

INTERROLL DRUM MOTOR 217i

High torque compact drive for heavy-duty conveyors

Product Description

Applications

This drum motor is typically used for heavy-duty handling applications.

- ✓ Conveyors with heavy loads
- ✓ Belts with side walls or cross cleats
- ✓ Logistics applications
- ✓ Airport and postal conveyors
- ✓ Warehouse loading conveyors
- ✓ Telescopic conveyors
- ✓ Agricultural plants
- ✓ Food processing
- ✓ 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 1,200 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 207)	Bi-metal switch
Operating modes (see p 194)	S1
Ambient temperature, 3-phase motor (see p 171)	+5 to +40 °C
Ambient temperature, 3-phase motor for applications with positive drive belts, or without belts (see p 171)	+5 to +25 °C
General technical data	
Max. shell length SL	1,750 mm

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		✓	✓		
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.

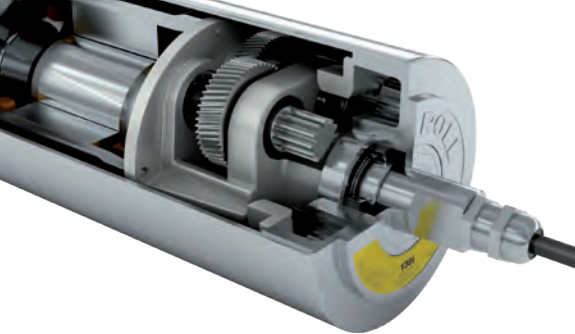
Options

- Lagging for friction drive belts, see p 106
- Lagging for plastic modular belts, see p 112
- Lagging for positive drive solid homogeneous belts, see p 116
- Backstops, see p 118
- Balancing, see p 119
- Electromagnetic brakes and rectifiers, see p 120
- Feedback Devices, see p 126
- Food-grade oil (EU, FDA), see p 218
- Low temperature oil, see p 218
- Labyrinth with FPM, see p 210
- cULus safety certifications, see p 213
- Non-horizontal mounting (more than ± 5°), see p 195

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

Accessories

- Mounting brackets, see p 136
- Idler pulleys, see p 146
- Conveyor rollers, see p 152



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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	8	3	62.37	0.126	11.1	300.6	2,764	400
0.550	6	3	62.37	0.154	13.5	365.2	3,358	400
			46.56	0.207	18.1	272.6	2,506	400
0.750	4	3	62.37	0.247	21.7	310.6	2,856	400
1.100	8	2	31.11	0.254	22.3	451.8	4,154	500
	4	3	46.56	0.323	28.4	348.8	3,207	400
			39.31	0.382	33.6	294.5	2,708	400
			31.56	0.476	41.8	236.4	2,174	400
			24.60	0.611	53.7	184.3	1,695	400
		2	19.64	0.766	67.2	150.1	1,380	400
			14.66	1.026	90.1	112.1	1,030	400
			12.38	1.215	106.7	94.6	870	400
	2	3	24.60	1.317	115.7	85.4	786	400
		2	19.64	1.650	144.9	69.6	640	400
			14.66	2.211	194.1	51.9	478	400
			12.38	2.618	229.9	43.9	403	400
			9.65	3.357	294.8	34.2	314	400
1.500	6	2	27.53	0.397	34.9	394.5	3,628	500
			20.10	0.544	47.8	288.1	2,649	500
			16.80	0.651	57.1	240.7	2,214	500
	4	2	31.11	0.516	45.3	303.6	2,791	550
			27.53	0.583	51.2	268.7	2,470	500
			20.10	0.799	70.1	196.2	1,804	500
			16.80	0.956	83.9	163.9	1,507	500
			12.53	1.281	112.5	122.3	1,124	500
2.200	6	2	16.80	0.633	55.6	362.9	3,337	500
	4	2	31.11	0.520	45.6	442.2	4,066	500
			27.53	0.587	51.6	391.4	3,599	500
			20.10	0.804	70.6	285.7	2,627	500
			16.80	0.963	84.5	238.8	2,196	500
			12.53	1.290	113.3	178.1	1,638	500
	2	2	27.53	1.156	101.5	198.9	1,829	500
			20.10	1.583	139.0	145.2	1,335	500
			16.80	1.894	166.3	121.3	1,116	500
			12.53	2.539	223.0	90.5	832	500
3.000	4	2	27.53	0.587	51.6	533.6	4,907	500
			20.10	0.804	70.6	389.6	3,583	500
			16.80	0.963	84.5	325.6	2,994	500
			12.53	1.290	113.3	242.9	2,233	500
	2	2	27.53	1.163	102.1	269.5	2,478	500
			20.10	1.593	139.9	196.7	1,809	500
			16.80	1.906	167.4	164.4	1,512	500
			12.53	2.555	224.4	122.6	1,128	500

