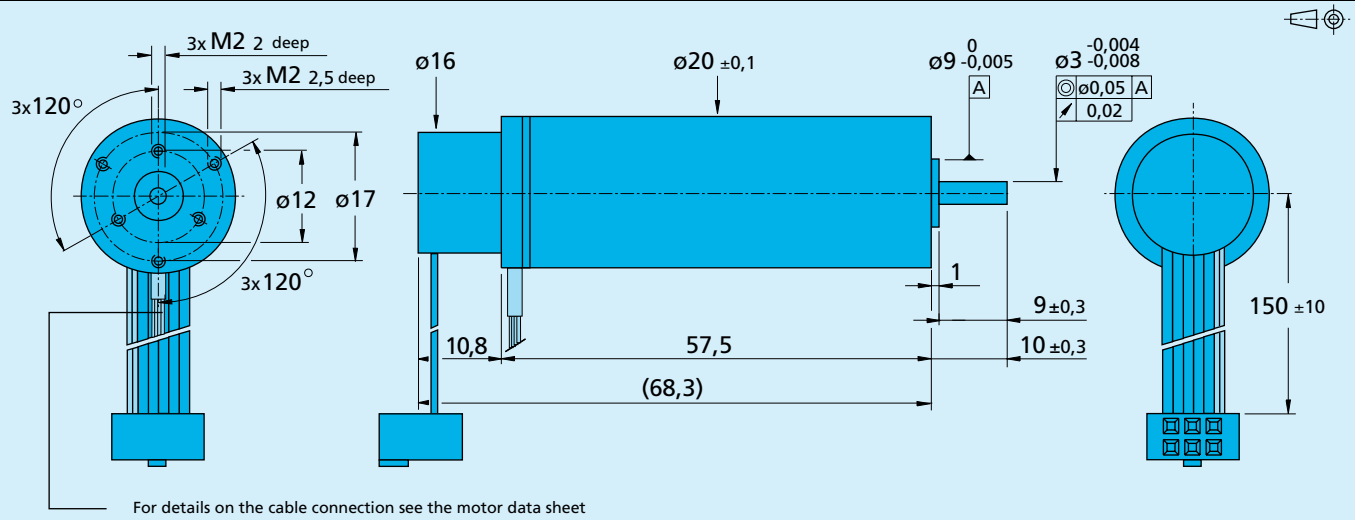
For details on the cable connection see the motor data sheet

Brushless DC-Servomotor 2036 U ... B - K313 with with Encoder IE2 – 16 ... 512



For details on the cable connection see the motor data sheet

Brushless DC-Servomotor 2057 S ... B - K313 with with Encoder IE2 – 16 ... 512



For details on the cable connection see the motor data sheet

Brushless DC-Servomotor 2444 S ... B - K313 with with Encoder IE2 – 16 ... 512