

INTERROLL DRUM MOTOR 165i



Standard
Asynchronous
Drum Motors
165i

High-torque compact drive for conveyors with high-duty cycles

Product Description

Applications

The drum motor is outstandingly robust with a strong torque and can take a high radial load.

- ✓ Conveyors with high-duty cycles
- ✓ Logistics applications
- ✓ Airport and postal conveyors
- ✓ Warehouse loading conveyors
- ✓ Telescopic conveyors
- ✓ Agricultural plants
- ✓ Food processing
- ✓ Steel or plastic modular belt applications
- ✓ Dry, wet and wash-down applications

Characteristics

- ✓ Salt-water-resistant aluminium end housings
- ✓ 3-phase AC induction motor
- ✓ Dual voltage
- ✓ Integral thermal motor protection
- ✓ Steel-hardened helical spur gear
- ✓ Low noise
- ✓ Maintenance-free
- ✓ Lifetime lubricated
- ✓ Reversible
- ✓ Reinforced shaft for SL above 1,000 mm

Technical Data

Electrical data

Motor type	Asynchronous squirrel cage motor, IEC 34 (VDE 0530)
Insulation class of motor windings	Class F, IEC 34 (VDE 0530)
Voltage	230/400 V ±5 % (IEC 34/38) Most international voltages and frequencies can be supplied on request
Frequency	50 Hz
Internal shaft sealing system	Double-lipped, FPM
Protection rate	IP66
Thermal protection (see p 245)	Bi-metal switch
Operating modes (see p 230)	S1
Ambient temperature, 3-phase motor (see p 207)	+5 to +40 °C
Ambient temperature, 3-phase motor for applications with positive drive belts, or without belts (see p 207)	+5 to +25 °C

General technical data

Max. shell length SL	1,750 mm
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Order Information

Please refer to the Configurator at the end of the catalogue..

Material Versions

You can choose the following versions of drum body components and electrical connection. The versions depend on the material of the components.

Component	Version	Material				
		Aluminium	Mild steel	Stainless steel	Brass / Nickel	Techno-polymer
Shell	Crowned		✓	✓		
	Cylindrical		✓	✓		
	Cylindrical + key, for using sprockets		✓	✓		
End housing	Standard	✓		✓		
	With grooves and chain sprockets	✓		✓		
Shaft	Standard		✓	✓		
	Cross-drilled thread, M10		✓	✓		
External seal	Galvanised labyrinth		✓			
	Stainless steel Labyrinth			✓		
Electrical connector	Straight connector			✓	✓	
	Elbow connector			✓		✓
	Terminal box	✓		✓		✓

Please contact your Interroll customer consultant for further versions.

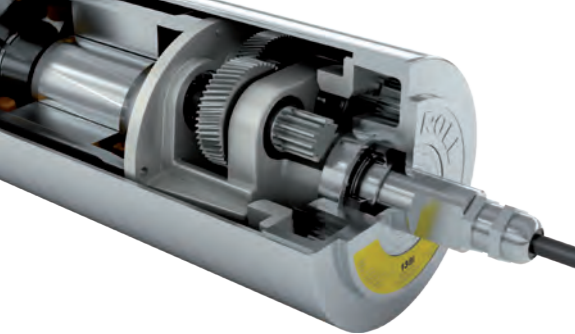
Options

- Lagging for friction drive belts, see p 128
- Lagging for plastic modular belts, see p 134
- Lagging for positive drive solid homogeneous belts, see p 138
- Sprockets for plastic modular belts, see p 142
- Backstops, see p 150
- Balancing, see p 151
- Electromagnetic brakes and rectifiers, see p 152
- Feedback Devices, see p 158
- Food-grade oil (EU, FDA), see p 256
- Low temperature oil, see p 256
- Labyrinth with FPM, see p 248
- cULus safety certifications, see p 251
- Non-horizontal mounting (more than ± 5°), see p 231

Note: Combination of encoder and electromagnetic brake is not possible.

Accessories

- Mounting brackets, see p 168
- Idler pulleys, see p 178 to p 183
- Conveyor rollers, see p 188
- IFI - IP55 Frequency Inverter, see p 122



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Product Range

The following tables give an overview of the possible motor versions. When ordering, please specify the version in accordance with the configurator at the end of the catalogue.

All data and values in this catalogue refer to 50 Hz operation.