Note: Motors with a SL_{min} of 500 or 550 mm may also be used for applications with positive drive belts or no belts.

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	8	3	62.37	0.152	13.5	204.2	1,895	400
0.455	6	3	62.37	0.153	13.5	301.9	2,802	400
			46.56	0.205	18.1	225.3	2,091	400
0.620	4	3	62.37	0.249	22.1	252.3	2,341	400
0.909	4	3	46.56	0.320	28.4	288.2	2,674	400
			39.31	0.379	33.6	243.3	2,258	400
			31.56	0.472	41.8	195.3	1,813	400
			24.60	0.605	53.7	152.3	1,413	400
		2	19.64	0.759	67.2	124.0	1,151	400
			14.66	1.016	90.1	92.6	859	400
			12.38	1.204	106.7	78.2	725	400
	2	3	24.60	1.312	116.3	70.3	652	400
		2	19.64	1.643	145.6	57.2	531	400
			14.66	2.202	195.1	42.7	396	400
			12.38	2.608	231.1	36.1	335	400
			9.65	3.344	296.4	28.1	261	400

P_N Rated power

np Number of poles

gs Gear stages

i Gear ratio

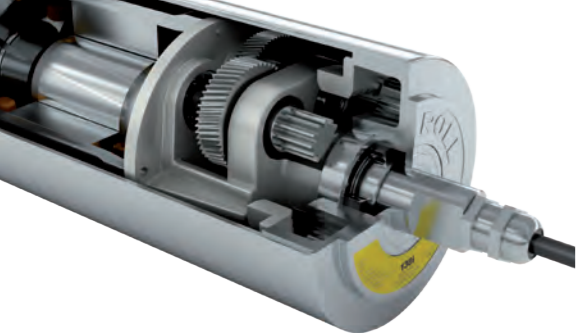
v Rated velocity of the shell

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



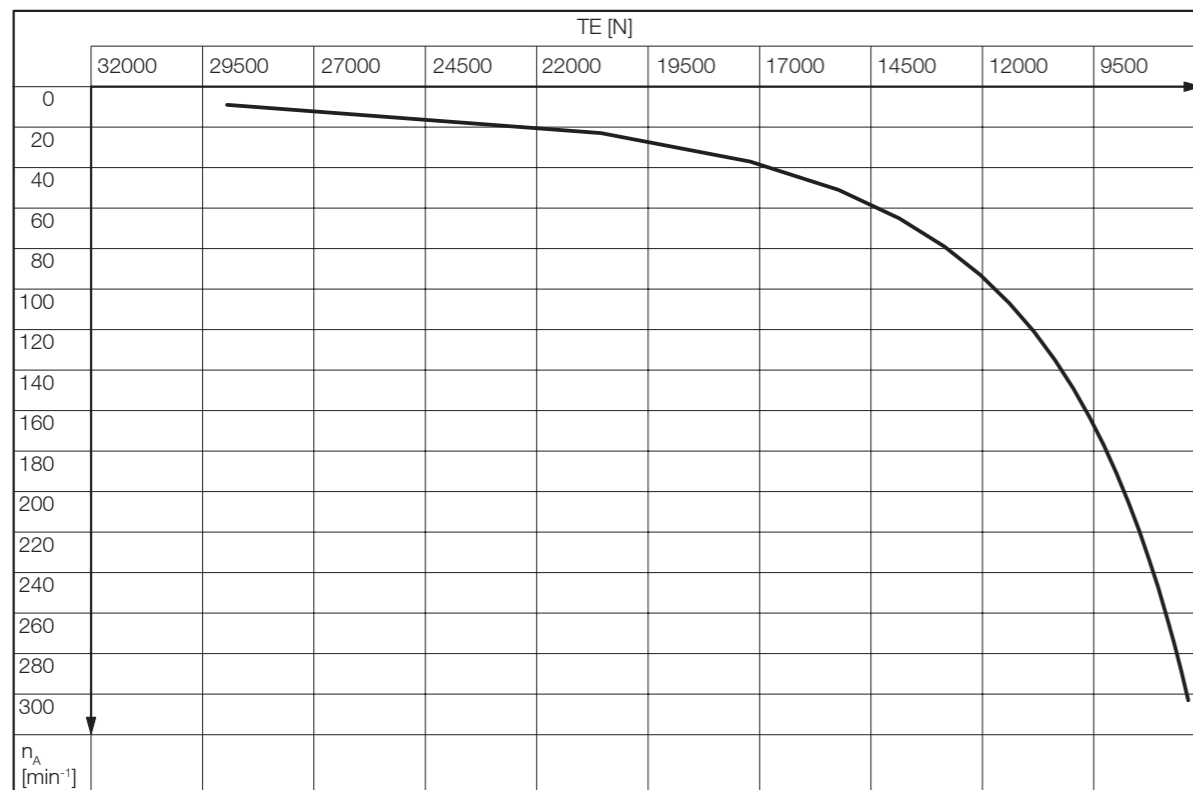
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Belt Tension

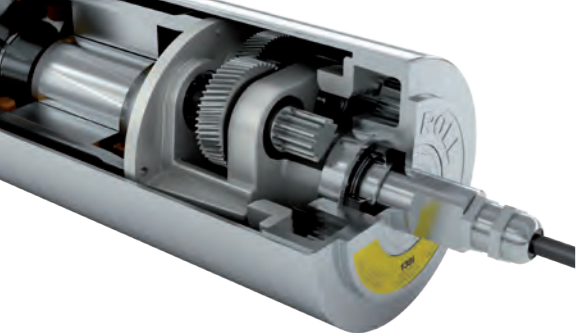


TE	Belt Tension
n _A	Rated revolutions of the drum shell
SL	Shell length

Note: To get the right value of the maximum allowed belt tension, find the maximum allowed TE value for the drum motor RPM. The TE value for SL does not need to be considered for standard 217i.

