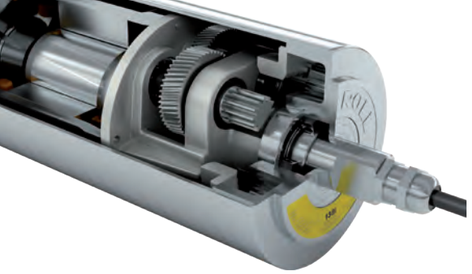


INTERROLL DRUM MOTOR 113i

Power-packed drive for small conveyors with high-duty cycles

Product Description

Applications

This drum motor has been developed especially for applications requiring a strong drive.

- ✓ Small conveyors with high-duty cycles
- ✓ Airport check-in conveyors
- ✓ Packaging equipment
- ✓ Dynamic weighing equipment
- ✓ Metal detectors
- ✓ Pharmaceutical handling
- ✓ 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 850 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	1,400 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		✓	✓		
	Cylindrical + key, for using sprockets		✓	✓		
End housing	Standard	✓		✓		
	With grooves or chain sprockets	✓		✓		
Shaft	Standard		✓	✓		
	Cross-drilled thread, M8		✓	✓		
External seal	Galvanised labyrinth		✓			
	Stainless steel labyrinth			✓		
Electrical connector	Straight connector			✓	✓	
	Elbow connector			✓		✓
	Terminal box	✓		✓		✓

Please contact your Interroll customer consultant for further versions.

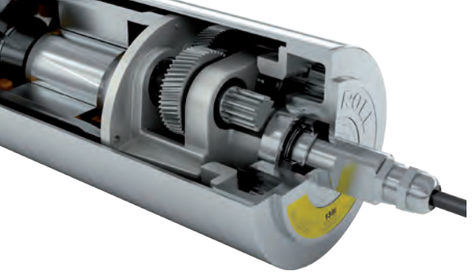
Options

- 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



INTERROLL DRUM MOTOR 113i

Power-packed drive for small conveyors with high-duty cycles

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)

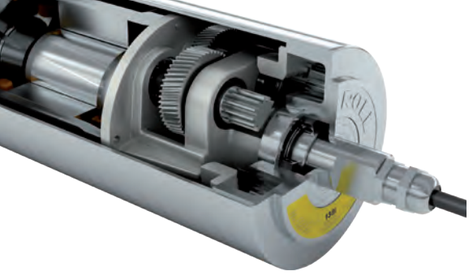
P_N kW	np	gs	i	v m/s	n_A min^{-1}	M_A Nm	F_N N	SL_{min} mm
0.070	12*	3	43.49	0.048	8.1	77.4	1,363	300
			37.05	0.057	9.5	65.9	1,161	300
			31.96	0.066	11.0	56.9	1,002	300
0.080	8	3	43.49	0.093	15.6	45.8	808	250
			37.05	0.109	18.4	39.1	688	250
0.100	6	3	43.49	0.118	19.9	45.0	793	250
			37.05	0.139	23.3	38.4	676	250
0.150	8	3	37.05	0.109	18.3	73.6	1,296	300
	4	3	43.49	0.184	31.0	43.4	764	250
			31.96	0.251	42.2	31.9	562	250
			28.17	0.285	47.9	28.1	495	250
			24.00	0.334	56.2	23.9	422	250
			20.71	0.387	65.2	20.7	364	250
		2	15.17	0.529	89.0	15.4	272	250
			12.92	0.621	104.5	13.2	232	250
			11.15	0.720	121.1	11.4	200	250
0.180	6	3	43.49	0.125	21.0	76.9	1,356	300
			37.05	0.147	24.7	65.6	1,155	300
		2	11.15	0.488	82.1	20.1	355	300
0.225	2	3	43.49	0.386	64.9	31.1	548	250
			31.96	0.525	88.3	22.9	403	250
			28.17	0.595	100.1	20.2	355	250
			24.00	0.699	117.5	17.2	303	250
			20.71	0.810	136.2	14.8	261	250
		2	15.17	1.105	186.0	11.1	195	250
			12.92	1.297	218.3	9.4	166	250
			11.15	1.504	253.0	8.1	143	250
0.300	4	3	43.49	0.188	31.6	85.1	1,500	300
			31.96	0.256	43.1	62.6	1,103	300
			28.17	0.290	48.8	55.2	972	300
			24.00	0.341	57.3	47.0	828	300
			20.71	0.395	66.5	40.5	714	300
		2	15.17	0.539	90.7	30.3	534	300
			12.92	0.633	106.5	25.8	455	300
			11.15	0.733	123.4	22.3	392	300
0.370	4	3	24.00	0.322	54.2	61.4	1,083	300
			20.71	0.373	62.8	53.0	934	300
		2	12.92	0.598	100.7	33.8	595	300
			11.15	0.693	116.7	29.1	513	300
	2	3	43.49	0.387	65.2	51.2	901	300
			31.96	0.527	88.7	37.6	663	300
			28.17	0.598	100.6	33.1	584	300
			24.00	0.702	118.1	28.2	498	300
			20.71	0.814	136.9	24.4	429	300
		2	15.17	1.111	186.9	18.2	321	300
			12.92	1.304	219.4	15.5	273	300
			11.15	1.511	254.3	13.4	236	300