Motor versions

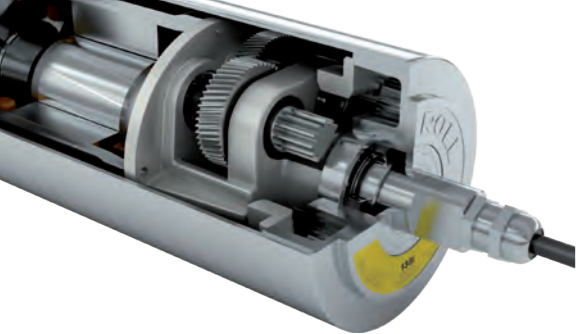
Mechanical data for 3-phase motors (Standard motors)

P _N kW	np	gs	i	v m/s	n _A min ⁻¹	M _A Nm	F _N N	SL _{min} mm		
0.370	12	3	46.56	0.084	9.8	339.6	4,142	450		
			8	3	62.37	0.100	11.1	300.6	3,666	400
	4	3	46.56	0.127	14.8	224.4	2,736	400		
			62.37	0.189	22.0	158.5	1,933	400		
			46.56	0.254	29.5	118.3	1,443	400		
			39.31	0.300	35.0	99.9	1,218	400		
			31.56	0.374	43.6	80.2	978	400		
			24.60	0.480	55.9	62.5	762	400		
			2	2	19.64	0.601	70.0	50.9	621	400
					14.66	0.806	93.8	38.0	464	400
					12.38	0.954	111.1	32.1	391	400
					46.56	0.156	18.1	272.6	3,324	400
0.550	6	3	62.37	0.116	13.5	365.2	4,453	400		
			46.56	0.156	18.1	272.6	3,324	400		
	4	3	62.37	0.187	21.7	310.6	3,787	400		
			46.56	0.250	29.1	231.8	2,827	400		
			39.31	0.296	34.5	195.7	2,387	400		
			31.56	0.369	42.9	157.1	1,916	400		
			24.60	0.473	55.1	122.5	1,494	400		
			2	2	19.64	0.593	69.0	99.8	1,217	400
					14.66	0.794	92.4	74.5	908	400
					12.38	0.940	109.5	62.9	767	400
					46.56	0.243	28.4	348.8	4,254	400
			1.100	4	3	39.31	0.288	33.6	294.5	3,591
31.56	0.359	41.8				236.4	2,883	400		
24.60	0.461	53.7				184.3	2,248	400		
2	2	19.64				0.577	67.2	150.1	1,831	400
		14.66				0.773	90.1	112.1	1,366	400
		12.38				0.916	106.7	94.6	1,154	400
2	3	46.56		0.525	61.1	161.7	1,972	400		
		39.31		0.621	72.4	136.5	1,665	400		
		24.60		0.993	115.7	85.4	1,042	400		
		2		2	19.64	1.244	144.9	69.6	849	400
					14.66	1.667	194.1	51.9	633	400
					12.38	1.974	229.9	43.9	535	400
1.500	4	3	9.65	2.532	294.8	34.2	417	400		
			31.56	0.379	44.1	305.3	3,723	450		
			24.60	0.486	56.6	238.0	2,903	450		
			2	2	19.64	0.609	70.9	193.9	2,364	450
					14.66	0.816	95.0	144.7	1,765	450
					12.38	0.967	112.6	122.2	1,490	450
	2	3	46.56	0.524	61.0	324.3	3,954	450		
			39.31	0.620	72.2	273.8	3,339	450		
			31.56	0.773	90.0	219.8	2,680	450		
			24.60	0.991	115.4	171.3	2,089	450		
			2	2	19.64	1.242	144.6	139.6	1,702	450
					14.66	1.664	193.8	104.2	1,270	450
2.200	2	3	12.38	1.971	229.5	87.9	1,073	450		
			9.65	2.527	294.3	68.6	836	450		

Mechanical data for 3-phase motors (Motors for applications with positive drive belts or no belts)

