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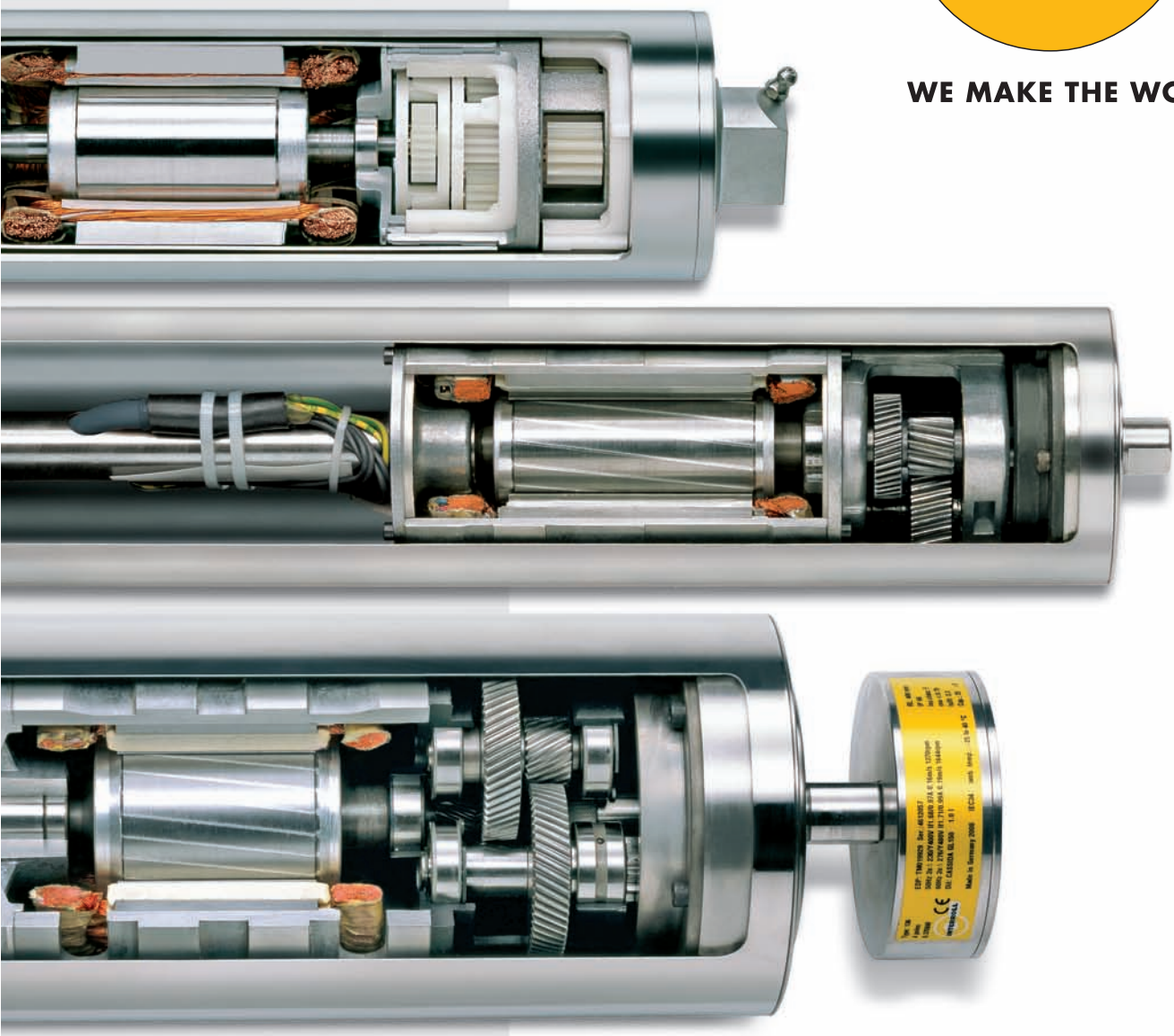

DRUM MOTORS

WWW.INTERROLL.COM

INTERROLL CORPORATE ART

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Options Overview

Specifications	Drum Motor Type													
	80s		113s		80i		113i		138i		165i		216i	
	1 phase	3 phase	1 phase	3 phase	1 phase	3 phase	1 phase	3 phase	1 phase	3 phase	1 phase	3 phase	1 phase	3 phase
Shaft														
Mild steel	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
Total Stainless steel (TS)	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Shell														
Mild steel crowned	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
Stainless steel (TS) crowned	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mild steel or Stainless steel (TS) cylindrical	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Black, white or blue rubber lagging		o		o	o	o	o	o	o	o	o	o	o	o
White or blue food quality lagging oil and fat resistant Lagging not available for 113s 0.33 kW		o		o	o	o	o	o	o	o	o	o	o	o
Non-slip friction tape - type 3M - on centre of shell - 100 mm	X	X	X	X										
Profiled lagging for Modular Belting					o	o	o	o	o	o	o	o	o	o
Sprockets for Modular Belting		o		o	o	o	o	o	o	o	o	o	o	o
V-grooves in the rubber lagging		o		o	o	o	o	o	o	o	o	o	o	o
Special crowns and grooves in shell	o	o	o	o	o	o	o	o	o	o	o	o	o	o
End housings														
Aluminium	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
Aliminium with stainless steel covers (TS)	X	X	X	X										
Solid stainless steel machined (TS)					X	X	X	X	X	X	X	X	X	X
End housings with grooves or chain sprockets					o	o	o	o	o	o	o	o	o	o
Electrical motors														
Asynchronous 3 phase (DIN IEC 34 & IEC 38)		Std.		Std.		Std.		Std.		Std.		Std.		Std.
Single phase motors	X max. 0,11 kW		X max. 0.11 kW		X max. 0,08 kW		X max. 0.25 kW		X max. 0.74 kW		X max. 0.60 kW		X max. 0.60 kW	
Special voltages	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Insulation class F	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
De-rated motor for modular or no belt application		o		o		X		X		X		X		X
Dual voltage connection (star/delta) 230/400 V 50 Hz				X		Std.		Std.		Std.		Std.		Std.
UL/Canadian Standards recognized motors	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Oil cooled	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
Thermal protector	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
Food grade oil & grease (FDA and USDA) (standard with TS)	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Electrical connection														
IP 66/67 powder coated food approved terminal box	X	X	X	X	o	o	X	X	X	X	X	X	X	X
IP 66/67 stainless steel terminal box	X	X	X	X	o	o	X	X	X	X	X	X	X	X
IP 66/67 with straight or elbow connector	Std.	Std.	Std.	Std	Std.	Std.	Std.	Std.	X	X	X	X	X	X
IP 66/67 with straight or elbow connector in stainless steel					X	X	X	X	X	X	X	X	X	X
IP 66/67 aluminum terminal box	X	X	X	X	o	o	X	X	Std.	Std.	Std.	Std.	Std.	Std.
Extension cables + connector when > 3050 mm	X	X	X	X										
Screened cable	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Halogen free cable	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Other options														
Electromagnetic brake (minimum RL increases by 50 mm) *					X	X	X	X	X	X	X	X	X	X
Mechanical backstop	X	X			X	X	X	X	X	X	X	X	X	X
Modified for vertical or angled mounting	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Operation with Frequency control		Std.		Std.		Std.		Std.		Std.		Std.		Std.
Integrated encoder (minimum RL dimension increases by 50 mm) *					X	X	X	X	X	X	X	X	X	X
Degree of protection IP 66/67	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
Dynamic balancing					X	X	X	X	X	X	X	X	X	X

Note! *Combined brake and encoder is not possible.

X = Optional extras
Std. = Fitted as standard
o = Available as option with some limitations
Please consult Interroll

The Key to Efficient Material Handling

The issue of material flow, and especially of unit handling, is of vital importance within today's fast-paced business environment.

To give its customers competitive advantages, Interroll has made it one of its core competences to design and innovate, develop and produce components for conveyor and logistical systems.

Worldwide the products of the Interroll Group play a pivotal role in helping companies meet the new challenges of unit handling. A well diversified range of Interroll Drum Motors offers engineers and technicians the means of solving virtually any unit handling problem. Be it in the field of food processing and distribution, airport technology, mail and parcel distribution, in the automotive supply chain etc.

Because the best solutions always result from close cooperation, Interroll´s Business Unit "Drives and Rollers" is fully committed to its customers and their needs. This is why Interroll has been able to gain the trust of a demanding clientele worldwide.

Built extremely compact and totally enclosed, our drum motors are considered among the most reliable worldwide combining top performance with low purchasing, installation and maintenance costs.

Interroll Drum Motors, unique in concept and design, are cutting-edge solutions which contribute to the overall efficiency and quality of customer applications in unit handling throughout the world.

Established in 1959 and listed on the Swiss Stock Exchange SWX, the Interroll Group employs some 1100 people at around 25 enterprises worldwide. Directed by a strategic holding company located in Sant'Antonino, Switzerland, the Group operates with three global business units.

Interroll Drives and Rollers.
A Business Unit of the
Interroll Worldwide Group.

www.interroll.com
www.interroll.com/drummotors

General Description of the Interroll Drum Motor

The Interroll Drum Motor was first produced in 1953 specifically for conveyor belt applications.

The aim was to produce an extremely compact, totally enclosed and highly efficient belt conveyor drive that would be unaffected by dust, water, oil, grease or other harmful substances – which would be quick and simple to install and require virtually no maintenance.

These aims were achieved and today the modern Interroll Drum Motor is considered to be one of the most reliable and effective belt conveyor drives available throughout the world.

Interroll provides a lot of solutions e.g. rubber lagging, built-in encoder, electromagnetic brake, or drum motors running together with frequency converters. The Interroll Drum Motor is in simplistic terms a highly efficient geared motor drive, which is totally enclosed in a cylindrical steel tube, referred to as the “shell”.

The shell, which is normally crowned to ensure central belt tracking, is fitted with bearing housings incorporating precision bearings, oil seals and it rotates on a shaft.

The motor stator is fixed to the shaft or shafts and the power cable passes through one end of the shaft or shafts, eliminating the need for slip rings and brushes.

The squirrel cage AC motors are manufactured in laminated steel is machined concentric to high tolerances and designed to give typically more than 200% starting torque for 3-phase versions. The rotor pinion is coupled directly to the gearbox.

The gearbox transmits the drive directly to the shell bearing housing through a geared rim and provides high efficiency from the electrical motor to the surface of the shell with minimal frictional losses. The Interroll Drum Motor is lubricated and cooled by oil whereby the heat is dissipated through the shell and conveyor belt.

The standard Interroll Drum Motor is provided with:

- Machined mild steel crowned shell. Die cast aluminium end housings.
- AC Electric motor according to IEC 34 (VDE 0530).
- Class F insulation according to IEC 34 (VDE 0530).
  Integrated thermal control.
- Most international voltages.
- Factory oil filled, run and tested.
- IP 66 (EN 60034-5) totally enclosed protection.
- Conformity with CE directive 2006/95/EC relating to electrical equipment.
- Optional UL/cUL approval for USA and Canada.

Benefits of Interroll Drum Motors

If you want to be the leader of the pack in your market, you need to be sure you can count on your partners, day and night, for solutions beyond the obvious as well as unmatched quality and service. This is synonymous with Interroll and its diversified range of drum motors, which are designed to tackle even the most difficult applications in material handling.

Interroll Drum Motors, unique in concept and design, produce cutting-edge solutions, which will raise the overall efficiency and reliability of customer applications in materials handling the world over.

At the heart of the conveyor
Interroll Drum Motors have been specifically designed for belt conveyors and associated material handling equipment. This means that we take the worry and hard work out of your drive system, leaving you to do what you do best, designing the best conveyor for the application. But it doesn't stop there. We have over 50 years experience in the food processing industry and other extremely demanding industrial applications which we are happy to share with you. There is no doubt about it; the Interroll drive provides a quick and easy way of building maintenance-free, hygienic and energy-efficient belt conveyors. What more could you ask?

Ease of installation saves time and money
With fewer installation parts, Interroll Drum Motors are much quicker and easier to install than conventional drive systems, requiring less than a quarter of the time needed to fit a multi-component drive. Fewer parts mean cost reduction for conveyor design and purchasing of parts.

Built to withstand the worst conditions
With the entire drive mechanism totally enclosed in a steel shell sealed to IP 66 standards, Interroll Drum Motors will keep operating at 100 % even in harmful environmental conditions such as water, dust, grit, chemicals, grease, oil and even during high pressure wash-down procedures.

Hygienic Design
Tests have identified conventional external geared motor systems as being the main source of contamination in food processing. Interroll Drum Motors, however, substantially reduce this risk due to the smooth, profiled, stainless steel finish, hermetically sealed and totally enclosed design.

At least 32 % more energy efficient
Independent test results showed Interroll Drum Motors used 32 % less energy (unloaded) and 47 % less energy (loaded) than a comparable geared motor drive thus helping to reduce the global carbon footprint.

Higher output
Interroll Drum Motors have a much higher efficiency than conventional drives used in the material handling industry, which normally transfer approximately 75 % of their mechanical efficiency to the belt, compared to the Interroll drive which transfers up to 97 %.

Space-saving design
Because the motor, gearbox and bearings are mounted within the drum shell, the drum motor takes up much less space than conventional drives such as gear motors. No need for costly extras like chains, v-belts, couplings, bearings, support structures and special guarding.

Safe and sound working environment
An Interroll Drum Motor enhances the safety of your working environment. As a self-contained component without protruding parts and with fixed external shafts, it is probably the safest drive unit available for state-of-the-art material handling equipment. The only moving parts are the drum shell and bearing housings. What is more, our new drum motors incorporating durable high grade polished steel gears, reduce previous sound levels by 18 % and are therefore quieter than many other drives found in the market today.

Maintenance-free operation
End-users benefit from an Interroll Drum Motor because it requires absolutely no maintenance. The sealed-for-life drum motor design ensures trouble-free conveying of foodstuffs, unit loads or parts under the most arduous conditions. No maintenance results in lower operating costs and higher productivity.

Because of its strength, reliability and zero maintenance, this product, has been for many years widely accepted in supermarket checkout conveyors, packaging machines and within distribution and automation industries. Drum motor type 80s with a crowned shell diameter of only 81.5 mm, and a minimum **R**oller **L**ength (RL) of 270 mm producing a belt pull of up to 531 N is the perfect solution for such applications.

With 17 different nominal speed options and an extraordinary low noise performance the drum motor 80s suits the requirements within automated assembly lines and wherever operators are working next to the conveyor lines.

All version of drum motor 80s has standard IP 66 enclosure and is available in complete stainless steel execution for wash down applications.

Optional extras:
Reference to page 11 and back cover.

INTERROLL DRUM MOTOR 80s

	Series	Description	Type of gearbox	Gearbox material
s platform	80s	standard	planetary	techno polymer

80s – Specification of standard drum motor

- Crowned 81.5 mm diameter mild steel shell treated with anti-rust oil
- Die cast aluminium bearing housings
- Die cast aluminium shaft end caps
- 3-phase motor with thermal protector
- AC induction motor with motor winding insulation class F
- Triple shaft sealing system – degree of protection IP 66 (EN 60034-5)
- Voltages: Most common voltages available
- 3-phase induction motor with one rated voltage – either low or high voltage
- Available for 50 & 60 Hz supply
- Cable outlet designed for straight or angle connection
- Cable length minimum 1.10 m outside shaft
- Lifetime lubricated for maintenance free operation
- Up to 10 start/stop per minute – higher cycle times available on request
- Maximum RL 962 mm (longer RL on request)
- Non standard RL lengths available
- No maintenance
- No oil change

TS – Food grade technical specification for drum motor 80s

- Shell in stainless steel – AISI 304
- Max RL 962 mm
- Stainless steel covered housings – AISI 304 –
- Shaft end caps in stainless steel – AISI 304
- Protection IP 66 (EN 60034-5)
- Straight cable outlet with O-ring seal
- FDA & USDA food grade approved oil and grease

- Please refer to page 74 - 81 for brackets and precautions page 100 - 111

Diameter	Max. power	Min. speed	Max. speed
81.5 mm	0.11 kW	0.05 m/s	0.88 m/s

Interroll Drum Motor 80s – Ø 81.5 mm – 3-phase

Motor Power [kW/HP]	No. of poles	Full load current i_f 400 V/50 Hz [A]	Gear stages	Gear ratio i	Nominal belt speed at full load and 50 Hz [m/s]	Torque [Nm]	Belt pull [N]	Max. Belt tension $T_1 + T_2$ [N]	Min. roller length RL [mm]
0.06/0.08	4	0.46	3	78.5 71.6 63.5	0.07 0.08 0.09	19.7 17.2 15.3	486 425 378	2000	305
0.06/0.08	4	0.46	2	19.2 16.0 13.1	0.30 0.36 0.44	7.3 6.1 5.0	180 150 123	2000	305
0.05/0.068	2	0.22	3	115.2	0.10	17.2	425	2000	280
0.075/0.102	2	0.3	3	96.0	0.12	21.5	531	2000	280
0.085/0.115	2	0.32	3	78.5 71.6 63.5 52.9 48.8 43.3	0.15 0.16 0.18 0.22 0.24 0.27	19.5 18.3 16.3 13.3 12.2 10.8	482 452 401 328 301 268	2000	280
0.085/0.115	2	0.32	2	19.2 16.0 13.1	0.60 0.72 0.88	5.2 4.3 3.5	128 106 87	1500	280

The maximum allowable belt tension of idler pulleys is always according to the corresponding drum motor values in the tables.

Standard RL Interroll Drum Motor 80s

Standard weight [kg] for standard roller length RL mm (RL > 962 please contact Interroll) (Weight increases 0.4 kg/50 mm)																	Max. RL
RL	270	280	295	312	362	412	462	512	562	612	662	712	762	812	862	912	962
Weight	4.6	4.7	5.2	5.3	5.7	6.1	6.4	6.8	7.1	7.5	9.9	10	10.8	11.4	12	13	13.1

Standard RL Interroll Idler Pulley 80s

Standard weight [kg] for standard roller length RL mm (RL > 962 please contact Interroll) (Weight increases by 0.3 kg/50 mm)																	Max. RL
RL	270	280	295	312	362	412	462	512	562	612	662	712	762	812	862	912	962
Weight	2.2	2.3	2.4	2.5	2.9	3.2	3.5	3.8	4.2	4.5	7	7.5	8	8.5	9	9.5	10

Max. Belt tension see Drum Motors min. RL 255

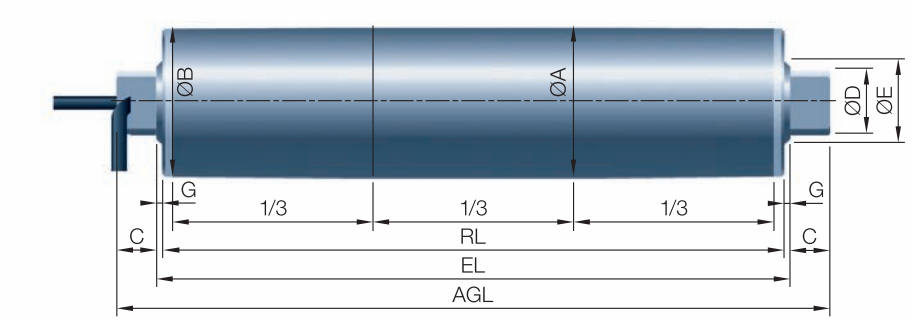
Interroll Drum Motor 80s – Ø 81.5 mm – 1-phase

Motor				Gear ratio	Nominal belt speed at full load and 50 Hz	Torque	Belt pull	Max. Belt tension $T_1 + T_2$	Min. roller length
Power [kW/HP]	No. of poles	Full load current i_f 230 V/50 Hz [A]	Gear stages	i	[m/s]	[Nm]	[N]	[N]	RL [mm]
0.025/0.034	4	0.39	3	115.2	0.05	17.2	425	2000	295
				96.0	0.06	14.3	354		
				78.5	0.07	12.3	304		
				71.6	0.08	10.8	266		
			2	19.2	0.30	2.9	75		
				16.0	0.36	2.4	63		
				13.1	0.44	2.0	51		
0.05/0.068	2	0.54	3	115.2	0.10	17.2	425	2000	270
0.075/0.102	2	0.68	3	96.0	0.12	21.5	531	2000	280
0.085/0.115	2	0.7	3	78.5	0.15	19.5	482	2000	295
				71.6	0.16	18.3	452		
				63.5	0.18	16.3	401		
				52.9	0.22	13.3	328		
				48.8	0.24	12.2	301		
				43.3	0.27	10.8	268		
			2	19.2	0.60	5.2	128	1500	
				16.0	0.72	4.3	106		
				13.1	0.88	3.5	87		
0.11/0.15	2	0.94	3	63.5	0.18	22.3	519	2000	295
				52.9	0.22	17.2	425		
				48.8	0.24	15.8	390		
				43.3	0.27	14.0	346		
			2	19.2	0.60	6.7	165	1500	
				16.0	0.72	5.6	138		
				13.1	0.88	4.6	113		

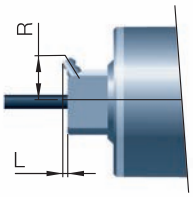
The maximum allowable belt tension of idler pulleys is always according to the corresponding drum motor values in the tables.

Interroll Drum Motor 80s

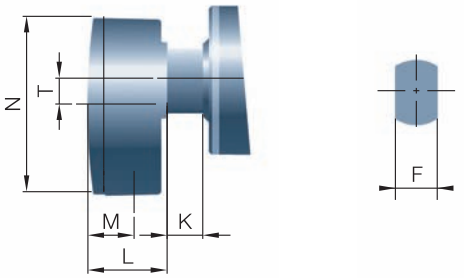
Standard



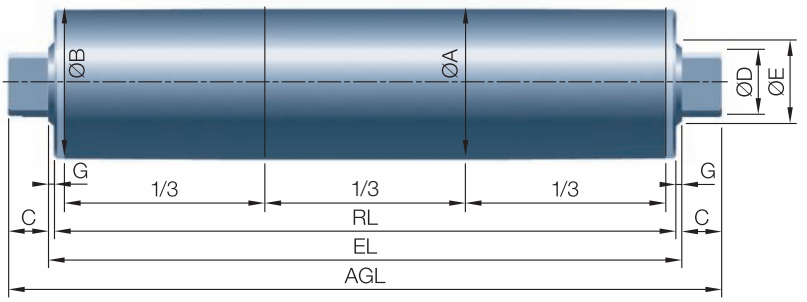
Stainless steel, TS
Cable straight



Terminal box



Idler Pulley 80s



Type	Standard measurements															
	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	K mm	L mm	M mm	N mm	R mm	T mm	EL mm	AGL mm
80s standard/TS/RL 270-612	81.5	80	20	35	45	21	3								RL+6	RL+46
80s standard/TS/RL > 612-962	83	81	20	35	45	21	3								RL+6	RL+46
80s cylindrical/TS/RL 270-612	80.5	80.5														
80s cylindrical/TS/RL > 612-962	83	83														
80s standard/TS/RL Terminal box									18	41	24	95	25	14		
Idler Pulley 80s	81.5	80	20	35	45	21	3								RL+6	RL+46

Optional Extras Interroll Drum Motor 80s

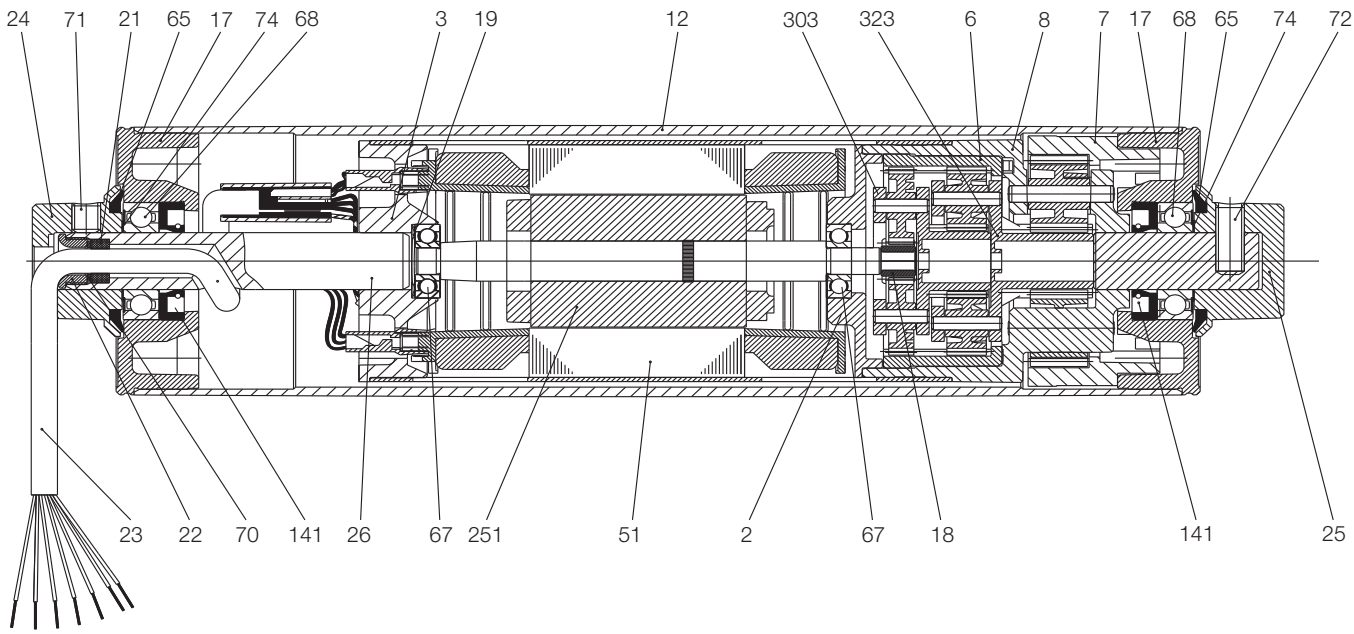
Specifications	Drum Motor Type 80s	
	3-phase	1-phase
Shaft		
Mild steel	Std.	Std.
Stainless steel TS	X	X
Shell		
Mild steel crowned	Std.	Std.
Stainless steel TS crowned	X	X
Mild steel or stainless steel cylindrical	X	X
Black rubber lagging	o	
White or blue food quality lagging oil and fat resistant - max 3 mm	o	
Non-slip friction tape – type 3M – on centre of shell – 100 mm	X	X
Sprockets for modular belting	o	
Special crowns and grooves in shell	o	o
Electrical motors		
Asynchron 3-phase (DIN IEC 34)	Std.	
Voltage 3x 230 V/400 V±10 % tolerance, 50 Hz – IEC 38	Std.	
Single phase motors max 0,11 kW		X
Special voltages	X	X
Insulation class F	Std.	Std.
Operation with VFD	Std.	
UL/Canadian Standards recognized motors	X	X
Oil cooled	Std.	Std.
Thermal protector	Std.	Std.
Food grade oil & grease (FDA and USDA)	Std. in TS	Std. in TS
Electrical connection		
IP 66 powder coated food approved terminal box	X	X
IP 66 stainless steel terminal box	X	X
IP 66 with straight or elbow connector	Std.	Std.
IP 66 aluminium terminal box	X	X
Extension cables + connector when > 3050 mm	X	X
Screened cable (for using with frequency converters)	X	X
Halogen-free cable	X	X
Other options		
Mechanical backstop	X	X
Modified for vertical or angled mounting	X	X
Degree of protection IP 66	Std.	Std.

X = Optional extras
Std. = Fitted as standard
o = Available as option with some limitations
Please consult Interroll

Spare Parts List
Interroll
Drum Motor 80s

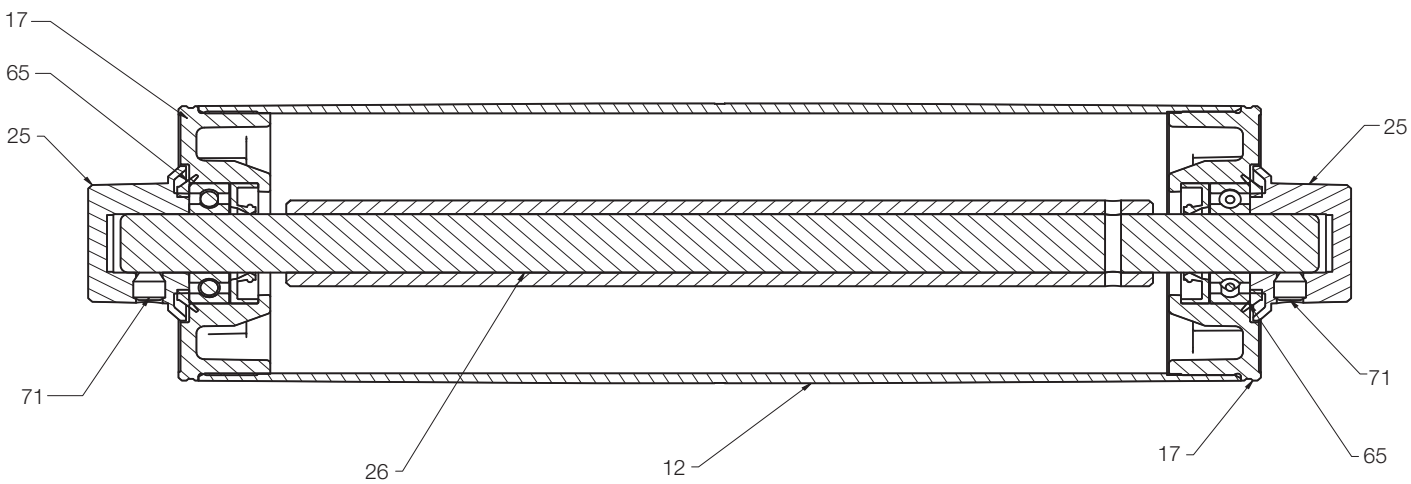
Pos.	Description
2	Stator shield, front
3	Stator shield, back
6	Geared rim
7	Geared rim
8	Gearbox
12	Shell
17	End housing
18	Rotor pinion
19	Wavy washer
21	Rubber bushing
22	Nipple
23	Cable
24	Shaft end cap (open)
25	Shaft end cap (closed)

Pos.	Description
26	Rear shaft
51	Stator
65	Lip seal
67	Bearing 608 2RS
68	Bearing 6003 2RS
70	Washer
71	Stop screw M8 x 8 mm
72	Stop screw M8 x 20 mm
74	Spacer
141	Oil seal
251	Rotor
303	Gear stage 1
323	Gear stage 2



Spare Parts List
Interroll
Idler Pulley 80s

Pos.	Description
12	Shell
17	End housing
25	Shaft end cap (closed)
26	Rear shaft
65	Lip seal
71	Stop screw M8 x 8 mm



With a drum diameter of 113.3 mm, max. 3-phase power of 330 Watt, and minimum RL of 262 mm the drum motor 113s is a perfect drive station for small and medium duty conveyor systems. The techno polymer planetary gearbox ensures very quite operation and makes it the perfect choice as a drive for belt conveyors in workstations and other noise sensitive applications.
Drum motor 113s is interchangeable with the 80s and with the shaft cap versions of the 80i and 113i. It has standard IP 66 enclosure, which when offered in stainless steel can be used in wet areas and wash down applications. Other important applications of 113s are X-Ray & scanning equipment in airports and super markets, recycling and packing machinery, weighing machines etc. 113s is available in two shaft options:

- Shaft cap version with key flats 21 x 35 mm (same key flat dimensions as the 80s)
- Shaft version with key flats 20 x 25 mm (same key flat dimensions as the 113i).

Optional extras:
Reference to page 19.

INTERROLL DRUM MOTOR 113s

	Series	Description	Type of gearbox	Gearbox material
s platform	113s	standard	planetary	techno polymer

Specifications of standard drum motor 113s

- Crowned 113.3 mm diameter mild steel shell treated with anti-rust oil
- Die cast aluminium bearing housings
- Die cast aluminium shaft end caps
- All motors with thermal protection
- AC induction motor with motor winding insulation class F
- Triple shaft sealing system – degree of protection IP 66 (EN 60034-5)
- 3-phase induction motor with one rated voltage – either low or high voltage
- Available for 50 & 60 Hz supply
- Voltage: most common voltages available
- Dual voltage 230/400 V 50 Hz available on request
- Cable outlet designed for straight or angle connection
- Cable length minimum 1.25 m outside shaft
- Lifetime lubricated for maintenance free operation
- Up to 10 start/stops per minute – higher cycle times available on request
- Maximum RL 1112 with crowned shell RL of 1162-2012 mm available with parallel shell only
- Non standard RL lengths available
- No maintenance
- No oil change
- **To be used in horizontal position only**
- For vertical or angled mounting, please consult Interroll

TS – Food grade technical specification for Motor Drum 113s

- Shell in stainless steel – AISI 304. 113s: Max RL 1112 mm
- Stainless steel covered bearing housings – AISI 304
- Shaft end caps in stainless steel – AISI 304
- Degree of protection IP 66 (EN 60034-5)
- Straight cable outlet with O-ring seal
- FDA & USDA food grade approved oil and grease

- Please refer to page 74 - 81 for brackets and precautions page 100 - 111

Diameter	Max. power	Min. speed	Max. speed
113.3 mm	0.33 kW	0.07 m/s	2.12 m/s

Interroll Drum Motor 113s – Ø 113.3 mm – 3-phase

Motor				Gear ratio	Nominal belt speed at full load and 50 Hz	Torque	Belt pull	Max. Belt tension $T_1 + T_2$	Min. roller length
Power [kW/HP]	No. of poles	Full load current i_f 400 V/50 Hz [A]	Gear stages	i	[m/s]	[Nm]	[N]	[N]	RL [mm]
	8	0.34		63.0 49.3 38.5	0.07 0.08 0.11	29.2 22.9 17.9	515 403 315	2700	282
0.04/0.05 0.11/0.15	4	0.45	3	63.0 49.3 44.1 38.5 30.8 26.8 24.0	0.13 0.17 0.19 0.22 0.27 0.31 0.35	40.6 31.4 28.1 24.6 19.6 17.1 15.3	719 554 495 433 346 302 269	2000	262
	6	0.62	2	15.0	0.43	13.0	302	1800	297
	4	0.45		15.0 11.6 10.3 8.9 7.9	0.56 0.72 0.81 0.94 1.06	10.1 7.8 6.9 6.0 5.3	178 138 122 106 93	1500	262
0.16/0.22	4	0.57	3	44.1	0.19	40.9	721	2000	282
0.18/0.25	4	0.62	3	38.5 30.8 26.8 24.0	0.22 0.27 0.31 0.35	39.3 32.1 28.0 25.0	695 566 494 441	2000	297
			2	15.0 11.6 10.3 8.9 7.9	0.56 0.72 0.81 0.94 1.06	16.6 12.8 11.4 9.8 8.7	292 225 200 173 153	1500	
0.33/0.45	2	0.83	3	44.1 38.5 30.8 26.8 24.0	0.38 0.44 0.54 0.62 0.70	41.7 36.0 29.3 25.6 22.6	738 638 519 452 401	2000	297
			2	15.0 11.6 10.3 8.9 7.9	1.12 1.44 1.62 1.88 2.12	15.0 11.7 10.4 8.9 7.9	265 206 183 158 140	1500	

The maximum allowable belt tension of idler pulleys is always according to the corresponding drum motor values in the tables.