Electrical data for 3-phase motors (Standard motors)

P _N kW	np	U _N V	I _N A	cos φ	η	J _R kgcm ²	I _S /I _N	M _S /M _N	M _P /M _N	M _B /M _N	R _Ω	U _{SH delta} V DC	U _{SH star} V DC
0.370	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
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	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	8	230	5.54	0.81	0.61	86.0	4.5	1.80	1.70	2.20	6.3	14	-
		400	3.20	0.81	0.61	86.0	4.5	1.80	1.70	2.20	6.3	-	24
	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	6	230	6.93	0.82	0.66	86.0	4.8	2.10	1.90	2.50	4.3	12	-
		400	4.00	0.82	0.66	86.0	4.8	2.10	1.90	2.50	4.3	-	21
	4	230	6.41	0.87	0.67	49.6	5.5	2.20	1.80	2.50	3.6	10	-
400		3.70	0.87	0.67	49.6	5.5	2.20	1.80	2.50	3.6	-	17	
2.200	6	230	9.87	0.80	0.70	86.0	5.0	2.10	1.90	2.50	3.6	14	-
		400	5.70	0.80	0.70	86.0	5.0	2.10	1.90	2.50	3.6	-	25
	4	230	9.01	0.87	0.70	60.0	5.9	2.40	2.30	2.90	3.5	14	-
		400	5.20	0.87	0.70	60.0	5.9	2.40	2.30	2.90	3.5	-	24
2	230	8.83	0.88	0.71	26.0	6.4	2.60	2.30	3.02	3.0	11	-	
	400	5.10	0.88	0.71	26.0	6.4	2.60	2.30	3.02	3.0	-	20	
3.000	4	230	12.12	0.82	0.76	46.9	5.0	2.40	2.30	2.90	1.9	9	-
		400	7.00	0.82	0.76	46.9	5.0	2.40	2.30	2.90	1.9	-	16
	2	230	11.52	0.82	0.80	38.1	6.5	2.60	2.40	3.40	1.6	7	-
400	6.65	0.82	0.80	38.1	6.5	2.60	2.40	3.40	1.6	-	13		