Note: *Not suitable for all applications. Please contact your Interroll customer consultant.

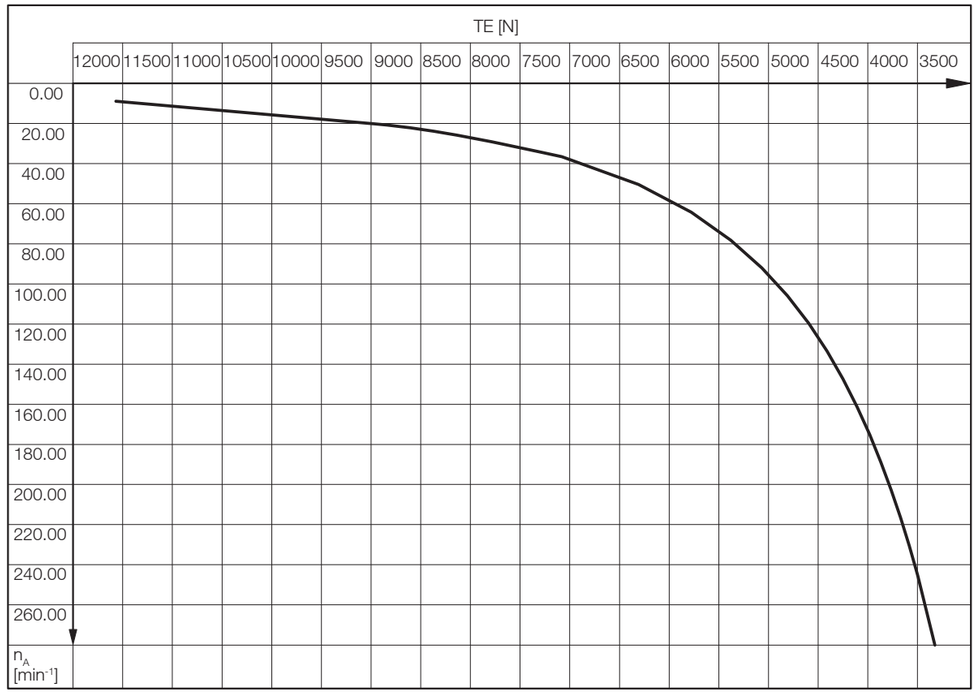
Mechanical data for 3-phase motors (Motors for applications with positive drive belts or no belts)