Interroll Drum Motor 113s – Ø 113.3 mm – 1-phase

Motor				Gear ratio i	Nominal belt speed at full load and 50 Hz	Torque	Belt pull	Max. Belt tension $T_1 + T_2$	Min. roller length RL
Power [kW/HP]	No. of poles	Full load current i_f 230 V/50 Hz [A]	Gear stages		[m/s]	[Nm]	[N]	[N]	[mm]
0.06/0.08	4	0.75	3	63.0 49.3 44.1 38.5 30.8 26.8 24.0	0.12 0.16 0.18 0.20 0.25 0.29 0.32	23.6 18.5 16.5 14.4 11.5 10.1 9.0	416 325 291 254 203 177 158	2000	262
			2	15.0 11.6 10.3 8.9 7.9	0.52 0.67 0.75 0.87 0.98	5.9 4.6 4.1 3.5 3.1	105 81 72 62 55	1500	262
0.08/0.11	6	1.3		15.0 11.6	0.41 0.46	9.4 8.4	166 126	1800	297
0.11/0.15	4	1.1	3	63.0 49.3 44.1 38.5 30.8 26.8 24.0	0.12 0.16 0.18 0.20 0.25 0.29 0.32	43.3 33.9 30.3 26.4 21.1 18.4 16.5	764 596 534 466 392 325 290	2000	282
	4	1.1	2	15.0 11.6 10.3 8.9 7.9	0.52 0.67 0.75 0.87 0.98	10.9 8.4 7.5 6.5 5.7	192 148 132 114 101	1500	282

Standard RL Interroll Drum Motor 113s

Power [kW/HP]	No. of poles	No. of phases	Standard weight [kg] for standard roller length RL [mm] 262	312	362	412	462	Weight increases by 0.7 kg/50 mm 512	562	612	662	712	(RL>1112 please contact Interroll) 762	812	862	Max. RL 1112
0.04/0.05	8	3	-	8.3	8.9	9.5	10.2	10.8	11.4	12	12.6	13.3	14.7	15.4	16.1	19.6
0.11/0.15	4	3	7.1	7.6	8.3	8.9	9.5	10.2	10.8	11.4	12	12.6	14	14.7	15.4	18.9
0.11/0.15	6	3	-	9	9.5	10.2	10.8	11.4	12	12.6	13.3	14.7	15.4	16.1	16.8	18.9
0.11/0.15	4	1		8.3	8.9	9.5	10.2	10.8	11.4	12	12.6	13.3	14.7	15.4	16.1	19.6
0.08/0.11	6	1	-	9	9.5	10.2	10.8	11.4	12	12.6	13.3	14.7	15.4	16.1	16.8	18.9
0.16/0.22	4	3	-	8.3	8.9	9.5	10.2	10.8	11.4	12	12.6	13.3	14.7	15.4	16.1	19.6
0.18/0.25	4	3	-	9	9.5	10.2	10.8	11.4	12	12.6	13.3	14.7	15.4	16.1	16.8	18.9
0.33/0.45	2	3	-	9	9.5	10.2	10.8	11.4	12	12.6	13.3	14.7	15.4	16.1	16.8	18.9

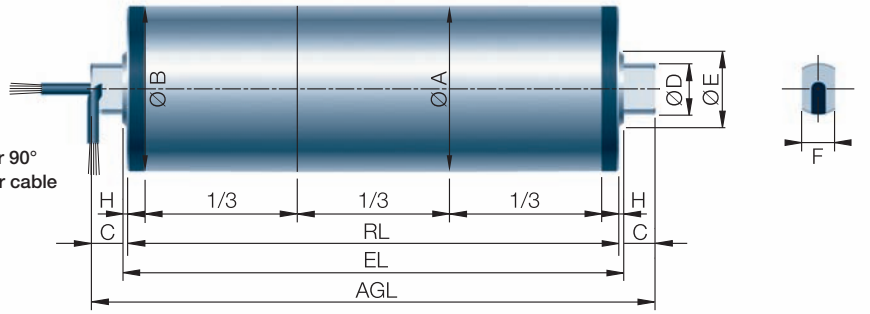
Standard RL Interroll Idler Pulley 113s

Standard weight [kg] for standard roller length RL mm (RL > 1112 please contact Interroll) (Weight increases 0.4 kg/50 mm)														Max. RL
RL	262	312	362	412	462	512	562	612	662	712	762	812	862	1112
Weight	3	3.4	3.8	4.2	4.6	4.9	5.3	5.7	6.1	6.5	6.9	7.3	7.7	9.7

Max. Belt tension see drum motors.

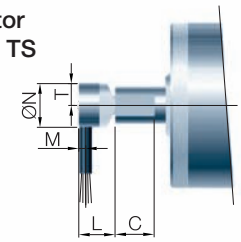
Interroll Drum Motor 113s

Drum motor shaft cap solution

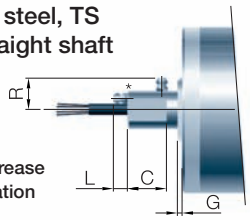


Cable straight or 90°
Allow 2.2 mm for cable protrusion

Elbow Connector Stainless steel, TS Shaft solution

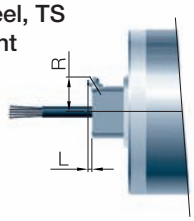


Stainless steel, TS Cable straight shaft

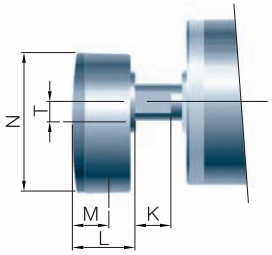


* Optional grease nipple location

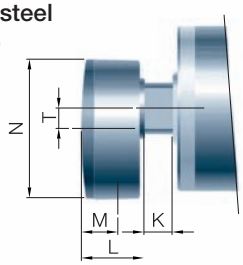
Stainless steel, TS Cable straight shaft cap.



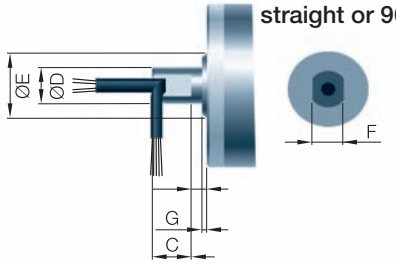
Terminal Box TS / mild steel Shaft solution



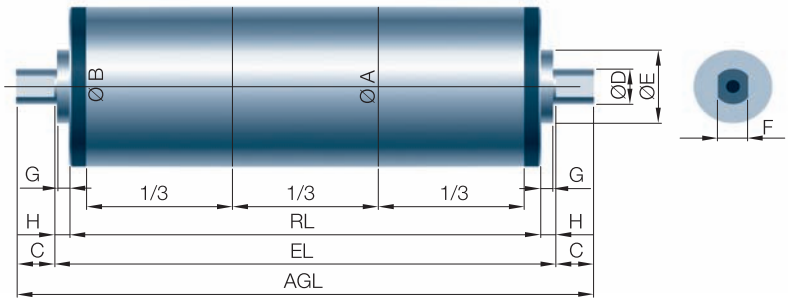
Terminal Box TS / mild steel Shaft cap solution



Drum motor shaft solution Shaft solution Cable straight or 90°



Idler Pulley 113s



Measurements 113s Type/Option		A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	K mm	L mm	M mm	N mm	R mm	T mm	EL mm	AGL mm
113s standard/TS	Shaft cap solution	113.3	112.3	20	35	45	21		3		3			25		RL+6	RL+46
113s standard/TS Terminal box	Shaft cap solution			20	35		21		3	18	41	24	95		14	RL+6	RL+46
113s cylindrical	Shaft cap solution	113.3	113.3													RL+6	RL+46
113s standard/TS	Shaft solution	113.3	112.3	25	25	52	20	3	10		3.5					RL+20	RL+70
113s standard/TS Terminal box	Shaft solution									23	41	24	95	22	14	RL+20	RL+70
113s Stainless steel elbow connector	Shaft solution										24	24	30		15	RL+20	RL+70
113s cylindrical	Shaft solution	113.3	113.3													RL+20	RL+70
Idler Pulley 113s		113.3	112.3	20	35	45	21		3		3			25		RL+6	RK+46

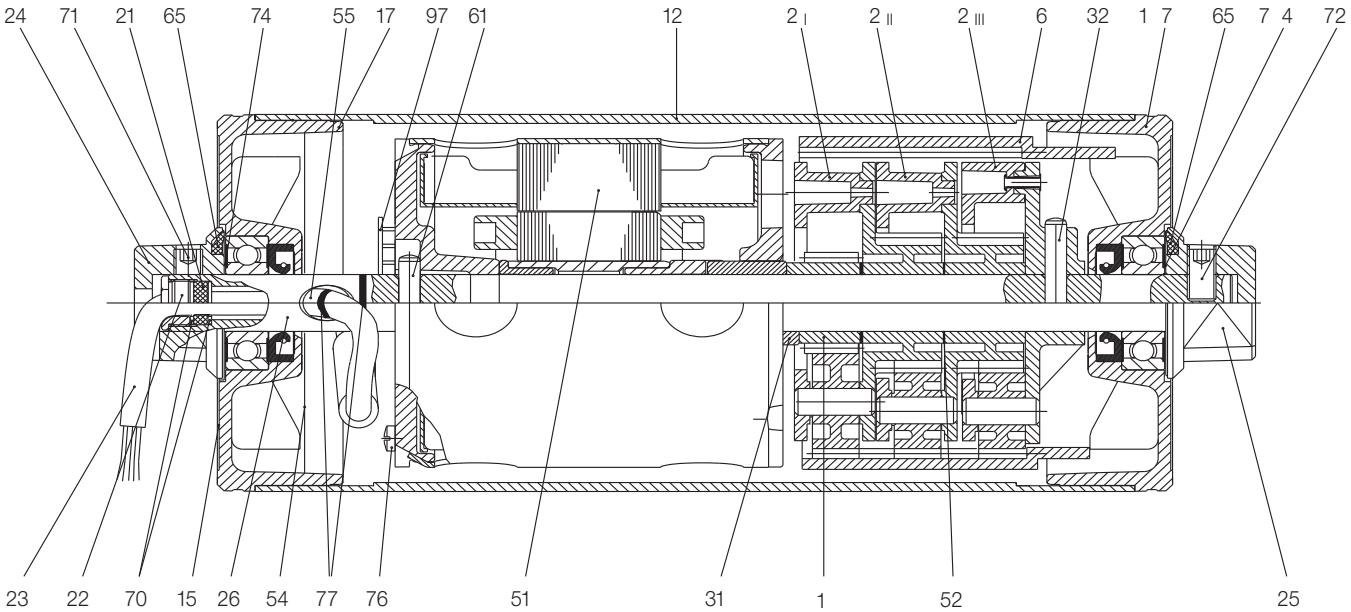
Optional Extras Interroll Drum Motor 113s

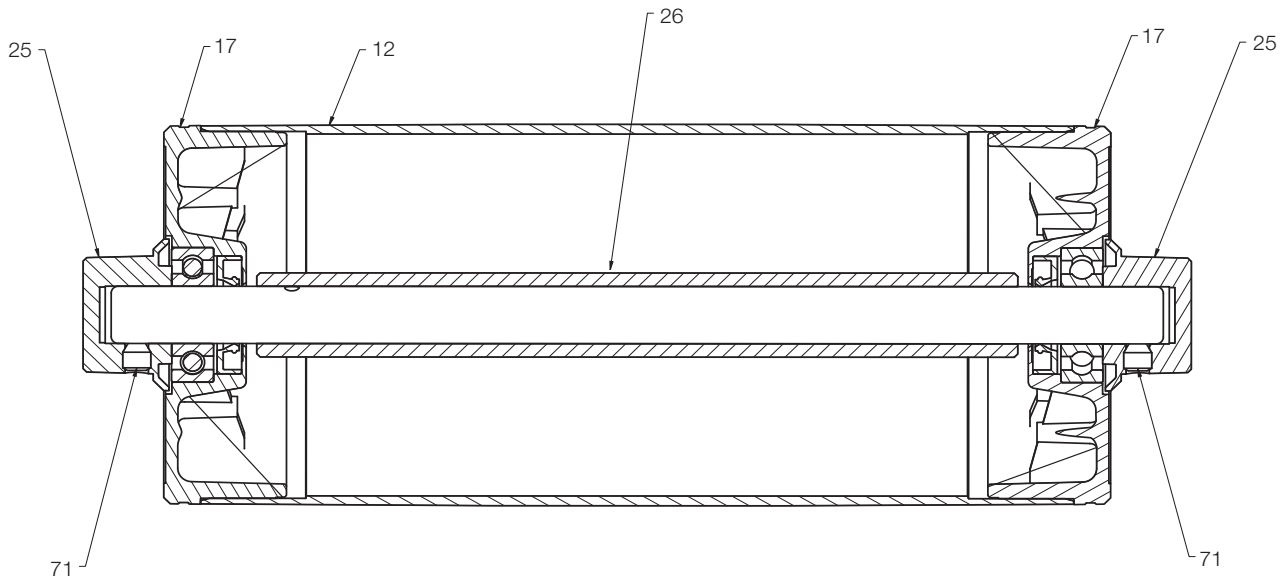
Specifications	Drum Motor Type 113s	
	3-phase	1-phase
Shaft		
Mild steel	Std.	Std.
Stainless steel TS	X	X
Shell		
Mild steel crowned	Std.	Std.
Stainless steel TS crowned	X	X
Mild steel or stainless steel cylindrical	X	X
Black rubber lagging	o	
White or blue food quality lagging oil & fat resistant max 3 mm	o	
Lagging is not available for 0.33 kW motor		
Non-slip friction tape – type 3M – on centre of shell – 100 mm	X	X
Sprockets for modular belting	o	
Special crowns and grooves in shell	X	X
Electrical motors		
Asynchron 3-phase (DIN IEC 34)	Std.	
Voltage 3x 230/400 V with ±10 % tolerance, 50 Hz – IEC38	Std.	
Single phase motors maximum power 0.11 kW		X
Special voltages	X	X
Insulation class F	Std.	Std.
Dual voltage connection (star/delta) 230/400 V 50 Hz	X	
Operation with VFD	Std.	
UL/Canadian Standards recognized motors	X	X
Oil cooled	Std.	Std.
Thermal protector	Std.	Std.
Food grade oil & grease (FDA and USDA)	Std. in TS	Std. in TS
Electrical connection		
IP 66 powder coated food approved terminal box	X	X
IP 66 stainless steel terminal box	X	X
IP 66 with straight or elbow connector	Std.	Std.
IP 66 with straight or elbow connector in stainless steel	X	X
IP 66 aluminium terminal box	X	X
Extension cables + connector when > 3050 mm	X	X
Screened cable (for using with frequency converters)	X	X
Halogen-free cable	X	X
Other options		
Modified for vertical or angled mounting	X	X
Degree of protection IP 66	Std.	Std.

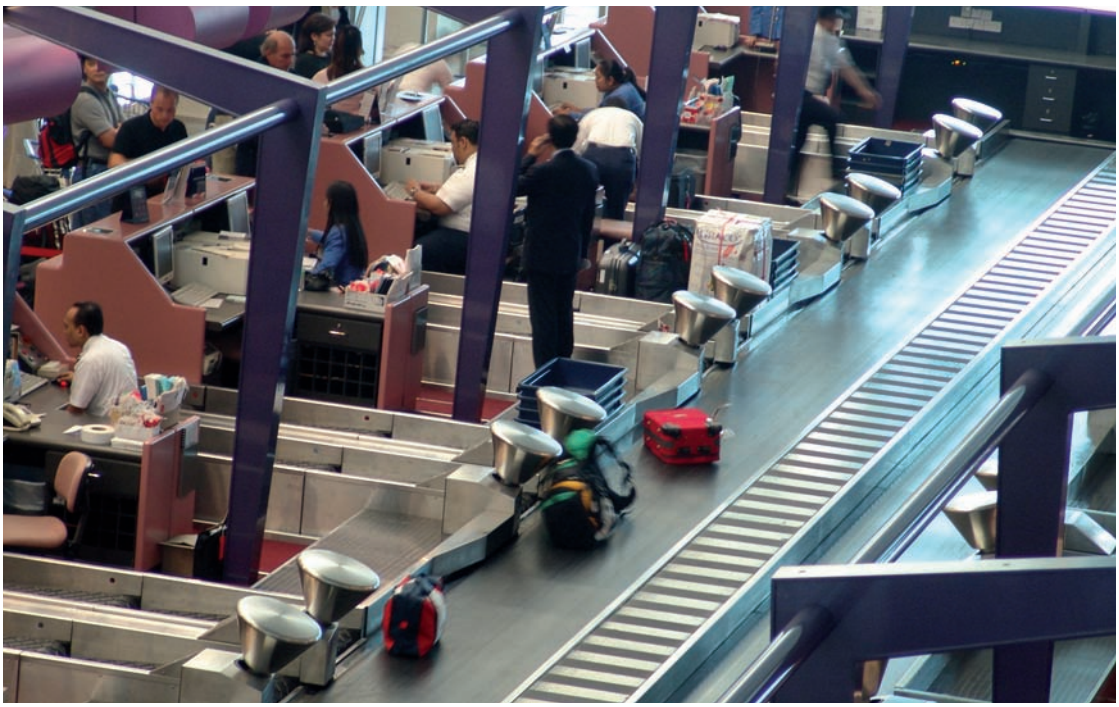
X = Optional extras
Std. = Fitted as standard
o = Available as option with some limitations
Please consult Interroll

Spare Parts List
Interroll
Drum Motor 113s
Idler Pulley 113s

Pos.	Description	Pos.	Description
1	Shaft	31	Seal cover
2	Gear stage I	32	Gear pin
	Gear stage II	51	Electrical motor/rotor
	Gear stage III	52	Flat washer
6	Geared rim	54	Protection disk
12	Shell	55	Isolation
15	Motor label	61	Pin
17	Bearing House	65	Shaft sealing
21	Rubber seal	70	Washer
22	Geared rim	71–72	Set screw
23	Cable	74	Spacer
24	Shaft cap open	76	Screw for earth
25	Shaft cap closed	77	Cable restrainer
26	Shaft	97	Terminal lock







If you need a small, tough and reliable drive: The Interroll Drum Motor 80i is the ideal choice. With a diameter of just 81.5 mm & shell lengths starting from 193 mm it is perfect for high torque applications with limited space or access.
The Interroll 80i will typically be used in:

- Food industry
- Dynamic Scales
- Metal detectors
- Compact conveyors
- Tray handling
- Printing industry

This premium component features a driving unit composed of a highly efficient AC induction motor and a steel helical gearbox, ensuring high efficiency and low power loss.
The Interroll 80i can be used with conventional PU/PVC belts as well as plastic modular belts.

Optional extras: Reference to page 27.

INTERROLL DRUM MOTOR 80i

	Series	Description	Type of gearbox	Gearbox material
i platform	80i	industrial	spur helical	steel

Specifications of standard drum motor 80i

- Crowned mild steel shell diameter 81.5 mm
- Stainless steel (AISI 303) shafts
- Shell treated with antirust wax
- Die cast aluminium end housings
- All motors have thermal protection
- Die cast aluminium gearbox housing with 2 or 3 stages
- Triple shaft sealing system – degree of protection IP 66 (EN 60034-5)
- 3-phase AC induction motor dual voltage 230/400 V 50 Hz
- Most common global voltages are available as an option
- Available for 50 & 60 Hz supply
- Motor windings insulation class F
- Brass oil plugs (one with magnet to remove oil contaminates)
- Minimum Shell length (RL) from 193 mm
- Maximum shell length (RL) up to 943 mm (longer on request)
- RL exceeding 543 mm is designed with reinforced shaft

TS – Food grade technical specifications of drum motor 80i

- Crowned stainless steel shell (AISI 304)
- Stainless steel shafts (AISI 303)
- Stainless steel bearing housings (AISI 303)
- Stainless steel oil plugs (AISI 303)
- Stainless steel labyrinth seal (AISI 303) (Option with FPM infill)
- Degree of protection IP 66 (EN 60034-5)
- Stainless steel straight cable outlet (AISI 303)
- Optional Stainless steel elbow connector (AISI 303)
- FDA and USDA recognised oil and grease

- Please refer to page 74 - 81 for brackets and precautions page 100 - 111

Diameter	Max. power	Min. speed	Max. speed
81.5 mm	0.12 kW	0.05 m/s	1.00 m/s

Interroll Drum Motor 80i – Ø 81.5 mm – 3-phase

Motor				Gear ratio i	Nominal belt speed at full load and 50 Hz	Torque	Belt pull	Max. Belt tension $T_1 + T_2$	Min. Shell length RL
Power [kW/HP]	No. of poles	Full load current i_f 400 V/50 Hz [A]	Gear stages		[m/s]	[Nm]	[N]	[N]	[mm]
0.018/0.024	8	0.19	3	54.73 38.18 31.09	0.05 0.07 0.08	14.4 10.1 8.2	352 245 200	3250	243
0.07/0.94	4	0.28	3	54.73 38.18 31.09	0.10 0.15 0.20	26.8 18.7 15.2	653 456 371	3250	243
			2	21.28 14.85 12.09	0.25 0.40 0.50	10.6 7.4 6.0	259 181 147	3250	
0.12/0.16	2	0.34	3	54.73 38.18 31.09	0.20 0.30 0.40	21.1 14.7 12.0	515 359 293	3250	243
			2	21.28 14.85 12.09	0.55 0.80 1.00	8.4 5.9 4.8	204 143 116	3250	

The maximum allowable belt tension of idler pulleys is always according to the corresponding drum motor values in the tables.

Interroll Drum Motor 80i – Ø 81.5 mm – 3-phase – Short version RL = 193 mm

Motor				Gear ratio i	Nominal belt speed at full load and 50 Hz	Torque	Belt pull	Max. Belt tension $T_1 + T_2$	Shell length RL
Power [kW/HP]	No. of poles	Full load current i_f 400 V/50 Hz [A]	Gear stages		[m/s]	[Nm]	[N]	[N]	[mm]
0.04/ 0.054	4	0.21	3	54.73 38.18 31.09	0.10 0.15 0.20	14.4 10.1 8.2	352 245 200	3250	193
			2	21.28 14.85 12.09	0.25 0.40 0.50	5.7 4.0 3.3	140 97 79	3250	
0.07/ 0.94	2	0.22	3	54.73 38.18 31.09	0.20 0.30 0.40	12.4 8.6 7.0	302 210 171	3250	193
			2	21.28 14.85 12.09	0.55 0.80 1.00	4.9 3.5 2.8	120 83 68	3250	

Note! Short version available with one voltage only and 6 lead cable.

Standard RL Interroll Drum Motor 80i

Standard weight [kg] for standard Shell length RL mm

RL	243	293	343	393	443	493	543
Weight	4	4.5	5	5.5	6	6.5	7

Standard RL Interroll Drum Motor 80i – Short version

Standard weight [kg] for standard Shell length RL mm

RL	193
Weight	3.5

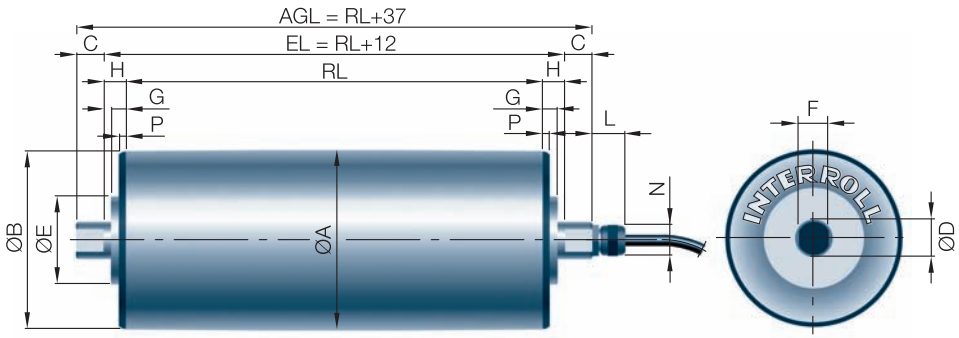
Standard RL Interroll Idler Pulley 80i

Standard weight [kg] for standard Shell length RL mm

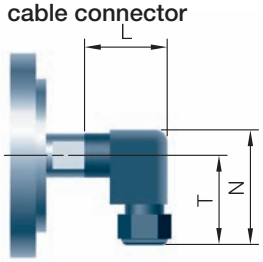
RL	243	293	343	393	443	493	543
Weight	2	2.4	2.7	3	3.3	3.6	3.9

Interroll Drum Motor 80i

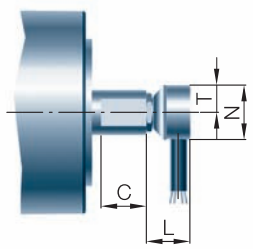
Drum motor standard with straight cable connector



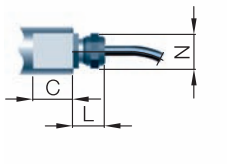
Elbow cable connector



Elbow stainless steel cable connector

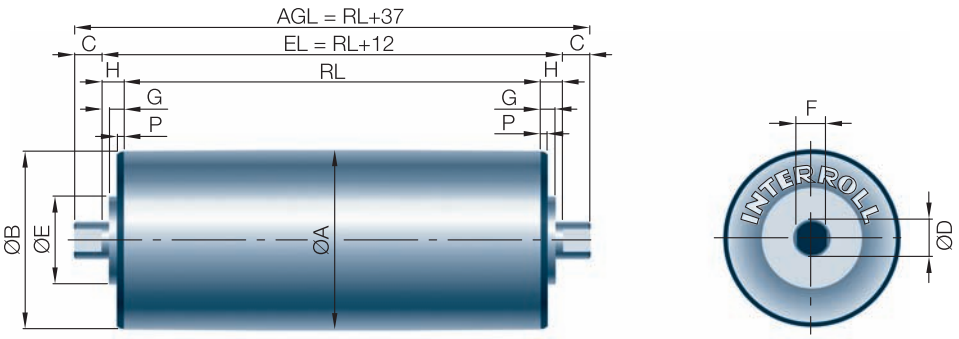


Straight cable connector



Drum motor shaft cap version straight cable connector or terminal box is available as an option

Idler Pulley 80i



Type / Option	Standard measurements															
	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	K mm	L mm	M mm	N mm	P mm	T mm	EL mm	AGL mm
80i Standard/TS	81.5	80.5	12.5	17	43	13.5	3.5	6					1.5		RL+12	RL+37
80i cylindrical	81															
Elbow connector stainless steel										24	6.5	30		15		
Elbow cable connector			12.5							33		45		35		
Straight connector			12.5							17		16				
Idler Pulley	81.5	80.5	12.5	17	40	13.5	3.5	6							RL+12	RL+37

Optional Extras Interroll Drum Motor 80i / Idler Pulley 80i

Specifications	Drum Motor type 80i 3-phase	Idler Pulley 80i
Shaft		
Mild steel	Std.	Std.
Stainless steel TS	X	X
Screw hole M6 in shaft (for using with mounting brackets)	X	X
Shell		
Mild steel crowned	Std.	Std.
Stainless steel TS crowned	X	X
Mild steel or stainless steel cylindrical	X	X
Black rubber lagging	X	X
White or blue food quality lagging oil & fat resistant	X	X
Profiled lagging for modular belting	o	X
Sprockets for modular belting	o	X
V-grooves in the rubber lagging	o	o
Special crowns and grooves in shell	o	o
Electrical motors		
Asynchron 3-phase (DIN IEC 34)	Std.	
Voltage 3x 230/400 V with ±10 % tolerance, 50 Hz – IEC38	Std.	
Single phase motors Maximum 0.08 kW	X	
Special voltages	X	
Insulation class F	Std.	
De-rated motor for modular or no belt application	o	
Dual voltage connection (star/delta) 230/400 V 50 Hz*	Std.	
UL/Canadian Standards recognized motors	X	
Oil cooled	Std.	
Thermal protector	Std.	
Food grade oil & grease (FDA and USDA)	X	
Electrical connection		
IP 66 with straight connector	Std.	
IP 66 powder coated food approved terminal box	X	
IP 66 stainless steel terminal box	X	
IP 66 with elbow connector	X	
IP 66 with straight or elbow connector stainless steel	X	
IP 66 aluminium terminal box	X	
Screened cable (for brakes, encoders and frequency converters)	X	
Halogen-free cable	X	
Other options		
Electromagnetic brake (Minimum RL increases by 50 mm)**	X	
Mechanical backstop	X	
Modified for vertical or angled mounting	X	
Operation with VFD	Std.	
Integrated encoder (Minimum RL increases by 50 mm)**	X	
Degree of protection IP 66	Std.	Std.

Note!
** Combined brake and encoder is not possible.
* Not available for 80i short version

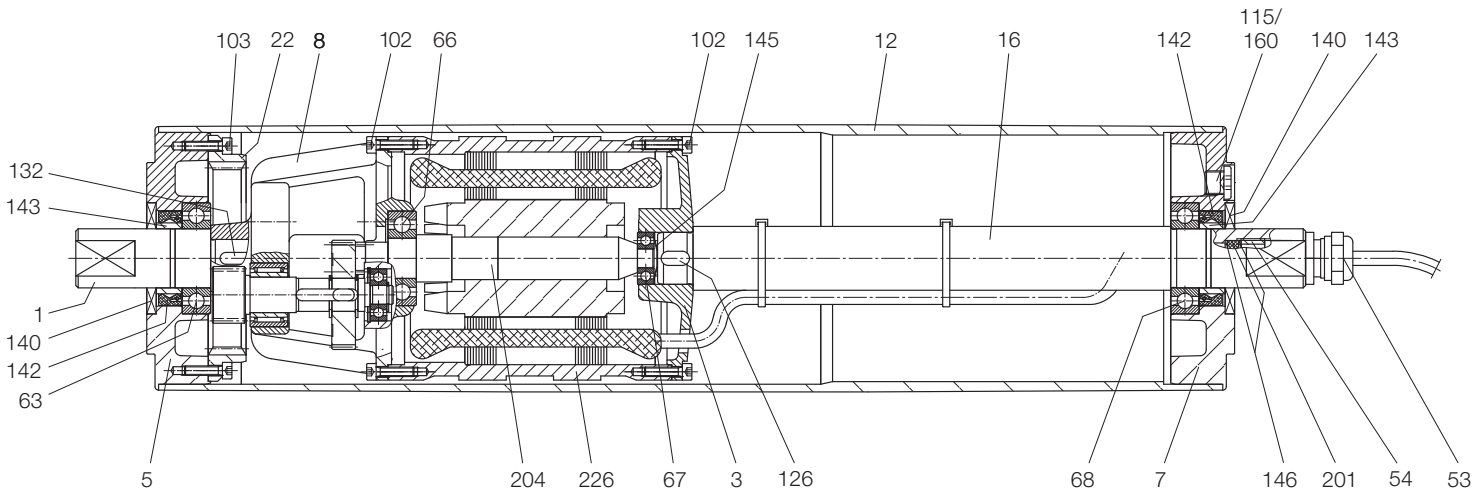
X = Optional extras
Std. = Fitted as standard
o = Available as option with some limitations
Please consult Interroll

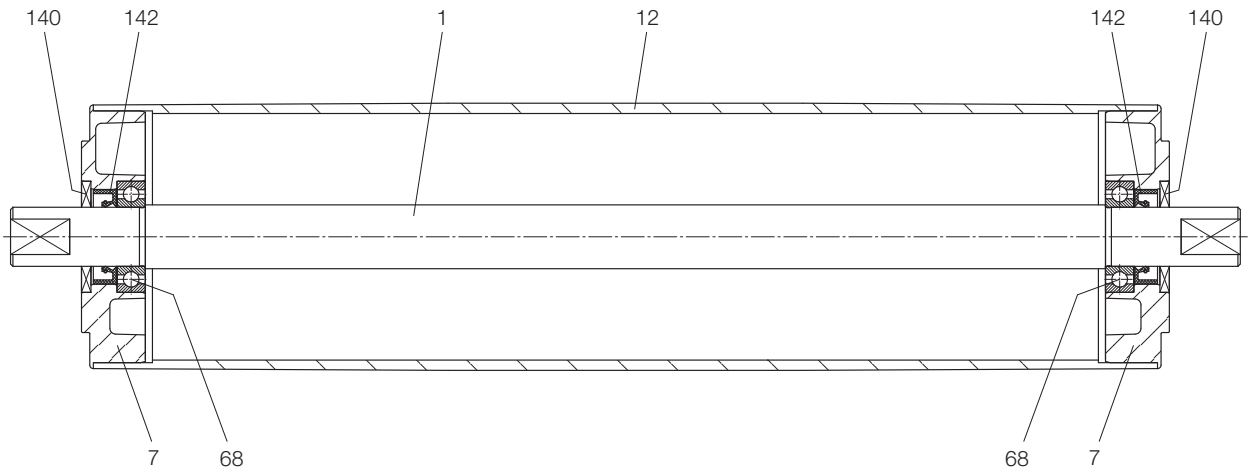
www.interroll.com

Spare Parts List Interroll Drum Motor 80i / Idler Pulley 80i

Pos.	Description
1	Front shaft
3	Rear flange
5	Housing front
7	Housing rear
8	Gear set
12	Shell
16	Rear shaft
22	Geared rim
53	Connection nipple
54	Pressure nipple
63	Ball bearing
66	Ball bearing (rotor shaft gear side)
67	Ball bearing (rotor shaft)
68	Ball bearing

Pos.	Description
102	Screw (gearbox/stator/rear flange)
103	Screw (geared rim/housing front)
115	Oil plug with magnet
126	Key (rear shaft)
132	Key (front shaft)
140	Labyrinth seal
142	End house sealing
143	Ground Sleeve
145	Distance washer (rotor shaft bearing)
146	Washer (electrical connector)
160	Oil plug
161	O-ring (oil plug)
201	Sealing (cable/shaft)
204	Rotor complete
226	Stator complete

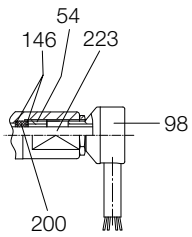




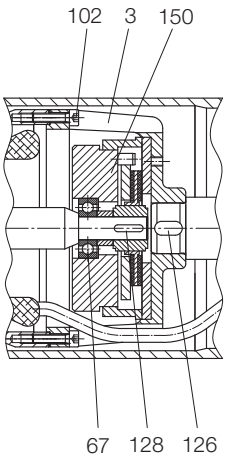
Spare Parts List
Interroll
Drum Motor 80i

Pos.	Description
3	Rear flange
8	Gear set
67	Ball bearing (rotor shaft)
96	Elbow connector
98	Elbow connector (stainless steel)
128	Key (Rotor pinion)
146	Washer (electrical connector)
150	Electromagnetic brake
200	Sealing
201	Sealing (cable/shaft)
223	Cable

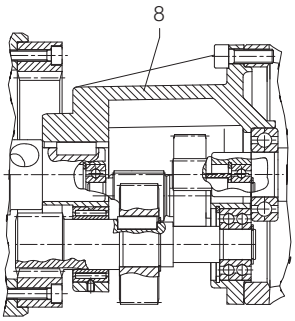
Elbow stainless steel cable connector



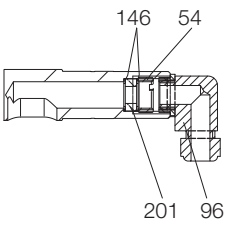
Electromagnetic brake (ELB)



3-stage gearbox



Elbow cable connector



When you need power – ask for Interroll drum motor 113i. This premium power packed component, can deliver up to 0.37 kW, and has been developed especially for baggage check-in counters at airports, food processing and other applications demanding a strongest drum motor in its class.
Technical innovations of the component derived from Interroll's 113 series, includes a re-engineered motor unit for higher efficiency and performance as well as helical steel gears. It is also available in a fully stainless steel option and protected to IP 66 for food processing and wash down applications particularly in the meat, poultry and fish industries.