P _N kW	np	gs	i	v m/s	n _A min ⁻¹	M _A Nm	F _N N	SL _{min} mm			
0.306	12	3	46.56	0.083	9.8	280.8	3,467	450			
			8	3	62.37	0.100	13.5	204.2	2,521	400	
0.455	6	3	62.37	0.115	13.5	301.9	3,727	400			
			46.56	0.154	18.1	225.3	2,782	400			
0.620	6	3	46.56	0.158	18.6	299.9	3,703	450			
			4	3	62.37	0.187	22.1	252.3	3,114	400	
	4	3	46.56	0.251	29.6	188.3	2,325	400			
			39.31	0.297	35.1	159.0	1,963	400			
			31.56	0.370	43.7	127.6	1,576	400			
			24.60	0.475	56.0	99.5	1,228	400			
			2	2	19.64	0.595	70.2	81.0	1,000	400	
					14.66	0.797	94.0	60.5	747	400	
					12.38	0.945	111.4	51.1	630	400	
					46.56	0.240	28.4	288.2	3,558	400	
			0.909	4	3	39.31	0.285	33.6	243.3	3,004	400
						31.56	0.355	41.8	195.3	2,411	400
24.60	0.455	53.7				152.3	1,880	400			
2	2	19.64				0.570	67.2	124.0	1,531	400	
		14.66				0.764	90.1	92.6	1,143	400	
		12.38				0.905	106.7	78.2	965	400	
2	3	46.56		0.521	61.4	133.0	1,642	400			
		39.31		0.617	72.8	112.3	1,386	400			
		24.60		0.986	116.3	70.3	868	400			
		2		2	19.64	1.235	145.6	57.2	707	400	
					14.66	1.655	195.1	42.7	527	400	
					12.38	1.960	231.1	36.1	445	400	
1.240	4	3	9.65	2.514	296.4	28.1	347	400			
			31.56	0.374	44.1	252.5	3,117	450			
			24.60	0.480	56.6	196.8	2,430	450			
			2	2	19.64	0.602	70.9	160.3	1,979	450	
					14.66	0.806	95.0	119.7	1,477	450	
					12.38	0.955	112.6	101.0	1,247	450	
	2	3	46.56	0.519	61.2	267.0	3,296	450			
			39.31	0.615	72.5	225.4	2,783	450			
			31.56	0.766	90.3	180.9	2,234	450			
			2	2	24.60	0.983	115.9	141.1	1,741	450	
					19.64	1.231	145.1	114.9	1,418	450	
					14.66	1.649	194.4	85.8	1,059	450	
1.818	2	3	12.38	1.953	230.3	72.4	894	450			
			9.65	2.505	295.3	56.5	697	450			

P _N	Rated power
np	Number of poles
gs	Gear stages
i	Gear ratio
v	Rated velocity of the shell
n _A	Rated revolutions of the drum shell
M _A	Rated torque of drum motor
F _N	Rated belt pull of drum motor
SL _{min}	Min. shell length



