



INTERROLL DRUM MOTOR 80D



Standard
Synchronous
Drum Motors
80D

Compact and robust drive for smart belt conveyors with high dynamics

Product Description

Applications The drum motor is perfect for high dynamic applications, food conveyors, smart belt and many servo conveyor belt applications.

- ✓ Small feed conveyors with high-duty cycles
- ✓ High performance packaging conveyors
- ✓ Dynamic weighing equipment
- ✓ Smart belts
- ✓ Pick and place applications
- ✓ Food processing (EHEDG)
- ✓ Dry, wet and wash-down applications

- Characteristics**
- ✓ Stainless steel housings
 - ✓ 3-phase AC synchronous permanent magnet motor
 - ✓ High torque
 - ✓ Integral motor protection
 - ✓ Steel-hardened planetary gear
 - ✓ Wide variable speed range
 - ✓ Maintenance-free
 - ✓ Lifetime lubricated
 - ✓ High efficiency

Note: Synchronous drum motors must be connected to a drive controller and not directly to the mains supply. For sensor-less drive operation use the Interroll IFI-IP55 Frequency inverter. For feedback or positioning applications use a servo-driver.

Technical Data

Electrical data	
Motor type	AC Synchronous permanent magnet motor
Insulation class of motor windings	Class F, IEC 34 (VDE 0530)
Voltage	230/400 V Special voltage on request
Internal shaft sealing system	Double-lipped, FPM
Protection rate	IP69K
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
General technical data	
Max. shell length SL	900 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			
		Mild steel	Stainless steel	Brass / Nickel	Techno-polymer
Shell	Crowned	✓	✓		
	Cylindrical	✓	✓		
	Cylindrical + key, for using sprockets	✓	✓		
End housing	Standard		✓		
Shaft	Standard		✓		
External seal	PTFE				
Electrical connector	Straight connector		✓	✓	
	Straight cable outlet				✓
	Elbow connector		✓		✓

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
- Feedback devices, see p 158
- Food-grade oil (EU, FDA), see p 256
- Low temperature oil, see p 256
- cULus safety certifications, see p 251
- Non-horizontal mounting (more than ± 5°), see p 231

Accessories

- Plummer block bracket, see p 176
- Idler pulleys, see p 178 to p 183
- Conveyor rollers, see p 188
- IFI - IP55 Frequency Inverter, see p 122
- Drive control options, see p 198



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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 200 Hz operation.

Motor versions

Mechanical data for 3-phase motors

P_N kW	np	gs	i	v m/s	n_A min ⁻¹	M_A Nm	F_N N	SL_{min} mm			
0.145	8	3	160	0.080	18.8	59.8	1,468	215			
			120	0.107	25.0	44.9	1,101	215			
			100	0.128	30	41.1	1,008	215			
			80	0.160	37.5	32.9	806	215			
			60	0.213	50.0	24.6	605	215			
			40	0.320	75.0	17.0	417	200			
		2	32	0.400	93.8	13.6	333	200			
			25	0.512	120.0	10.6	261	200			
			20	0.640	150.0	8.5	261	200			
			16	0.800	187.5	6.8	167	200			
			12	1.067	250.0	5.1	125	200			
			8	1.600	375.0	3.5	86	185			
			0.298	8	3	60	0.213	50.0	50.7	1,243	265
						40	0.320	75.0	34.9	857	250
32	0.400	93.8				27.9	685	250			
25	0.512	120.0				21.8	535	250			
2	20	0.640			150.0	17.5	428	250			
	16	0.800			187.5	14.0	343	250			
	12	1.067			250.0	10.5	257	250			
	8	1.600			375.0	7.2	177	235			
0.425	8	2	40	0.320	75.0	49.8	1,222	265			
			32	0.400	93.8	39.8	977	265			
			25	0.512	120.0	31.1	764	265			
			20	0.640	150.0	24.9	611	265			
			16	0.800	187.5	19.9	489	265			
			12	1.067	250.0	14.9	367	265			
		1	8	1.600	375.0	10.3	252	250			

