



INTERROLL DRUM MOTOR 80D OIL-FREE



Standard
Synchronous
Drum Motors
80D oil-free

Compact and robust drive for smart belt conveyors with high dynamics

Product Description

Applications The oil-free 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 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 207)	Bi-metal switch
Operating modes (see p 194)	S1
Ambient temperature, 3-phase motor (see p 171)	+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		✓		✓
	Straight hygienic connector		✓		

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 belts, see p 116
- Feedback devices, see p 126
- cULus safety certifications, see p 213
- Non-horizontal mounting (more than ± 5°), see p 195
- Reinforced axle see p 88

Accessories

- Plummer block bracket, see p 144
- Idler pulleys, see p 146
- Conveyor rollers, see p 152



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Product Range

The following table gives 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 or 300 Hz operation.

Motor version

Mechanical data for synchronous motor 80D oil-free

P_N	np	gs	i	v	n_A	M_A	F_N	Overload factor	SL_{min}	
kW				m/s	min^{-1}	Nm	N		mm	
0.080	8	1	5	2.560	600.0	1.2	29	3	185	
			8	1.600	375.0	1.9	47	3	185	
		2	12	1.067	250.0	2.8	68	3	200	
			16	0.800	187.5	3.7	90	3	200	
			20	0.640	150.0	4.6	113	3	200	
			25	0.512	120.0	5.8	141	3	200	
			32	0.400	93.8	7.4	181	3	200	
			40	0.320	75.0	9.2	226	3	200	
		3	60	0.213	50.0	13.4	328	3	215	
			80	0.160	37.5	17.8	437	3	215	
			100	0.128	30.0	22.3	546	3	215	
			120	0.107	25.0	24.3	596	3	215	
			160	0.080	18.8	32.4	795	3	215	
			0.110	8	1	5	2.560	600.0	1.7	41
8	1.600	375.0				2.7	65	3	235	
2	12	1.067			250.0	3.9	95	3	250	
	16	0.800			187.5	5.2	126	3	250	
	20	0.640			150.0	6.4	158	3	250	
	25	0.512			120.0	8.1	198	3	250	
	32	0.400			93.8	10.3	253	3	250	
	40	0.320			75.0	12.9	316	3	250	
3	60	0.213			50.0	18.7	459	3	265	
	0.180	1			5	2.560	600.0	2.7	66	3
8					1.600	375.0	4.3	106	3	250
2		12			1.067	250.0	6.3	154	3	265
		16			0.800	187.5	8.4	206	3	265
		20			0.640	150.0	10.5	257	3	265
		25	0.512	120.0	13.1	322	3	265		
		32	0.400	93.8	16.8	412	3	265		
		40	0.320	75.0	21.0	515	3	265		
0.450		8	1	8	2.400	562.5	7.3	178	3	250
				12	1.600	375.0	10.5	259	3	265
			2	16	1.200	281.3	14.1	345	3	265
				20	0.960	225.0	17.6	431	3	265
				25	0.768	180.0	22.0	539	3	265
				32	0.600	140.6	28.1	690	3	265
	40			0.480	112.5	35.1	862	2.7	265	