Optional extras reference to page 35.

INTERROLL DRUM MOTOR 113i

	Series	Description	Type of gearbox	Gearbox material
i platform	113i	industrial	spur helical	steel

113i – Specification of standard drum motor

- Crowned mild steel shell diameter 113.5 mm
- Mild steel shafts
- Shell and shaft treated with antirust wax
- Die cast aluminium end housings
- All motors with thermal protection
- Die cast aluminium gearbox with 2 or 3 stages
- Triple shaft sealing system – degree of protection IP 66 (EN 60034-5)
- 3-phase AC induction motor dual voltage 230/400 V 50 Hz
- Most common global voltages are available as an option
- Available for 50 & 60 Hz supply
- Motor windings insulation class F
- Brass oil plugs (one with magnet to remove oil contaminates)
- Minimum Shell Length (RL) from 250 mm
- Maximum shell length (RL) up to 1200 mm, (longer on request)
- RL exceeding RL 850 mm is designed with a reinforced shaft

TS – Food grade technical specification for drum motor 113i

- Crowned stainless steel shell (AISI 304)
- Stainless steel shafts (AISI 303)
- Stainless steel bearing housings (AISI 303)
- Stainless steel oil plugs (AISI 303)
- Stainless steel labyrinth seals (AISI 304) (Option with FPM infill)
- Degree of protection IP 66 (EN 60034-5)
- Stainless steel straight cable outlet (AISI 303)
- Optional stainless steel terminal box (AISI 303) or aluminium food grade powder coated
- Optional Stainless steel elbow connector (AISI 303)
- FDA and USDA recognized oil and grease

- Please refer to page 74 - 81 for brackets and precautions page 100 - 111

Diameter	Max. power	Min. speed	Max. speed
113.5 mm	0.37 kW	0.05 m/s	1.50 m/s

Interroll Drum Motor 113i – Ø 113.5 mm – 3-phase

Motor				Gear ratio	Nominal belt speed at full load and 50 Hz	Torque	Belt pull	Max. Belt tension $T_1 + T_2$	Min. Shell length RL
Power [kW/HP]	No. of poles	Full load current i_f 400 V/50 Hz [A]	Gear stages	i	[m/s]	[Nm]	[N]	[N]	[mm]
0.035/0.05	12	0.41	3	43.49 37.05 31.96 28.17	0.05 0.06 0.07 0.08	38.9 33.1 28.6 25.2	688 586 506 446	6550	250
0.08/0.11	8	0.4	3	37.05 28.17 20.71	0.10 0.15 0.20	39.1 29.7 21.8	691 526 386	6550	250
			2	15.17 11.15	0.25 0.35	16.3 12.0	289 212	6550	
0.10/0.13	6	0.46	3	43.49 37.05 28.17 20.71	0.12 0.15 0.20 0.25	45.0 38.4 29.2 21.4	797 679 516 379	6550	250
			2	15.17	0.35	16.0	284	6550	
0.15/0.20	4	0.54	3	43.49 31.96 28.17 24.00 20.71	0.20 0.25 0.30 0.35 0.40	43.0 31.6 27.8 23.7 20.5	761 559 493 420 362	6550	250
			2	15.17 12.92 11.15	0.55 0.60 0.70	15.3 13.0 11.2	271 231 199	6550	
0.225/0.30	2	0.70	3	43.49 31.96 28.17 24.00 20.71	0.40 0.50 0.60 0.70 0.80	31.1 22.9 20.2 17.2 14.8	551 405 357 304 262	6550	250
			2	15.17 12.92 11.15	1.10 1.30 1.50	11.1 9.4 8.1	196 167 144	6550	

The maximum allowable belt tension of idler pulleys is always according to the corresponding drum motor values in the tables.

Interroll Drum Motor 113i – Ø 113.5 mm – 3-phase – High Power

Motor				Gear ratio i	Nominal belt speed at full load and 50 Hz	Torque	Belt pull	Max. Belt tension $T_1 + T_2$	Min. Shell length RL
Power [kW/HP]	No. of poles	Full load current i_f 400 V/50 Hz [A]	Gear stages		[m/s]	[Nm]	[N]	[N]	[mm]
0.07/0.09	12	0.62	3	43.49 37.05 31.96 28.17	0.05 0.06 0.07 0.08	77.4 65.9 56.9 50.1	1369 1166 1006 887	6550	300
0.15/0.20	8	0.68	3	43.49 37.05 31.96	0.09 0.10 0.13	86.4 73.6 63.5	1528 1302 1123	6550	300
0.18/0.24	6	0.80	3	43.49 37.05 28.17 20.71	0.12 0.15 0.20 0.25	76.9 65.6 49.8 36.6	1362 1160 882 648	6550	300
			2	15.17 11.15	0.35 0.50	27.4 20.1	485 356	6550	
0.30/0.40	4	0.91	3	43.49 31.96 28.17 24.00 20.71	0.20 0.25 0.30 0.35 0.40	85.1 62.6 55.2 47.0 40.5	1507 1107 976 832 717	6550	300
			2	15.17 12.92 11.15	0.55 0.60 0.70	30.3 25.8 22.3	536 457 394	6550	
0.37/0.50	2	1.10	3	43.49 31.96 28.17 24.00 20.71	0.40 0.50 0.60 0.70 0.80	51.2 37.6 33.1 28.2 24.4	905 666 587 500 431	6550	300
			2	15.17 12.92 11.15	1.10 1.30 1.50	18.2 15.5 13.4	322 275 237	6550	

The maximum allowable belt tension of idler pulleys is always according to the corresponding drum motor values in the tables.

Standard RL Interroll Drum Motor 113i

Standard weight [kg] for standard shell length RL [mm]

RL	250	300	350	400	450	500	550	600	650	700	750	800	850
Weight	8.5	9.2	9.7	10.4	11.1	11.8	12.5	13.2	13.9	14.6	15.3	16	16.2

Standard RL Interroll Drum Motor 113i – High Power

Standard weight [kg] for standard shell length RL [mm]

RL	300	350	400	450	500	550	600	650	700	750	800	850
Weight	10.5	11.2	11.9	12.6	12.9	13.6	14.3	15	15.7	16.4	17.1	17.8

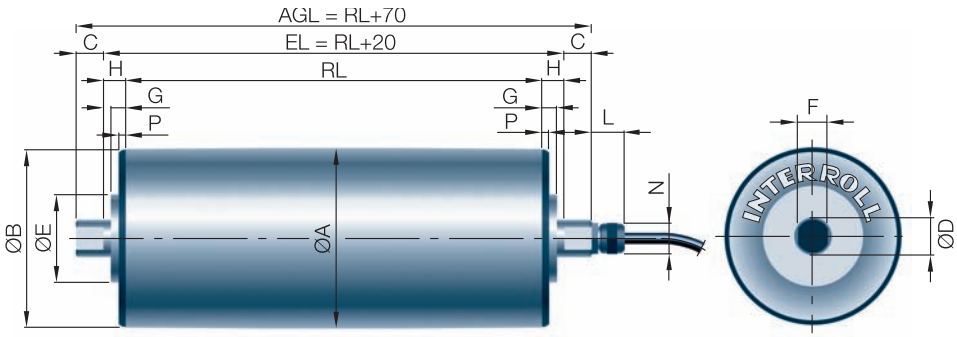
Standard RL Interroll Idler Pulley 113i

Standard weight [kg] for standard shell length RL [mm]

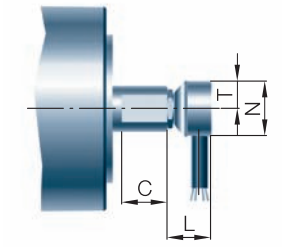
RL	250	300	350	400	450	500	550	600	650	700	750	800	850
Weight	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5

Interroll Drum Motor 113i

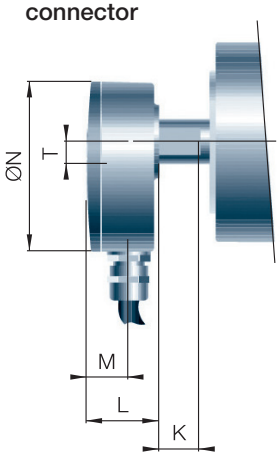
Drum motor standard with straight cable connector



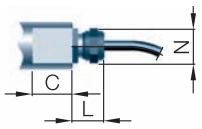
Elbow stainless steel cable connector



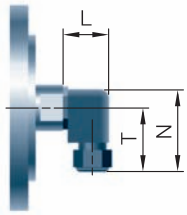
Terminal box connector



Straight cable connector

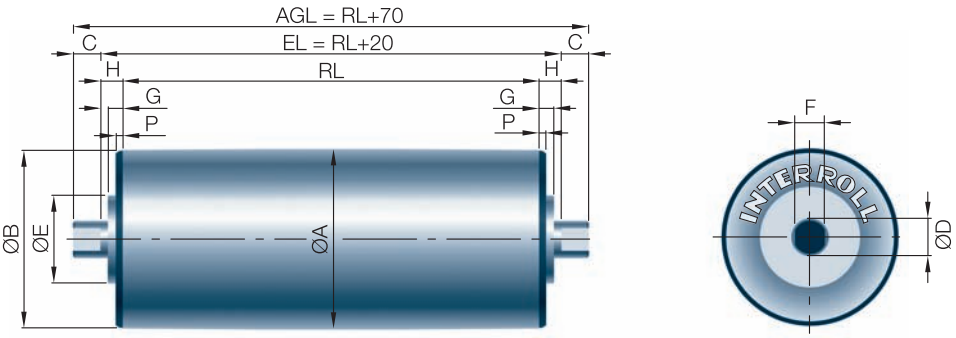


Elbow cable connector



Drum motor shaft cap version with straight cable connector or terminal box is available as a special option

Idler Pulley 113i



Type / Option	Standard measurements A mm	B mm	C mm	D mm	E mm	G mm	F mm	H mm	K mm	L mm	M mm	N mm	P mm	T mm	EL mm	AGL mm
113i standard	113.5	112	25	25	83	5.3	20	10					1.5		RL+20	RL+70
113i cylindrical	112															
Terminal box									23	41	24	95		14		
Elbow cable connector										22.5		45		35		
Elbow connector stainless steel										24	6.5	30		15		
Straight connector										20		22				
Idler Pulley	113.5	112	25	25	83	5	20	10							RL+20	RL+70

Optional Extras Interroll Drum Motor 113i / Idler Pulley 113i

Specifications	Drum Motor type 113i 3-phase	Idler Pulley 113i
Shaft		
Mild steel	Std.	Std.
Stainless steel TS	X	X
Screw hole M8 in shaft (for using with mounting brackets)	X	X
Shell		
Mild steel crowned	Std.	Std.
Stainless steel TS crowned	X	X
Mild steel or stainless steel cylindrical	X	X
Black rubber lagging	X	X
White or blue food quality lagging oil and fat resistant	X	X
Profiled rubber lagging for modular belting	o	X
Sprockets for modular belting	o	X
V-grooves in the rubber lagging	o	o
Special crowns and grooves in shell	o	o
Electrical motors		
Asynchron 3-phase (DIN IEC 34)	Std.	
Voltage 3x 230/400 V with ±10 % tolerance, 50 Hz – IEC 38	Std.	
Special voltages	X	
Insulation class F	Std.	
De-rated motor for modular or no belt application	o	
Dual voltage connection (star/delta) 230/400 V 50 Hz	Std.	
UL/cUL recognised motors	X	
Oil cooled	Std.	
Thermal protector	Std.	
Food grade oil & grease (FDA and USDA)	X	
Electrical connection		
IP 66 with straight connector	Std.	
IP 66 powder coated food approved terminal box	X	
IP 66 stainless steel terminal box	X	
IP 66 with elbow connector	X	
IP 66 with straight or elbow connector stainless steel	X	
IP 66 aluminium terminal box	X	
Screened cable (for brakes, encoders and frequency converters)	X	
Halogen-free cable	X	
Other options		
Electromagnetic brake (Minimum RL increases by 50 mm)*	X	
Mechanical backstop	X	
Modified for vertical or angled mounting	X	
Operation with VFD	Std.	
Integrated encoder (Minimum RL increases by 50 mm)*	X	
Degree of protection IP 66	Std.	Std.

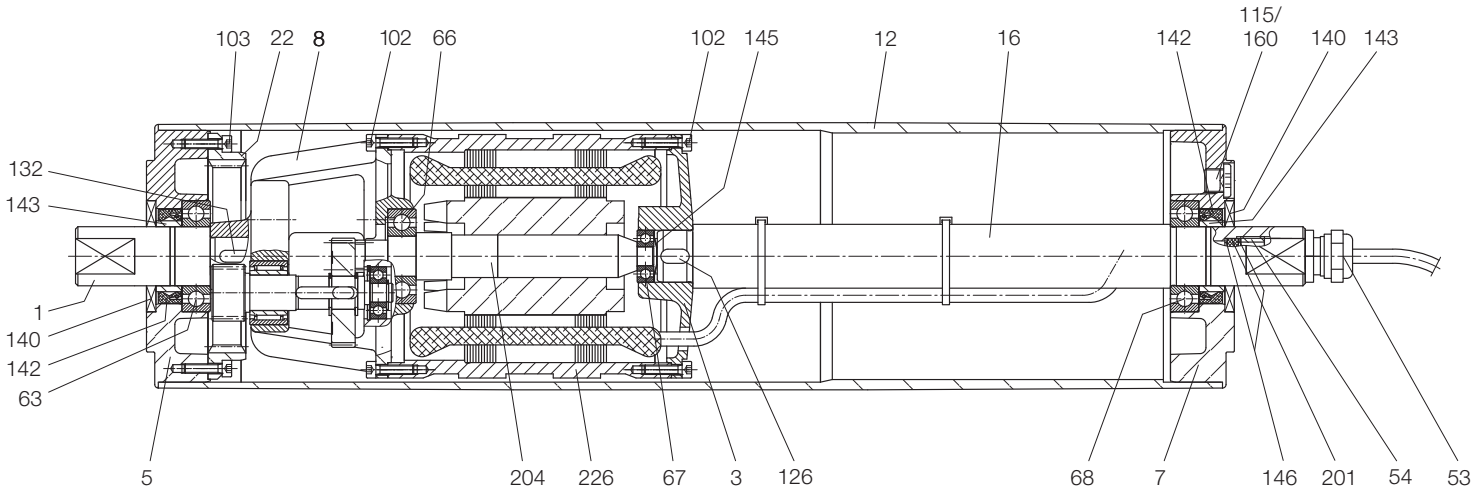
Note!
*Combined brake and encoder is not possible.

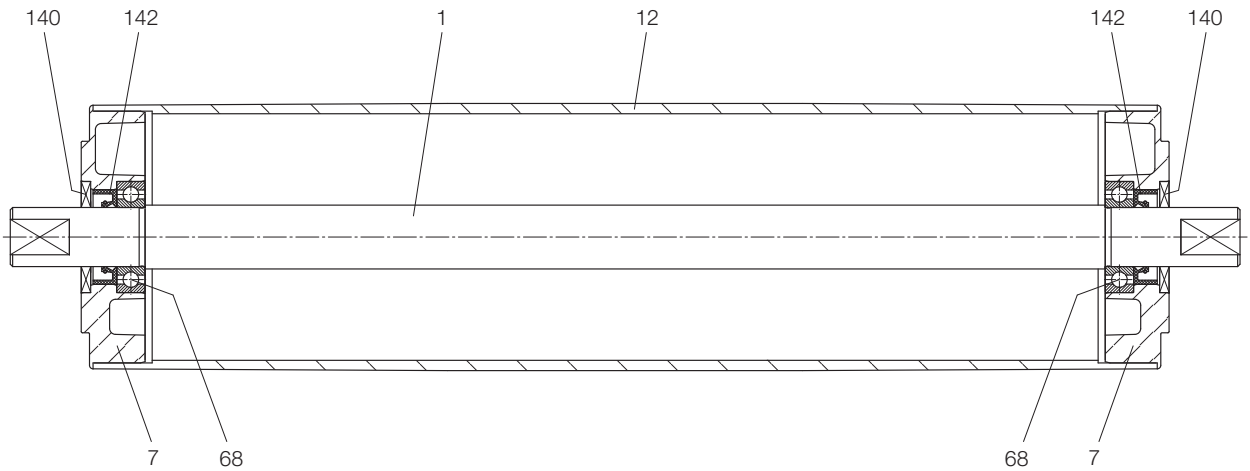
X = Optional extras
Std. = Fitted as standard
o = Available as option with some limitations
Please consult Interroll

Spare Parts List
Interroll
Drum Motor 113i /
Idler Pulley 113i

Pos.	Description
1	Front shaft
3	Rear flange
5	Housing front
7	Housing rear
8	Gear set
12	Shell
16	Rear shaft
22	Geared rim
53	Connection nipple
54	Pressure nipple
63	Ball bearing
66	Ball bearing (rotor shaft gear side)
67	Ball bearing (rotor shaft)
68	Ball bearing

Pos.	Description
102	Screw (gearbox/stator/rear flange)
103	Screw (gearrim/bearing/house)
115	Oil plug with magnet
126	Key (rear shaft)
132	Key (front shaft)
140	Labyrinth seal
142	Double lip seal
143	Ground Sleeve
145	Distance washer (rotor shaft bearing)
146	Washer (electrical connection)
160	Oil plug
201	Sealing (cable/shaft)
204	Rotor complete
226	Stator complete



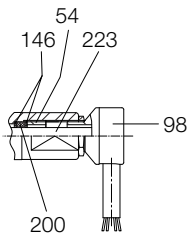


Spare Parts List
Interroll
Drum Motor 113i

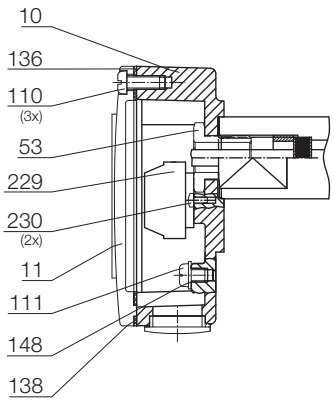
Pos.	Description
3	Rear flange
8	Gearbox complete
10	Terminal box
11	Terminal box cover
21	Rubber seal
53	Connection nipple
54	Pressure nipple
67	Ball bearing (rotor shaft)
96	Elbow connection
98	Elbow connection (stainless steel)
110	Screw (terminal box/cover)
111	Screw (terminal box-earth)

Pos.	Description
128	Key (Rotor Pinion)
136	Seal (Terminal Box)
138	Rubber seal (Terminal Box)
146	Washer (electrical connection)
148	Washer (earth screw terminal box)
150	Electromagnetic brake
200	Sealing
201	Sealing (cable/shaft)
223	Cable
229	WAGO Clamp
230	Screw for WAGO Clamp

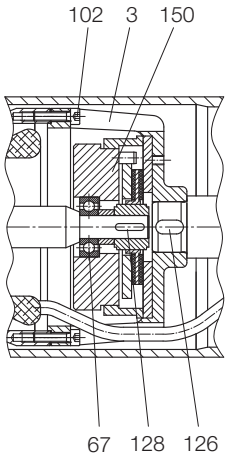
Elbow stainless steel cable connector



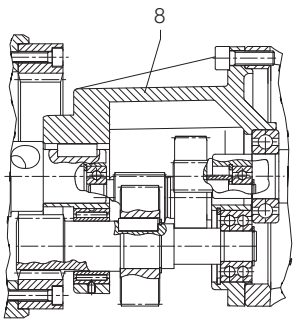
Terminal box



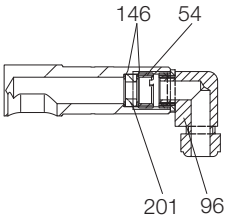
Electromagnetic brake (ELB)



3-stage gearbox



Elbow cable connector



The Interroll Drum Motor 138i is a real all-round component because of its wide power and speed range from 0.09 to 1.0 kW. This globally proved component is suitable for convey requirements in a wide variety of industrial branches and applications as for example:

- Food industry,
- Assembly line equipment,
- Pharmaceutical industry,
- Packaging and weighing equipment,
- Airport (check-in and X-ray machines),
- Meat,fish and poultry processing,
- Post office sorting conveyors,
- Mobile conveyors.

The drum motor 138i is available in complete stainless steel for wash down applications. In all versions it is power and weight optimized.

Optional extras:
Reference to page 43.

INTERROLL DRUM MOTOR 138i

	Series	Description	Type of gearbox	Gearbox material
i platform	138i	industrial	spur helical	steel

Specifications of standard drum motor 138i

- Crowned mild steel shell diameter 138 mm
- Mild steel shafts
- Shell and shafts treated with anti-rust wax
- Die cast aluminium bearing housings
- All motors have thermal protection
- Die cast aluminium gearbox housing with 2 or 3 stages
- Triple shaft sealing system – degree of protection IP 66 (EN 60034-5)
- Die cast aluminium terminal box with WAGO clamp
- 3-phase AC induction motor dual voltage 230 V/400 V at 50 Hz
- Most common global voltages are available as an option
- Dual voltage (star/delta) connection standard
- Motor windings insulation class F
- Available for 50 & 60 Hz supply
- Brass oil plugs (one with magnet to remove oil contaminates)
- Minimum Shell length (RL) 300 mm
- Max. RL 1800 mm (longer RL on request)
- RL exceeding 900 mm is designed with reinforced shaft

TS food grade technical specifications

- Crowned stainless steel shell (AISI 304)
- Stainless steel shafts (AISI 303)
- Stainless steel bearing housings (AISI 303)
- Stainless steel labyrinth seals (AISI 304). (Option with FPM infill)
- Stainless steel Terminal box (AISI 303) (Optional aluminium food grade powder coated)
- Optional Stainless steel straight or elbow connector (AISI 303)
- Stainless steel oil plugs (AISI 303, one with magnet to remove oil contaminates)
- FDA & USDA food grade recognised oil and grease

- Please refer to page 74 - 81 for brackets and precautions page 100 - 111

Diameter	Max. power	Min. speed	Max. speed
138 mm	1.00 kW	0.04 m/s	1.90 m/s

Interroll Drum Motor 138i – Ø 138 mm – 3-phase

Motor				Gear ratio i	Nominal belt speed at full load and 50 Hz	Torque	Belt pull	Max. Belt tension $T_1 + T_2$	Min. Shell length RL
Power [kW/HP]	No. of poles	Full load current i_f 400 V/50 Hz [A]	Gear stages		[m/s]	[Nm]	[N]	[N]	[mm]
0.09/0.12	12	0.6	3	74.98 61.68 39.87 32.07	0.04 0.05 0.07 0.09	146.00 120.00 78.00 63.00	2131 1754 1134 912	8300	300
			2	30.55	0.10	60.70	886	8300	
0.18/0.24	8	0.7	3	74.98 39.87	0.06 0.12	177.10 94.20	2586 1375	8300	300
			2	30.55 19.54 15.72 10.41	0.15 0.25 0.30 0.45	73.60 47.10 37.90 25.10	1075 688 553 366	8300	
0.25/0.34	6	0.75	3	74.98 61.68 47.97 32.07	0.08 0.10 0.13 0.20	184.90 152.10 118.30 79.10	2699 2220 1727 1154	8300	300
			2	25.13 19.54 15.72 10.41	0.25 0.35 0.45 0.65	63.20 49.20 39.60 26.20	923 718 577 382	8300	
0.37/0.50	4	0.97	3	74.98 61.68 47.97 39.87 32.07	0.13 0.15 0.20 0.25 0.30	186.30 153.30 119.20 99.10 79.70	2720 2237 1740 1446 1163	8300	300
			2	25.13 19.54 15.72 10.41	0.40 0.50 0.60 0.95	63.70 49.50 39.90 26.40	930 723 582 385	8300	
0.55/0.74	2	1.3	3	74.98 61.68 47.97 39.87 32.07	0.25 0.35 0.40 0.50 0.60	131.30 108.00 84.00 69.80 56.14	1916 1576 1226 1019 820	8300	300
			2	25.13 19.54 15.72 12.60 10.41	0.80 1.00 1.30 1.60 1.90	44.90 34.90 28.10 22.80 18.60	655 510 410 330 271	8300	

The maximum allowable belt tension of idler pulley is always according to the corresponding drum motor values in the tables.

Interroll Drum Motor 138i – Ø 138 mm – 3-phase – High Power

Motor				Gear ratio	Nominal belt speed at full load and 50 Hz	Torque	Belt pull	Max. Belt tension	Min. Shell length
Power [kW/HP]	No. of poles	Full load current i_f 400 V/50 Hz [A]	Gear stages	i	[m/s]	[Nm]	[N]	$T_1 + T_2$ [N]	RL [mm]
0.75/1.00	4	1.9	3	47.97	0.20	234.30	3420	8300	350
				39.87	0.25	194.70	2843		
				32.07	0.30	156.60	2287		
			2	25.13	0.40	125.30	1828	8300	
				19.54	0.50	97.40	1422		
				15.72	0.60	78.40	1144		
				10.41	0.95	51.90	758		
1.00/1.34	2	2.4	3	47.97	0.40	155.30	2267	8300	350
				39.87	0.50	129.10	1884		
				32.07	0.60	103.80	1516		
			2	25.13	0.80	83.00	1212	8300	
				19.54	1.00	64.60	943		
				15.72	1.30	51.90	758		
				12.60	1.60	41.40	600		
				10.41	1.90	34.40	502		

The maximum allowable Belt tension of idler pulleys is always according to the corresponding drum motor values in the tables.

Standard RL Interroll Drum Motor 138i

Standard weight [kg] for standard Shell length RL [mm]

RL	300	350	400	450	500	550	600	650	700	750	800	850	900
Weight	14.5	15.7	16.9	18.1	19.3	20.5	21.7	22.9	24.1	25.3	26.5	27.7	28.9

Standard RL Interroll Drum Motor 138i – High Power

Standard weight [kg] for standard Shell length RL [mm]

RL	350	400	450	500	550	600	650	700	750	800	850	900
Weight	15.7	16.9	18.1	19.3	20.5	21.7	22.9	24.1	25.3	26.5	27.7	28.9

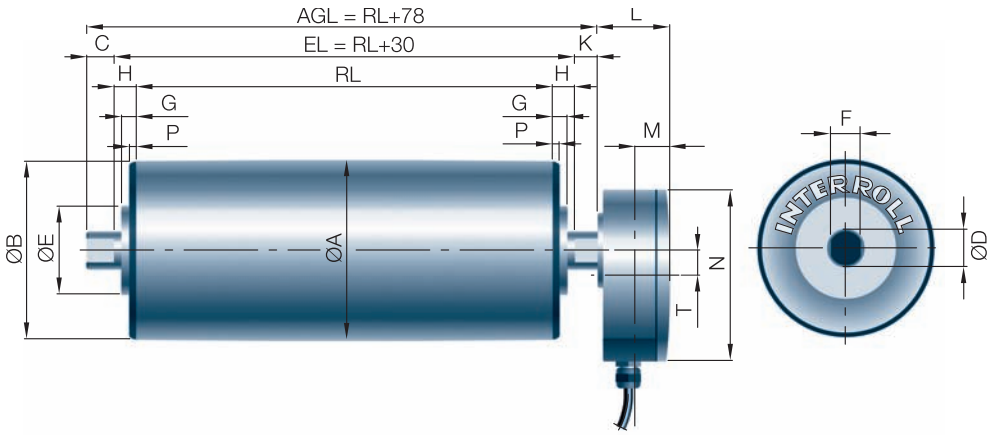
Standard RL Interroll Idler Pulley 138i

Standard weight [kg] for standard Shell length RL [mm]

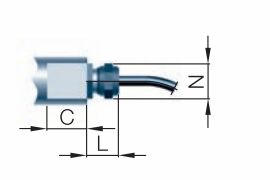
RL	300	350	400	450	500	550	600	650	700	750	800	850	900
Weight	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5

Interroll Drum Motor 138i

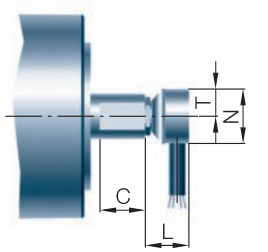
Drum motor with terminal box



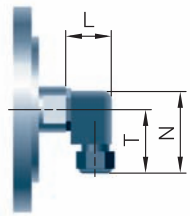
Cable straight connector



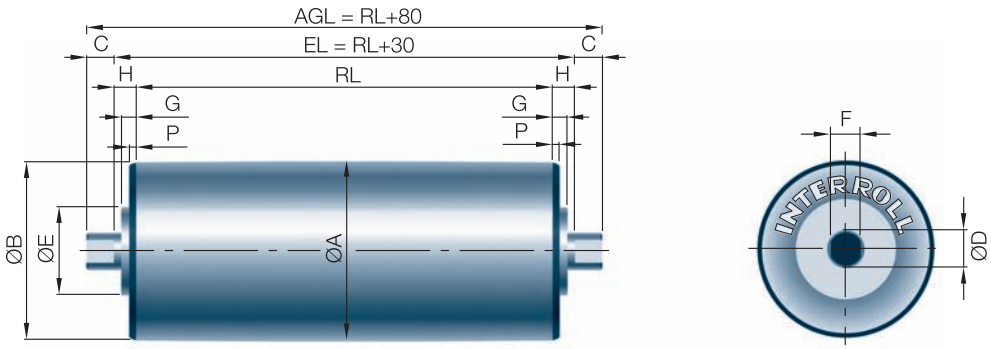
Cable stainless elbow connector



Cable elbow connector



Idler Pulley 138i



Type / Option	Standard measurements															
	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	K mm	L mm	M mm	N mm	P mm	T mm	EL mm	AGL mm
138i standard	138	136	25	30	100	20	6.5	15	23				1.5		RL+30	RL+78
138i cylindrical	136															
Straight connector										20		22				
Elbow cable connector										22.5		45		35		
Stainless elbow connector										24	6.5	30		15		
Terminal box									23	41	24	95		14		
Idler pulley	138	136	25	30	100	20	6.5	15							RL+30	RL+80

Optional Extras Interroll Drum Motor 138i/ Idler Pulley 138i

Specifications	Drum Motor type 138i 3-phase	Idler Pulley 138i
Shaft		
Mild steel	Std.	Std.
Stainless steel TS	X	X
Screw hole M8 in shaft (for using with mounting brackets)	X	X
Shell		
Mild steel crowned	Std.	Std.
Stainless steel TS crowned	X	X
Mild steel or stainless steel cylindrical	X	X
Black rubber lagging	X	X
White or blue food quality lagging oil and fat resistant	X	X
Profiled rubber lagging for modular belting	o	X
Sprockets for modular belting	o	X
V-grooves in the rubber lagging	o	o
Special crowns and grooves in shell	o	o
Electrical motors		
Asynchron 3-phase (DIN IEC 34)	Std.	
Voltage 3x 230/400 V with ±10 % tolerance, 50 Hz – IEC 38	Std.	
Special voltages	X	
Insulation class F	Std.	
De-rated motor for modular or no belt application	o	
Dual voltage connection (star/delta) 230/400 V 50 Hz	Std.	
UL/cUL recognised motors	X	
Oil cooled	Std.	
Thermal protector	Std.	
Food grade oil & grease (FDA and USDA)	X	
Electrical connection		
IP 66 aluminium terminal box	Std.	
IP 66 powder coated food approved terminal box	X	
IP 66 stainless steel terminal box	X	
IP 66 with straight or elbow connector	X	
IP 66 with straight or elbow connector stainless steel	X	
Screened cable (for brakes, encoders and frequency converters)	X	
Halogen-free cable	X	
Other options		
Electromagnetic brake (Minimum RL dimensions increases by 50 mm)*	X	
Mechanical backstop	X	
Modified for vertical or angled mounting	X	
Operation with VFD	Std.	
Integrated encoder (Minimum RL dimensions increases by 50 mm)*	X	
Degree of protection IP 66	Std.	Std.