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



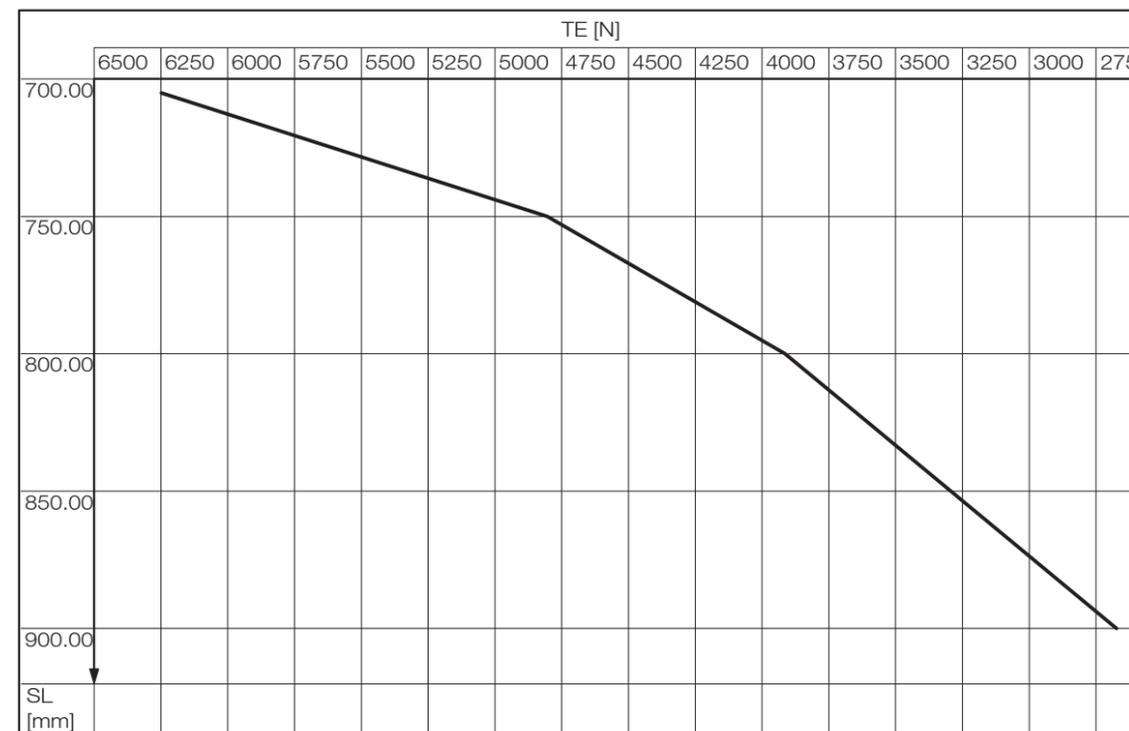
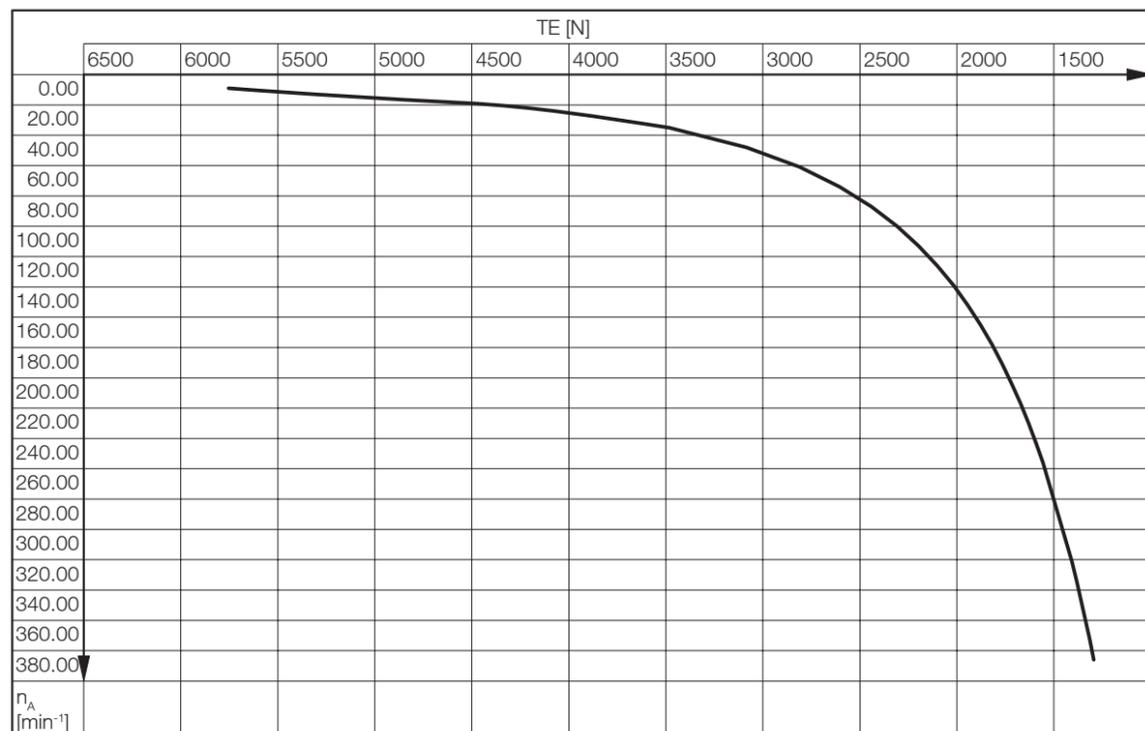
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Belt Tension



