



# 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

## 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 <sub>N</sub> kW	np	gs	i	v m/s	n <sub>A</sub> min <sup>-1</sup>	M <sub>A</sub> Nm	F <sub>N</sub> N	SL <sub>min</sub> 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		
	0.550	6	3	62.37	0.189	22.0	158.5	1,933	400			
				4	3	46.56	0.254	29.5	118.3	1,443	400	
				2	3	39.31	0.300	35.0	99.9	1,218	400	
			4	3	31.56	0.374	43.6	80.2	978	400		
			2	3	24.60	0.480	55.9	62.5	762	400		
			2	3	19.64	0.601	70.0	50.9	621	400		
		0.750	6	3	14.66	0.806	93.8	38.0	464	400		
					4	3	12.38	0.954	111.1	32.1	391	400
					2	3	62.37	0.116	13.5	365.2	4,453	400
4				3	46.56	0.156	18.1	272.6	3,324	400		
2				3	46.56	0.156	18.1	371.6	4,532	450		
2				3	62.37	0.187	21.7	310.6	3,787	400		
1.100	4		3	46.56	0.250	29.1	231.8	2,827	400			
				2	3	39.31	0.296	34.5	195.7	2,387	400	
				2	3	31.56	0.369	42.9	157.1	1,916	400	
			2	3	24.60	0.473	55.1	122.5	1,494	400		
			2	3	19.64	0.593	69.0	99.8	1,217	400		
			2	3	14.66	0.794	92.4	74.5	908	400		
	1.500	4	3	12.38	0.940	109.5	62.9	767	400			
				2	3	46.56	0.243	28.4	348.8	4,254	400	
				2	3	39.31	0.288	33.6	294.5	3,591	400	
			2	3	31.56	0.359	41.8	236.4	2,883	400		
			2	3	24.60	0.461	53.7	184.3	2,248	400		
			2	3	19.64	0.577	67.2	150.1	1,831	400		
2.200		2	3	14.66	0.773	90.1	112.1	1,366	400			
				2	3	12.38	0.916	106.7	94.6	1,154	400	
				2	3	46.56	0.525	61.1	161.7	1,972	400	
			2	3	39.31	0.621	72.4	136.5	1,665	400		
			2	3	24.60	0.993	115.7	85.4	1,042	400		
			2	3	19.64	1.244	144.9	69.6	849	400		
	2.200	2	3	14.66	1.667	194.1	51.9	633	400			
				2	3	12.38	1.974	229.9	43.9	535	400	
				2	3	9.65	2.532	294.8	34.2	417	400	
			2	3	31.56	0.379	44.1	305.3	3,723	450		
			2	3	24.60	0.486	56.6	238.0	2,903	450		
			2	3	19.64	0.609	70.9	193.9	2,364	450		
2.200		2	3	14.66	0.816	95.0	144.7	1,765	450			
				2	3	12.38	0.967	112.6	122.2	1,490	450	
				2	3	46.56	0.524	61.0	324.3	3,954	450	
			2	3	39.31	0.620	72.2	273.8	3,339	450		
			2	3	31.56	0.773	90.0	219.8	2,680	450		
			2	3	24.60	0.991	115.4	171.3	2,089	450		
	2.200	2	3	19.64	1.242	144.6	139.6	1,702	450			
				2	3	14.66	1.664	193.8	104.2	1,270	450	
				2	3	12.38	1.971	229.5	87.9	1,073	450	
			2	3	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 <sub>N</sub> kW	np	gs	i	v m/s	n <sub>A</sub> min <sup>-1</sup>	M <sub>A</sub> Nm	F <sub>N</sub> N	SL <sub>min</sub> 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	
			2	3	46.56	0.251	29.6	188.3	2,325	400	
		2	3	39.31	0.297	35.1	159.0	1,963	400		
		2	3	31.56	0.370	43.7	127.6	1,576	400		
		2	3	24.60	0.475	56.0	99.5	1,228	400		
	0.909	4	3	19.64	0.595	70.2	81.0	1,000	400		
				2	3	14.66	0.797	94.0	60.5	747	400
				2	3	12.38	0.945	111.4	51.1	630	400
			2	3	46.56	0.240	28.4	288.2	3,558	400	
			2	3	39.31	0.285	33.6	243.3	3,004	400	
			2	3	31.56	0.355	41.8	195.3	2,411	400	
1.240		4	3	24.60	0.455	53.7	152.3	1,880	400		
				2	3	19.64	0.570	67.2	124.0	1,531	400
				2	3	14.66	0.764	90.1	92.6	1,143	400
			2	3	12.38	0.905	106.7	78.2	965	400	
			2	3	46.56	0.521	61.4	133.0	1,642	400	
			2	3	39.31	0.617	72.8	112.3	1,386	400	
	1.818	2	3	24.60	0.986	116.3	70.3	868	400		
				2	3	19.64	1.235	145.6	57.2	707	400
				2	3	14.66	1.655	195.1	42.7	527	400
			2	3	12.38	1.960	231.1	36.1	445	400	
			2	3	9.65	2.514	296.4	28.1	347	400	
			2	3	31.56	0.374	44.1	252.5	3,117	450	
1.818		2	3	24.60	0.480	56.6	196.8	2,430	450		
				2	3	19.64	0.602	70.9	160.3	1,979	450
				2	3	14.66	0.806	95.0	119.7	1,477	450
			2	3	12.38	0.955	112.6	101.0	1,247	450	
			2	3	46.56	0.519	61.2	267.0	3,296	450	
			2	3	39.31	0.615	72.5	225.4	2,783	450	
	1.818	2	3	31.56	0.766	90.3	180.9	2,234	450		
				2	3	24.60	0.983	115.9	141.1	1,741	450
				2	3	19.64	1.231	145.1	114.9	1,418	450
			2	3	14.66	1.649	194.4	85.8	1,059	450	
			2	3	12.38	1.953	230.3	72.4	894	450	
			2	3	9.65	2.505	295.3	56.5	697	450	