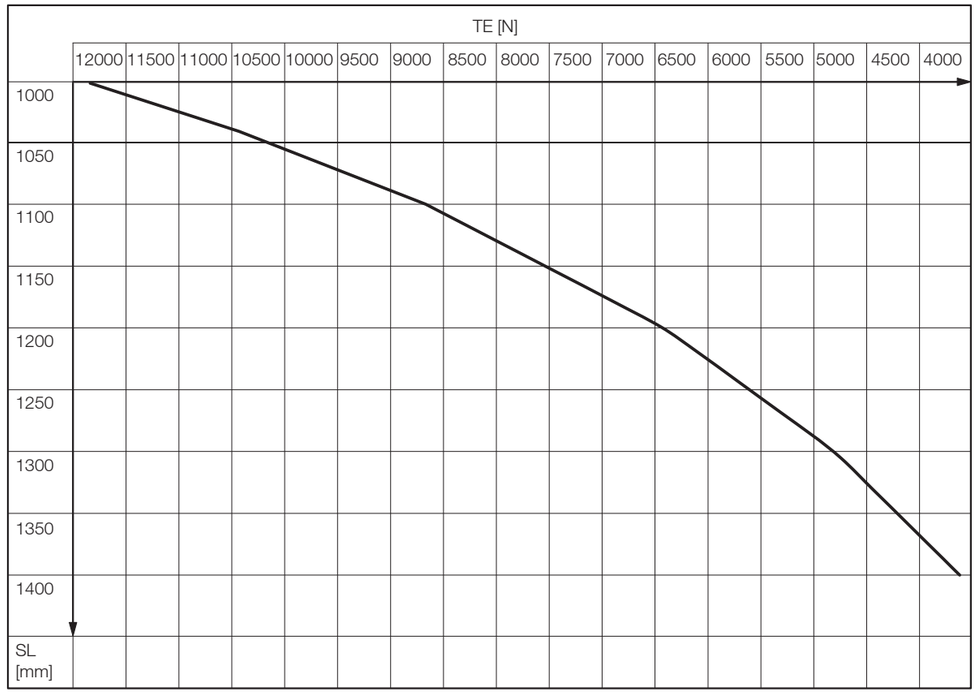
P_N kW	np	gs	i	v m/s	n_A min^{-1}	M_A Nm	F_N N	SL_{min} mm
0.058	12	3	43.49	0.048	8.1	64.2	1,147	300
			31.96	0.065	11.0	47.2	843	300
			28.17	0.073	12.5	41.6	743	300
0.066	8	3	43.49	0.092	15.6	37.9	678	250
			37.05	0.108	18.4	32.3	577	250
0.083	6	3	43.49	0.117	19.9	37.5	669	250
			37.05	0.137	23.3	31.9	570	250
0.124	8	3	37.05	0.107	18.3	60.9	1,088	300
	4	3	43.49	0.183	31.3	35.6	637	250
			31.96	0.250	42.5	26.2	468	250
			28.17	0.283	48.3	23.1	412	250
			24.00	0.332	56.7	19.7	351	250
			20.71	0.385	65.7	17.0	303	250
		2	15.17	0.526	89.7	12.7	227	250
			12.92	0.617	105.2	10.8	193	250
			11.15	0.715	122.0	9.3	167	250
0.149	6	3	43.49	0.123	21.0	63.6	1,136	300
			37.05	0.145	24.7	54.2	968	300
		2	11.15	0.481	82.1	16.7	297	300
0.207	2	3	43.49	0.384	65.5	28.2	504	250
			31.96	0.523	89.2	20.8	371	250
			28.17	0.593	101.2	18.3	327	250
			24.00	0.696	118.8	15.6	278	250
			20.71	0.807	137.6	13.4	240	250
		2	15.17	1.102	187.9	10.1	180	250
			12.92	1.293	220.5	8.6	153	250
			11.15	1.499	255.6	7.4	132	250
0.248	4	3	43.49	0.179	30.6	72.9	1,302	300
			31.96	0.244	41.6	53.6	957	300
			28.17	0.277	47.2	47.2	844	300
			24.00	0.325	55.4	40.3	719	300
			20.71	0.376	64.2	34.7	620	300
		2	15.17	0.514	87.6	26.0	464	300
			12.92	0.603	102.8	22.1	395	300
			11.15	0.699	119.2	19.1	341	300
0.306	4	3	24.00	0.336	57.3	48.0	857	300
			20.71	0.390	66.5	41.4	739	300
		2	15.17	0.532	90.7	30.9	553	300
			12.92	0.624	106.5	26.4	471	300
			11.15	0.724	123.4	22.7	406	300
	2	3	43.49	0.388	66.2	41.5	742	300
			31.96	0.528	90.1	30.5	545	300
			28.17	0.600	102.2	26.9	481	300
			24.00	0.704	120.0	22.9	409	300
			20.71	0.816	139.1	19.8	353	300
		2	15.17	1.113	189.9	14.8	264	300
			12.92	1.307	222.9	12.6	225	300
			11.15	1.515	258.3	10.9	194	300

P_N	Rated power	n_A	Rated revolutions of the drum shell
np	Number of poles	M_A	Rated torque of drum motor
gs	Gear stages	F_N	Rated belt pull of drum motor
i	Gear ratio	SL_{min}	Min. shell length
v	Rated velocity of the shell		



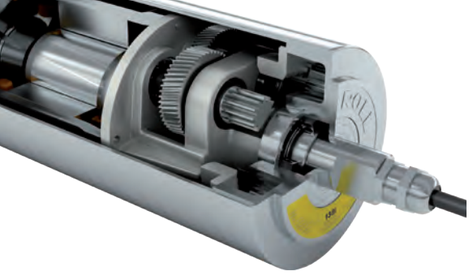
Belt Tension





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 > 1,000 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.