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, first find the maximum allowed TE value for the drum motor RPM. For motors with SL > 750 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

P_N kW	U_N V	np	U_L V DC	I_N A	M_N Nm	η	f_N Hz	n_N min ⁻¹	T_e ms	K_E V/krpm	K_{TN} Nm/A	I_0 A	M_0 Nm	I_{MAX} A	M_{MAX} Nm	J_R kgcm ²	R_{M20} Ω	R_{M75} Ω	L_{sd} mH	L_{sq} mH
0.145	400	8	560	0.47	0.46	0.83	200	3,000	4.41	72.23	0.98	0.47	0.46	1.41	1.38	0.1413	62.54	75.95	130.7	138.0
	230	8	325	0.81	0.46	0.85	200	3,000	4.97	41.57	0.57	0.81	0.46	2.43	1.38	0.1413	21.62	26.26	45.60	53.70
0.298	400	8	560	0.78	0.95	0.87	200	3,000	6.48	83.09	1.22	0.78	0.95	2.34	2.85	0.2826	29.06	35.29	81.90	94.10
	230	8	325	1.30	0.95	0.86	200	3,000	5.75	47.46	0.73	1.30	0.95	3.90	2.85	0.2826	10.20	12.39	27.80	29.30
0.425	400	8	560	1.32	1.35	0.86	200	3,000	6.70	80.80	1.02	1.32	1.35	3.96	4.05	0.4239	17.60	21.38	49.80	59.00
	230	8	325	2.30	1.35	0.87	200	3,000	6.86	45.81	0.59	2.30	1.35	6.90	4.05	0.4239	5.66	6.87	16.26	19.42

P_N	Rated power
np	Number of poles
U_N	Rated voltage
U_L	DC link voltage
I_N	Rated current
M_N	Rated torque of rotor
η	Efficiency
f_N	Rated frequency
n_N	Rated speed of rotor
T_e	Electrical time constant
k_e	BEMF (Back Electromotive Force) constant: effective phase to phase
K_{TN}	Torque constant
I_0	Standstill current
M_0	Standstill torque
I_{MAX}	Maximum current
M_{MAX}	Maximum torque
J_R	Rotor moment of inertia
R_{M20}	Phase to phase resistance at 20 °C
R_{M75}	Phase to phase resistance at 75 °C
L_{SD}	d-axis inductance
L_{SQ}	q-axis inductance

Cable Specifications

Available cables for connectors (see also p 252):

- Standard, screened
- Halogen-free, screened

Available length: 1 / 3 / 5 / 10 m

Note: A maximum cable length of 2 m between the motor and the IFI-IP55 should not be exceeded in order to ensure compliance with the EMC Cat C2 requirements.

Connection Diagrams

For connection diagrams, see Planning Section on p 261.