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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	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	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

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 214):

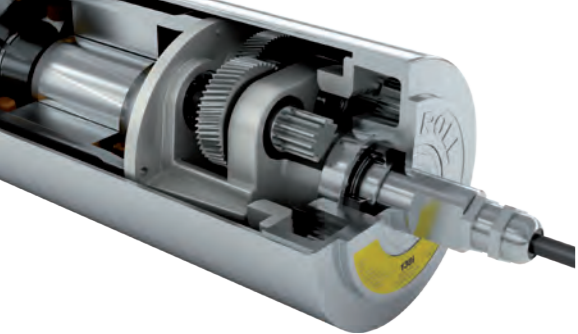
- Standard, screened
- Standard, unscreened
- Halogen-free, screened
- Halogen-free, unscreened

Halogen-free cables are not available for motors with UL certification above 1.5 kW power.

Available length: 1 / 3 / 5 / 10 m

Connection Diagrams

For connection diagrams, see Planning Section on p 222.



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Standard
dimensions

Dimensions

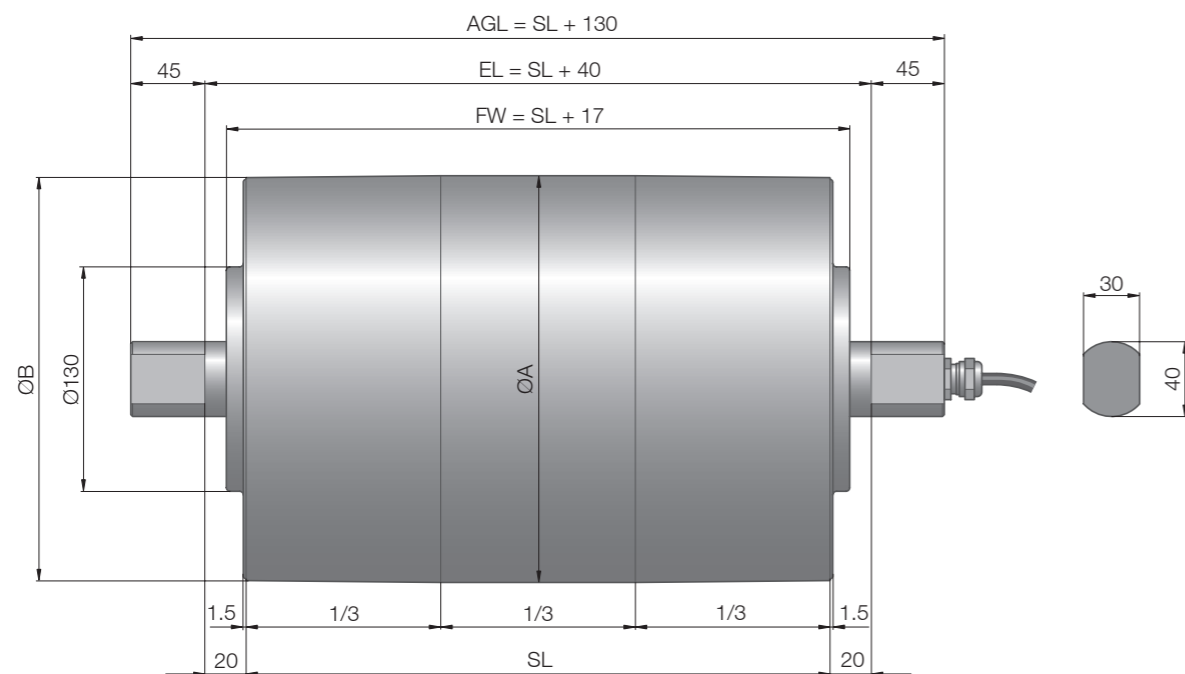


Fig.: Drum motor with straight connector

Type	Ø A mm	Ø B mm
217i crowned shell	217.5	215.5
217i cylindrical shell	215.5	215.5