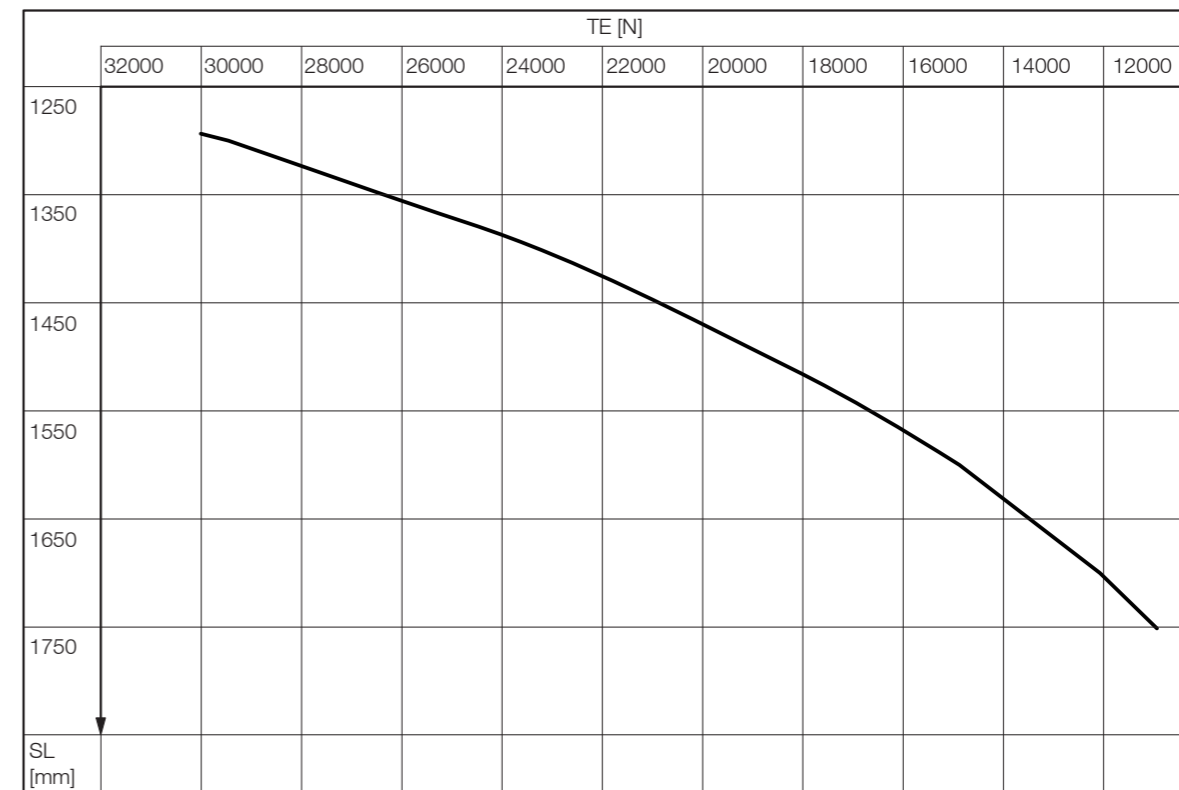
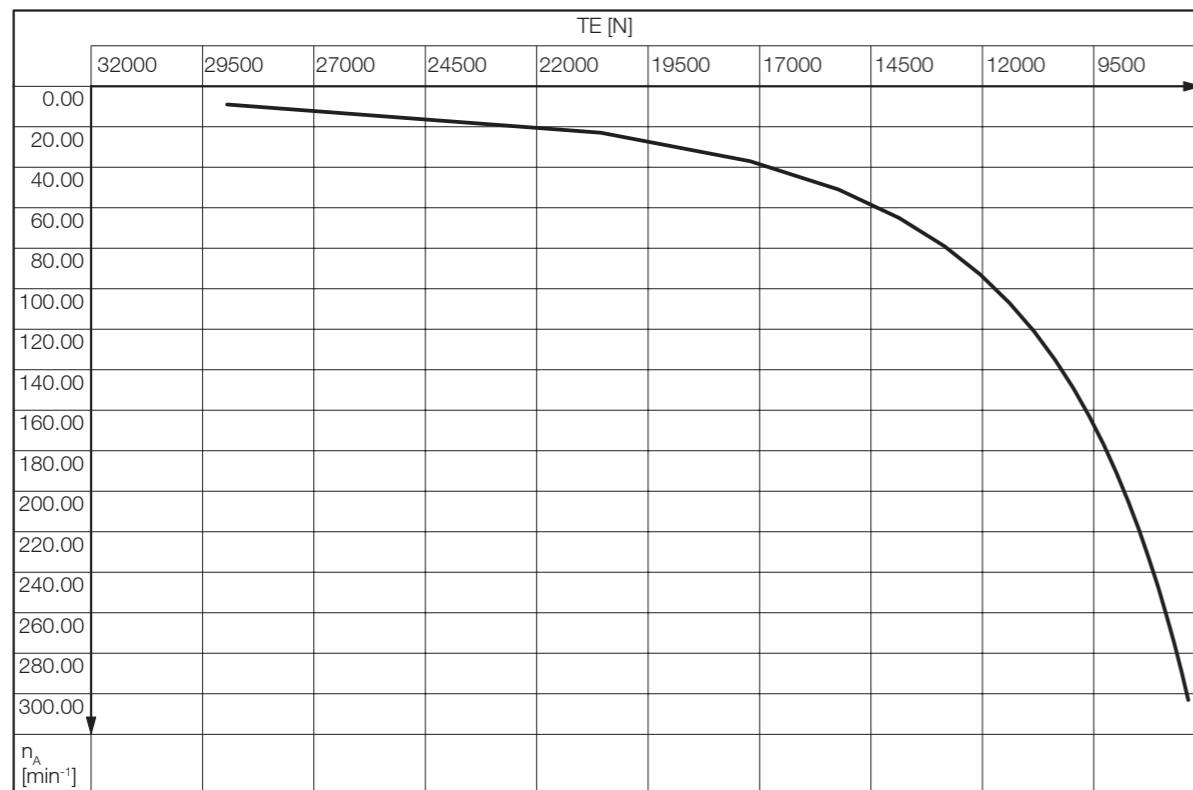
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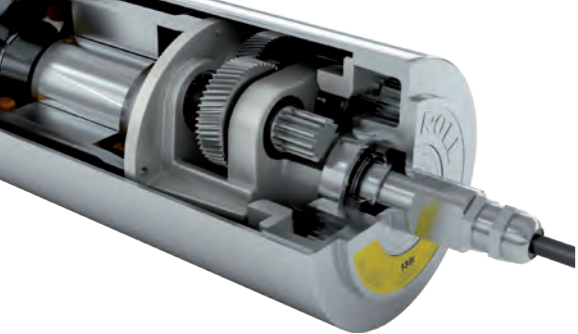
High-torque compact drive for conveyors with high-duty cycles

Belt Tension



TE	Belt Tension
n_A	Rated revolutions of the drum shell
SL	Shell length

Note: To get the right value of the maximum allowed belt tension, first find the maximum allowed TE value for the drum motor RPM. For motors with SL > 1,300 mm, check if the maximum allowed TE value for the SL is lower. In this case, use the lower value as maximum allowed TE value.