P <sub>N</sub>	Rated power
np	Number of poles
gs	Gear stages
i	Gear ratio
v	Rated velocity of the shell
n <sub>A</sub>	Rated revolutions of the drum shell
M <sub>A</sub>	Rated torque of drum motor
F <sub>N</sub>	Rated belt pull of drum motor
SL <sub>min</sub>	Min. shell length



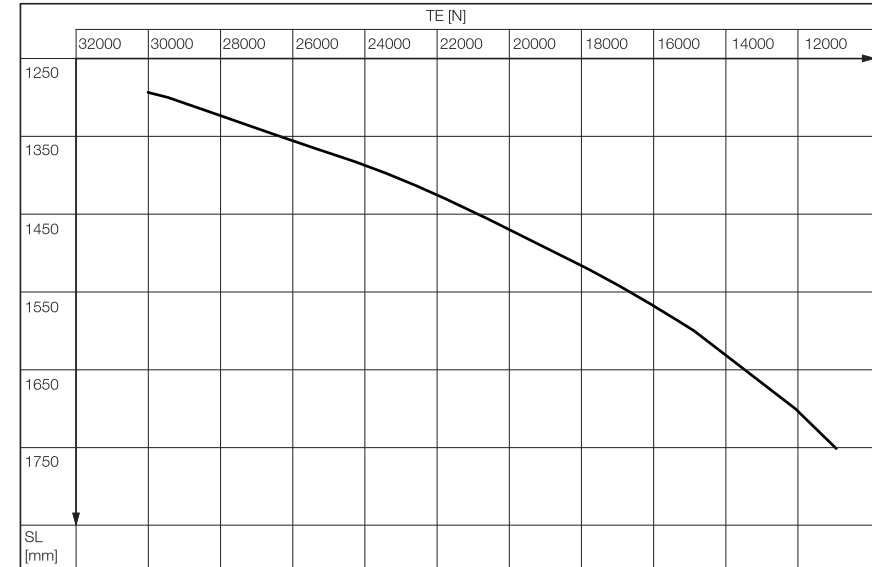
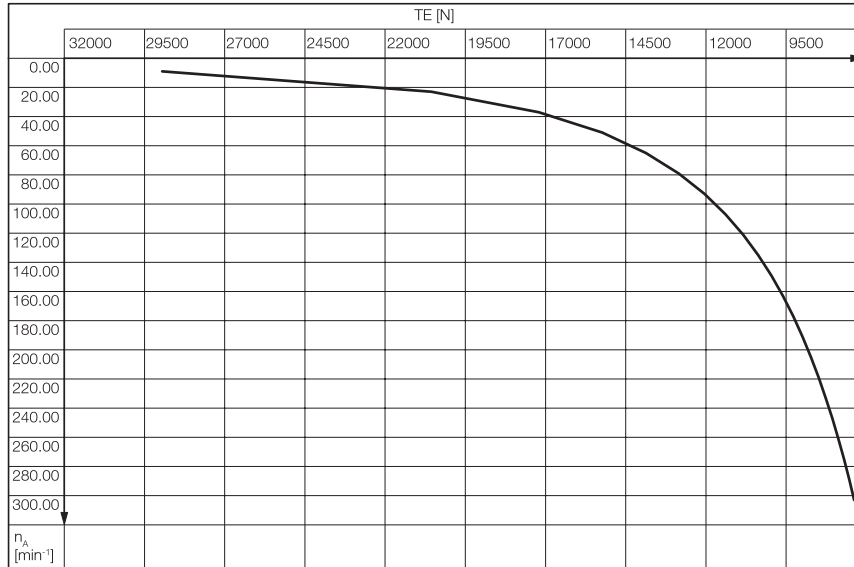
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## Belt Tension



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 > 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 $\varphi$	$\eta$	$J_R$ kgcm <sup>2</sup>	$I_S/I_N$	$M_S/M_N$	$M_P/M_N$	$M_B/M_N$	$R_M$ $\Omega$	$U_{SH\ delta}$ V DC	$U_{SH\ star}$ 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 $\varphi$	$\eta$	$J_R$ kgcm <sup>2</sup>	$I_S/I_N$	$M_S/M_N$	$M_P/M_N$	$M_B/M_N$	$R_M$ $\Omega$	$U_{SH\ delta}$ V DC	$U_{SH\ star}$ 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
$\eta$	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.