Connector
dimensions

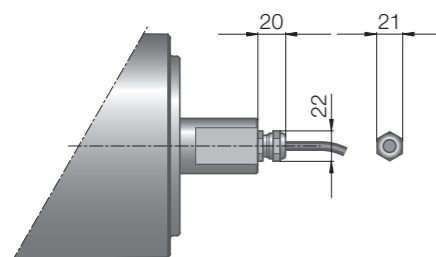


Fig.: Straight connector, brass/nickel

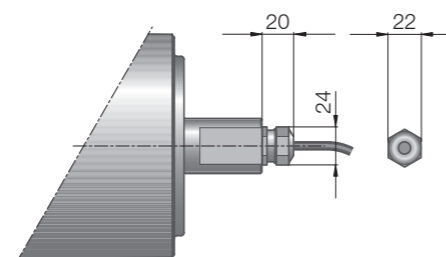


Fig.: Straight connector, stainless steel

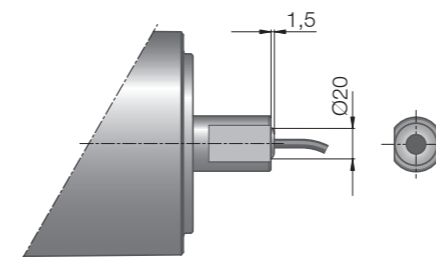


Fig.: Straight cable outlet, PU shaft plug

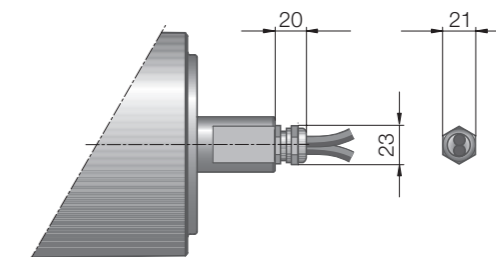


Fig.: Straight connector / Feedback device, brass/nickel

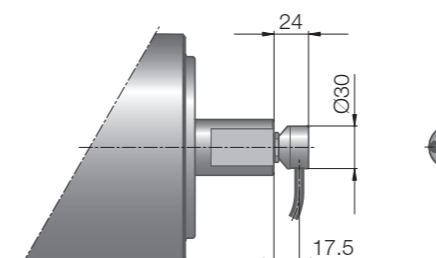


Fig.: Elbow connector, stainless steel

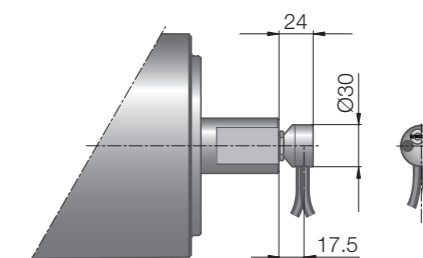


Fig.: Elbow connector / Feedback device, stainless steel

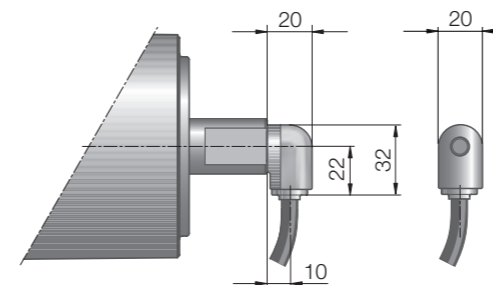


Fig.: Elbow connector, technopolymer

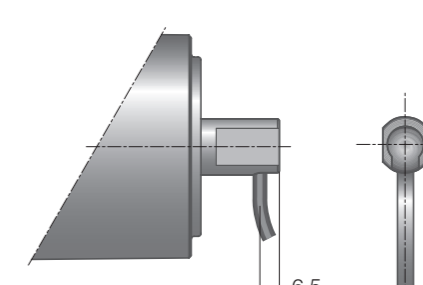
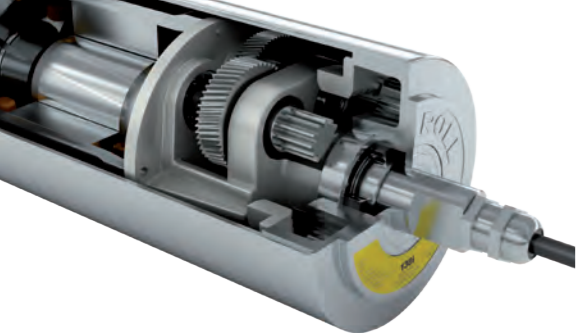


Fig.: Cable slot connector