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Electrical data for 3-phase motors (Standard motors)

P_N kW	np	U_N V	I_N A	$\cos \varphi$	η	J_R kgcm ²	I_S/I_N	M_S/M_N	M_P/M_N	M_B/M_N	R_M Ω	$U_{SH \text{ delta}}$ V DC	$U_{SH \text{ star}}$ V DC	
0.370	12	230	2.77	0.63	0.53	35.1	2.0	1.20	1.20	1.50	19.4	17	-	
		400	1.60	0.63	0.53	35.1	2.0	1.20	1.20	1.50	19.4	-	29	
	8	230	2.42	0.62	0.57	22.6	2.9	1.90	1.90	2.35	22.0	17	-	
		400	1.50	0.62	0.57	22.6	2.9	1.90	1.90	2.35	22.0	-	31	
	4	230	1.90	0.77	0.66	11.3	3.2	1.60	1.60	1.80	29.2	21	-	
		400	1.10	0.77	0.66	11.3	3.2	1.60	1.60	1.80	29.2	-	37	
0.550	6	230	2.77	0.69	0.72	22.6	3.4	1.40	1.40	1.65	19.5	19	-	
		400	1.60	0.69	0.72	22.6	3.4	1.40	1.40	1.65	19.5	-	32	
0.750	6	230	3.64	0.81	0.64	22.6	3.5	1.75	1.75	2.00	6.2	9	-	
		400	2.10	0.81	0.64	22.6	3.5	1.75	1.75	2.00	6.2	-	16	
	4	230	3.12	0.80	0.75	11.3	3.5	1.53	1.30	1.80	23.9	30	-	
		400	1.80	0.80	0.75	11.3	3.5	1.53	1.30	1.80	23.9	-	52	
	1.100	4	230	4.85	0.82	0.69	11.3	3.5	1.50	1.30	1.70	7.2	14	-
			400	2.80	0.82	0.69	11.3	3.5	1.50	1.30	1.70	7.2	-	25
2	230	4.16	0.86	0.77	7.6	5.2	3.15	2.10	3.42	2.9	5	-		
	400	2.40	0.86	0.77	7.6	5.2	3.15	2.10	3.42	2.9	-	9		
1.500	4	230	6.06	0.87	0.71	19.8	3.8	1.55	1.55	2.10	5.2	14	-	
		400	3.50	0.87	0.71	19.8	3.8	1.55	1.55	2.10	5.2	-	24	
2.200	2	230	7.88	0.86	0.81	7.6	5.3	2.60	2.60	3.20	6.2	21	-	
		400	4.55	0.86	0.81	7.6	5.3	2.60	2.60	3.20	6.2	-	36	

Electrical data for 3-phase motors (Motors for applications with positive drive belts or no belts)