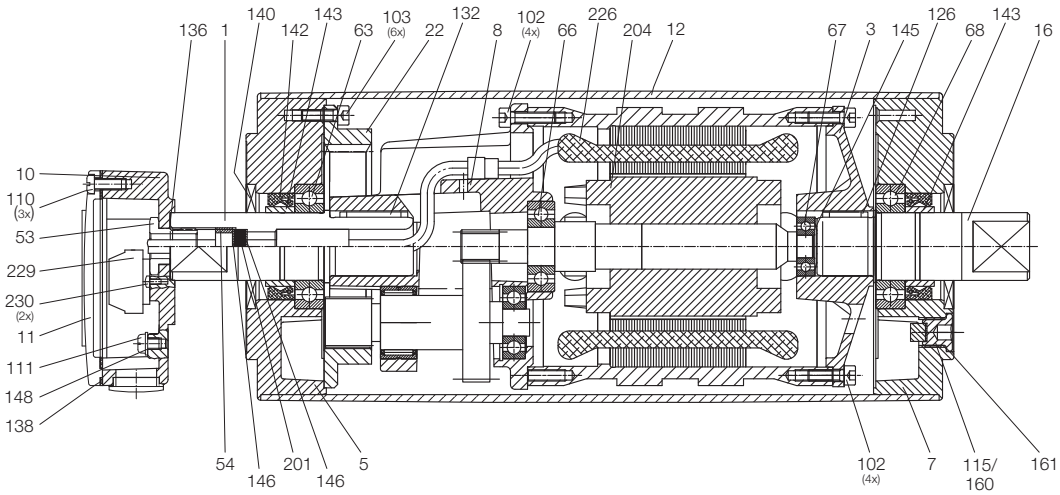
Note!
*Combined brake and encoder is not possible

X = Optional extras
Std. = Fitted as standard
o = Available as option with some limitations
Please consult Interroll

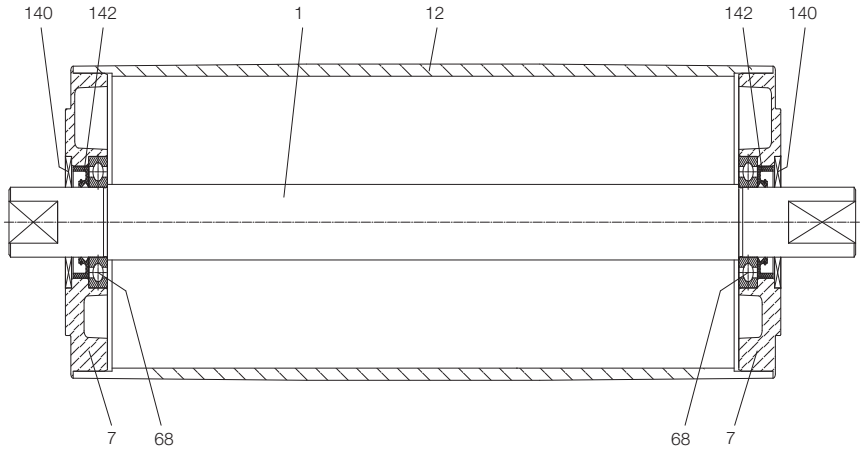
Spare Parts List Interroll Drum Motor 138i / Idler Pulley 138i

Pos.	Description	Pos.	Description
1	Front shaft	111	Screw (terminal box-earth)
3	Rear flange	115	Oil plug with magnet
5	Housing front	126	Key (rear shaft)
7	Housing rear	132	Key (front shaft)
8	Gear set	136	Seal (terminal box/front shaft)
10	Terminal box	138	Rubber seal (terminal box)
11	Terminal box cover	140	Labyrinth seal
12	Shell	142	Double lip seal
16	Rear shaft	143	Ground Sleeve
22	Geared rim	145	Distance washer (rotor shaft bearing)
53	Connection nipple		
54	Pressure nipple	146	Washer (electrical connection)
63	Ball bearing	148	Washer (earth screw terminal box)
66	Ball bearing (rotor shaft gear side)	160	Oil plug
		161	O-ring (oil plug)
67	Ball bearing (rotor shaft)	201	Sealing (cable/shaft)
68	Ball bearing	204	Rotor complete
102	Screw (gearbox/stator/rear flange)	226	Stator complete
		229	WAGO Clamp
103	Screw (gearrim/bearing/house)	230	Screw for WAGO Clamp
110	Screw (terminal box/cover)		

Drum motor 138i Standard with terminal box and 2-stage gearbox



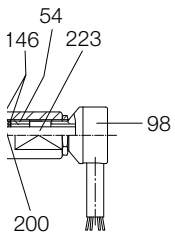
Idler Pulley



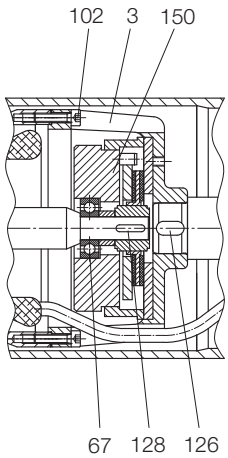
Spare Parts List
Interroll
Drum Motor 138i

Pos.	Description	Pos.	Description
3	Rear flange	128	Key (Rotor Pinion)
8	Gearbox complete	146	Washer (electrical connection)
54	Pressure nipple	150	Electromagnetic brake
67	Ball bearing (rotor shaft)	200	Sealing
96	Elbow connection	201	Sealing (cable/shaft)
98	Elbow connection (stainless steel)	223	Cable

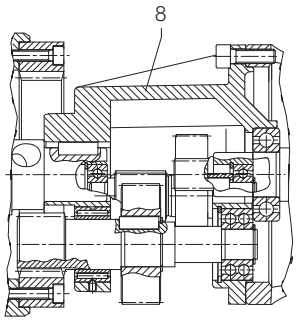
Elbow stainless steel cable connector



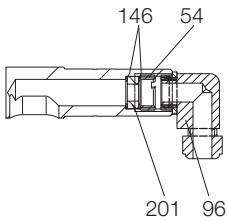
Electromagnetic brake (ELB)



3-stage gearbox



Elbow cable connector



The Interroll Drum Motor 165i is a highly developed and proven drive component with an outside diameter of 164 mm and a tremendous power and speed range from 0.15 to 2.20 kW with a lot of reserve. It is outstanding robust, strong in torque and can take a high radial load. It is therefore globally appreciated by our customers for use in the following applications:

- Food industry,
- Warehousing and vehicle loading,
- Assembly line equipment,
- Pharmaceutical industry,
- Car industry (test benches),
- Packaging and weighing equipment,
- Airport (baggage handling),
- Meat and poultry processing,
- Post office sorting conveyors,
- Agricultural handling conveyors.

The drum motor 165i is available in complete stainless steel for wash down applications. In all versions it is power and performance optimized.

Optional extras:
Reference to page 51.

INTERROLL DRUM MOTOR 165i

	Series	Description	Type of gearbox	Gearbox material
i platform	165i	industrial	spur helical	steel

Specifications of standard drum motor 165i

- Crowned mild steel shell, outside diameter 164 mm
  - Mild steel shafts
  - Shell and shafts treated with anti-rust wax
- Die cast aluminium bearing housings
- Gearbox from cast iron 2- and 3-stages
  - Tripple shaft sealing system – degree of protection IP 66 (EN 60034-5)
    - Die cast aluminium terminal box with WAGO clamp
- 3-phase AC induction motor dual voltage 230/400 V 50 Hz
- Most common global voltages are available as an option
- Motor windings with insulation class F
- Available for 50 & 60 Hz supply
- Brass oil plugs (one with magnet to remove oil contaminates)
- Minimum Shell length (RL) 400 mm
- Maximum Shell length (RL) 1800 mm (longer RL on request)
- RL exceeding 1000 mm is designed with reinforced shaft

TS stainless steel specifications

- Crowned stainless steel shell (AISI 304), outside diameter 164 mm
- Stainless steel shafts (AISI 303)
- Stainless steel bearing housings (AISI 303)
- Stainless steel labyrinth seal (AISI 304). (Option with FPM infill)
- Stainless steel (AISI 303) terminal box. (Optional aluminium food grade powder coated)
- Optional stainless steel straight or elbow connector (AISI 303)
- Stainless steel oil plugs (AISI 303, one with magnet to remove oil contaminates)
- FDA & USDA food grade recognised oil and grease

- Please refer to page 74 - 81 for brackets and precautions page 100 - 111

Diameter	Max. power	Min. speed	Max. speed
164 mm	2.20 kW	0.08 m/s	2,55 m/s

Interroll Drum Motor 165i – Ø 164 mm – 3-phase

Motor				Gear ratio i	Nominal speed at full load and 50 Hz	Torque	Belt pull at full load	Max. Belt tension $T_1 + T_2$	Min. Shell length RL
Power [kW/HP]	No. of poles	Full load current i_f 400 V/50 Hz [A]	Gear stages		[m/s]	[Nm]	[N]	[N]	[mm]
0.37/0.50	8	1.50	3	62.37 39.31	0.10 0.15	300.0 189.4	3666 2310	19000	400
0.37/0.50	4	1.25	3	62.37 46.56 39.31 31.56 24.60	0.20 0.25 0.30 0.40 0.50	150.3 112.2 94.7 76.0 58.2	1833 1368 1155 927 710	19000	400
			2	19.64 14.66 12.38	0.60 0.80 0.95	48.3 36.0 30.4	589 439 371		
0.55/0.74	6	1.60	3	62.37 46.56 39.31	0.12 0.15 0.20	365.2 272.6 230.0	4453 3324 2806	19000	400
			2	19.64 14.66 12.38	0.35 0.50 0.60	117.3 87.6 73.9	1431 1068 902		
0.75/1.00	4	1.80	3	62.37 46.56 39.31 31.56 24.60	0.20 0.25 0.30 0.40 0.50	310.6 231.8 195.7 157.1 118.1	3787 2827 2387 1916 1440	19000	400
			2	19.64 14.66 12.38	0.60 0.80 0.95	99.8 74.5 62.9	1217 908 767		
1.10/1.50	4	2.80	3	46.56 39.31 31.56 24.60	0.25 0.30 0.40 0.50	348.8 294.0 236.4 173.2	4254 3591 2883 2112	19000	400
			2	19.64 14.66 12.38	0.60 0.80 0.95	150.1 112.1 94.6	1831 1366 1154		
1.10/1.50	2	2.40	3	46.56 39.31 31.56 24.60	0.50 0.60 0.80 1.00	161.7 136.5 109.6 86.6	1972 1665 1337 1056	19000	400
			2	19.64 14.66 12.38	1.25 1.65 2.00	69.6 51.9 43.9	849 633 535		

The maximum allowable belt tension of idler pulleys is always according to the corresponding drum motor values in the tables.

Interroll Drum Motor 165i – Ø 164 mm – 3-phase – High Power

Motor				Gear ratio i	Nominal speed at full load and 50 Hz	Torque	Belt pull at full load	Max. Belt tension $T_1 + T_2$	Min. Shell length RL
Power [kW/HP]	No. of poles	Full load current i_f 400 V/50 Hz [A]	Gear stages		[m/s]	[Nm]	[N]	[N]	[mm]
0.37/0.50	12	1.60	3	46.56	0.08	339.6	4142	19000	450
0.75/1.00	6	2.10	3	46.56 39.31	0.15 0.20	371.6 314.0	4532 3826	19000	450
1.5/2.00	4	3.50	3	31.56 24.60	0.40 0.50	305.3 236.2	3723 2880	19000	450
			2	19.64 14.68 12.38	0.60 0.80 0.95	193.9 144.7 122.2	2364 1765 1490		
2.2/3.00	2	4.55	3	46.56 39.31 31.56 24.60	0.50 0.60 0.80 1.00	324.0 273.8 219.8 173.0	3954 3339 2680 2112	19000	450
			2	19.64 14.66 12.38 9.65	1.25 1.65 2.00 2.55	139.6 104.2 87.9 68.7	1702 1270 1073 828		

The maximum allowable belt tension of idler pulleys is always according to the corresponding drum motor values in the tables.

Standard RL Interroll Drum Motor 165i

Standard weight [kg] for standard Shell length RL [mm]

RL	400	450	500	550	600	650	700	750	800	850	900	950	1000
Weight	35	36.9	38.8	40.7	42.6	44.5	46.4	48.3	50.2	52.1	54	55.9	57.8

Standard RL Interroll Drum Motor 165i – High Power

Standard weight [kg] for standard Shell length RL [mm]

RL	450	500	550	600	650	700	750	800	850	900	950	1000
Weight	36.9	38.8	40.7	42.6	44.5	46.4	48.3	50.2	52.1	54	55.9	57.8

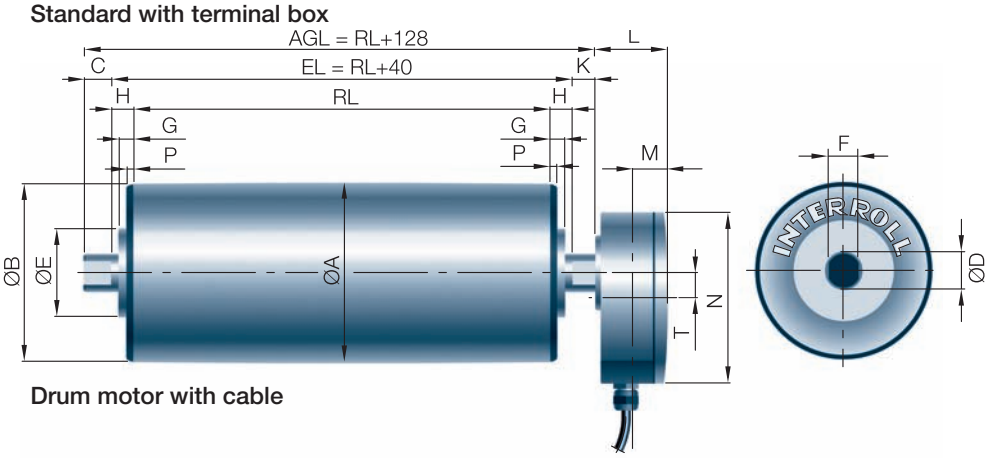
Standard RL Interroll Idler Pulley 165i

Standard weight [kg] for standard Shell length RL [mm]

RL	400	450	500	550	600	650	700	750	800	850	900	950	1000
Weight	14	15.5	17	18.5	20	21.5	23	24.5	26	27.5	29	30.5	32

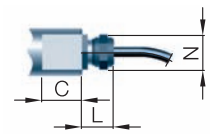
Interroll Drum Motor 165i

Standard with terminal box

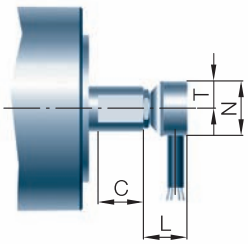


Drum motor with cable

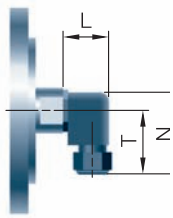
Cable straight connector



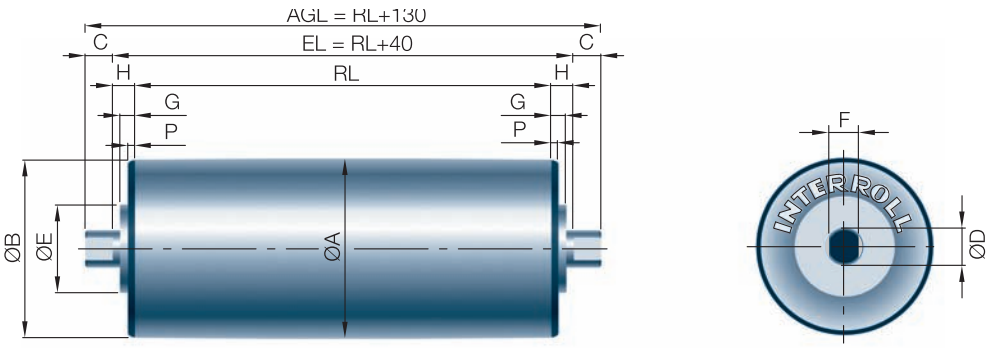
Cable stainless elbow connector



Elbow cable connector



Idler Pulley 165i



Type / Option	Standard measurements															
	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	K mm	L mm	M mm	N mm	P mm	T mm	EL mm	AGL mm
165i standard	164	162	45	40	130	30	8.5	20	43				1.5		RL+40	RL+128
165i cylindrical	162															
Straight connector										20		22				
Elbow cable connector										22.5		45		35		
Stainless elbow connector										24	6.5	30		15		
Terminal box									43	41	24	95		14		
Idler Pulley	164	162	45	40	130	30	8.5	20							RL+40	RL+130

Optional Extras Interroll Drum Motor 165i/ Idler Pulley 165i

Specifications	Drum Motor type 165i 3-phase	Idler Pulley 165i
Shaft		
Mild steel	Std.	Std.
Total Stainless steel TS	X	X
Screw hole M10 in shaft (for using with mounting brackets)	X	X
Shell		
Mild steel crowned	Std.	Std.
Stainless steel TS crowned	X	X
Mild steel or stainless steel cylindrical	X	X
Black rubber lagging	X	X
White or blue food quality lagging oil and fat resistant	X	X
Profiled rubber lagging for modular belting	o	X
Sprockets for modular belting	o	X
V-grooves in the rubber lagging	o	o
Special crowns and grooves in shell	o	o
Electrical motors		
Asynchron 3-phase (DIN IEC 34)	Std.	
Voltage 3x 230/400V with ±10 % tolerance, 50 Hz – IEC 38	Std.	
Special voltages	X	
Insulation class F	Std.	
De-rated motor for modular or no belt application	o	
Dual voltage connection (star/delta) 230/400 V 50 Hz	Std.	
UL/cUL recognised motors	X	
Oil cooled	Std.	
Thermal protector	Std.	
Food grade oil & grease (FDA and USDA)	X	
Electrical connection		
IP 66 aluminium terminal box	Std.	
IP 66 powder coated food approved terminal box	X	
IP 66 stainless steel terminal box	X	
IP 66 with straight or elbow connector	X	
IP 66 with straight or elbow connector stainless steel	X	
Screened cable (for brakes, encoders and frequency converters)	X	
Halogen-free cable	X	
Other options		
Electromagnetic brake (Minimum RL dimensions increases by 50 mm)*	X	
Mechanical backstop	X	
Modified for vertical or angled mounting	X	
Operation with VFD	Std.	
Integrated encoder (Minimum RL dimension increases by 50 mm)*	X	
Degree of protection IP 66	Std.	Std.

Note!
*Combined brake and encoder is not possible.

X = Optional extras
Std. = Fitted as standard
o = Available as option with some limitations
Please consult Interroll

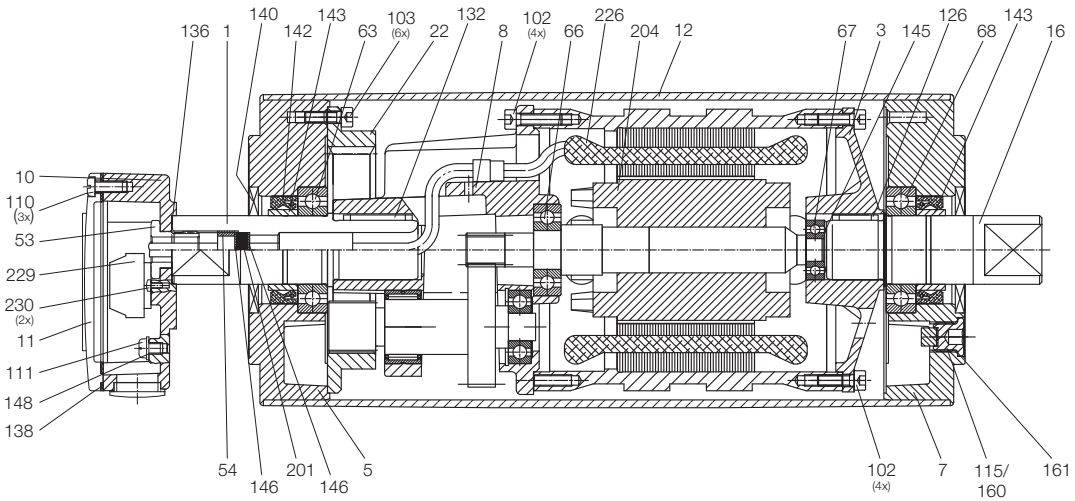
www.interroll.com

Spare Parts List
Interroll
Drum Motor 165i /
Idler Pulley 165i

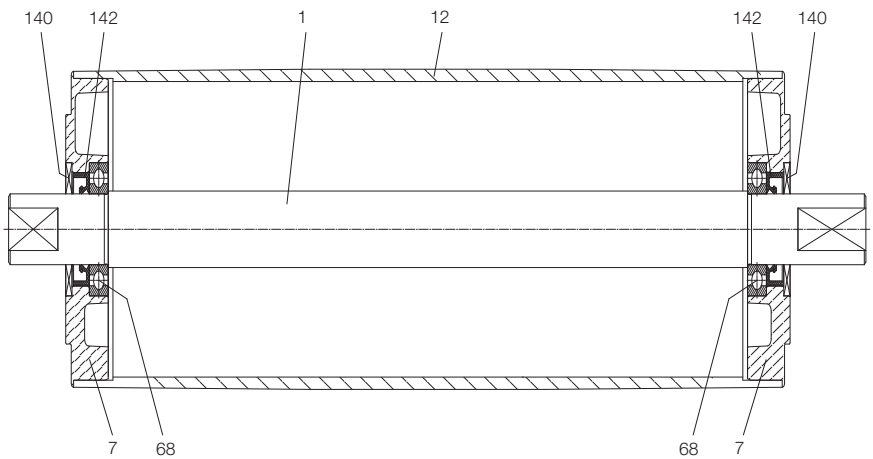
Pos.	Description
1	Front shaft
3	Rear flange
5	Housing front
7	Housing rear
8	Gear set
10	Terminal box
11	Terminal box cover
12	Shell
16	Rear shaft
22	Geared rim
53	Connection nipple
54	Pressure nipple
63	Ball bearing
66	Ball bearing (rotor shaft gear side)
67	Ball bearing (rotor shaft)
68	Ball bearing
102	Screw (gearbox/stator/rear flange)
103	Screw (gearrim/bearing/house)
110	Screw (terminal box/cover)

Pos.	Description
111	Screw (terminal box-earth)
115	Oil plug with magnet
126	Key (rear shaft)
132	Key (front shaft)
136	Seal (terminal box/front shaft)
138	Rubber seal (terminal box)
140	Labyrinth seal
142	Double lip seal
143	Ground Sleeve
145	Distance washer (rotor shaft bearing)
146	Washer (electrical connection)
148	Washer (earth screw terminal box)
160	Oil plug
161	O-ring (oil plug)
201	Sealing (cable/shaft)
204	Rotor complete
226	Stator complete
229	WAGO Clamp
230	Screw for WAGO Clamp

Drum motor 165i Standard with terminal box and 2-stage gearbox



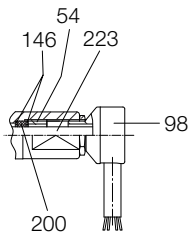
Idler Pulley



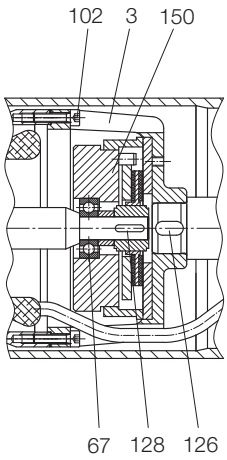
Spare Parts List
Interroll
Drum Motor 165i

Pos.	Description
3	Rear flange
8	Gearbox complete
54	Pressure nipple
67	Ball bearing (rotor shaft)
96	Elbow connection
98	Elbow connection (stainless steel)
128	Key (Rotor Pinion)
146	Washer (electrical connection)
150	Electromagnetic brake
200	Sealing
201	Sealing (cable/shaft)
223	Cable

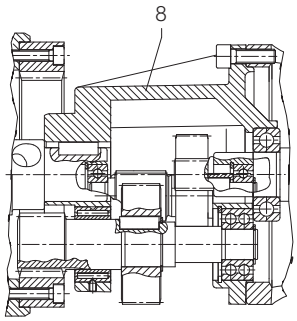
Elbow stainless steel cable connector



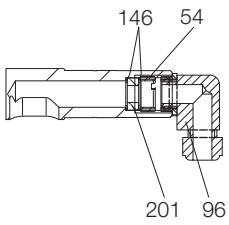
Electromagnetic brake (ELB)



3-stage gearbox



Elbow cable connector



The drum motor 216i based on 165i in diameter 217.5 mm with powers ranging from 0.15 kW to 2.2 kW and speeds from 0.08 to 2.6 m/s is typically used for heavy-duty unit handling applications. The drum motor 216i is often used in steep incline flexible sidewall conveyors, airport luggage handling conveyors, meat and poultry processing conveyors, post office sorting conveyors and abattoir conveyors.

Optional extras:
Please refer to page 59.

INTERROLL DRUM MOTOR 216i

	Series	Description	Type of gearbox	Gearbox material
i platform	216i	industrial	spur helical	steel

Specifications of standard Drum Motor 216i

- Crowned mild steel shell, outside diameter 217.5 mm
- Mild steel shafts
- Shell and shafts treated with anti-rust wax
- Die cast aluminium bearing housings (steel housings for 216i-High power)
- All motors have thermal protection
- Gearbox from cast iron 2- and 3-stage
- Tripple shaft sealing system – degree of protection IP 66 (EN 60034-5)
- Die cast aluminium terminal box with WAGO clamps
- 3-phase AC induction motor dual voltage 230/400 V 50 Hz.
- Most common global voltages are available as an option
- Available for 50 & 60 Hz supply
- Motor windings with insulation class F (insulation class H on request)
- Brass oil plugs (one with magnet to remove oil contaminates)
- Minimum Shell length RL 400 mm
- Maximum Shell length RL 1800 mm
- RL exceeding 1000 mm is designed with reinforced shaft

TS stainless steel specifications

- Crowned stainless steel shell (AISI 304)
- Stainless steel shafts (AISI 303)
- Stainless steel bearing housings (AISI 303)
- Stainless steel labyrinth seals (AISI 304) (Option with FPM infill)
- Stainless steel (AISI 303) Terminal box (Optional aluminium food grade powder coated)
- Optional stainless steel (AISI 303) straight or elbow connector on request
- Stainless steel oil plugs (AISI 303, one with magnet to remove oil contaminates))
- FDA and USDA recognised oil and grease

- Please refer to page 74-81 for brackets and precautions page 100-111

Diameter	Max power	Min speed	Max speed
217.5 mm	2.2 kW	0.08 m/s	2.6 m/s

Interroll Drum Motor 216i – Ø 217.5 mm – 3-phase

Motor				Gear ratio i	Nominal belt speed 50 Hz	Full load torque	Full load belt pull	Max. belt tension $T_1 + T_2$	Min. Shell length RL
Power [kW/HP]	No. of poles	Full load current i_f 400 V/50 Hz [A]	Number of gear stages		[m/s]	[Nm]	[N]	[N]	[mm]
0.37/0.50	8	1.5	3	62.37 39.31	0.13 0.20	300.6 189.4	2764 1742	19000	400
0.37/0.50	4	1.3	3	62.37 50.07 46.56 39.31 31.56 24.60	0.25 0.30 0.35 0.40 0.50 0.65	150.3 120.6 112.2 94.7 76.0 59.0	1382 1109 1032 871 699 546	19000	400
			2	19.64 14.66 12.38	0.80 1.00 1.30	48.3 36.0 30.4	444 331 280		
0.55/0.74	6	1.6	3	46.56 39.31 31.56	0.20 0.25 0.30	272.6 230.1 184.7	2506 2116 1699	19000	400
			2	19.64 14.66 12.38	0.50 0.65 0.80	117.3 87.6 73.9	1079 805 680		
0.75/1.00	4	1.8	3	62.37 46.56 39.31 31.56 24.60	0.25 0.35 0.40 0.50 0.65	310.6 231.8 195.7 157.1 120.0	2856 2132 1800 1445 1107	19000	400
			2	19.64 14.66 12.38	0.80 1.05 1.25	99.8 74.5 62.9	917 685 578		
1.10/1.50	4	2.8	3	39.31 31.56 24.60	0.40 0.50 0.65	294.5 236.4 176.0	2708 2174 1624	19000	400
			2	19.64 14.66 12.38	0.75 1.00 1.20	151.0 113.0 95.1	1387 1036 874		
1.1/1.50	2	2.4	3	46.56 39.31 31.56 24.60	0.70 0.80 1.00 1.30	161.7 137.0 110.0 88.0	1487 1259 1010 812	19000	400
			2	19.64 14.66 12.38	1.60 2.20 2.60	69.8 52.1 44.0	642 479 404		

The maximum allowable belt tension of idler pulleys is always according to the corresponding drum motor values in the tables.

Interroll Drum Motor 216i – Ø 217.5 mm – 3-phases – High Power

Motor				Gear ratio i	Nominal belt speed 50 Hz	Full load torque	Full load belt pull	Max. belt tension $T_1 + T_2$	Min. Shell length RL
Power [kW/HP]	No. of poles	Full load current i_f 400 V/50 Hz [A]	Number of gear stages		[m/s]	[Nm]	[N]	[N]	[mm]
0.37/0.50	12	1.60	3	46.56	0.10	339.6	3123	19000	450
0.75/1.00	6	2.10	3	46.56 39.31	0.20 0.25	371.6 313.7	3417 2885	19000	450
1.5/2.00	4	3.50	3	31.56 24.60	0.50 0.65	305.3 236.2	2808 2172	19000	450
			2	19.64 14.66 12.38	0.80 1.10 1.30	193.9 144.7 122.2	1783 1331 1123		
2.2/3.00	2	4.55	3	46.56 39.31 31.56 24.60	0.70 0.80 1.00 1.30	324.3 273.8 219.8 173.0	2982 2518 2021 1590	19000	450
			2	19.64 14.66 12.38	1.60 2.20 2.60	139.6 104.2 87.9	1283 958 809		

Standard RL Interroll Drum Motor 216i

Standard weight [Kg] for standard shell length RL mm

RL	400	450	500	550	600	650	700	750	800	850	900	950	1000
Weight	46.5	47.8	49.1	50.4	51.7	53	54.3	55.6	56.9	58.2	59.5	60.8	62.10

Standard RL Interroll Drum Motor 216i – High Power

Standard weight [Kg] for standard shell length RL mm

RL	450	500	550	600	650	700	750	800	850	900	950	1000
Weight	47.8	49.1	50.4	51.7	53	54.3	55.6	56.9	58.2	59.5	60.8	62.10

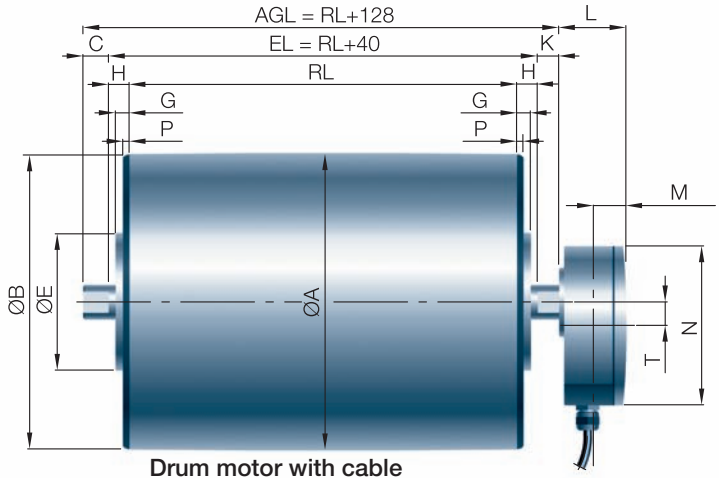
Standard RL Interroll Idler Pulley 216i

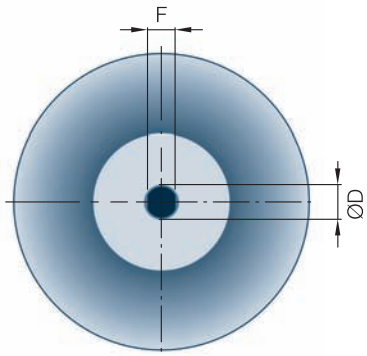
Standard weight [Kg] for standard shell length RL mm

RL	400	450	500	550	600	650	700	750	800	850	900	950	1000
Weight	19	21	23	25	27	29	31	33	35	37	39	41	43

Interroll Drum Motor 216i

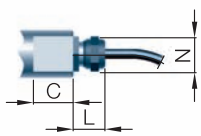
Standard with terminal box



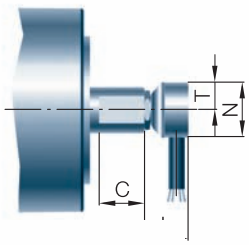


Drum motor with cable

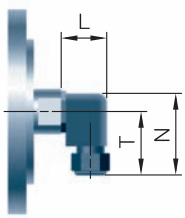
Straight connector



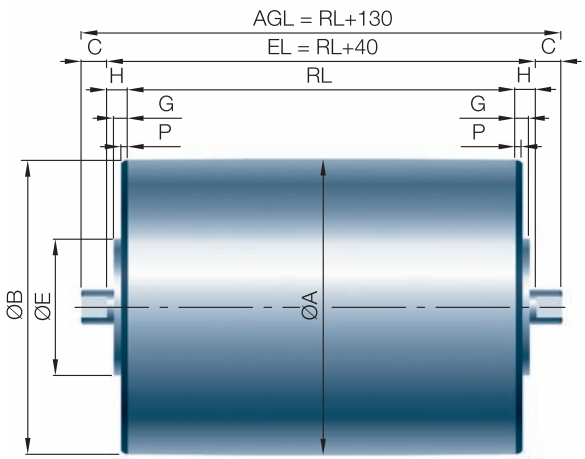
Stainless elbow connector

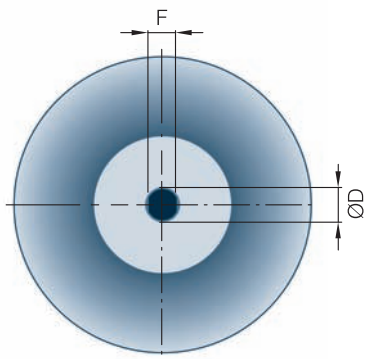


Elbow cable connector



Idler Pulley 216i





Type / Option	Standard measurements A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	K mm	L mm	M mm	N mm	P mm	T mm	EL mm	AGL mm
216i Terminal box	217.5	215.5	45	40	120	30	8.5	20	43				1.5		RL+40	RL+128
216i cylindrical	215.5															
Staigth connector										20		22				
Elbow cable connector										22.5		45		35		
Stainless elbow connector										24	6.5	30		15		
Terminal box									43	41	24	95		14		
Idler Pulley	217.5	215.5	45	40	120	30	8.5	20							RL+40	RL+130

Optional Extras Interroll Drum Motor 216i / Idler Pulley 216i

Specifications	Drum Motor type 216i 3-phase	Idler Pulley 216i
Shaft		
Mild steel	Std.	Std.
Stainless steel TS	X	X
Screw hole M10 in shaft (for using with mounting brackets)	X	X
Shell		
Mild steel crowned	Std.	Std.
Stainless steel TS crowned	X	X
Mild steel or stainless steel cylindrical	X	X
Black rubber lagging	X	X
White or blue food quality lagging oil and fat resistant	X	X
Profiled rubber lagging for modular belting	o	X
Sprockets for modular belting	o	X
V-grooves in the rubber lagging	o	o
Special crowns and grooves in shell	o	o
Electrical motors		
Asynchronous 3-phase (DIN IEC 34)	Std.	
Voltage 3x 230/400 with ±10 % tolerance, 50 Hz – IEC 38	Std.	
Special voltages	X	
Insulation class F	Std.	
De-rated motor for modular or no belt application	o	
Dual voltage connection (star/delta) 230/400 V 50 Hz	Std.	
UL/cUL recognised motors	X	
Oil cooled	Std.	
Thermal protector	Std.	
Food grade oil & grease (FDA and USDA)	X	
Electrical connection		
IP 66 aluminium terminal box	Std.	
IP 66 powder coated food approved terminal box	X	
IP 66 stainless steel terminal box	X	
IP 66 with straight or elbow connector	X	
IP 66 with straight or elbow connector stainless steel	X	
Screened cable (for brakes, encoders and frequency converters)	X	
Halogen-free cable	X	
Other options		
Electromagnetic brake (Minimum RL dimensions increases by 50 mm)*	X	
Mechanical backstop	X	
Modified for vertical or angled mounting	X	
Operation with VFD	Std.	
Integrated encoder (Minimum RL dimensions increases by 50 mm)*	X	
Degree of protection IP 66	Std.	Std.