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



INTERROLL DRUM MOTOR 113i

Power-packed drive for small conveyors with high-duty cycles

Electrical data for 3-phase motors (Standard motors)

P_N kW	np	U_N V	I_N A	cos φ	η	J_R kgcm²	I_S/I_N	M_S/M_N	M_P/M_N	M_B/M_N	R_M Ω	$U_{SH\ delta}$ V DC	$U_{SH\ star}$ V DC
0.070	12	230	1.07	0.60	0.27	5.7	2.0	1.00	1.00	1.30	128.0	41	-
		400	0.62	0.60	0.27	5.7	2.0	1.00	1.00	1.30	128.0	-	71
0.080	8	230	0.69	0.60	0.48	3.3	2.2	1.40	1.40	1.60	164.0	34	-
		400	0.40	0.60	0.48	3.3	2.2	1.40	1.40	1.60	164.0	-	59
0.100	6	230	0.80	0.66	0.47	3.3	2.1	1.80	1.80	2.00	111.4	29	-
		400	0.46	0.66	0.47	3.3	2.1	1.80	1.80	2.00	111.4	-	51
0.150	8	230	1.18	0.62	0.51	5.7	2.2	1.35	1.35	1.50	89.0	33	-
		400	0.68	0.62	0.51	5.7	2.2	1.35	1.35	1.50	89.0	-	56
	4	230	0.94	0.71	0.56	2.1	3.2	1.85	1.85	2.15	71.0	24	-
		400	0.54	0.71	0.56	2.1	3.2	1.85	1.85	2.15	71.0	-	41
0.180	6	230	1.39	0.62	0.52	5.7	2.4	2.80	2.80	3.00	42.8	18	-
		400	0.80	0.62	0.52	5.7	2.4	2.80	2.80	3.00	42.8	-	32
0.225	2	230	1.21	0.71	0.65	1.4	4.6	3.50	3.50	3.70	29.6	13	-
		400	0.70	0.71	0.65	1.4	4.6	3.50	3.50	3.70	29.6	-	22
0.300	4	230	1.58	0.79	0.60	3.8	3.2	1.70	1.70	1.90	41.0	26	-
		400	0.91	0.79	0.60	3.8	3.2	1.70	1.70	1.90	41.0	-	44
0.370	4	230	1.91	0.79	0.62	3.8	3.2	2.40	2.20	2.30	26.4	20	-
		400	1.10	0.79	0.62	3.8	3.2	2.40	2.20	2.30	26.4	-	34
	2	230	1.91	0.79	0.62	2.4	6.1	3.65	3.65	3.90	16.5	12	-
		400	1.10	0.79	0.62	2.4	6.1	3.65	3.65	3.90	16.5	-	22

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 φ	η	J_R kgcm²	I_S/I_N	M_S/M_N	M_P/M_N	M_B/M_N	R_M Ω	$U_{SH\ delta}$ V DC	$U_{SH\ star}$ V DC
0.058	12	230	0.91	0.60	0.26	5.7	1.9	1.07	0.91	1.16	144.0	39	-
		400	0.53	0.60	0.26	5.7	1.9	1.07	0.91	1.16	144.0	-	69
0.066	8	230	0.55	0.60	0.50	3.3	2.0	1.57	1.74	1.82	190.0	31	-
		400	0.32	0.60	0.50	3.3	2.0	1.57	1.74	1.82	190.0	-	55
0.083	6	230	0.66	0.63	0.50	3.3	1.9	1.82	1.49	1.74	126.4	26	-
		400	0.38	0.63	0.50	3.3	1.9	1.82	1.49	1.74	126.4	-	45
0.124	8	230	0.97	0.62	0.52	5.7	2.0	2.32	2.05	2.18	97.0	29	-
		400	0.56	0.62	0.52	5.7	2.0	2.32	2.05	2.18	97.0	-	51
	4	230	0.65	0.70	0.67	2.1	2.9	1.57	1.32	1.57	86.0	20	-
		400	0.38	0.70	0.67	2.1	2.9	1.57	1.32	1.57	86.0	-	34
0.149	6	230	1.02	0.62	0.59	5.7	2.2	2.81	2.48	2.64	54.8	17	-
		400	0.59	0.62	0.59	5.7	2.2	2.81	2.48	2.64	54.8	-	30
0.207	2	230	1.10	0.71	0.66	1.4	4.2	2.48	2.31	2.56	36.1	14	-
		400	0.64	0.71	0.66	1.4	4.2	2.48	2.31	2.56	36.1	-	25
0.248	4	230	1.02	0.79	0.77	3.8	2.9	2.23	2.07	2.23	49.8	20	-
		400	0.59	0.79	0.77	3.8	2.9	2.23	2.07	2.23	49.8	-	35
0.306	4	230	1.43	0.78	0.68	3.8	2.9	2.23	2.07	2.23	41.5	23	-
		400	0.83	0.78	0.68	3.8	2.9	2.23	2.07	2.23	41.5	-	40
	2	230	1.41	0.79	0.68	2.4	4.2	2.48	2.31	2.56	20.5	11	-
		400	0.82	0.79	0.68	2.4	4.2	2.48	2.31	2.56	20.5	-	20