P_N kW	np	U_N V	I_N A	$\cos \varphi$	η	J_R kgcm ²	I_S/I_N	M_S/M_N	M_P/M_N	M_B/M_N	R_M Ω	$U_{SH \text{ delta}}$ V DC	$U_{SH \text{ star}}$ V DC
0.306	12	230	2.51	0.62	0.49	35.1	1.8	1.74	1.57	1.98	22.4	17	-
		400	1.45	0.62	0.49	35.1	1.8	1.74	1.57	1.98	22.4	-	30
	8	230	1.97	0.62	0.62	22.6	2.9	1.24	1.16	1.40	28.0	17	-
		400	1.15	0.62	0.62	22.6	2.9	1.24	1.16	1.40	28.0	-	30
0.455	6	230	2.04	0.75	0.74	22.6	3.1	1.07	1.07	1.07	25.0	19	-
		400	1.18	0.75	0.74	22.6	3.1	1.07	1.07	1.07	25.0	-	33
0.620	6	230	3.30	0.78	0.60	22.6	3.2	1.17	1.16	1.20	6.2	8	-
		400	1.91	0.78	0.60	22.6	3.2	1.17	1.16	1.20	6.2	-	14
	4	230	2.55	0.80	0.76	11.3	3.6	1.26	1.07	1.49	14.4	15	-
		400	1.48	0.80	0.76	11.3	3.6	1.26	1.07	1.49	14.4	-	26
0.909	4	230	3.92	0.84	0.69	11.3	3.7	1.16	1.07	1.24	8.3	14	-
		400	2.27	0.84	0.69	11.3	3.7	1.16	1.07	1.24	8.3	-	24
	2	230	3.30	0.86	0.80	7.3	4.6	2.48	1.74	2.64	6.2	9	-
		400	1.91	0.86	0.80	7.3	4.6	2.48	1.74	2.64	6.2	-	15
1.240	4	230	4.94	0.80	0.78	19.8	3.5	1.18	1.07	1.21	6.2	12	-
		400	2.86	0.80	0.78	19.8	3.5	1.18	1.07	1.21	6.2	-	21
1.818	2	230	6.43	0.85	0.83	7.6	4.8	2.07	1.65	2.31	6.2	17	-
		400	3.73	0.85	0.83	7.6	4.8	2.07	1.65	2.31	6.2	-	29

P_N	Rated power
np	Number of poles
U_N	Rated voltage
I_N	Rated current
$\cos \varphi$	Power factor
η	Efficiency
J_R	Rotor moment of inertia
I_S/I_N	Ratio of starting current to rated current
M_S/M_N	Ratio of starting torque to rated torque
M_P/M_N	Ratio of pull-up torque to rated torque
M_B/M_N	Ratio of break-down torque to rated torque
R_M	Phase resistance
$U_{SH \text{ delta}}$	Preheating voltage in delta connection
$U_{SH \text{ star}}$	Preheating voltage in star connection

Cable Specifications

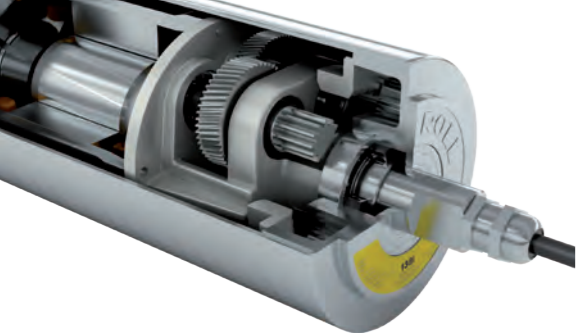
Available cables for connectors (see also p 252):

- Standard, screened
- Standard, unscreened
- Halogen-free, screened
- Halogen-free, unscreened

Available length: 1 / 3 / 5 / 10 m

Connection Diagrams

For connection diagrams, see Planning Section on p 260.