Note!
*Combined brake and encoder not possible.

X = Optional extras
Std. = Fitted as standard
o = Available as option with some limitations
Please consult Interroll

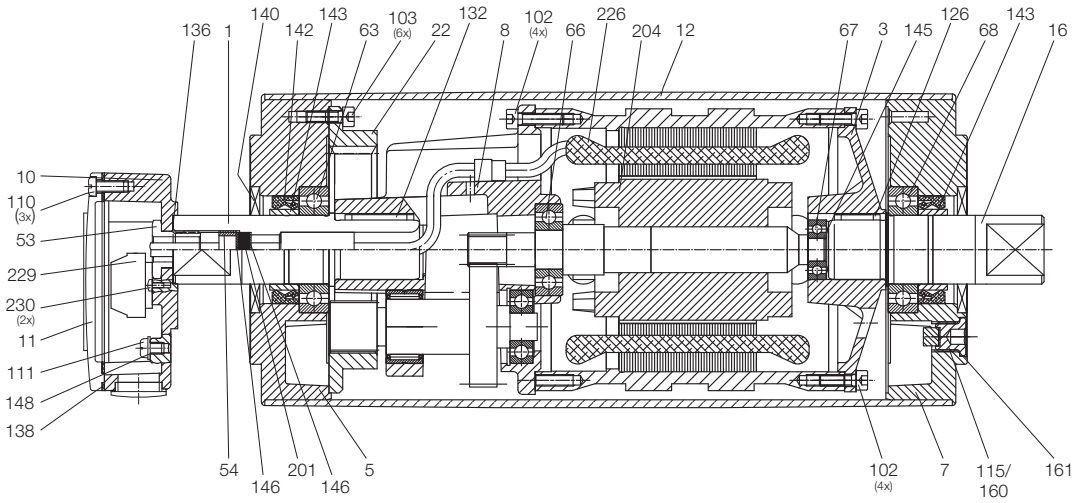
www.interroll.com

Spare Parts List
Interroll
Drum Motor 216i
Idler Pulley 216i

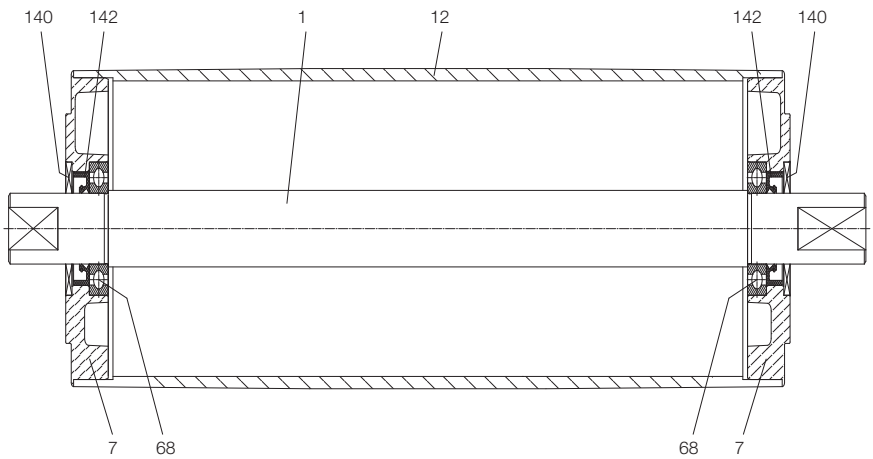
Pos.	Description
1	Front shaft
3	Rear flange
5	Housing front
7	Housing rear
8	Gear set
10	Terminal box
11	Terminal box cover
12	Shell
16	Rear shaft
22	Geared rim
53	Connection nipple
54	Pressure nipple
63	Ball bearing
66	Ball bearing (rotor shaft gear side)
67	Ball bearing (rotor shaft)
68	Ball bearing
102	Screw (gearbox/stator/rear flange)
103	Screw (gearrim/bearing/house)
110	Screw (terminal box/cover)

Pos.	Description
111	Screw (terminal box-earth)
115	Oil plug with magnet
126	Key (rear shaft)
132	Key (front shaft)
136	Seal (terminal box/front shaft)
138	Rubber seal (terminal box)
140	Labyrinth seal
142	Double lip seal
143	Ground Sleeve
145	Distance washer (rotor shaft bearing)
146	Washer (electrical connection)
148	Washer (earth screw terminal box)
160	Oil plug
161	O-ring (oil plug)
201	Sealing (cable/shaft)
204	Rotor complete
226	Stator complete
229	WAGO Clamp
230	Screw for WAGO Clamp

Drum motor 216i Standard with terminal box and 2-stage gearbox



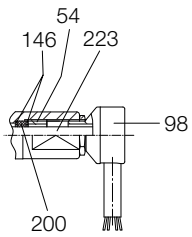
Idler Pulley



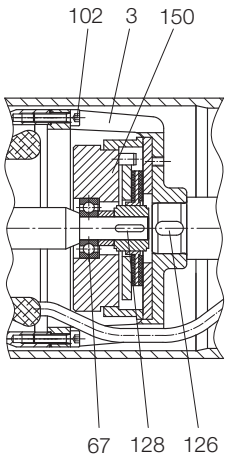
Spare Parts List Interroll Drum Motor 216i

Pos.	Description
3	Rear flange
8	Gearbox complete
54	Pressure nipple
67	Ball bearing (rotor shaft)
96	Elbow connection
98	Elbow connection (stainless steel)
128	Key (Rotor Pinion)
146	Washer (electrical connection)
150	Electromagnetic brake
200	Sealing
201	Sealing (cable/shaft)
223	Cable

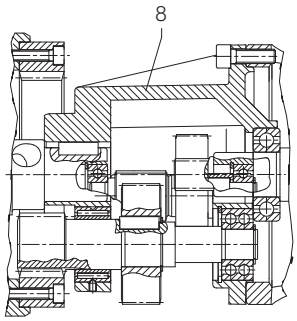
Elbow stainless steel cable connector



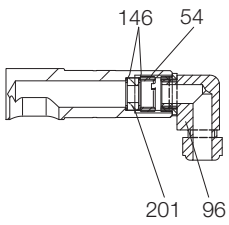
Electromagnetic brake (ELB)



3-stage gearbox



Elbow cable connector



Interroll Drum Motors 220M/220H

Interroll drum motor types 220M & 220H are tough and rigorous in design and are able to fulfil the most demanding heavy duty unit handling applications.

On the following pages drum motor types 220M and 220H are shown in detail, because they are mostly used in heavy unit handling.
Interroll also offer larger diameter, higher powered heavy duty drum motors 320 mm up to 800 mm diameter. An Overview of these drum motors (320L – 800H) is given on pages 71-72 and show the power, speed, dimensions and belt pull specifications. For more detailed information please refer to Interroll.

220M for medium duty
The internal parts of 220M are designed to match irregular load conditions for normal heavy unit handling applications.

220H for heavy duty
A reinforced 3-stage gearbox and stronger bearings give the 220H the ability to fulfil the increased requirements of heavy unit handling applications at low speeds, high torques and high belt tensions.

The decision whether to use a 220M or a 220H should be made primarily on the calculated belt tension (T_1+T_2) plus any expected shock loading. Allowance for higher belt tensions caused by thicker and/or wider belts must also be taken into consideration.

Standard Specifications of drum motors 220M/220H

- Crowned mild steel Ø 216 mm steel shell treated with anti-rust wax
- Powder coated cast iron bearing housings
- Mild steel shafts treated with anti-rust wax
- Shaft sealing system – degree of protection IP 66 (EN 60034-5)
- Compact powder coated die cast aluminium terminal box
- Larger powder coated die cast aluminium terminal box ≥ 5.5 kW
- 3-phase induction motors with thermal protector
- Wide range & dual voltage (Star/Delta). Most common voltages available. Please specify!
- Motor winding insulation Class F
- Dynamically balanced rotor
- One oil plug fitted with a magnet to remove oil contaminants
- Oil change recommended every 10000 operational hours
- Minimum length (RL) – Please refer to pages 64-65
- Maximum length (RL) – Please inquire!
- Non standard lengths available
- To be used in horizontal positions ± 5 degrees only!

Please note
- Straight or elbow connector available
- Parallel shell available. Diameter equal to dimension ØA
- Two speed motors on request (Note! the fast speed of two speed motors may produce higher noise levels)
- Special speeds available on request
- Drum Motor for non-horizontal positions available on request

- Please refer to page 74-81 for brackets and precautions page 100-111
- Optional Extras at page 67
- Connection diagrams at pages 122-123

Stainless steel options

TS9N
- Stainless steel shell – AISI 304
- Stainless steel shafts – AISI 303/4 range
- Stainless steel covered bearing housings – AISI 316
- Stainless steel oil plugs – AISI 304 – one with magnet to remove oil contaminates
- Stainless steel exterior bolts – AISI 304
- Re-greasable labyrinth seals with grease nipples in stainless steel – AISI 304
- Standard mineral oil
- Shaft sealing system – degree of protection IP 66 (EN 60034-5)

TS10N
- As TS9N, but **without** regreasable labyrinth seals

Semi-rust-free options

TS11N
- As TS9N, but with crowned mild steel Ø 216 mm steel shell treated with anti-rust wax

TS12N
- As TS10N, but with crowned mild steel Ø 216 mm steel shell treated with anti-rust wax

Other Options
- FDA & USDA food grade recognized oil available on request
- Complete drum motors in acid resistant stainless steel – AISI 316 range – on request

Electrical connection options
- Compact salt water resistant powder coated aluminium terminal box with zinc-plated exterior bolts
- Stainless steel terminal box – AISI 304 (max. 4 kW)
- Straight stainless steel connector with flying lead – AISI 304

- Please specify required stainless steel option (TS-number) when ordering!

Drum motors 220M/220H, Ø 216 mm – 3-phase 50 Hz

Motor			Nominal belt speed at full load 50 Hz	Torque	Belt pull	Max. radial load $T_1 + T_2$	Special min.	Type	Weight in kg for Standard width										Type of Bracket
Power	No. of poles	Gear stages							RL in mm (RL > 2000 mm available on request)									per 50 mm up to 2000	
kW/HP			m/s	Nm	N	N	RL		400	450	500	550	600	650	700	750	800		
0.37/0.50	8	3	0.13 0.16	291 236	2707 2195	25000	450	220H		64	67	70	73	76	79	82	85	3 kg	KL41-HD
		2	0.20 0.25 0.32 0.40 0.50 0.63 0.80 1.00 1.25	190 152 118 95 76 60 47 38 30	1767 1414 1098 884 707 558 437 353 279	11500	400	220M	48	51	54	57	60	63	66	69	72	3 kg	KL41
0.55/0.75	8	3	0.13 0.16	432 351	4019 3265	25000	500	220H			71	74	77	80	83	86	89	3 kg	KL41-HD
		2	0.20 0.25 0.32 0.40 0.50 0.63 0.80 1.00 1.25	282 226 176 141 113 89 70 56 45	2623 2102 1637 1312 1051 828 651 521 419	11500	450	220M		55	58	61	64	67	70	73	76	3 kg	KL41
0.75/1.00	8	3	0.13 0.16	592 481	5510 4476	25000	500	220H			71	74	77	80	83	86	89	3 kg	KL41-HD
		2	0.20 0.25 0.32 0.40 0.50 0.63 0.80 1.00 1.25	385 307 239 191 153 122 96 77 62	3581 2856 2223 1777 1423 1135 893 716 577	11500	450	220M		55	58	61	64	67	70	73	76	3 kg	KL41
1.10/1.50	6	3	0.16 0.20	705 564	6558 5246	25000	500	220H			68	71	74	77	80	83	86	3 kg	KL41-HD
	4		0.25 0.32	452 353	4205 3284		450			61	64	67	70	73	76	79	82		
	4	2	0.40 0.50 0.63 0.80 1.00 1.25 1.60 2.00 2.50	282 226 178 141 112 90 70 56 45	2623 2102 1656 1312 1042 837 651 521 419	11500	400	220M	46	49	52	55	58	61	64	67	70	3 kg	KL41

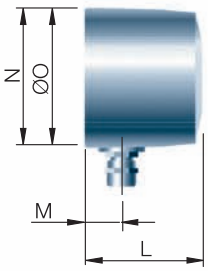
Motor			Nominal belt speed at full load 50 Hz	Torque	Belt pull	Max. radial load $T_1 + T_2$	Special min.	Type	Weight in kg for Standard width RL in mm (RL > 2000 mm available on request)									per 50 mm up to 2000	Type of Bracket
Power kW/HP	No. of poles	Gear stages	m/s	Nm	N	N	RL		400	450	500	550	600	650	700	750	800		
1.50/2.00	4	3	0.25 0.32	616 481	5730 4476	25000	450	220H		61	65	68	71	74	77	80	83	3 kg	KL41-HD
		2	0.40 0.50 0.63 0.80 1.00 1.25 1.60 2.00 2.50	385 307 243 191 153 123 96 77 62	3581 2856 2260 1777 1423 1144 893 716 572	11500	400	220M	48	51	54	57	60	63	66	69	72	3 kg	KL41
2.20/3.00	4	3	0.32 0.40	705 564	6558 5246	25000	500	220H			68	72	75	78	81	84	87	3 kg	KL41-HD
		2	0.50 0.63 0.80 1.00 1.25 1.60 2.00 2.50	451 358 282 226 180 140 115 90	4195 3330 2623 2102 1674 1302 1070 837	11500	450	220M		55	58	61	64	67	70	73	76	3 kg	KL41
3.00/4.00	4	3	0.50 0.63	616 481	5730 4476	25000	550	220H				74	77	80	83	86	89	3 kg	KL41-HD
		2	0.80 1.00 1.25 1.60 2.00 2.50	385 307 245 192 154 123	3581 2856 2279 1786 1433 1144	11500	500	220M			60	63	66	69	72	75	78	3 kg	KL41
4.00/5.50	2	3	0.63 0.80	649 511	6037 4754	25000	550	220H				74	77	80	83	86	89	3 kg	KL41-HD
		2	1.00 1.25 1.60 2.00 2.50	409 327 255 204 163	3805 3042 2372 1898 1516	11500	500	220M			60	63	66	69	72	75	78	3 kg	KL41
5.50/7.50	2	3	0.80 1.00 1.25 1.60 2.00 2.50	702 562 450 351 281 225	6530 5228 4186 3265 2614 2093	25000	550	220H				74	77	80	83	86	89	3 kg	KL41-HD

Weight and Tension Idler Pulleys 220M/220H

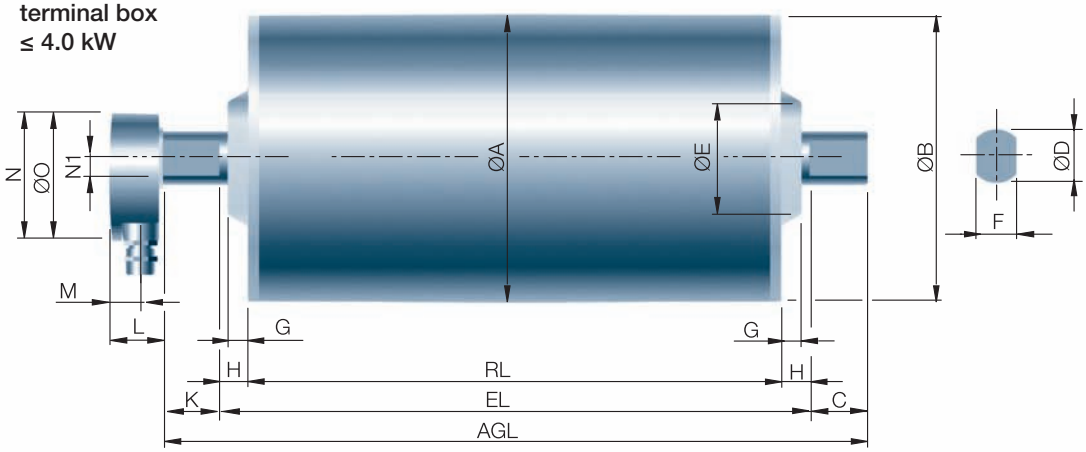
11500 25000	400 400	UT220M UT220H	25	27 29	29 31	31 33	33 35	35 37	37 39	39 41	41 43	2 kg 2 kg	KL41 KL41-HD

Drum motors
220M/220H
Ø 216 mm

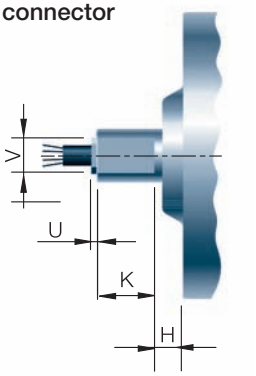
Larger terminal box ≥ 5.5 kW



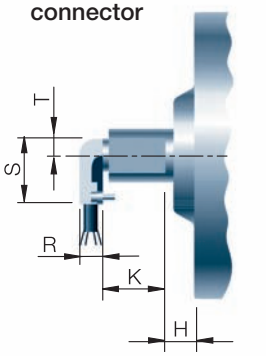
Compact terminal box ≤ 4.0 kW



Straight connector



Elbow connector



Type	Drum Motor or idler pulley (UT)										Compact terminal box ≤ 4.0 kW				Larger terminal box ≥ 5.5 kW				Straight connector ≤ 4.0 kW		Elbow connector ≤ 4.0 kW		
	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	K mm	W mm	L mm	M mm	N mm	N1 mm	L mm	M mm	N mm	O mm	U mm	V mm	R mm	S mm	T mm
220M/ 220H	216	214.5	43.5	40	100	30	15.5	21.5	41.5	–	41	24	95	14	87	27	107	105	4	27	20	48	12
	Idler pulley in TS9N/11N version																						
	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	K mm	W mm													
UT220M/ UT220H	216	214.5	43.5	40	100	30	15.5	21.5	–	52													

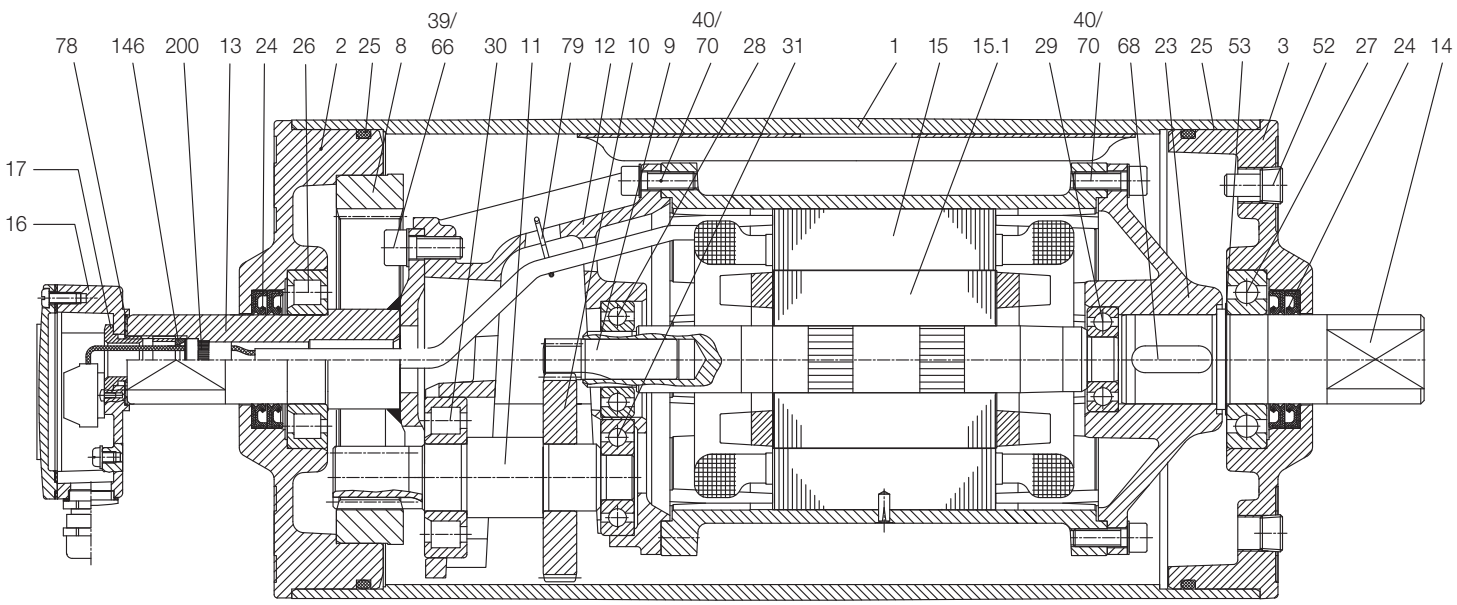
Optional Extras Drum motors 220M/220H

Specifications	Drum Motors 220M/ 220H
Total stainless steel option AISI 304 - TS9N Re-greasable labyrinth seals	X
Total stainless steel option AISI 304 - TS10N Standard seals	X
Semi-rust-free option - TS11N Re-greasable labyrinth seals	X
Semi-rust-free option - TS12N Standard seals	X
Food grade oil & grease – FDA & USDA recognized – available on request	X
Dust explosion proof drum motors – ATEX 95 – Zone 22 – for applications handling of dusty grain etc. According to European Directive 94/9/EC	o
Totally acid resistant stainless steel option – AISI 316	X
Re-greasable labyrinth seals – mild steel	X
Black smooth rubber lagging – Hardness 60 ±5 Shore A 5 mm	o
Black diamond rubber lagging – Hardness 60 ±5 Shore A 6 mm	o
White smooth rubber lagging (FDA). Oil, fat & grease resistant	o
SPECIAL lagging available on request – e.g. hot vulcanized, ceramic etc.	o
Single phase motors available on request	X
Electromagnetic brake (Min. RL dimensions increases by 100 mm)	X
Mechanical backstop	X
Modified for vertical mounting	o
Modified for mounting between 5° – ≤ 90° – e.g. for magnetic separators	o
Insulation class F – Allowable ambient temperature: -25°C / +40°C	Std.
Insulation class H with synthetic oil	X
Special motors for applications without belt	o
Low noise drives for noise sensitive areas	X
Parallel shell	X
Thermal protector	Std.
IP 66 Compact powder coated aluminium terminal box – food grade approved ≤ 4.0 kW	Std.
IP 66 Compact terminal box in stainless steel – AISI 304 or 316 ≤ 4.0 kW	X
IP 66 Larger powder coated aluminium terminal box – food grade approved ≥ 5.5 kW	Std.
Straight or elbow connector with flying lead ≤ 4.0 kW	X
Straight connector with flying lead in Stainless steel – AISI 304 ≤ 4.0 kW	X
Shaft sealing system – degree of protection IP 66 (EN 60034-5)	Std.
Screened cables (for motors with brakes, encoders and frequency converters)	X
2-speed motors	X
Voltage (3x 230/400 V or 3x 400/690 V 50 Hz) with ±10% tolerance – Std. DIN IEC 38	X
Special voltages – 50 and/or 60 Hz/	X
Dual voltage – delta/star – connection	Std.
Wide range voltage – range specifications available on request	Std.
CSA approved motors – available on request only	X

X = Optional extras
Std. = Fitted as standard
o = Available as option with some limitations
Please consult Interroll

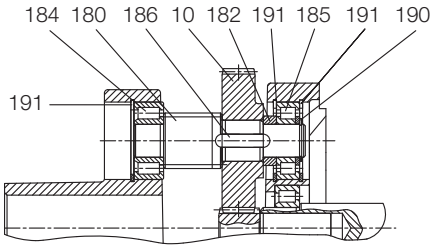
Spare Parts List
Drum Motor 220M

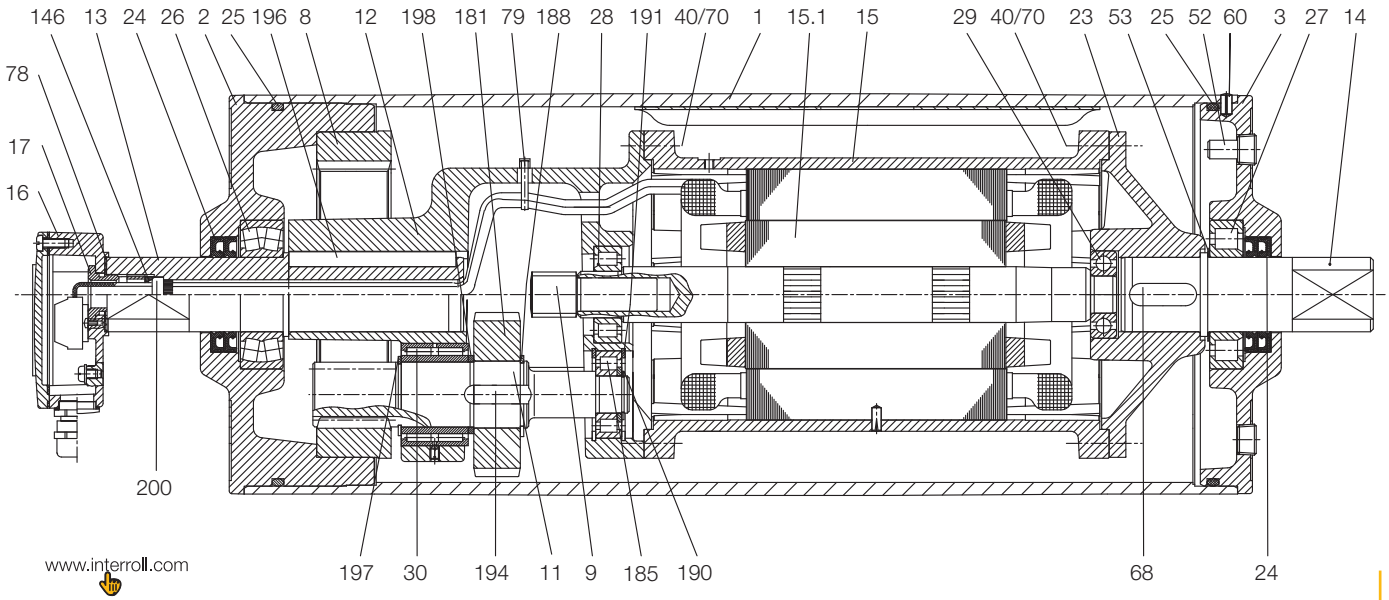
Pos.	Description
1	Shell
2	End housing with geared rim
3	End housing
8	Geared rim
9	Rotor pinion
10	Input wheel
11	Output pinion
12	Gear box
13	Front shaft
14	Rear shaft
15	Stator complete
15.1	Rotor complete
16	Terminal box complete
17	Nipple
23	Rear flange
24	2 dust lip seals at each side
24	1 double lip seal for labyrinth option at each side
25	O-ring
26	Bearing
27	Bearing
28	Bearing
29	Bearing (Backstop solution: One-way-bearing)
30	Bearing
31	Bearing
39	Hexagon socket screw
40	Hexagon socket screw
52	Magnetic oil plug
53	Distance washer
66	Waved spring washer
68	Key
70	Toothed washer
78	Sealing
79	Holding clip or cable binder
146	Special shaped compression washer
200	Rubber seal



Spare Parts List
Drum Motor 220H

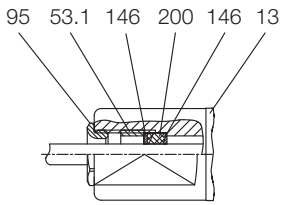
Pos.	Description	Pos.	Description
1	Shell	68	Key
2	End housing with geared rim	70	Toothed washer
3	End housing	78	Gasket
8	Geared rim	79	Holding clip for cable binder
9	Rotor pinion	85.1	Intermedia flange for E-brake
10	Input wheel	91	Electromagnetic brake
11	Output pinion	93	Retaining ring
12	Gear box	95	Straight connector
13	Front shaft	96	Elbow connector
14	Rear shaft	101	Key
15	Stator complete	104	Distance washer
15.1	Rotor	120	Labyrinth cover
16	Terminal box complete	121	Screw
17	Nipple	122	O-Ring
20	End cover	123	Grease nipple
20.1	End cover with labyrinth groove	124	Distance washer
23	Rear flange	143	O-Ring
23.1	Rear flange with backstop	146	Special shaped compression washer
23.2	Rear flange with E-brake	180	Intermediate pinion
24	2 Dust lip seals each side	181	Intermediate wheel
24	1 double lip seal for labyrinth option at each side	182	Distance washer
25	O-ring	184	Roller bearing
26	Bearing	185	Roller bearing
27	Bearing	186	Key
28	Bearing	187	Key
29	Backstop bearing	188	Retaining ring
30	Bearing	190	Retaining ring
40	Hexagon socket screw	191	Retaining ring
41	Hexagon socket screw	194	Set crew
52	Magnetic oil plug	196	Key
53	Distance washer	197	Retaining ring
53.1	Press nipple	198	Distance washer
59	Screw	200	Rubber seal