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Standard
dimensions

Dimensions

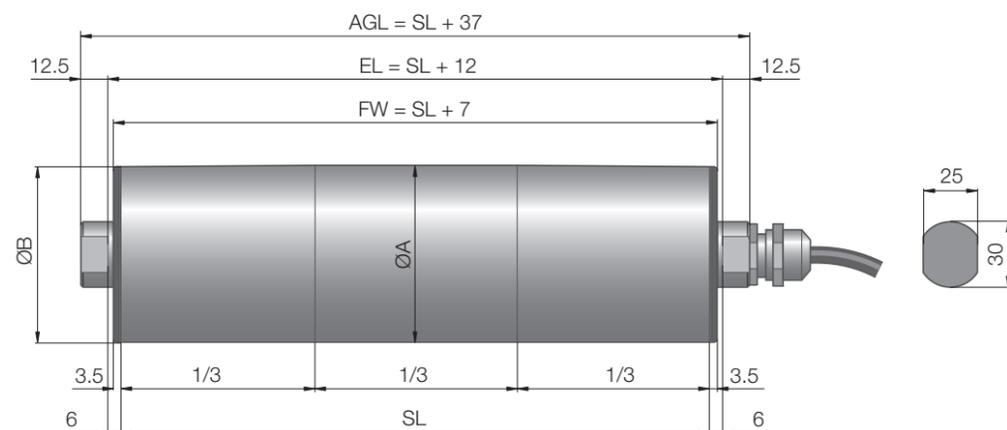


Fig.: Drum motor with straight connector

Type	Ø A mm	Ø B mm
80D crowned shell	81.5	80.5
80D cylindrical shell	81.0	81.0
80D cylindrical shell + key	81.7	81.7

Connector
dimensions

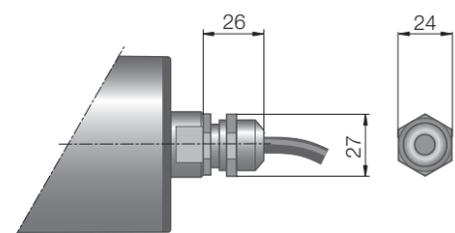


Fig.: Straight connector,
brass/nickel or stainless steel

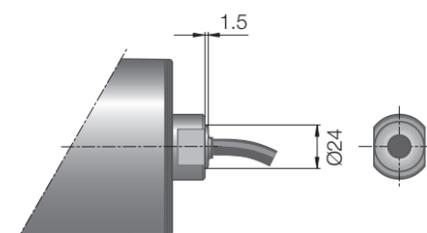


Fig.: Straight cable outlet, PU shaft plug

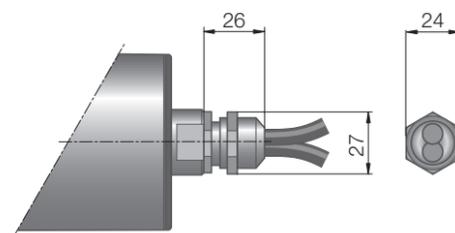


Fig.: Straight connector / Feedback device,
brass/nickel or stainless steel

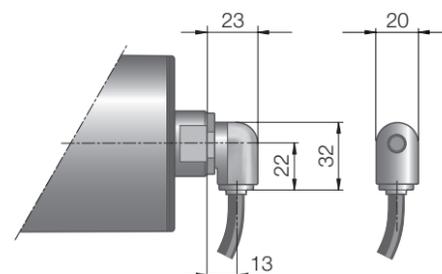


Fig.: Elbow connector, technopolymer

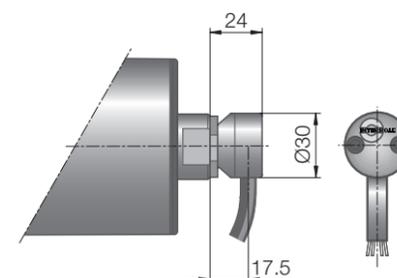


Fig.: Elbow connector, stainless steel

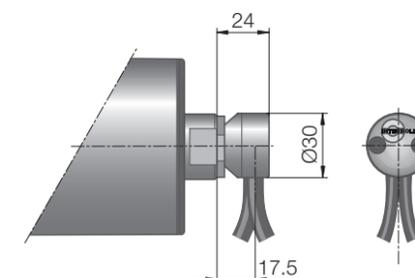


Fig.: Elbow connector / Feedback device,
stainless steel

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

Option	Min. SL with option mm
Feedback device	Min. SL + 50 (SL + 75 for Hiperface feedback option)

Min. length with
option

Standard drum motor lengths and their weights:

Shell length SL in mm	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900
Average weight in kg	6.6	7.0	7.4	7.9	8.7	9.1	9.6	10.0	10.5	10.9	11.4	11.8	12.3	12.7	13.2

Standard length
and weight