P_N	Rated power
np	Number of poles
U_N	Rated voltage
I_N	Rated current
cos φ	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
$U_{SH\ delta}$	Preheating voltage in delta connection
$U_{SH\ star}$	Preheating voltage in star connection

Cable Specifications

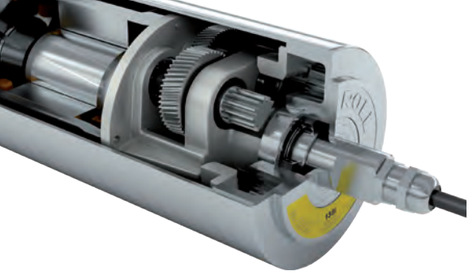
Available cables for connectors (see also p 252):

- 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.



Standard dimensions

Dimensions

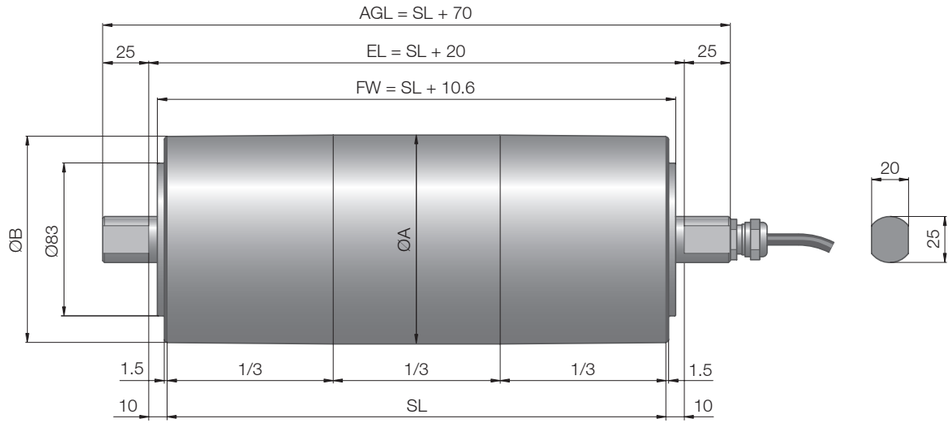


Fig.: Drum motor with straight connector

Type	Ø A mm	Ø B mm
113i crowned shell	113.5	112.0
113i cylindrical shell	112.0	112.0
113i cylindrical shell + key	113.0	113.0