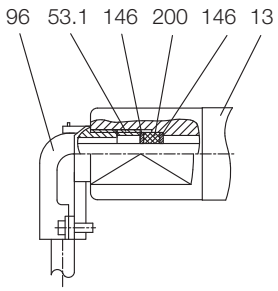


Spare Parts List
Drum Motor
220M / 220H

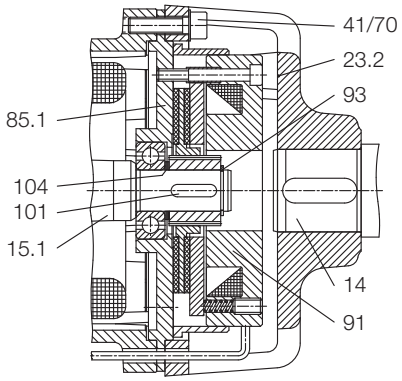
Straight connector



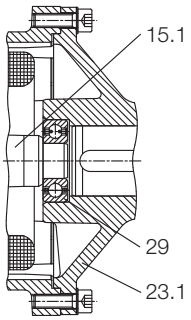
Elbow connector



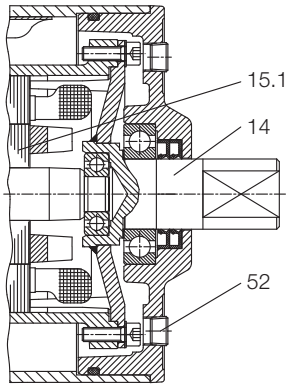
Electromagnetic brake



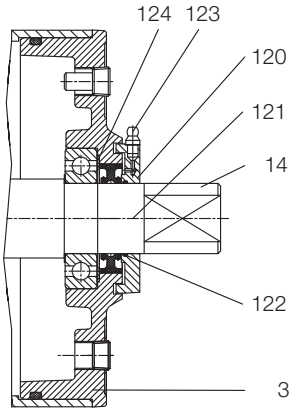
Backstop



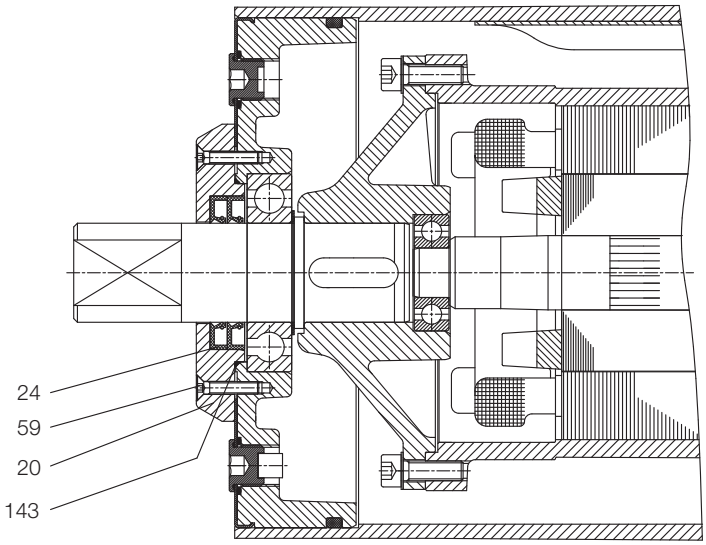
Short Version



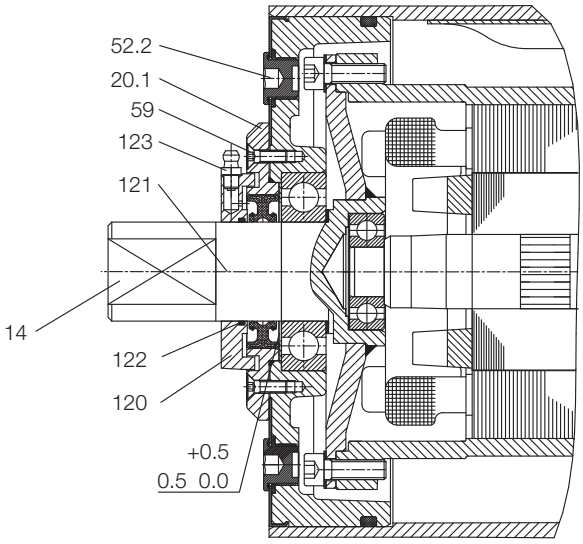
Labyrinth option – mild steel



220M / 220H
Stainless steel option TS10N / TS12N



220M / 220H
Stainless steel option TS9N / TS11N



Drum motors
320L – 800H 3-phase

Overview

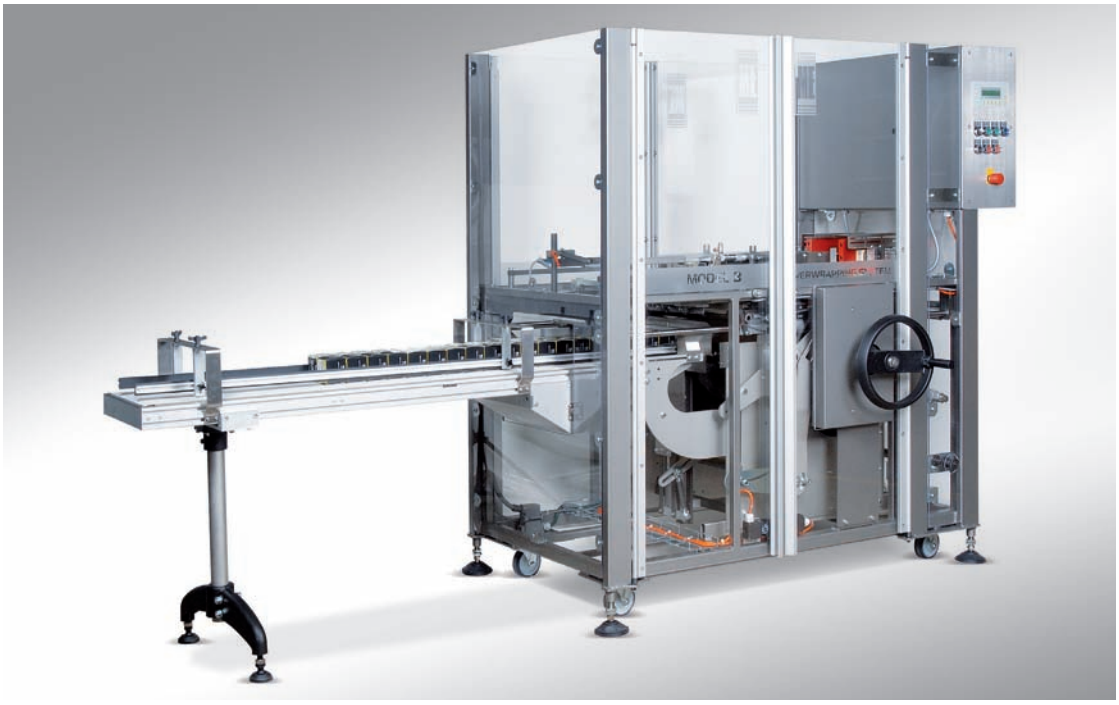
Type	Power [kW]	Belt speed [m/s]	Belt pull [N]
320L	0.75	0.32-1.25	2218- 573
	1.10	0.63-2.50	1651- 417
	1.50	0.63-2.50	2255- 573
	2.20	0.80-2.50	2604- 835
	3.00	1.25-2.50	2255- 1134
	4.00	1.60-2.50	2368- 1514
320M+320H	0.75	0.13-0.80	5475- 885
	1.10	0.13-1.25	8039- 835
	1.50	0.16-1.25	8906- 1134
	2.20	0.20-2.50	10450- 835
	3.00	0.25-2.50	11400- 1134
	4.00	0.32-2.50	11875- 1514
	5.50	0.40-2.50	13062- 2081
	7.50	0.80-2.50	8909- 2850
400L	2.20	0.80-2.50	2584- 835
	3.00	0.80-2.50	3562- 1140
	4.00	0.80-2.50	4750- 1520
	5.50	1.25-2.50	4180- 2090
	7.50	2.00-3.15	3525- 2238
400M+400H	2.20	0.16-1.60	13062- 1325
	4.00	0.25-1.60	15200- 2375
	5.50	0.40-3.15	13063- 1659
	7.50	0.50-3.15	14250- 2238
	11.00	0.80-3.15	13063- 3265
	15.00	1.00-3.15	14250- 4523
500L+500M	2.20	0.20-1.00	10542- 2088
	4.00	0.32-2.00	11876- 1900
	5.50	0.50-3.15	10448- 1696
	7.50	0.63-3.15	11308- 2280
	11.00	1.00-3.15	10448- 3316
	15.00	1.25-3.15	11400- 4524
500H	5.50	0.50-2.50	10427- 2084
	7.50	0.63-2.50	11285- 2843
	11.00	1.00-2.50	10423- 4172
	15.00	1.25-3.15	11377- 4515
	18.50	1.60-3.15	10962- 5569
	22.00	2.00-3.15	10423- 6385
630M	5.50	0.63-3.15	8292- 1657
	7.50	0.80-3.15	8905- 2261
	11.00	1.25-3.15	8356- 3318
	15.00	1.60-3.15	8902- 4521
	18.50	2.00-3.15	8784- 5578
	22.00	2.50-3.15	8362- 6635
630H	22.00	1.00-3.15	20899- 6632
	30.00	1.25-3.15	22791- 9045
	37.00	1.60-3.15	21969-11153
	45.00	2.50-4.00	17092-10683
	55.00	2.50-4.00	20902-13057
800M	22.00	1.25-3.15	16720- 6633
	30.00	1.60-3.15	17805- 9043
	37.00	2.00-4.00	17575- 8783
	45.00	3.15-4.00	13565-10683
	55.00	4.00	13058
800H	55.00	1.60-4.50	32630-11610
	75.00	2.00-4.50	35610-15828
	90.00	2.50-4.50	34185-18993
	110.00	3.15-4.50	33160-23163
	132.00	1.00-4.50	31338-27855

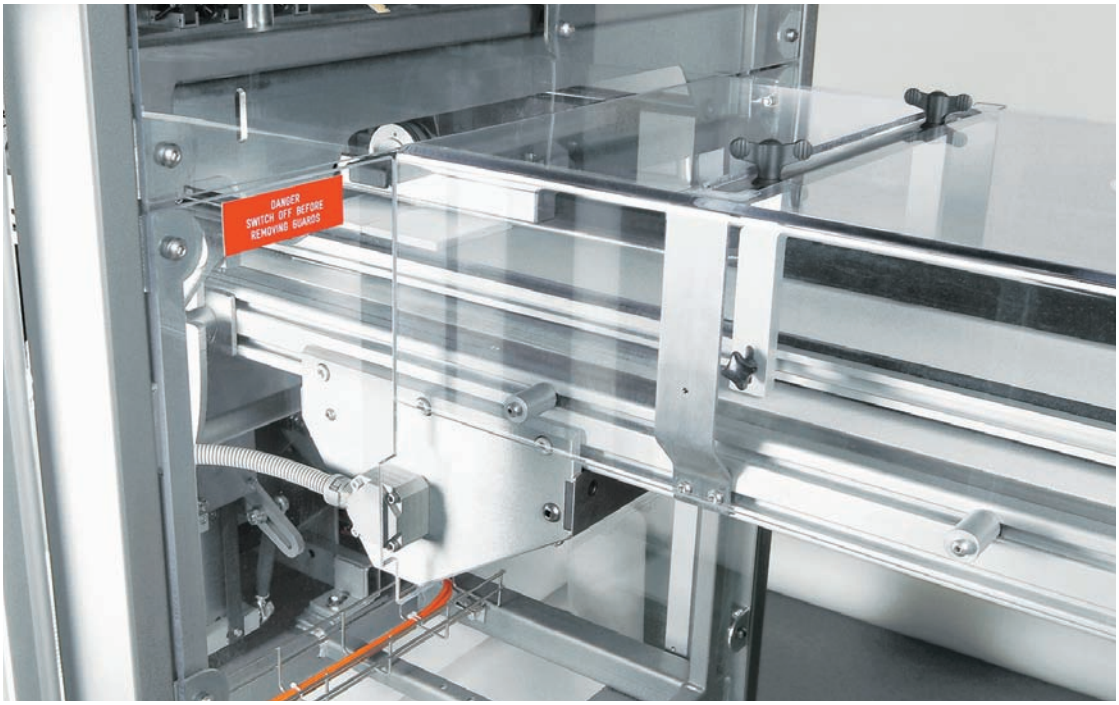
Drum motors
320L – 800H

Measurements

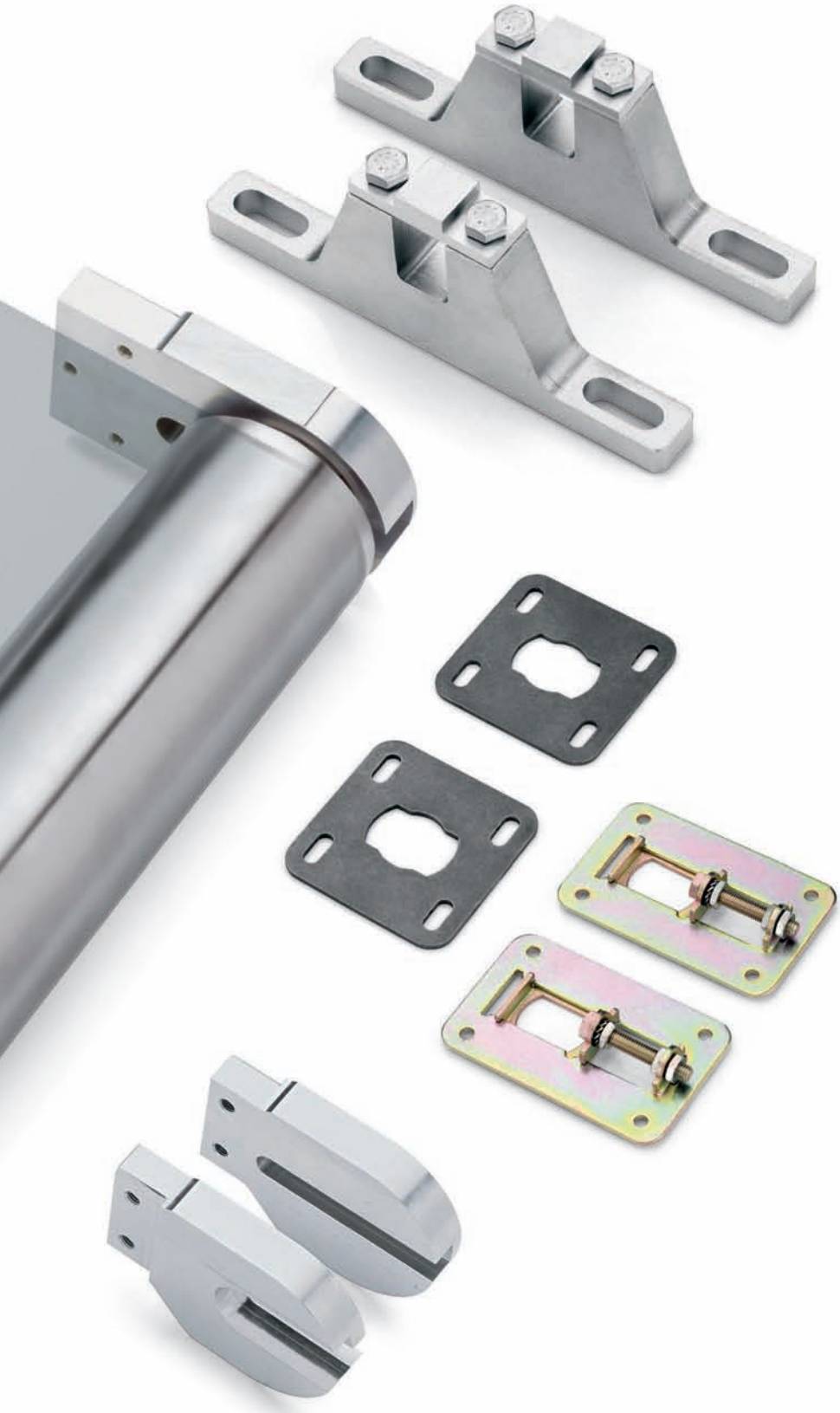
For reference please refer to drawing on page 66.

Type								G at TS				Compact T-box ≤ 4.0 kW				Larger T-box ≥ 5.5 kW					Straight connector ≤ 4.0 kW		Elbow connector ≤ 4.0 kW			Min. RL
	A mm	B mm	C mm	D mm	E mm	F mm	G mm	9/11 mm	H mm	K mm	W mm	L mm	M mm	N mm	N1 mm	L mm	M mm	N mm	O mm	P mm	U mm	V mm	R mm	S mm	T mm	mm
320L	323	319	50	40	96	30	15	19	25	54	–	41	24	95	14	–	–	–	–	–	4	27	20	48	12	400
320M	321	319	50	40	125	30	17.5	22.5	25	54	–	41	24	95	14	87	27	107	105	–	4	27	20	48	12	500
320H	321	319	50	50	148	40	11	20.5	25	55	–	41	24	95	14	87	27	107	105	–	4	27	20	48	12	500
400L	404	400	50	40	125	30	20	–	25	54	–	41	24	95	14	87	27	107	105	–	4	27	20	48	12	550
400M / 400H	404	400	50	60	194	40	23	–	25	50	–	–	–	–	–	100	36.5	–	–	–	–	–	–	–	–	600
500L / 500M	501	497	50	60	194	45	23	–	25	50	–	–	–	–	–	100	36.5	–	156	–	–	–	–	–	–	600
500H	501	497	–	65	192	–	95	–	–	–	–	–	–	–	–	100	36.5	–	156	150	–	–	–	–	–	750
630M	630	626	–	65	192	–	95	–	–	–	–	–	–	–	–	100	36	–	156	150	–	–	–	–	–	750
630H	630	626	–	90	268	–	88	–	–	–	–	–	–	–	–	165	54	–	230	150	–	–	–	–	–	950
800M	800	796	–	90	268	–	88	–	–	–	–	–	–	–	–	165	54	–	230	150	–	–	–	–	–	950
800H	800	796	–	120	330	–	80	–	–	–	–	–	–	–	–	200	62	–	260	150	–	–	–	–	–	1400




DANGER
SWITCH OFF BEFORE
REMOVING GUARDS

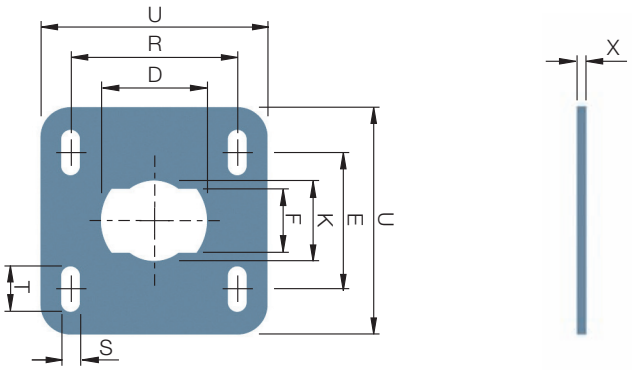
INTERROLL MOUNTING BRACK



E T S

Mounting Brackets for Interroll Drum Motors
80s
80i
113s
113i

Drum Motor Bracket: ROHS chrome passivated mild steel or stainless steel



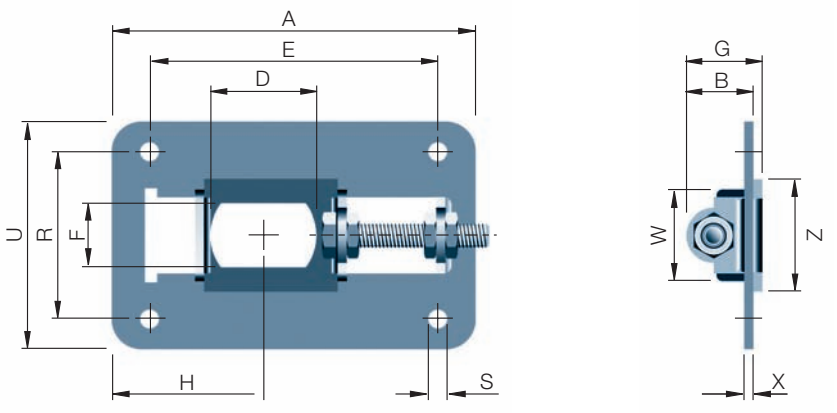
Drum Motor Brackets

Brackets set Article N°	Type	Material	Shaft mm	D mm	E mm	F mm	K mm	R mm	S mm	T mm	U mm	X mm
S1DD60	80s	ROHS chrome passivated	21 x 35	35.5	45.5	21.5	26.5	55	6.5	15	75	3
S1DD6K		Stainless steel										
S1DD7K	113s	ROHS chrome passivated	20 x 25	25.3		20.3	20.3					
S1DD7N		Stainless steel										
S1DD60	113s	ROHS chrome passivated	21 x 35	35.5	45.5	21.5	36.5	55	6.5	15	75	3
S1DD6K		Stainless steel										
S1DD60	80i	ROHS chrome passivated	21 x 35	35.5	45.5	21.5	36.5	55	6.5	15	75	3
S1DD6K		Stainless steel										
S1DD7K	113i*	ROHS chrome passivated	20 x 25	25.3		20.3	20.3					
S1DD7N		Stainless steel										
S1DD60	113i*	ROHS chrome passivated	21 x 35	35.5	45.5	21.5	26.5	55	6.5	15	75	3
S1DD6K		Stainless steel										

* For 113i always use two brackets back to back on each side.

Mounting Brackets for Interroll Idler Pulleys
80s
80i
113s
113i

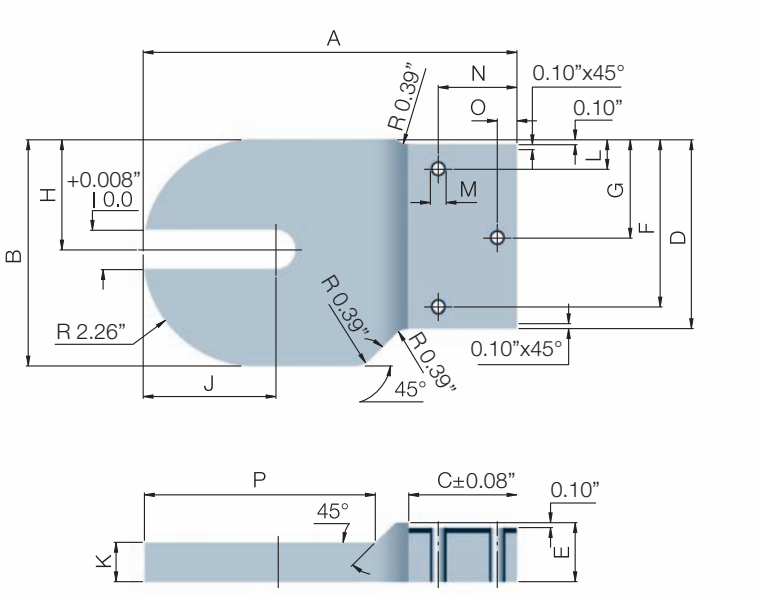
Idler Pulley Bracket: (for idler pulley only – do not use for drum motors)
ROHS chrome passivated mild steel or stainless steel



Idler Pulley Brackets

Brackets set Article N°	Type	Material	Shaft mm	A mm	B mm	D mm	E mm	F mm	G mm	H_{min} mm	H_{max} mm	R mm	S mm	U mm	W mm	X mm	Z mm
S1DD7S	80s Idler	ROHS chrome passivated	21 x 35	120	21	35.5	95	21.5	24	35	79	55	6.5	75	30	3	37
S1DD6M		Stainless steel															
S1DD7M	113s Idler	ROHS chrome passivated	20 x 25			25.3		20.3									
S1DD7Q		Stainless steel															
S1DD7S	113s Idler	ROHS chrome passivated	21 x 35	120	21	35.5	95	21.5	24	35	79	55	6.5	75	30	3	37
S1DD6M		Stainless steel															
S1DD7S	80i Idler	ROHS chrome passivated	21 x 35	120	21	35.5	95	21.5	24	35	79	55	6.5	75	30	3	37
S1DD6M		Stainless steel															
S1DD7M	113i Idler	ROHS chrome passivated	20 x 25			25.3		20.3									
S1DD7Q		Stainless steel															
S1DD7S	113i Idler	ROHS chrome passivated	21 x 35	120	21	35.5	95	21.5	24	35	79	55	6.5	75	30	3	37
S1DD6M		Stainless steel			20,3	25,3											

Mounting Brackets for Interroll Drum Motors shaft version with terminal box, straight cable connector or elbow connector
80i
113i
138i
165i



(Right-hand or electrical connector side bracket shown)

Drum Motor Brackets

Brackets set Article N°	Type	Material	Shaft mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm	L mm	M mm	N mm	O mm	P mm
PTT0001	80i	PE	13.5 x 17	120	85	25	63	20	50		40	13.5	48	9	15	M8	10		
PTT0003	80i	Alu	13.5 x 17																
PTT0007	113i	PE	20 x 25	190	115	55	96	30	85	50	56	20	65	20	15	M8	40	10	118
PTT0010	113i	Alu	20 x 25																
PTT0020	138i	PE	20 x 30	200	140	55	121	30	110	63	67	20	80	20	15	M10	40	10	128
PTT0023	138i	Alu	20 x 30																
PTT0028	165i*	Alu	30 x 40	240	170	55	146	30	123	75	81	30	100	20	28	M10	40	10	168

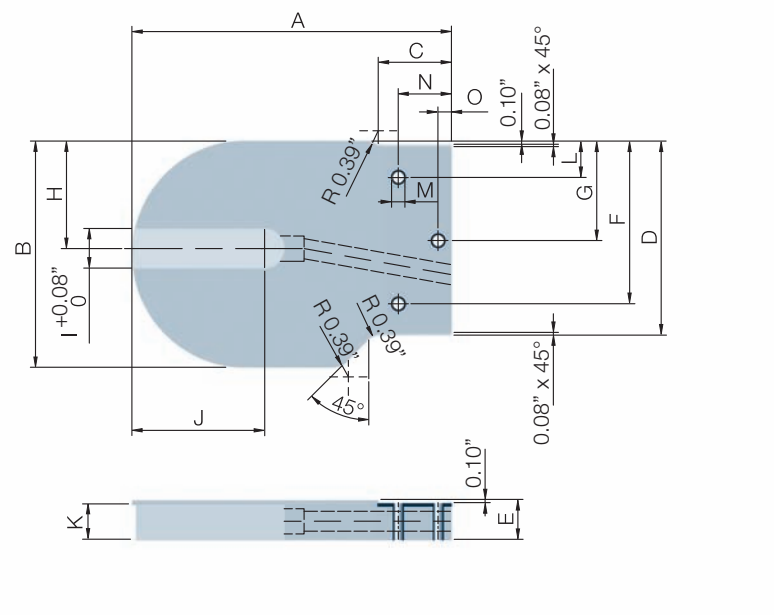
Material: Polyethylene white from 80i – 138i or aluminium from 80i – 165i.

One brackets set consists of a right-hand part as shown above and a left-hand tension part.

NOTE: In order to use these brackets, the drum motor must be supplied with a threaded hole in the front shaft (non cable/terminal box side) and fitted with terminal box, straight cable connector or elbow connector.
Bracket sets in “left” version for electrical connection on the left-hand side are available on request.

*165i with key flat length of 25 mm

Mounting Brackets for Interroll Drum Motor shaft version with cable slot connector*
113i
138i
165i



(Right-hand or electrical connector side bracket shown)

Brackets for Drum Motors with cable slot connection

Brackets set Article N°	Type	Material	Shaft mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm	L mm	M mm	N mm	O mm
PTT0009	113i	PE right	20 x 25	190	115	55	96	30	85	50	56	20	65	26	15	M8	40	10
PTT0013	113i	Alu right	20 x 25															
PTT0022	138i	PE right	20 x 30	200	140	55	121	30	110	62.5	67	20	80	26	15	M10	40	10
PTT0025	138i	Alu right	20 x 30															
PTT0029	165i**	Alu right	30 x 40	240	170	55	146	30	123	75	81	30	100	26	27.5	M10	40	10

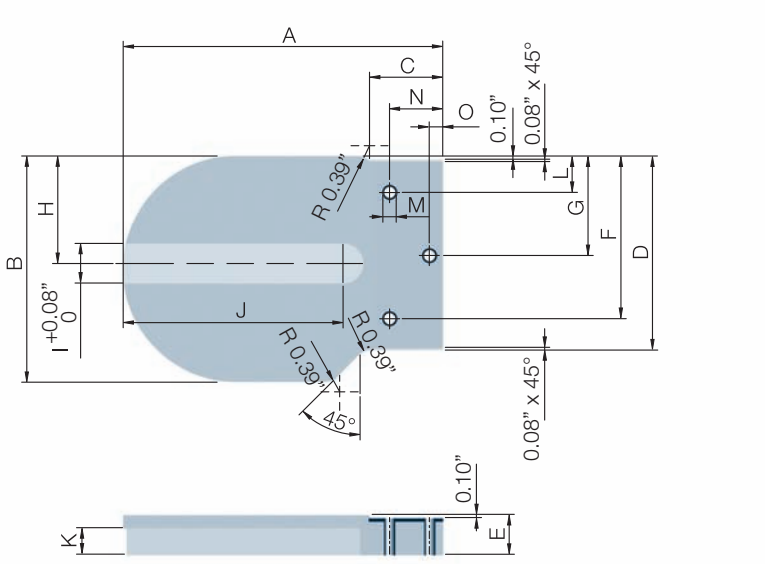
Material: Polyethylene white from 113i – 138i or aluminium from 113i – 165i.

One brackets set consists of a right-hand part as shown above and a left-hand tension part.

NOTE: In order to use these brackets, the drum must be supplied with a threaded hole in the front shaft (non cable/terminal box side). This bracket set is only available for cable slot connection (not shown in this catalog) and is not available for 80i drum motors.
Bracket sets in “left” version for electrical connector on the left-hand side are available on request.

* Electrical connector type cable slot connector in only available on request
** 165i with key flat length of 25 m

Mounting Brackets for Interroll Idler pulleys
80i
113i
138i
165i



(Right-hand side bracket shown)

Idler Brackets

Brackets set Article N°	Type	Material	Shaft mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm	L mm	M mm	N mm	O mm
PTT0005	80i	PE	13.5 x 17	120	85	25	63	20	50		40	13.5	85	13	15	M8	10	
PTT0006	80i	Alu	13.5 x 17															
PTT0015	113i	PE	20 x 25	190	115	55	96	30	85	50	56	20	120	26	15	M8	40	10
PTT0016	113i	Alu	20 x 25															
PTT0026	138i	PE	20 x 30	200	140	55	121	30	110	63	67	20	130	26	15	M10	40	10
PTT0027	138i	Alu	20 x 30															
PTT0030	165i*	Alu	30 x 40	240	170	55	146	30	123	75	81	30	165	26	28	M10	40	10

Material: Polyethylene white from 80i – 138i and aluminium from 80i – 165i.

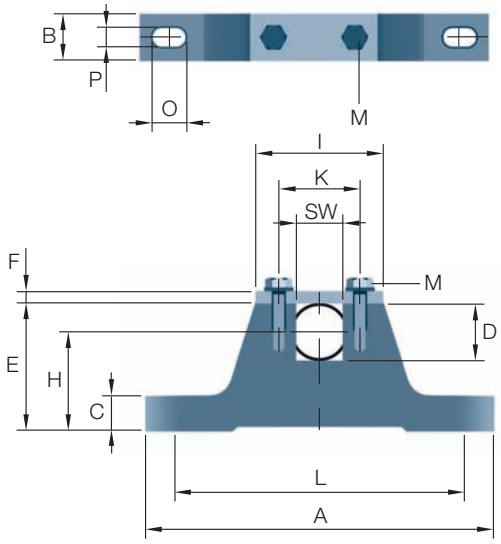
One brackets set consists of a right-hand and a left-hand part.

NOTE: In order to use these brackets, the idler pulley must be supplied with threaded holes in each shaft end.

* 165i with key flat length 25 mm

Mounting Brackets for Interroll Drum Motors and Idlers Pulleys

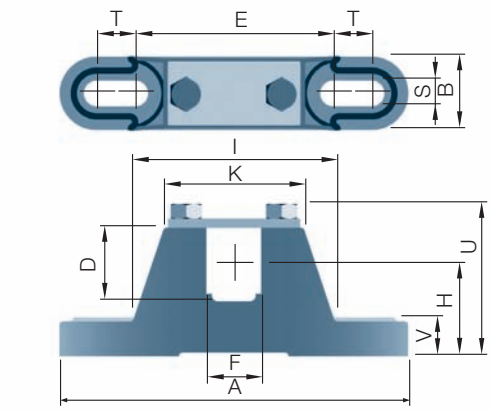
80i
113i
138i
165i/216i
220H



Mounting Brackets for Drum Motors & Idler Pulleys 80i – 165i/216i

Type bracket	Article N°	Type	Material	Shaft mm	A mm	B mm	C mm	D mm	SW mm	E mm	F mm	H mm	I mm	K mm	L mm	M mm	N** mm	O mm	P mm	Weight kg
KLH 17	PMB0001	80i	Alu	13.5 x 17	100	10	12	17	13.5	44	4	35	35	25	80	M6	12	14	6.5	0.14
KLH 25	PMB0002	113i	Alu	20 x 25	150	20	15	25	20	55	5	42	55	35	125	M6	12	15	8.5	0.50
KLH 30	PMB0003	138i	Alu	20 x 30	150	20	15	30	20	60	5	45	55	35	125	M6	12	15	8.5	0.52
KLH 40	PMB0004	165i/216i *	Alu	30 x 40	170	20	20	40	30	70	5	50	70	50	130	M8	15	25	11	0.80
KLB 40	PMB0005	165i/216i *	Mild steel	30 x 40	170	20	20	40	30	70	5	50	70	50	130	M8	15	25	11	2.50
KLB 40 - A2	PMB0008	165i/216i *	Stainless steel	30 x 40	170	20	20	40	30	70	5	50	70	50	130	M8	15	25	11	2.50

* Types 165i & 216i with a key flat length of 25 mm.
** Depth of thread.