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

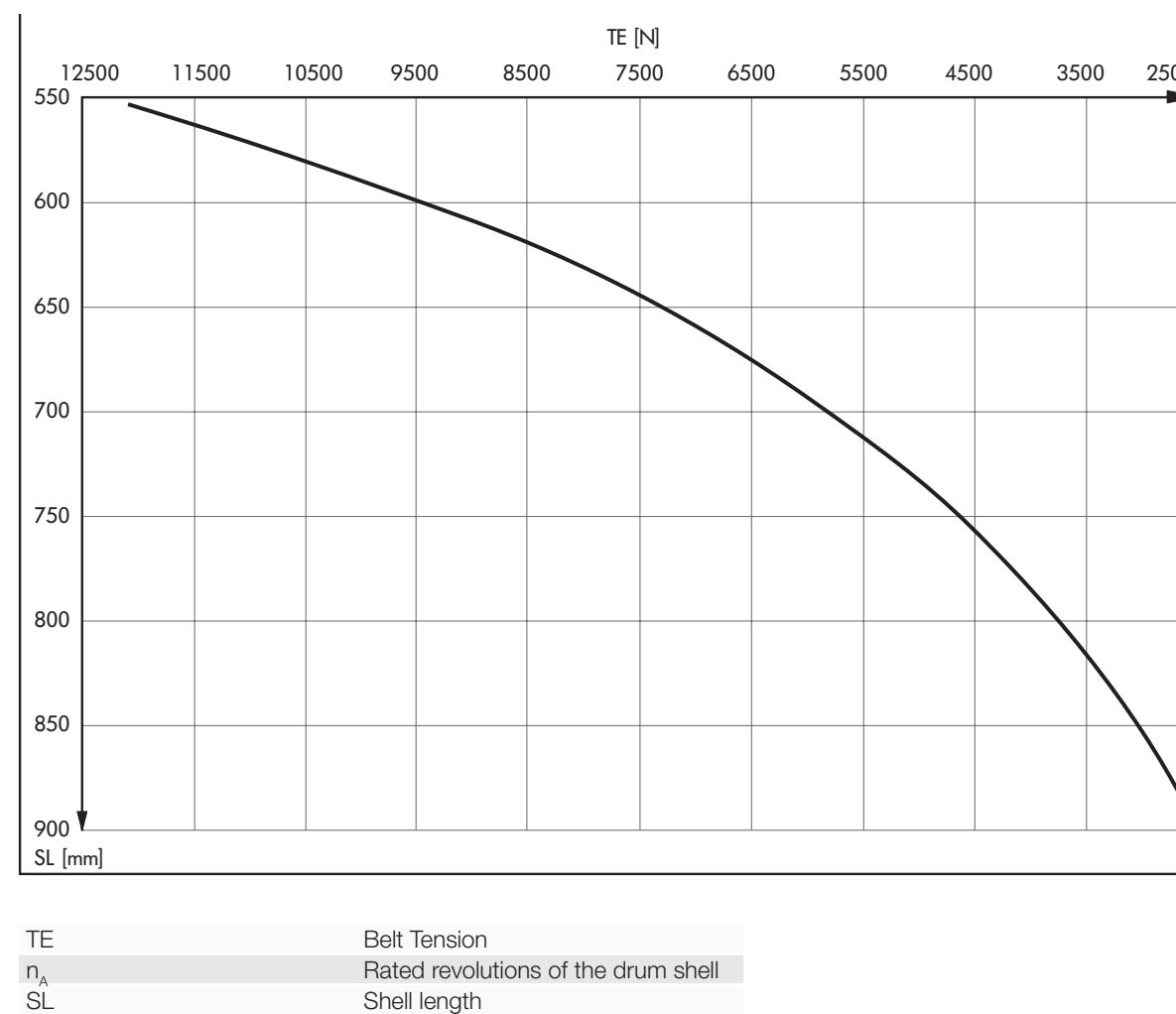
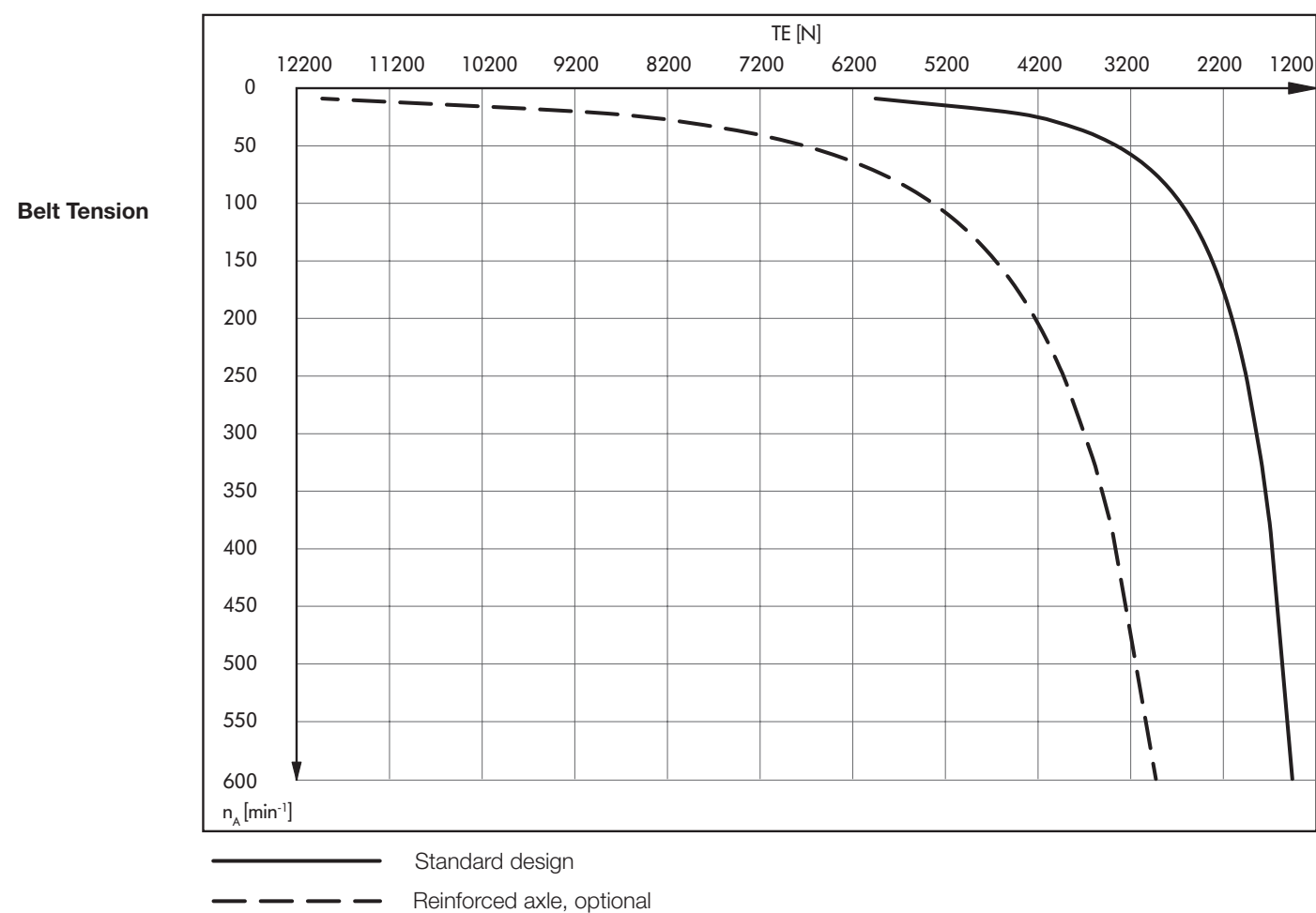