Connector dimensions

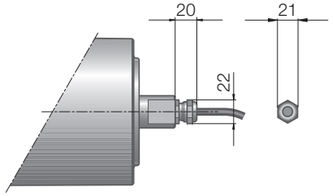


Fig.: Straight connector, brass/nickel

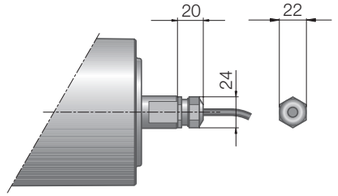


Fig.: Straight connector, stainless steel

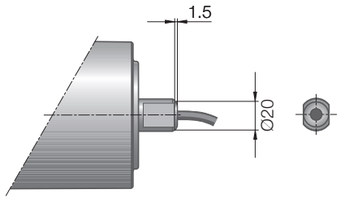


Fig.: Straight cable outlet, PU shaft plug

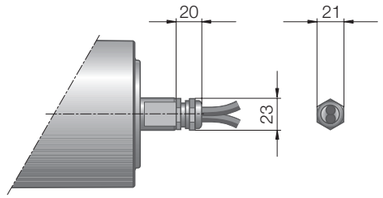


Fig.: Straight connector / Feedback device, brass/nickel

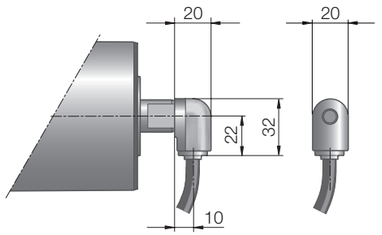


Fig.: Elbow connector, technopolymer

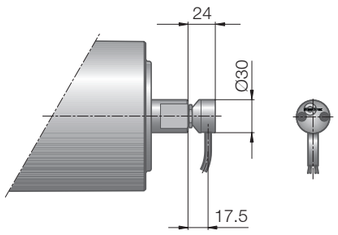


Fig.: Elbow connector, stainless steel

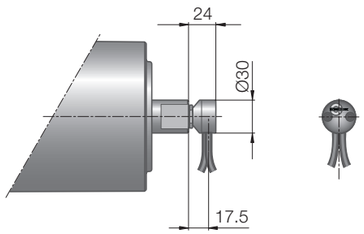


Fig.: Elbow connector / Feedback device, stainless steel

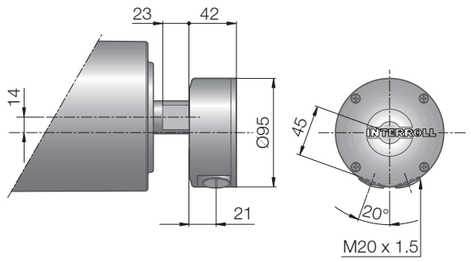


Fig.: Terminal box, stainless steel

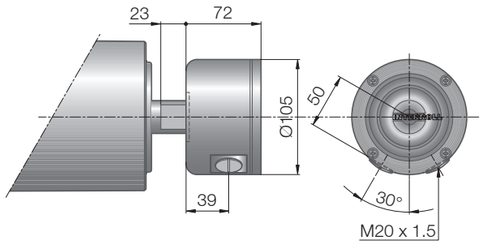


Fig.: Terminal box, technopolymer

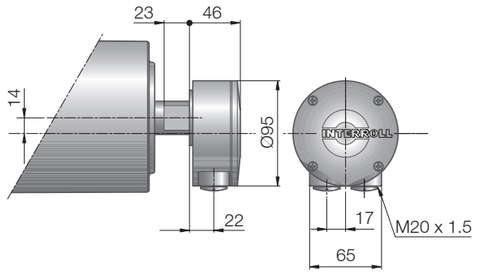
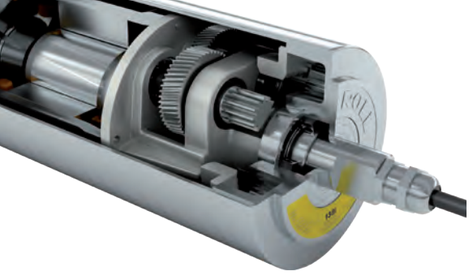


Fig.: Terminal box, aluminium



INTERROLL DRUM MOTOR 113i

Power-packed drive for small conveyors with high-duty cycles

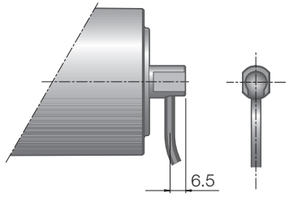


Fig.: Cable slot connector

Shafts for fixing

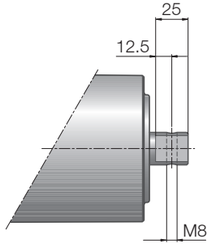


Fig.: Shaft, cross-drilled and threaded

Min. length with option

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 length and weight

Standard drum motor lengths and their weights:

Shell length SL in mm	250	300	350	400	450	500	550	600	650	700	750	800	850
Average weight in kg	8.50	9.15	9.80	10.45	11.10	11.75	12.40	13.05	13.70	14.35	15.0	15.65	17.93
Shell length SL in mm	900	950	1,000	1,050	1,100	1,150	1,200	1,250	1,300	1,350	1,400		
Average weight in kg	18.65	19.36	20.08	20.79	21.51	22.22	22.94	23.65	24.37	25.08	25.80		