Mounting Brackets for Drum Motors 220M/H & Idler Pulley UT220

Type bracket	Article N°	Type	Material	Shaft mm	A mm	B mm	D mm	E mm	F mm	H mm	U mm	S mm	T mm	V mm	I mm	K mm	Weight kg
KL41		220M/H	Black painted cast iron	30 x 40	190	40	40	110	30	50	83	14	20	22	84	62	1.9
KL41- HD		220M/H	Steel														2.1

Motor data / 3-phase Delta/Star

Type windings reference	Pn kW	p	rpm U/min	fn Hz	Un VAC	In A	PF	εtα	JR kg/cm²	Is/In	Ts/Tn	TB/Tn	R Ω
80S													
SKG101	0.085	2	2.720	50	1x230	0.42	0.98	0.48	0.89	3.0	0.9	1.6	52/49
SKG132	0.06	4	1.320	50	230/400	0.79/0.46	0.65	0.29	0.89	1.7	1.6	1.6	313
SKG107	0.085	2	2.800	50	400	0.32	0.74	0.55	0.87	3.3	2.2	2.2	226
SKG131	0.085	2	2.800	50	230	0.53	0.73	0.55	0.87	3.5	2.2	2.2	74
113S													
S1MG12	0.04	8	650	50	230/400	0.63/0.36	0.58	0.27	4.3	1.5	1.5	1.6	125
S1MG01	0.11	4	1.380	50	230/400	0.8/0.45	0.71	0.54	4.3	3.3	1.7	1.7	92.5
S1MG10	0.16	4	1.380	50	230/400	0.8/046	0.76	0.57	4.3	3.4 3.5	1.7	1.7	64.1
S1MG11	0.18	4	1.380	50	230/400	0.8/0.46	0.76	0.61	5.6	2.4 3.7	2.1	1.8	47.0
S1MGA0	0.33	2	2.800	50	230/400	1.27/0.76	0.76	0.68	3.7	2.4 2.8	2.6	3.6	21.5
80i short version													
W3F351-0.04-4-230/400-50	0.04	4	1348	50	230/400	0.37/0.21	0.68	0.4	0.4	1.9	3.3	3.3	240.0
W3F351-0.07-2-230/400-50	0.07	2	2778	50	230/400	0.38/0.22	0.82	0.56	0.4	2.6	2.6	2.7	190.0
80i													
W3F351-0.018-8-230/400-50	0.018	8	610	50	230/400	0.33/0.19	0.63	0.22	0.9	1.2	1.2	1.5	575.0
W3F351-0.07-4-230/400-50	0.07	4	1288	50	230/400	0.48/0.28	0.68	0.53	0.6	1.4	3.0	3.1	156.0
W3F351-0.12-2-230/400-50	0.12	2	2778	50	230/400	0.59/0.34	0.78	0.65	0.6	2.6	2.8	3.0	89.0
113i													
W3FT63-0.035-12-230/400-50	0.035	12	353	50	230/400	0.71/0.41	0.6	0.21	3.3	2.4	1.8	1.7	208.0
W3FT63-0.08-8-230/400-50	0.08	8	680	50	230/400	0.69/0.4	0.6	0.48	3.3	2.2	1.9	2.2	164.0
W3FT63-0.1-6-230/400-50	0.1	6	865	50	230/400	0.8/0.46	0.66	0.47	3.3	2.1	2.2	2.1	111.4
W3FT63-0.15-4-230/400-50	0.15	4	1360	50	230/400	0.94/0.54	0.71	0.56	2.1	3.2	1.9	1.9	71.0
W3FT63-0.225-2-230/400-50	0.225	2	2821	50	230/400	1.21/0.7	0.71	0.65	1.4	4.6	3.0	3.1	29.6
113i High Power													
W3FT63-0.07-12-230/400-50	0.07	12	353	50	230/400	1.07/0.62	0.6	0.27	5.7	2.0	1.3	1.4	128.0
W3FT63-0.15-8-230/400-50	0.15	8	678	50	230/400	1.18/0.68	0.62	0.51	5.7	2.2	1.6	1.7	89.0
W3FT63-0.18-6-230/400-50	0.18	6	915	50	230/400	1.39/0.8	0.62	0.52	5.7	2.4	3.2	3.4	42.8
W3FT63-0.3-4-230/400-50	0.3	4	1376	50	230/400	1.58/0.91	0.79	0.6	3.8	3.2	2.7	2.7	41.0
W3FT63-0.37-2-230/400-50	0.37	2	2835	50	230/400	1.91/1.1	0.79	0.62	2.4	6.1	4.1	4.1	16.5
138i													
W3FT71-0.09-12-230/400-50	0.09	12	415	50	230/400	1.04/0.6	0.4	0.54	9.3	3.0	1.4	1.6	92.0
W3FT71-0.18-8-230/400-50	0.18	8	684	50	230/400	1.21/0.7	0.64	0.58	9.3	2.6	1.6	1.7	64.0
W3FT71-0.25-6-230/400-50	0.25	6	910	50	230/400	1.3/0.75	0.72	0.67	9.3	3.0	1.7	1.8	44.0
W3FT71-0.37-4-230/400-50	0.37	4	1340	50	230/400	1.68/0.97	0.79	0.7	5.6	3.3	1.6	1.8	26.5
W3FT71-0.55-2-230/400-50	0.55	2	2826	50	230/400	2.25/1.3	0.8	0.76	3.5	5.5	2.9	3.1	11.4
138i High Power													
W3FT71-0.75-4-230/400-50	0.75	4	1381	50	230/400	3.29/1.9	0.8	0.71	9.9	3.4	1.5	2.1	9.7
W3FT71-1.0-2-230/400-50	1	2	2775	50	230/400	4.16/2.4	0.8	0.75	6.2	5.4	2.8	3.1	5.4
165i / 216i													
W3FT80-0.15-12-230/400-50	0.15	12	456	50	230/400	1.13/0.65	0.6	0.56	22.6	5.4	1.6	1.6	75.5
W3FT80-0.37-8-230/400-50	0.37	8	690	50	230/400	2.42/1.5	0.62	0.57	22.6	2.9	1.7	1.9	22.0
W3FT80-0.55-6-230/400-50	0.55	6	845	50	230/400	2.77/1.6	0.69	0.72	22.6	3.4	1.4	1.5	19.5
W3FT80-0.75-4-230/400-50	0.75	4	1355	50	230/400	3.12/1.8	0.8	0.75	11.3	3.5	1.5	1.8	12.0
W3FT80-1.1-4-230/400-50	1.1	4	1320	50	230/400	4.85/2.8	0.82	0.69	11.3	3.5	1.5	1.7	7.2
W3FT80-1.1-2-230/400-50	1.1	2	2845	50	230/400	4.16/2.4	0.86	0.77	7.6	5.2	3.2	3.4	2.9
165i / 216i High Power													
W3FT80-0.37-12-230/400-50	0.37	12	456	50	230/400	2.77/1.6	0.63	0.53	35.1	2.0	2.1	2.4	19.4
W3FT80-0.75-8-230/400-50	0.75	8	691	50	230/400	3.55/2.05	0.74	0.71	35.1	7.6	1.9	1.8	15.7
W3FT80-0.75-6-230/400-50	0.75	6	845	50	230/400	3.64/2.1	0.81	0.64	22.6	3.5	1.4	1.5	6.2
W3FT80-1.5-4-230/400-50	1.5	4	1393	50	230/400	6.06/3.5	0.87	0.71	19.8	3.8	1.4	1.5	5.2
W3FT80-2.2-2-230/400-50	2.2	2	2840	50	230/400	7.88/4.55	0.86	0.81	7.6	5.3	3.2	3.4	6.2

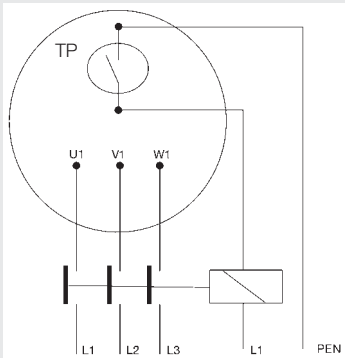
Explanation of motor datas

P_n	nominal power
p	nos. of poles
rpm_n	revolution of rotor
f_n	nominal frequency
U_n	rated voltage
I_n	rated current
PF	nominal power factor
εtα	nominal efficiency
J_R	moment of inertia of rotor
I_s / I_n	ratio starting current / nominal current
T_s / T_n	ratio starting torque / nominal torque
T_B / T_n	ratio breakdown torque / nominal torque
R	nominal coil resistance at 20° C

Thermal Winding Protection

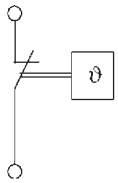
A thermal winding protection switch (Thermal Protector) is incorporated in all Interroll Drum Motors and comprises of a simple reversible bimetal switch built into the motor winding head. This must be connected externally in such a way that it will switch of the power to the motor by interrupting a relay device or a current limitation coil of an external motor protection switch.
If a thermal overload occurs to the motor causing the stator winding to overheat, the switch will open at a pre-determined temperature (standard 130 °C) and interrupt the power supply.
If the Thermal Protector is not connected as described above, the warranty will be invalid.
Please contact Interroll if you wish to use other types of thermal winding protection (e.g. PT100, PTC).

Caution!
After the motor cools down the Thermal Protection switch will reset automatically and if improperly connected it is possible that the motor may start up again without warning. Please ensure connection is made correctly in order to prevent automatic starting.
If the Thermal Protection switches off the motor an overload issue has occurred and has caused the motor to overheat. In this case please identify the cause of overheating before restarting the motor. Frequent activation of the Thermal Protection may cause damage to the windings and will not be accepted under warranty. If the cause of the problem cannot be identified please refer to Interroll.

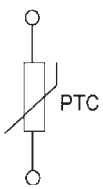


Connection example Thermal Protection at 3-phase motors

Thermal winding protection data



Standard T° limiter – automatically resetting			
Lifetime: 10 000 cycles			
Power supply AC	cos φ = 1	2.5 A	250 VAC
	cos φ = 0.6	1.6 A	250 VAC
DC		1.6 A	24 VDC
		1.25 A	48 VDC
Lifetime: 2000 cycles			
Power supply AC	cos φ = 1	6.3 A	250 VAC
Back setting T°		40 K ± 15 K	
Resistance		< 50 m Ω	
Contact bounce time		< 1 ms	



Option PTC (positive temperature coefficient resistor)		
Maximum operating voltage		25 VDC
Thermal time constant		< 10 s
Resistance at switching temperature	+ 15 K	1330 … 4000 Ω
	+ 5 K	550 … 1330 Ω
		550 Ω
	– 5 K	250 … 550 Ω
	– 20 K	< 250 Ω

In case of VFD operation, the Thermal Protection should be connected to the input of the VFD.
With 3-phase motors the Thermal Protection can be connected according to the example picture.

In all cases, it is advisable to connect the motor through a conventional external thermal current overload relay/contactor especially when the motor is not equipped with an internal thermal protection.

Drum Motors 80i, 113i, 138i, 165i, 216i with integrated shaft encoder

Type: BMB-6202-SKF

Producer: SKF

This encoder consists of two components, a standard-sized bearing and embedded magnetic encoder. The resolution INC is dependent upon bearing size and drum motor size.

The resolution INC (increments per drum revolution) can be calculated as follows:
INC = p x gear ratio (i)

The gear ratio (i) is given in the drum motor data sheets in this catalogue.

p = The number of encoder pulses per rotor revolution selected according to the following table:

Encoder type	Bearing size	Drum motor size	Pulses per rotor revolution (p)
EB-6202-SKFHTLOC-32-N-0.5	6202	80i … 138i	32
EB-6205-SKFHTLOC-48-N-0.5	6205	165i … 216i	48

Technical data

Rated operational voltage	4,5 … 24 VDC
Rated output current max	20 mA
Operating current max.	8 … 10 mA
Pulses (p) per revolution	32/48
High level voltage	> 3.5 V
Low level voltage	< 0.1 V

The encoder must be connected to the encoder-unit according to the cable colours.

Connection

Encoder	Cable	Signal
Blue	Green	A
White	White	B
Red	Yellow	+ 5 … 24 V
Black	Brown	0 V

Control interface

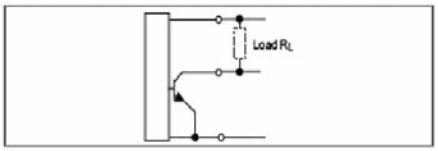
The encoder has open collector NPN transistor outputs. With connection to the input of a control interface the required load resistances (R) must be used.
The load resistances are stated in the above table. In case of the use of different interfaces* or doubts please refer to Interroll or to a local electronic specialist.

Interroll always recommends using an Opto-coupler in order:

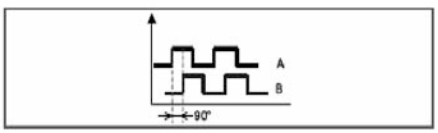
- To protect the encoder
- To enable connection to other levels such as PNP
- To get the maximum potential between signal high and low

Input voltage (VDC)	Load resistance RL [Ohms]
5	270
9	470
12	680
24	1470

Output: NPN Open Collector



Pulsediagram



* interfaces examples :

WAGO Electronic Terminal with Optocoupler	Ref No. 859-758
PHOENIX Input Optocoupler	Type: DEK-OE-24DC/24DC/100KHz
WEIDMÜLLER Optocoupler Waveseries	Type: WOS1 12-28VDC/10KHz

Drum Motors 80i, 113i, 138i, 165i, 216i with integrated shaft encoder

Type: RM44-RLS

Outputs: Incremental RS422A 5V or Incremental Push-Pull 24V

The resolution INC (increments per drum revolution) can be calculated as follows:
INC = p x gear ratio (i)

The gear ratio (i) is given in the drum motor data sheets in this catalogue.

p = The number of encoder pulses per rotor revolution selected according to the following table:

Connections

Function	Wire colour
Vdd + 5 VDC	Red
GND 0 VDC	Blue
Signal A	Grey
Signal /A	Pink
Signal B	Green
Signal /B	Yellow
Signal Z	White
Signal /Z	Brown

Technical data

	RS422A 5 V	Push Pull 24 V
Motor size	80i*... 216i	80i*... 216i
Supply voltage	5V ± 5 %	8 - 26 V
Supply current	35 mA	50 mA at 24 VDC
Resolution (pulses per revolution)	1024, 512 **	1024, 512 **
Output Signal	A /A B /B Z /Z	A /A B /B Z /Z
Max. cable length	50 m	20 m
Accuracy [1])	± 0.5°	± 0.5°
Hysteresis	0.18	0.18

* Only available on 80i with a special shaft diameter of 25 mm.
** Other resolutions available on request, please consult Interroll.
[1]) Worst case within operational parameters including magnet position and temperature.


INTERROLL


INTERROLL

Interroll Drum Motors operated with Variable Frequency Drives (VFD)

Interroll Drum Motors are frequently used with Variable Frequency Drives (VFD).

Most Interroll 3-phase motors are designed for use with recognised VFD's using V/f or Vector control.

VFD's may be used with Interroll Drum Motors for:
- simple adjustment of speed,
- up and down ramping of speed,
- specific speed profiles,
- adjustment of torque,
- dynamic or DC-braking,
- positioning.

The following types of VFDs are available:
- **U/f type** – classic VFD for standard applications.
- **Vector-VFD type** – higher motor efficiency, higher motor torque with extended frequency range (especially at low frequencies), more precise speed control.

Not all common frequency inverters are able to control motors with more than 6 poles and/or output powers under 0.2 KW / 0.25 HP. If in doubt, please refer to your local Interroll distributor.

Interroll Drum Motors are delivered as standard with Thermal Protection, placed directly in the motor windings. The thermal protection can normally be connected directly to most VFD's.

Interroll now offers a full range of variable frequency drives specifically for the range of Drum Motors
VFD's are usually delivered from suppliers with a set of standard parameters. This allows the frequency inverter to be ready for use immediately. However, these standard parameters may not be specifically optimized for your Drum Motor and could result in poor running characteristics. Interroll can provide VFD's, with pre-set parameters to suit a specific drum motor.

Please consult Interroll for more information and specific documentation on the VFD.

Recommended type of VFD from Interroll

Drum motor type	Single phase V/f control*	Single phase vector control	Three phase V/f control*	Three phase vector control
80s	X200-002-SFEF	SJ200-002-NFE	X200-004-HFEF	SJ200-004-HFE
113s	X200-002-SFEF	SJ200-002-NFE	X200-004-HFEF	SJ200-004-HFE
80i	X200-002-SFEF	SJ200-002-NFE	X200-004-HFEF	SJ200-004-HFE
113i up to 0.15 kW	X200-002-SFEF	SJ200-002-NFE	X200-004-HFEF	SJ200-004-HFE
113i from 0.18 kW to 0.37 kW	X200-004-SFEF	SJ200-004-NFE	X200-004-HFEF	SJ200-004-HFE
138i up to 0.18 kW	X200-002-SFEF	SJ200-002-NFE	X200-004-HFEF	SJ200-004-HFE
138i from 0.25 kW to 0.55 kW	X200-004-SFEF	SJ200-004-NFE	X200-004-HFEF	SJ200-004-HFE
138i 0.75 kW	X200-007-SFEF	SJ200-007-NFE	X200-007-HFEF	SJ200-007-HFE
138i 1 kW	X200-011-SFEF	SJ200-011-NFE	X200-007-HFEF	SJ200-007-HFE
165i/216i 0.15 kW	X200-002-SFEF	SJ200-002-NFE	X200-004-HFEF	SJ200-004-HFE
165i/216i 0.37 kW 4 & 8 pole	X200-004-SFEF	SJ200-004-NFE	X200-004-HFEF	SJ200-004-HFE
165i/216i 0.37 kW 12 pole	X200-005-SFEF	SJ200-005-NFE	X200-007-HFEF	SJ200-007-HFE
165i/216i 0.75 kW	X200-007-SFEF	SJ200-007-NFE	X200-007-HFEF	SJ200-007-HFE
165i/216i 1.1 kW 2 pole	X200-011-SFEF	SJ200-011-NFE	X200-007-HFEF	SJ200-007-HFE
165i/216i 1.1 kW 4 pole	X200-011-SFEF	SJ200-011-NFE	X200-015-HFEF	SJ200-015-HFE
165i/216i 1.5 kW	X200-015-SFEF	SJ200-015-NFE	X200-015-HFEF	SJ200-015-HFE
165i/216i 2.2 kW	X200-022-SFEF	SJ200-022-NFE	X200-022-HFEF	SJ200-022-HFE

* X200 serie is built in with Integrated EMC filter

INTERROLL DRUM M
FOR MODULAR BELT

OTORS
ING

Plastic modular belts are typically used in food processing applications. The high demands for hygienic solutions using cleaning processes with chemical agents and high pressure hot water in this industry makes it a natural choice to use Interroll Drum Motors as the drive unit for all type of conveyors.
All solutions are optimized with consideration to these high demands. Interroll provides three different but well proven solutions:

Profiled rubber lagging
Interroll provides a solution with profiled rubber lagging on the shell to drive the modular belt. The profile of the rubber is designed to fit the belt type, and all major belt types can be supported.

- The basic material is composed of hot vulcanised NBR nitrile rubber with excellent properties in relation to abrasion and temperature resistance.
- White and blue Rubber lagging is supplied in FDA food approved materials or optional Polyurethane.

Please visit www.interroll.com for a complete list of available rubber profiles for our drum motors.

Stainless steel sprockets
Interroll offers a very hygienic solution where the drum motor drives the belt using stainless steel sprockets.
The torque transfer from the drum motor to the sprockets is provided by a key on the shell and keyway in the sprockets. All Belt types can be driven by this solution which provides a very flexible system.

Please visit www.interroll.com for a complete list of stainless sprockets for our drum motors.

Optional sprockets in Acetal, PU and other materials available on request

Please visit www.interroll.com for a complete list of sprockets for our drum motors.

Attention! For all modular belting applications, the belt pull and speed data given in this catalogue must be recalculated according to the increased diameter of the lagging or sprockets and that de-rated motor windings may be required to prevent thermal overload of the motor. If in doubt please refer to Interroll.

Interroll will be pleased to discuss your specific requirements and advise the most optimum solution.

Rubber Lagging

Is used to:

- Increase friction between drum motor shell and conveyor belt
- Help prevent slip between drum motor shell and conveyor belt
- Help guide the belt using standard V-grooves in the lagging and belt strip profiles; K6, K8, K10, K13 & K15 etc.*

Note

All drum motor specifications are given according to the standard drum motor without rubber lagging.
The use of lagging increases the belt speed compared to the nominal speed on shell diameter in this catalogue:

$$\text{New belt speed} = \frac{\text{Nominal Speed of the drum x Shell diameter including lagging}}{\text{Shell diameter without lagging}}$$

Please keep lagging thickness to a minimum in order to avoid premature wear of the lagging due to high torques and belt tensions and to prevent possible thermal overload of the motor.
Please ask your belt supplier for compatibility of belt and lagging materials.

Cold rubber lagging can be bonded on to the drum motor at the factory or by the user.
Hot vulcanised rubber lagging must be applied by Interroll before delivery and is the best solution for high torque / high belt tension / high temperatures applications.
Either white & blue rubber lagging can be offered in food quality, oil- and fat resistant material normally FDA approved. Lagging from 3 mm thickness with smooth, grooved, or diamond pattern profiles are available.

Rubber lagging affects the heat dissipation characteristics of drum motors!
In order to reach the most optimum lagging solution please take note of the following guidelines:

1. Motor power	Max 80 % full load
2. Belt speed	Lagging increases surface speed
3. Drum shell length	Short shell length increases heat
4. Ambient temperature	High ambient temperature increase thermal overload
5. Lagging thickness	Thicker lagging increases thermal overload
6. Belt tension	Less belt tension is needed when lagging is fitted

Please contact Interroll, when you are uncertain about the use of rubber lagged drum motors in your application.

* Please take care when using grooves in the lagging to guide the belt. Belt tracking should always be maintained by using conventional belt tracking methods on the conveyor.

Single Phase AC Motors

Single phase AC motors are typically used, when 3-phase voltage is not available.

Principle
Single phase AC motors have a main winding and an auxiliary winding to create an auxiliary rotating field. The phase shift between main and auxiliary phase is created by a permanently connected run capacitor.

Start torque / Start capacitor
The starting torque can be very limited because of the non ideal rotating field:

- Starting torque of 3-phase AC motors typically 120 – 410 % of nominal torque. Please see page 82 for motor winding data.
- Starting torque of single phase AC motors typically 65 – 115 % of nominal torque.

Some single phase AC motors – especially in the higher power range – need an additional start capacitor to reach a starting torque 150 – 200 % of the nominal torque. This start capacitor has to be switched parallel to the run capacitor.
It should be done ideally over a current depending switch relay during the start-up sequence of the motor. When the right torque/current is reached, the start capacitor has to be switched off by the relay.

The capacity value of the run capacitor and starting capacitor is always stated on the motor type label.

Noise
Single phase motors have generally a higher noise level at no load running compared to 3-phase motors, because of the difference in the rotating magnetic field. Typically there is an un-balanced increasing noise. This does not influence the function of the drum motor and will normally disappear when belt tension or load is applied to the drum motor. Claims cannot be accepted due to this noise effect.

Capacitors relays
For single phase drum motor types 80s – 113i all capacitors must be ordered separately.
In case of questions or doubts please refer to Interroll.

For single phase drum motor types 138i – 165i the run and start capacitor (if needed) is always delivered with the drum motor together with a suitable current depending relay to switch the start capacitor (if needed). The correct installation of the start capacitor is shown on the connection diagram delivered with the drum motor.

Electro-magnetic brake

The electromagnetic brake (Type: Mayr ROBA-stop), uses a DC voltage via a rectifier and acts directly on the rotor shaft. When the brake voltage is switched off, the brake disk, which is coupled to the rotor shaft is pressed between the brake flange and the spring loaded brake anchor disk. The brake torque builds up and the brake stops and holds the drum and its load according to the maximum stated belt pull for the drum motor. Note! For brakes required for positioning, please contact Interroll.

Caution:

- Do not allow the brake to close whilst the power is still applied to the motor and do not start the motor without first switching/releasing the brake. Failure to control the brake and motor in this way will result in premature wear of the disc and/or irreparable damage to the brake! The control of the motor and brake must be designed to prevent such events occurring.
- Always check the rectifier and brake voltages before connection and ensure power is applied to the brake before starting.
- The rectifier must be protected by a fuse.
- Please always refer to the instructions of the supplier for correct connection of the used rectifier.
- Always use screened cables between the AC and DC lines & for extensions
- If in doubt please refer to Interroll.
- In case the brake or the motor is damaged by ignoring these precautions, the warranty will be invalid.

Drum Motor Type	Brake size	Nominal brake torque*	Brake power	Brake voltage	Brake current	Braking delay time at AC-switching	Braking delay time at DC-switching	Opening delay time
Interroll	mayr	[Nm]	[W]	[VDC]	[A]	[ms]	[ms]	[ms]
80i	2	0.9	12	24	0.50	80	13	20
				104	0.12			
113i	3	3	17	24	0.71	120	20	25
				104	0.16			
				207	0.09			
138i	4	4	24	24	1.00	200	26	30
				104	0.23			
				207	0.12			
165i / 216i	5	12	33	24	1.38	260	46	40
				104	0.32			
				207	0.16			

*measured by Mayr after VDE 0580 10.94 at 1.0 m/s

Braking delay time
Braking delay time is depending on switching at input (AC-switching) or at output (DC-switching) of the rectifier. DC-switching is much faster but produces high voltage peaks (500 – 1200 V). The switching contacts must be protected against damage.
On most types of rectifiers there is a built in DC switch protection. If in doubt, please refer to Interroll.

Opening delay time
The opening delay time can be shortened by using fast acting or phase rectifiers, which are available on request. Double over excitation voltage to open the brake shortens the opening delay time by half. Phase rectifiers should always be used together with high starts/stops or positioning applications. (Note the connection instructions from the supplier!) One way or half wave rectifiers are not suitable in these applications and could lead to premature brake wear.

Reduction of brake torque
The nominal brake torque is strongly influenced by the operation conditions within a drum motor (operation in oil at high temperatures) and the ambient temperature. For security, the brake torque given in the data sheets should be reduced by 50 % for load calculations.

Rectifiers
Interroll offers in general 4 different kinds of rectifiers to operate the electromagnetic brake:

1: One way Half wave rectifier: output DC voltage = 0.45 x input AC voltage

2: Bridge rectifier: output DC voltage = 0.9 x input AC voltage

3: Phase rectifier: (Only & standard for 104 VDC brakes) – Over excitation voltage 190 VDC for 0.15 sec fixed Holding brake voltage 52 VDC (50 % of the brake voltage is enough to keep the brake open)

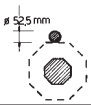
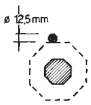
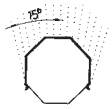
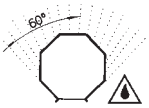
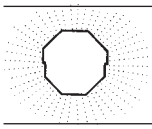
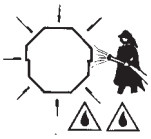
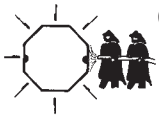
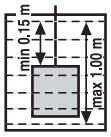
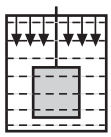
4: Fast acting rectifiers type Mayr ROBA switch – (for 207 VDC brakes)

Motor size	Brake rated voltage VDC	Rectifier voltage net VAC	starting VDC	holding VDC	Mayr ref	Model	Amperage A
80i – 216i	24	207 - 244	24	24	020.000.0		1,0
					020.000.2		3,0
					020.000.5		6,0
	104	220 - 230	190	52	1/012.000.2	3	0,5
		110 – 115	104	52	10/017.000.2	4	1,0
			104	104	1/025.000.6	2	1,7
		220 – 230	104	104	1/024.000.6	1	1,8
113i – 216i	207	220 – 230	207	207	1/025.000.6	2	1,7
			207	104	10/017/000.2	4	1,0
			207	104	20/017/000.2	4	1,0
		380 - 400	360	180	20/017/000.2	4	0,9
		460	207	207	3/024/000.6	1	2,4
			415	207	3/017/000.2	4	0,9

Note: If you do not find the required combination here, please consult Interroll.

www.interroll.com

International Protection IP ratings

Protection against solid bodies			Protection of internal equipment against harmful ingress of water		
Symbol	First number IP	Definition	Symbol	Second number IP	Definition
	0	Not protected!		0	Not protected!
	1	≥ 50 mm Diameter		1	Protected against dripping water.
	2	≥ 12.5 mm Diameter		2	Protected against dripping water when tilted up 15°.
	3	≥ 2.5 mm Diameter		3	Protected against spraying water.
	4	≥ 1.0 mm Diameter		4	Protected against splashing water.
	5	Dust-protected		5	Protected against water jets (P1 nozzle 6.3 mm, water delivery rate 12.5 l/min ± 5%).
	6	Dust-tight		6	Protected from projections of water similar to marine swells (P2 nozzle 12.5 mm, water delivery rate 100 l/min ± 5%).
				7	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily (30 min.) immersed 1 meter in water under standardized conditions of pressure and time.
				8	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water under conditions, which shall be agreed between manufacturer and the user, but are more severe than for no. 7.

Information for Orders

Please give the following information when ordering/inquiring:

- Please specify clearly the type of application (only for inquiries)

Interroll Drum Motor

- Quantity
- Diameter in mm
- Type of Interroll Drum Motor (80s – 216i)
- Power in kW
- No. of phases (three or one)
- Voltage and whether dual or single voltage
- Frequency in Hz
- Belt speed in m/s
- Execution (Standard, TS etc.)
- Required Options – (please refer to Optional extras on back cover)
- Roller or Shell length (RL) in mm
- Special measurements (if deviating from catalogue values)
- Special environmental conditions (Temperature, aggressive medias etc.)
- Special built-in conditions (vertical mounting, inclines etc.)

Idler pulley

- Quantity
- Diameter in mm
- Type of idler pulley
- Execution (Standard, TS etc.)
- Required Options – (please refer to Optional extras on back cover)
- Roller or Shell length (RL) in mm
- Special measurements (if deviating from catalogue values).

Brackets sets

- Quantity
- Drum motor shaft diameter
- Type of bracket

Spare parts

- Quantity
- Description of drum motor or idler pulley as above (refer to data plate)
- Serial number of drum motor (see data plate or end of shaft opposite the terminal box or cable entry)
- Position no. of parts – Please refer to cut away parts drawings.

Important

Please refer to Interroll regarding:

- Drum motors connected to Variable Frequency Drives (VFD)
- Drum motors for low noise applications – e.g. airports, post-offices etc.
- Drum motors running without belt
- Drum motors with brake
- Drum motors for Modular Belting
- Thick rubber laggings
- Vertical or angle mounted drum motors
- Special applications (please send sketches etc. showing the application)
- **"Optional Extras"** described in this catalogue.

Technical Precautions for Design, Installation and Maintenance

The precautions in this section will help designers and engineers to properly design, install, operate, and maintain conveyor systems using Interroll Drum Motors. Ignoring any of the precautions may result in drum motor damage and invalidate the product warranty.

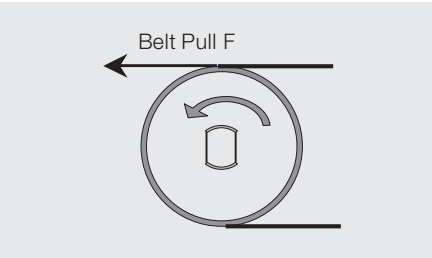
Contents

Belt Speed

- The Belt Speed shown in this catalogue is defined as the nominal speed at full load measured at the standard outer diameter of the drum motors with a tolerance of ±10%.
- At single phase drum motors the tolerance range could be between +10% and –20%.
- The full load speed is typically 5% lower than no load speed because of the rotor slip of the asynchronous motor.
- With rubber lagging or sprockets fitted to the shell the belt speed will increase according to the diameter and formula on the page concerning rubber lagging. Please recalculate the belt speed.
- For actual speeds at full load please refer to Interroll.
- To control an exact speeds Variable Frequency Drives can be used. Please refer to the page concerning VFD-operation.

Belt Pull

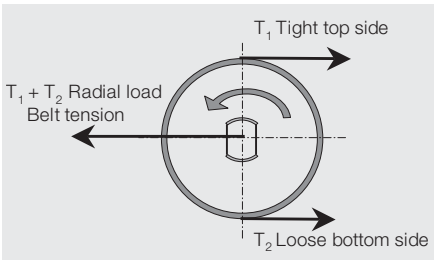
- The catalogue specifies Belt Pull for each model, power, and speed of product. The specified belt pull in the data sheets allow for motor and gearbox efficiency losses. Therefore the Belt Pull shown in catalogue is the “useful Belt Pull”.



- Always allow for some safety factor e.g. 15 – 20 %, when calculating the required Belt Pull. Please also refer pages 112-113 for a calculation formula or go to our website at www.Interroll.com for Interroll’s Belt Pull calculation program.

Belt Tension

- The conveyor belt should be installed with sufficient belt tension to prevent belt slippage. Therefore the required



tension at bottom side (T_2 see picture) can be calculated after DIN 22101 or CEMA Standard.

- Actual Belt Tension can be roughly defined after belt manufacturer’s specifications by measuring the belt elongation during tensioning. Alternatively use a belt tension measuring instrument.
- The maximum allowable belt tension T_1+T_2 of each drum motor is specified in the drum motor tables of this catalogue.
- **The belt type, belt thickness and the correct drum motor diameter must be according to the belt manufacturer’s specifications.** Too small drum motor diameters could lead to damage of the belt.
- Over tension of the belt may damage the shaft bearings and/or other internal components of the drum motor and will shorten the product lifetime.
- There is no product warranty in case of damage caused by over tensioning the belt.

Technical Precautions for Design, Installation and Maintenance

Ambient Temperature

- Interroll Drum Motors are normally cooled by dissipating heat through contact between the surface of the shell and the conveyor belt. It is essential that each drum motor have an adequate thermal gradient between the internal motor and its ambient operating temperature.
- All drum motors in the catalogue are designed and tested under full load, without lagging and with a belt for use in a maximum ambient temperature of +40 °C.
- Specifications stating “maximum allowable ambient temperature” refers to the temperature of the air or the underside of the conveyor belt in contact with the drum motor.
- The standard maximum ambient temperature for Interroll Drum Motors is **40 °C according to EN 60034.**
- Please check if the drum motor has a limited temperature range and refer to the oil type table on page 127. Before installation, compare the oil type stated on drum motor type label is correct.
- For applications with temperatures below –25 °C please always refer to Interroll before purchase.
- Operating Interroll Drum Motors outside the allowable/specified ambient temperature range **voids product warranty.**

Cycle / Reversible operation

- Interroll Drum Motors are designed to operate either continuously or intermittently. However, please consult Interroll for applications regarding start/stop & intermittent operation, specific brake performance requirements, VFD or encoders and special rubber lagging.
- For reversing drive operations, make sure that there is a suitable time delay before reversing is applied. The drive must come to a complete stop before reversing.
- For reversible operations the drum motor may be installed in the center of the conveyor in order to optimise belt tracking in both directions. Therefore it is necessary to install additional idlers.

Lagging

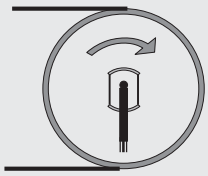
- Please read the information on page 94 and pay attention to the recommendations and precautions for choosing of the rubber lagging.
- Contact Interroll before applying any lagging to shell surface to obtain thickness and width specifications and in order **maintain the drum motor warranty cover.**
- Lagging material is a wear item and should be replaced when it wears out. Service life depends upon the application. Product warranty does not include lagging wear.
- Please contact Interroll in any case if you want to use rubber lagging.

Electromagnetic Brake

- Please read the information on pages 96-97 and pay attention to the rules and precautions for the connection of the brakes and rectifiers.
- The built in brake disc is a wear part and has a limited lifetime depending on the operational conditions. In case of premature wear the operation conditions have to be checked and evaluated. Product warranty does not include wear parts of the brake.
- When using a drum motor for start/stop applications without holding the load, we recommend the use of a VFD instead of a brake.