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Standard
dimensions

Dimensions

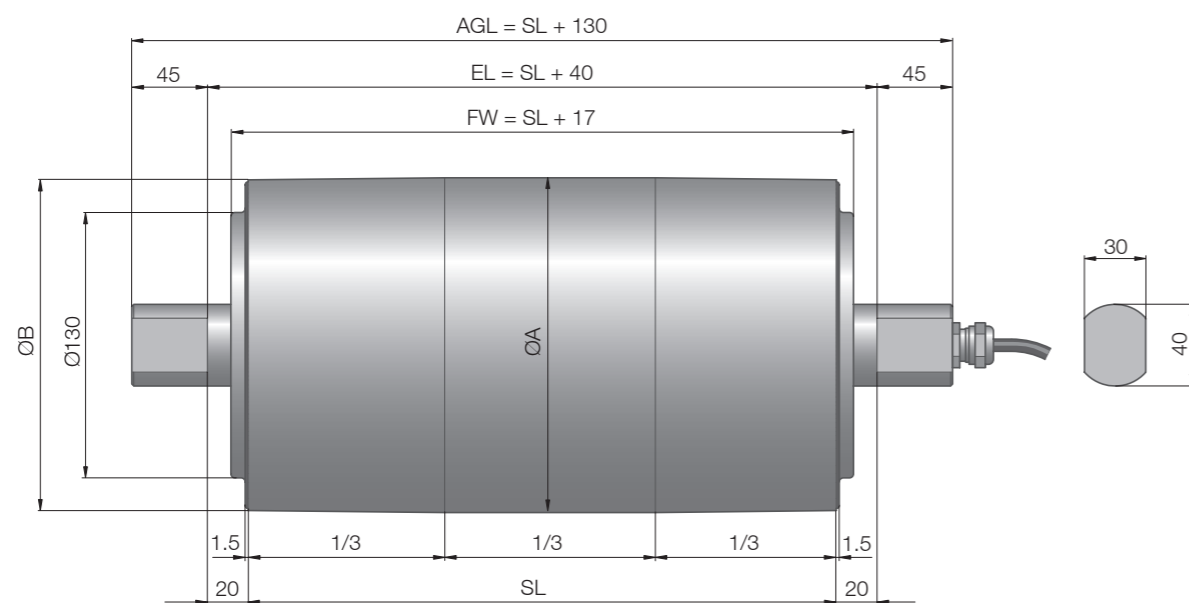


Fig.: Drum motor with straight connector

Type	Ø A mm	Ø B mm
165i crowned shell	164.0	162.0
165i cylindrical shell	162.0	162.0
165i cylindrical shell + key	162.0	162.0