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Note: To get the right value of the maximum allowed belt tension, first find the maximum allowed TE value for the drum motor RPM. For motors with SL > 750 mm, check if the maximum allowed TE value for the SL is lower. In this case, use the lower value as maximum allowed TE value.



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Electrical data for for synchronous motor 80D oil-free

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
0.080	400	8	560	0.26	0.25	0.83	200	3000	4.41	72.23	0.98	0.26	0.25	0.78	0.76	0.1413	62.54	75.95	130.70	138.0
	230	8	325	0.45	0.25	0.85	200	3000	4.97	41.57	0.57	0.45	0.25	1.34	0.76	0.1413	21.62	26.26	45.60	53.70
0.110	400	8	560	0.29	0.35	0.87	200	3000	6.48	83.09	1.22	0.29	0.35	0.86	1.05	0.2826	29.06	35.29	81.90	94.10
	230	8	325	0.48	0.35	0.86	200	3000	5.75	47.46	0.73	0.48	0.35	1.44	1.05	0.2826	10.20	12.39	27.80	29.30
0.180	400	8	560	0.56	0.57	0.86	200	3000	6.70	80.80	1.02	0.56	0.57	1.69	1.72	0.4239	17.60	21.38	49.80	59.0
	230	8	325	1.97	0.57	0.87	200	3000	6.86	45.81	0.59	0.97	0.57	2.91	1.72	0.4239	5.66	6.87	16.26	19.42
0.450	400	8	560	1.62	0.95	0.87	300	4500	6.86	45.81	0.59	1.62	0.95	4.86	2.86	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 214):

- Standard, screened
- Halogen-free, screened

Available length: 1 / 3 / 5 / 10 m

Connection Diagrams

For connection diagrams, see Planning Section on p 225.