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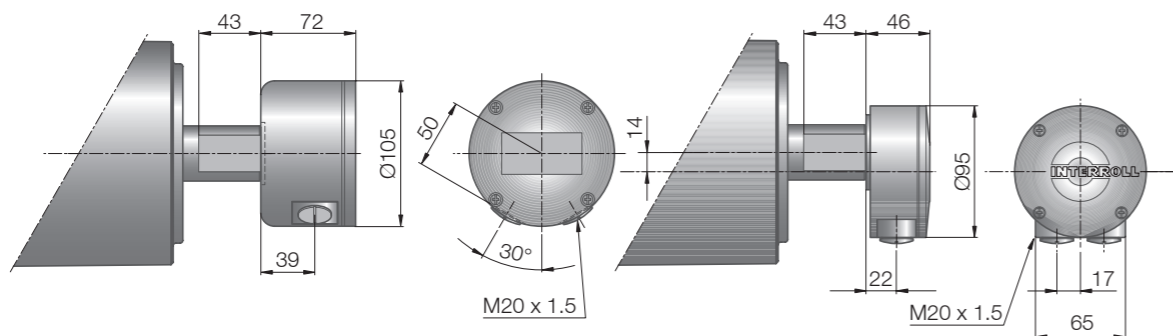


Fig.: Terminal box, technopolymer

Fig.: Terminal box, aluminium

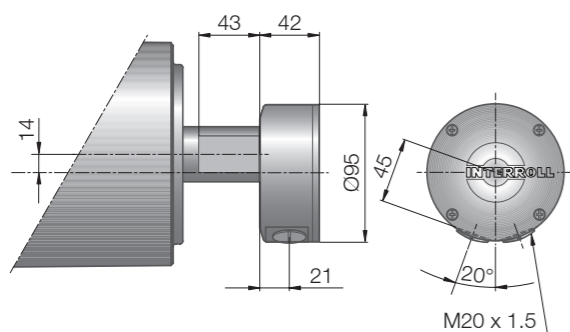


Fig.: Terminal box, stainless steel

Shafts for fixing

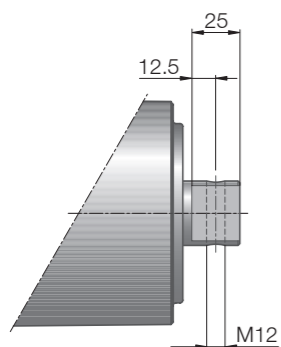


Fig.: Shaft, cross-drilled and threaded

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	46.50	47.80	65.00	70.00	72.00	74.00	76.00	78.00	80.00	82.00	84.00
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	86.00	88.00	99.00	101.20	103.40	105.60	107.80	110.00	112.20	114.40	116.60
Shell length SL in mm	1,500	1,550	1,600	1,650	1,700	1,750					
Average weight in kg	118.80	121.00	123.20	125.40	127.60	129.80					

Min. length with
option

Standard length
and weight