Connector
dimensions

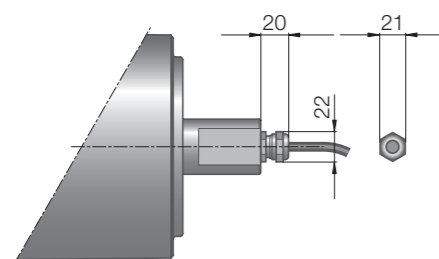


Fig.: Straight connector, brass/nickel

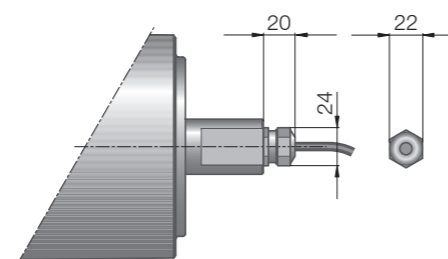


Fig.: Straight connector, stainless steel

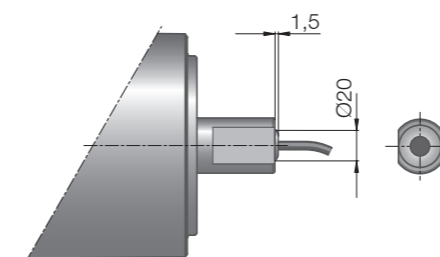


Fig.: Straight cable outlet, PU shaft plug

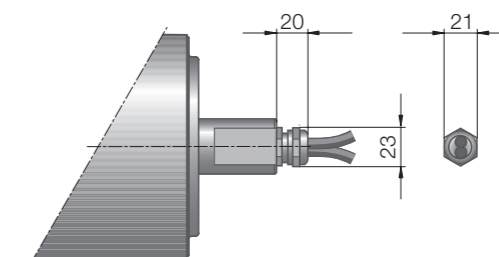


Fig.: Straight connector / Feedback device,
brass/nickel

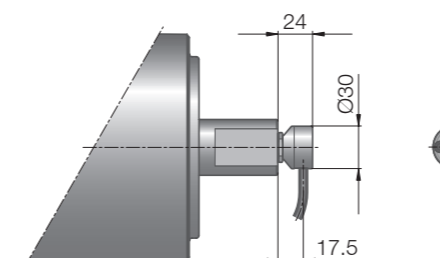


Fig.: Elbow connector, stainless steel

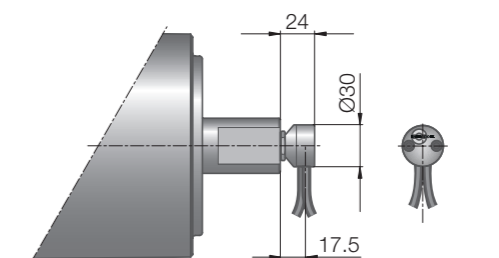


Fig.: Elbow connector / Feedback device,
stainless steel

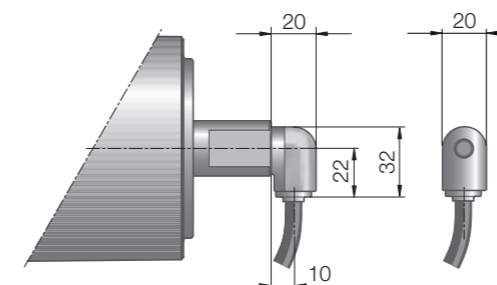


Fig.: Elbow connector, technopolymer

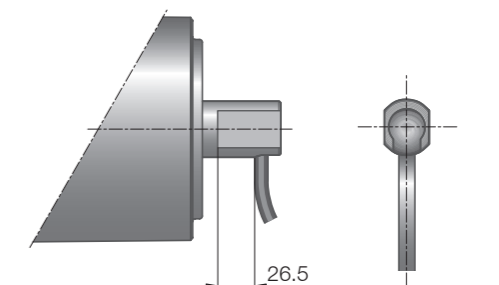
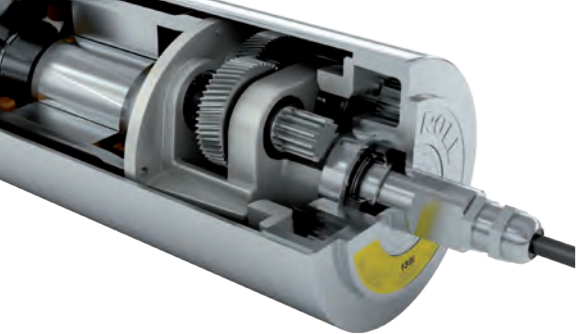


Fig.: Cable slot connector



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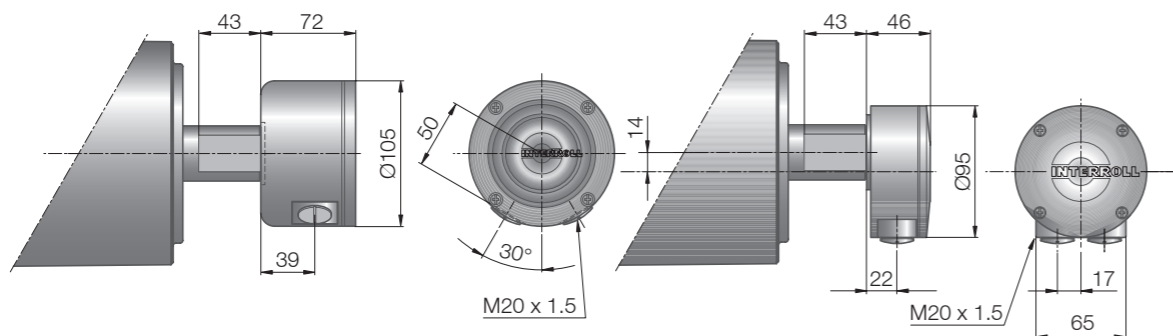


Fig.: Terminal box, technopolymer

Fig.: Terminal box, aluminium

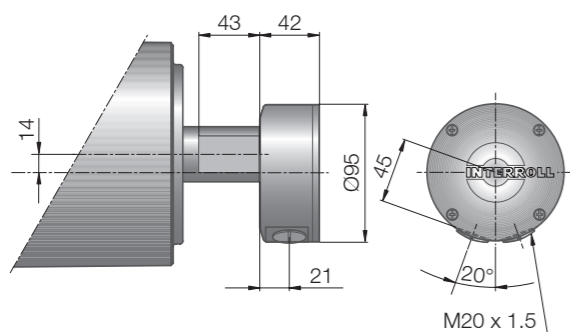


Fig.: Terminal box, stainless steel

Shafts for fixing

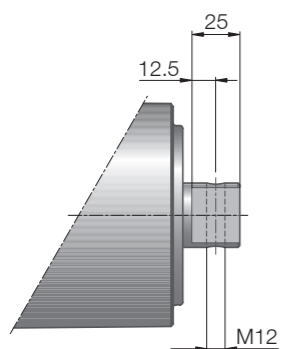


Fig.: Shaft, cross-drilled and threaded

For cross-drilled and threaded hole the shaft flat length is reduced from 45 to 25 mm.

The following options increase the minimum length of the drum motor.

Option	Min. SL with option mm
Brake	Min. SL + 50
Encoder	Min. SL + 50
Cable slot connector	Min. SL + 50

Standard drum motor lengths and their weights:

Shell length SL in mm	400	450	500	550	600	650	700	750	800	850	900
Average weight in kg	35.00	36.90	38.80	40.70	42.60	44.50	46.40	48.30	50.20	52.10	54.00
Shell length SL in mm	950	1,000	1,050	1,100	1,150	1,200	1,250	1,300	1,350	1,400	1,450
Average weight in kg	55.90	57.80	65.67	67.76	69.85	71.94	74.03	76.12	78.21	80.30	82.39
Shell length SL in mm	1,500	1,550	1,600	1,650	1,700	1,750					
Average weight in kg	84.48	86.57	88.66	90.75	92.84	94.93					

Min. length with
option

Standard length
and weight