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Standard
dimensions

Dimensions

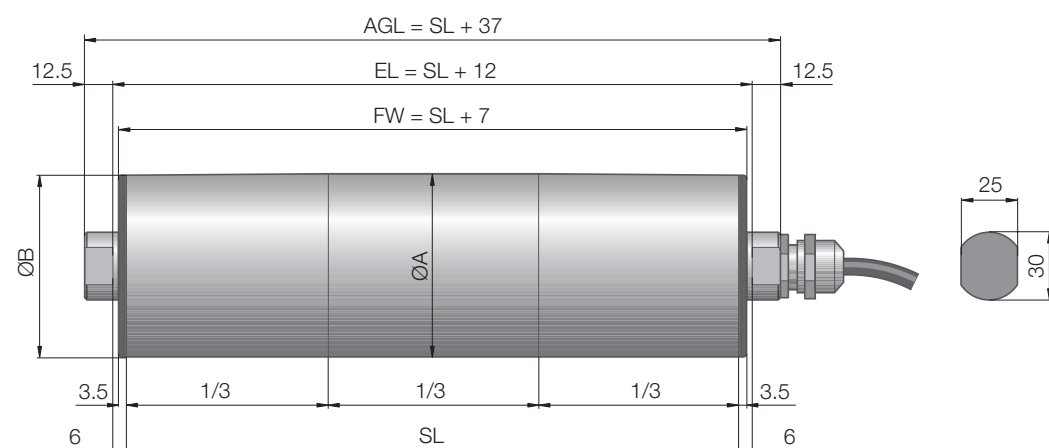


Fig.: Drum motor with straight connector

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

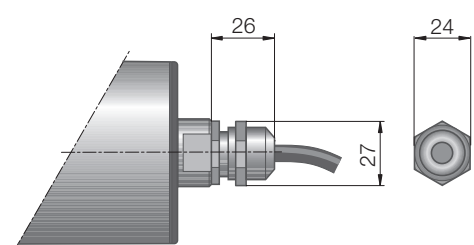


Fig.: Straight connector,
brass/nickel or stainless steel

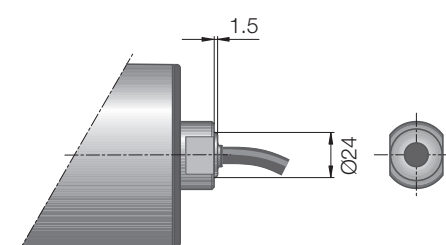


Fig.: Straight cable outlet, PU shaft plug

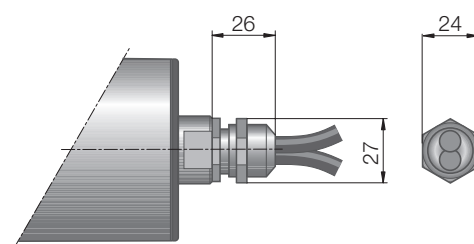


Fig.: Straight connector / Feedback device,
brass/nickel or stainless steel

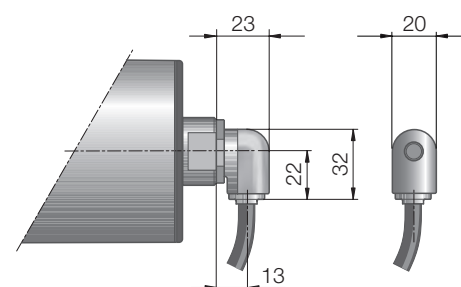


Fig.: Elbow connector, technopolymer

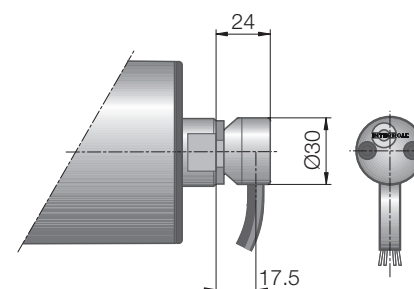


Fig.: Elbow connector, stainless steel

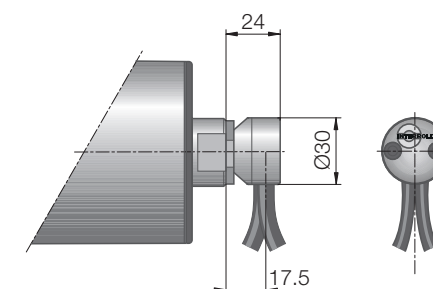


Fig.: Elbow connector / Feedback device,
stainless steel

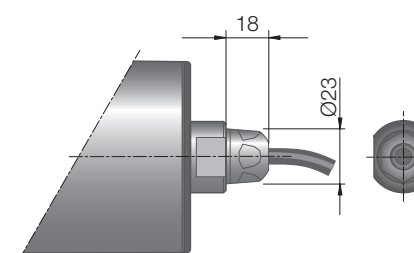


Fig.: Straight hygienic connector, IP69k stainless
steel

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

Option	Min. SL with option mm
Feedback device	Min. SL + 75 (SL + 90 for Hiperface feedback option)
Reinforced axle	Min. SL + 90

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