Mechanical Backstops

- Drum motors fitted with mechanical backstops are used on inclined conveyors to prevent run back of the belt and load when the power supply is off. Drum motors with backstops can only run in one direction.
- The backstop is built into the drive and is mounted on the rotor shaft.
- A backstop has a higher holding torque than an electromagnetic brake and requires no electrical connection. Therefore a backstop is recommended



Rotation arrow

for stop and hold applications for single direction operation only.

- The direction of rotation of the drum motor with a backstop is indicated by an arrow fastened to the bearing house at electrical connection side.
- The drum motor is delivered as **standard with clockwise direction of rotation** when looking at the electrical connection side. If a **counter clockwise direction of rotation** is needed, please specify this at time of order.

Technical Precautions for Design, Installation and Maintenance

- Please note: it is essential carry out the correct electrical connection of a drum motor with backstop. Always connect the motor exactly to the connection diagram to avoid start of the motor in blocking direction. If damage occurs due to wrong electrical connection and running of the motor in the blocking direction product warranty is invalidated.

Food Handling Applications

- The use of an Interroll Drum Motor in food handling applications requires a rust free (RF) or totally stainless steel execution (TS).
- Food approved oil is recommended for such applications.
- Interroll offers a variety of food approved (FDA) rubber laggings and profiled rubber laggings for modular belting.
- Please contact Interroll for further information.

Operation without belt or with narrow belt

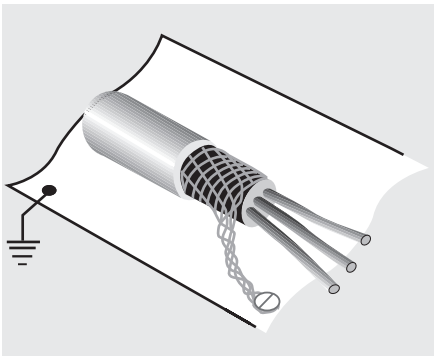
- A drum motor normally needs the belt for heat dissipation. To run a Drum Motor without Belt or with belts covering less than 2/3 of the roller length please refer to Interroll.
- Some drum motors in the lower power range are usable as standard in continuous operation without belt. The choice of a suitable drum motor is always depending on actual operation conditions. Interroll will assist you with the application design.
- On request Interroll can supply special de-rated Drum Motors that run at lower temperatures for use with modular belts, V-belts or without belt.
- If standard drum motors are used in modular or non belt applications without confirmation from Interroll the product warranty will be invalidated.

Drum Motors for Modular Belting

- When driving a modular belt the heat created in the drum motor can only be dissipated by convection as in case with applications without belt. Environmental temperature therefore plays an important role. Please consult Interroll to choose the right solution.
- The selection of profiled rubber lagging or sprockets in combination with the correct specification of drum motor is crucial in obtaining the right technical solution. If this selection is not done properly there is a risk of malfunctioning and damage of the drum motor with the consequent of limited liability from Interroll. If in doubt please ask for assistance.

Variable Frequency Drive

- Please read carefully the information on page 90-91 and pay attention to the recommendations and precautions for operating a drum motor with a VFD.
- Do not run the drum motor outside of the frequency range as this could lead to overheating or overloading of internal components and voids product warranty.
- Ensure that the output current of the VFD does not exceed the nominal current of the motor.
- VFDs generally require short cable lengths and specific cross sectional thickness for the cable wires. This is normally specified by the VFD manufacturer and cable length should be in general not more than 10 m for VFD without integrated sine filter. Longer cables will cause losses and dangerous resonant frequencies.
- To protect the motor from dangerous resonant frequencies with high voltage peaks it is recommended using a motor filter at the output of the VFD. This is available from the VFD manufacturer.
- To avoid electromagnetically influences to other electrical devices Interroll recommends to use always screened cables in connection with VFD operation.
- Cables must be screened and connected to ground according to the local EMC engineering rules.



Screened Cable

Altitudes above 1000 m

- Operation at altitudes above 1000 metres may result in power loss and thermal overload of the motor due to pressure differences. This must be considered when making power calculations. If in doubt please refer to Interroll.

Single Phase AC-motors

- Please read the information on page 95 and pay attention to the recommendations and precautions to starting torque and capacitors.
- The use of different capacitors other than the stated on the data label will influence the motor temperature run-performance and noise level and could result in damage to the motor. Claims for such damage will not be accepted under the product warranty.

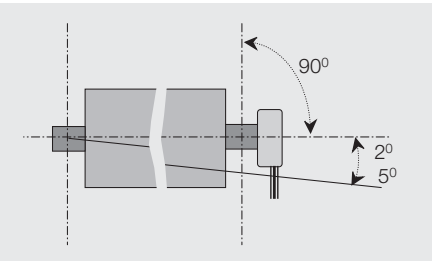
Technical Precautions for Design, Installation and Maintenance

Design of Conveyors

- The design of the conveyor frame, brackets and other components must be made in such a way to avoid product jamming, belt wander and any friction against the drum motor.
- Damage to the drum motor due to poor conveyor design will invalidate the product warranty.

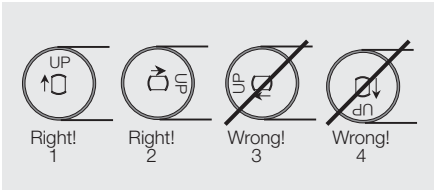
Installation of drum motors

- The Interroll Drum Motor must be installed in horizontal position (unless otherwise agreed), parallel to the idler pulley and square to the conveyor frame according to the installation instructions provided.



Horizontal installation

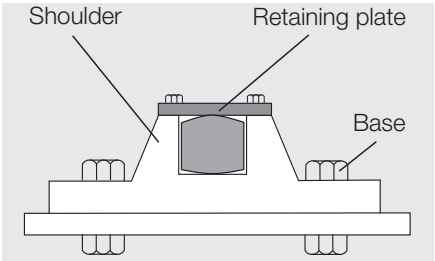
- Special designs are available to allow designers to mount the drum motor in a vertical position or in other non-horizontal orientation. Applications for non-horizontal installation for more than



Mounting orientation 80i - 216i

±2°< for 113s and ±5°< for 80s and all drum motors 80i to 216i must be referred to Interroll.

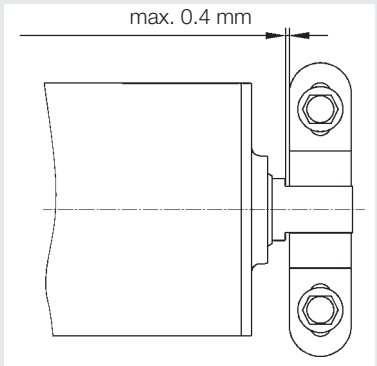
- Interroll Drum Motors should always be mounted horizontally and parallel to the tail pulley and square to the conveyor frame in order for the belt to run centrally without belt wander.



Mounting bracket

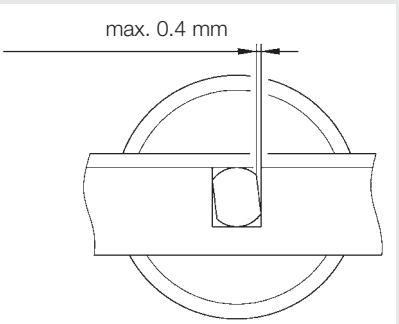
- Use the Interroll mounting brackets specified for each model of drum motor.

- Mounting brackets and fixing bolts must be of suitable material and strength to withstand the drum motor belt pull and it's start up torque. Interroll brackets type KL17 to KL41 include a shaft retaining plate at the top. This plate is not designed to resist belt pull but only to retain the shaft in the bracket.
- All types of mounting brackets must be fully supported and fastened to the conveyor frame in such a way that the shafts ends do not move or deform. Shaft end key flats must always be fully supported by the brackets.



Shaft longitudinal Play

- The longitudinal play between the shaft key flats and brackets should be avoided and must in any case be less than 0.4 mm (see picture).



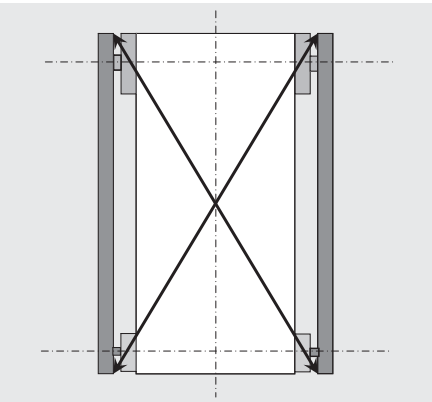
Shaft torsion Play

- When Interroll mounting brackets are not used or the Drum Motor is directly mounted in the conveyor frame, torsion play between the shaft key flats and the fixing device must be avoided and must in any case be less than 0.4 mm (see picture).
- At least 80 % of the shaft key flat length must be supported by the fixing device.
- With high duty cycle (stop/start), high powers and reversible operation no clearance is allowed.
- For trouble free operation please use Interroll fixing brackets.
- Failing to follow these precautions may cause damage and invalidate the product warranty.

Technical Precautions for Design, Installation and Maintenance

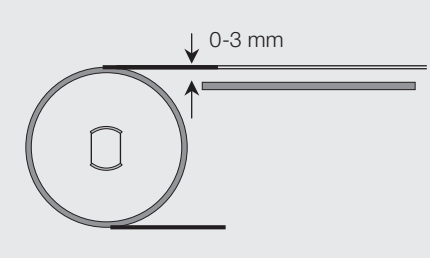
Belt Alignment

- Standard Interroll drum motors are supplied with machined crowned shells in order to ensure central belt tracking and prevent misalignment of the belt during operation. However, the belt must be checked and adjusted at the initial start up and continuously maintained as necessary.



Diagonal check

- The difference of the diagonal measurements (shaft to shaft or belt edge to belt edge) should not be more than 0.5 %.



Drum Motor / Belt Position

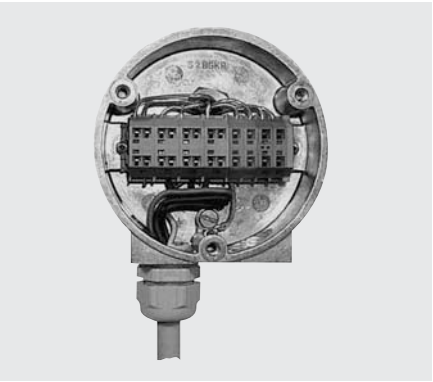
- The underside of belt should be flush with the conveyor slide/roller bed and not more than 3 mm above.
- Misaligned drum motors, belts or Idler Pulleys could cause high friction and overload the drum motor. These conditions can also result in the premature wear of the belt and or rubber lagging.

Electrical Installation

- **According to the European Council Directives related to machinery, the equipment manufacturer must ensure that the drum motor is NOT put into operation before it is: Correctly installed, correctly connected to the power supply and that all rotating parts have been fully guarded.**
- A specialist must perform electrical connection of the drum motor in accordance with electrical regulations. If in doubt, contact Interroll.
- Before connecting the motor the conformance of the supply and the drum motor voltage must be checked (see motor label).
- A wiring diagram is supplied with the product. Always refer to the connection instructions and ensure that the motor power and control circuits are properly connected.
- Wiring diagrams are also available separately at any time upon request.
- The earth screw located in the terminal box or the earth wire (green-yellow) in the cable must be connected to the protective earth conductor of the main supply.
- There is no product warranty for damages due to wrong electrical connection.

Terminal Box

- Drum motors are available with terminal boxes or cable to facilitate electrical installation.



Terminal Box with WAGO Clamp

- Switch off drum motor power supply and control circuit(s) before opening terminal box.
- The terminal box has one or more cable inlet glands and a cover plate fixed by screws.
  The cover plate must be removed in order to connect the power cable & control wires to the terminals.
  After the connections have been made the cover plate must be replaced and fixed.
- Terminal boxes should never be disassembled or removed from the shaft to re-position the conduit gland location.

Technical Precautions for Design, Installation and Maintenance

- Modifications to terminal boxes should only be made by an authorized Interroll service centre or after obtaining permission and instructions, in writing, from Interroll.
- Dismantling and reassembling terminal boxes could cause short circuiting or incorrect operation of the drum motor and invalidates the product warranty.
- Please refer to Interroll, if special positioning of the cable inlet gland is needed. Interroll offers optional adapted terminal boxes.

Thermal Protection

- Please read the information on pages 84 - 85 and pay attention to the recommendations and precautions.

Motor Protection

- The drum motor must be connected externally with a suitably dimensioned thermal motor protection device to prevent current overload at full load operation.
- Use the full load current (If) from the label of the drum motor or from the catalogue tables in order to choose the correct motor protection device and setting.
- For optimal protection the integrated thermal winding protection should be combined with the externally thermal protection device in a control system.
- Connections must be made by a qualified electrician according to local statutory electrical regulations.
- Failure to install a suitable motor protection will invalidate the product warranty.

Check before Start up

- Prior to initial start-up of the drum motor:
- Verify that drum motor data label information is according to the required specification.
- Ensure electrical connections are made correctly and the motor is earthed.
- Check that drum motor is installed correctly in the brackets and is free to rotate.
- Check that the belt pre-tension is adequate to prevent belt slippage.
- Check that belt is not over-tensioned and is positioned centrally on the drum.

Change of Oil

- All drum motors are supplied with oil adequate for the drive. Standard mineral, synthetic, food grade, low viscosity (for low temperature applications,) and high viscosity (for noise-sensitive areas) are all available. For approved oil types and quantities, see pages 124 -127.
- All Drum Motors are oil-filled for life but depending on conditions can be replaced every 10,000 hours.
- Magnetic oil plug should be cleaned during each oil change.
- Only approved non-conductive oil may be used in drum motors.
- Take special precautions when changing brands of oil and types of oil because of potential oil incompatibility. Contact your local oil supplier for assistance. For example, when changing from standard to synthetic oil, it is necessary to: (1.) completely drain old standard oil; (2.) partially fill drum motor with “clean-flush-lubricate” (CFL) fluid; (3.) run drum motor for 20 minutes; (4.) drain CFL fluid completely; then (5.) fill drum motor with appropriate amount of new synthetic oil.
- Failing to observe these precautions could shorten the oil seal and drum motor service life and invalidates **the product warranty.**

Regreasable labyrinth seals

- Regreasable labyrinth seals (when fitted) protect the oil seals from harsh operating conditions. Each labyrinth seal is fitted with a grease nipple and provides a barrier of grease which prevents ingress of dust and fluid to the oil seal. Note the drum motor is NOT intended for under water operation.
- In abrasive operating conditions the labyrinth seals should be periodically grease-purged to flush abrasive dust away from the oil seal.
- Failure to re-grease the seals could shorten service life of the drum motor and invalidate **the product warranty.**

Power Calculations for Interroll Drum Motors

The formulas shown on this page are only to be used as a guideline to calculate the required belt pull of a drum motor for typical unit load handling applications. No allowance has been made for additional friction factors caused by; ploughs, scrapers, skirt rubbers or knife edged transfers etc. For more detailed calculation please refer to the original equipment supplier or to Interroll.

60 Hz connection
All data given in this catalogue is based on connection to 50Hz supply.
If however the motor is connected to a 60Hz supply, the speed of the motor will increase by roughly around 20 %.

Example: 0.5 m/s x $\frac{60}{50}$ = 0.6 m/s

Belt pull calculation

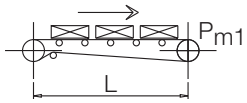
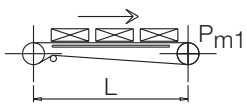
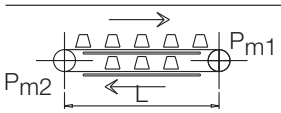
F	= Belt pull [N]. $F = F_0 + F_1 + F_2 + F_3$ The belt pull [N] for the drum motors is shown in the respective tables	
P_n	= Belt weight per linear meter	[kg/m]
P_{pr}	= Weight of rotating parts of the belt conveyor (carrying and return section) per meter length	[kg/m]
P_{m1}	= Weight of the conveyed product on the load section, for each meter of length of the belt conveyor	[kg/m]
P_{m2}	= Weight of the conveyed product on the return section, for each meter of length of the belt conveyor	[kg/m]
C_1	= Coefficient of friction between product and belt carrying side	
C_2	= Coefficient of friction between belt carrying side and slider bed	
C_3	= Coefficient of friction between return belt and product	
C_4	= Coefficient of friction between return belt side and slider bed	
L	= Centre-to-centre length	[m]
H	= Height difference in conveyor	[m]
F_0–F_3	= Force components for shown operating conditions	[N]
g	= 9.81	[m/s^2]

Guideline for coefficient of friction

C_2 or C_4	PE Belt	PP Belt	POM Belt	PVC/urethane belt	Polyamide/Polyester belt
PE slider bed	0.33	0.11	0.10		
Mild steel or s/s slider bed	0.15	0.26	0.20	0.50	0.30

C_1 or C_3	PE Belt	PP Belt	POM Belt
Steel products	0.13	0.32	0.20
Glass products	0.09	0.19	0.15
Plastic products	0.08	0.17	0.15

Calculations

Conveying system	Force without load	Force to convey materials horizontally	Force to convey materials on incline	Accumulation
 Roller bed conveyor	$F_0 = 0.4 \cdot L \cdot (2P_n + P_{pr})$	$F_1 = 0.4 \cdot L \cdot P_{m1}$	$F_2 = g \cdot H \cdot P_{m1}$ *	$F_3 = g \cdot L \cdot P_{m1} \cdot C_1$
 Slide bed conveyor	$F_0 = g \cdot L \cdot P_n \cdot C_2$	$F_1 = g \cdot L \cdot P_{m1} \cdot C_2$	$F_2 = g \cdot H \cdot P_{m1}$ *	$F_3 = g \cdot L \cdot P_{m1} \cdot C_1$
 Double slide bed conveyor	$F_0 = g \cdot L \cdot P_n \cdot (C_2 + C_4)$	$F_1 = g \cdot L \cdot (P_{m1} \cdot C_2 + P_{m2} \cdot C_4)$	$F_2 = g \cdot H \cdot (P_{m1} - P_{m2})$ *	$F_3 = g \cdot L \cdot (P_{m1} \cdot C_1 + P_{m2} \cdot C_3)$

* For downwards moving conveyors the value of F_2 will be negative

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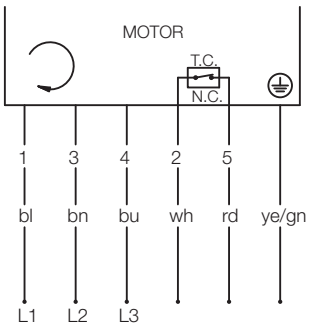
Connection Diagrams for Interroll Drum Motors 80s, 113s

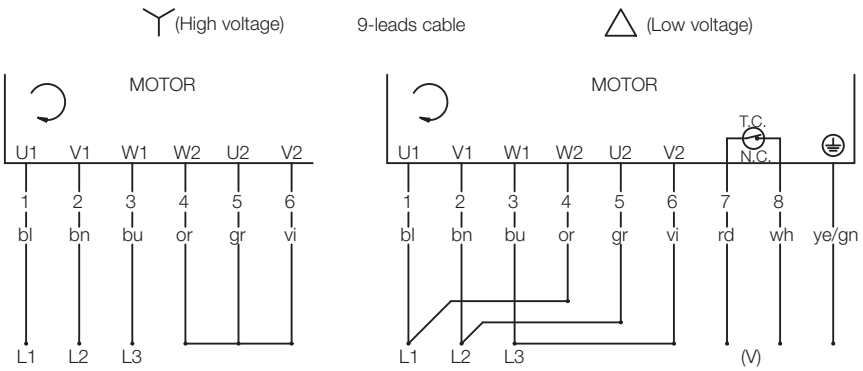
Cable Connections

3-phase voltage – 7 leads T.C.

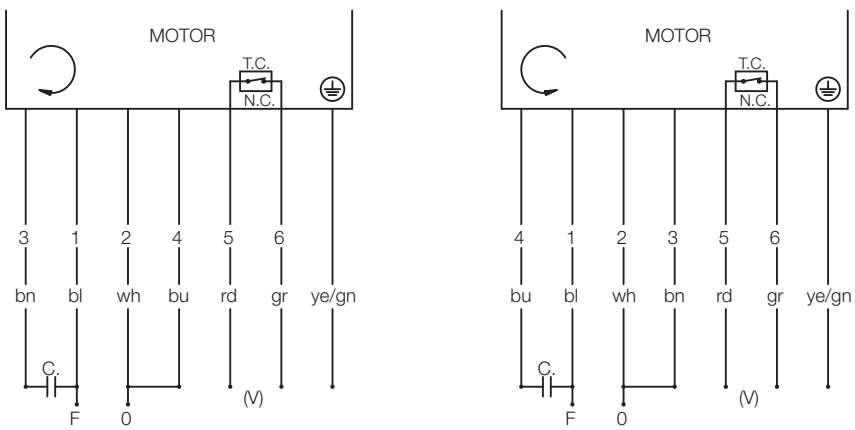


For counter clockwise rotation, change L2 and L3

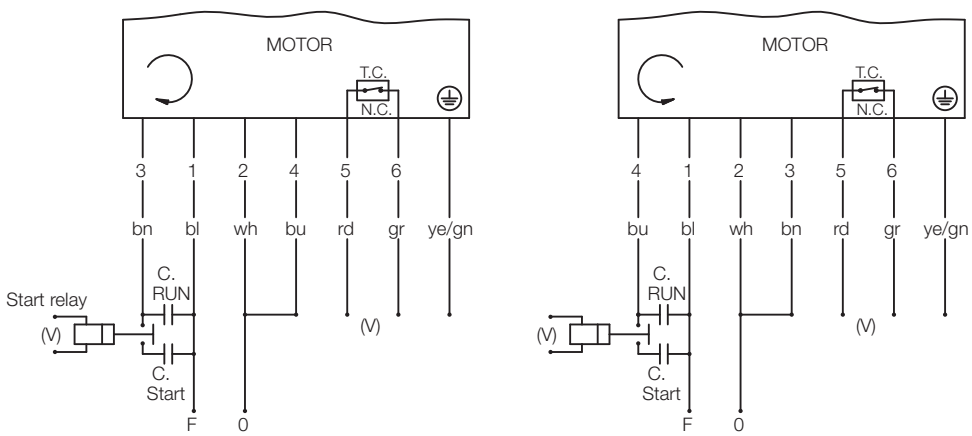
3-phase voltage – 6 or 9 leads T.C. – dual voltage



1-phase voltage – 7 leads T.C.



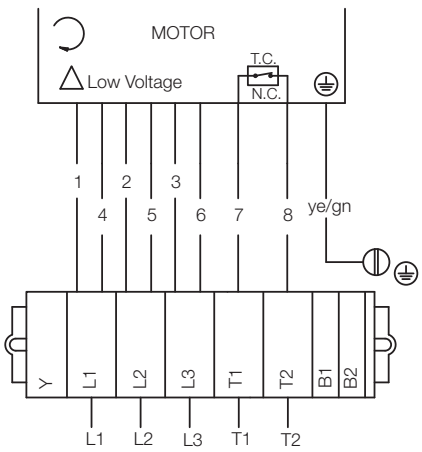
1-phase voltage – 7 leads T.C. – start capacitor

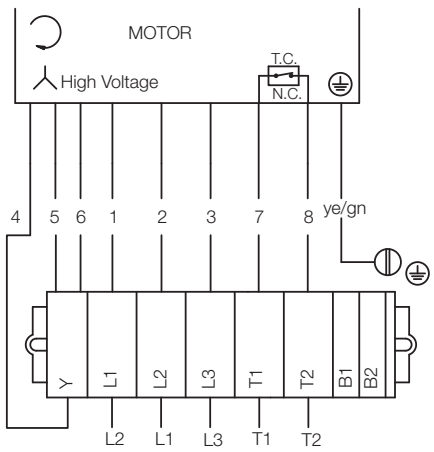


Connection Diagrams for Interroll Drum Motors 80s, 113s

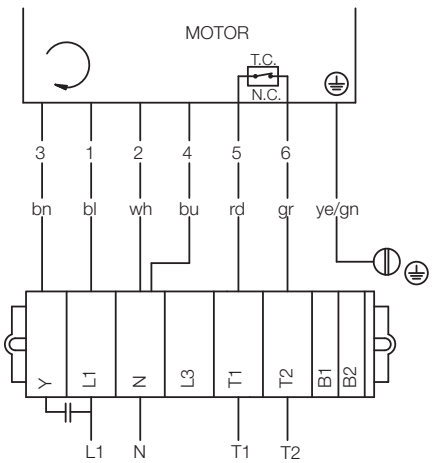
Terminal Box with Wago Clamp

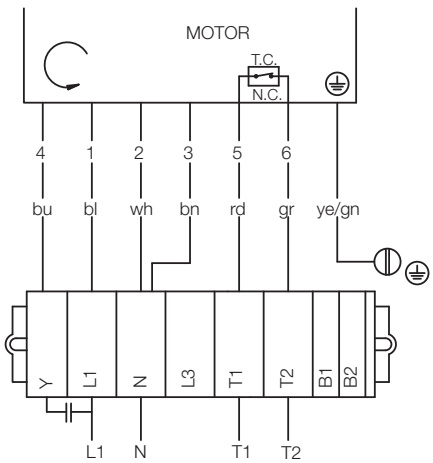
3-phase voltage – 9 leads T.C. – dual voltage





1-phase voltage – 7 leads T.C.





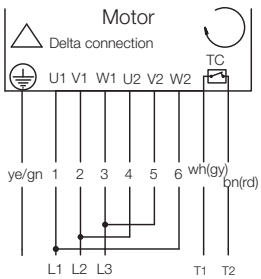
Connection Diagrams for Interroll Drum Motors 80i, 113i, 138i, 165i, 216i

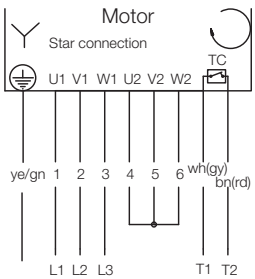
Cable Connections

TC = Thermal controller
BR = Electromagnetic brake (option)
Leads for TC may be coloured white and brown

Color codes:
ye = yellow
bn(rd) = brown (red)
gn = green
wh(gy) = white (grey)
( ) = alternative color

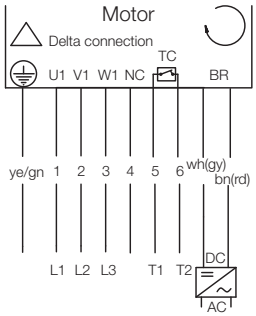
3-phase voltage delta/star connection

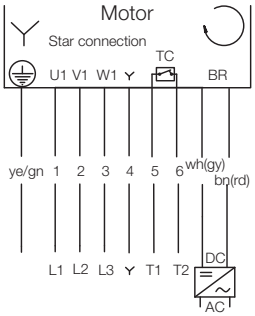




3-phase voltage delta or star connection brake option

NC = Not Connected

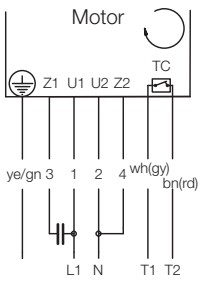


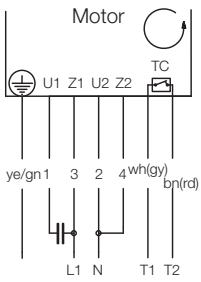


1-phase voltage

Main Winding = Auxiliary Winding

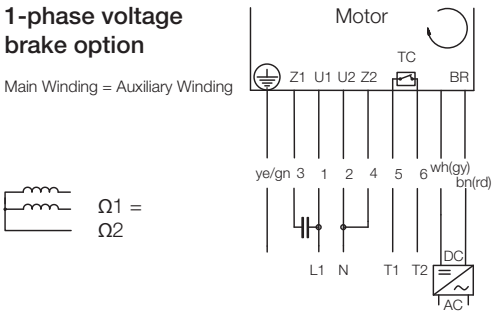
Ω1 = Ω2



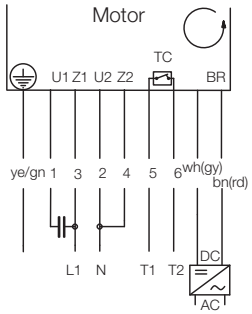


1-phase voltage brake option

Main Winding = Auxiliary Winding

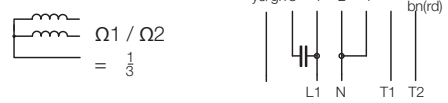


Ω1 = Ω2

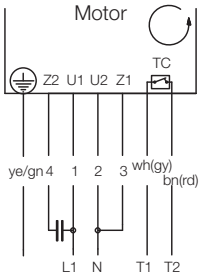


1-phase voltage

Main Winding < Auxiliary Winding

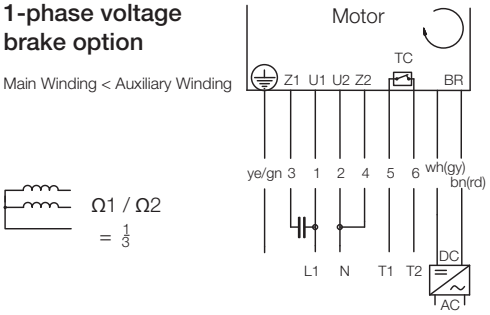


Ω1 / Ω2 = $\frac{1}{3}$

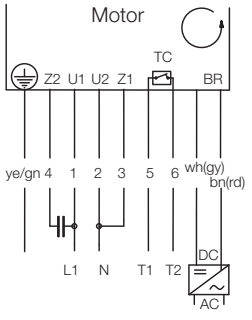


1-phase voltage brake option

Main Winding < Auxiliary Winding



Ω1 / Ω2 = $\frac{1}{3}$



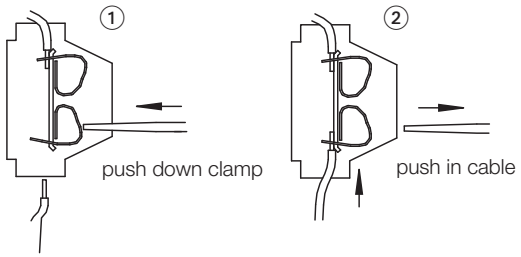
Connection Diagrams for Interroll Drum Motors 80i, 113i, 138i, 165i, 216i

Terminal Box with WAGO Clamp

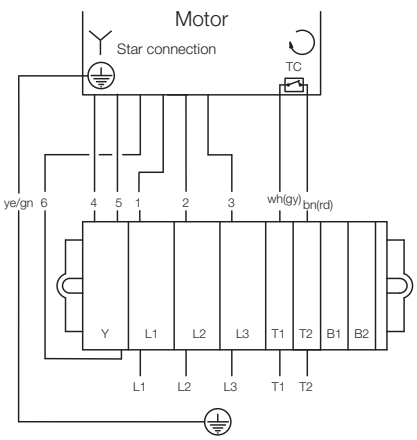
TC = Thermal controller
BR = Electromagnetic brake (option)

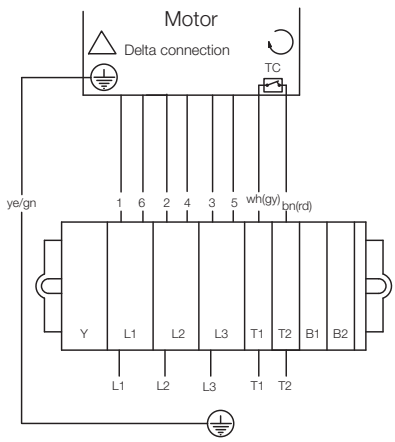
Color codes:
ye = yellow
bn(rd) = brown (red)
gn = green
wh(gy) = white (grey)
( ) = alternative color

Installation

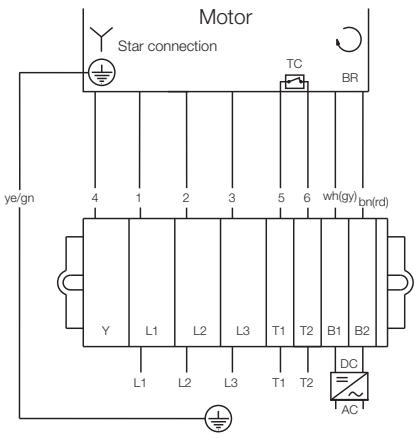


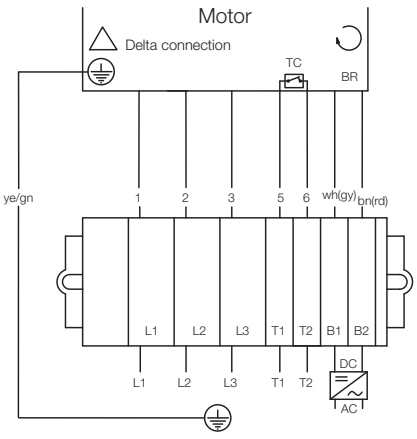
3-phase voltage delta/star connection





3-phase voltage delta/star connection BR-option

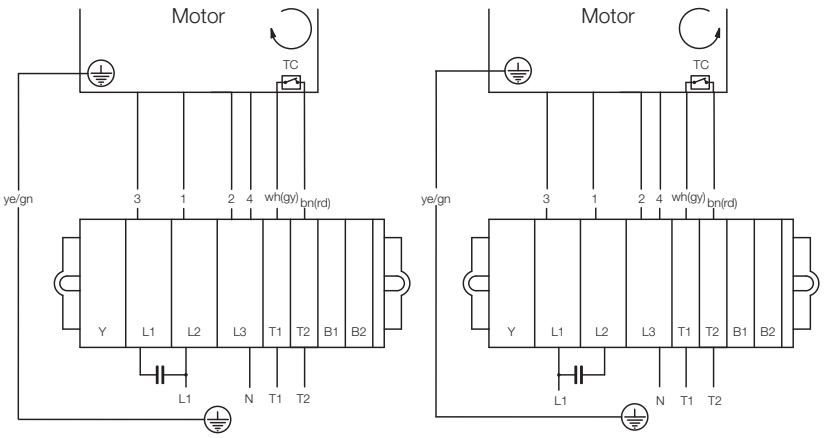




1-phase voltage

Main Winding = Auxiliary Winding

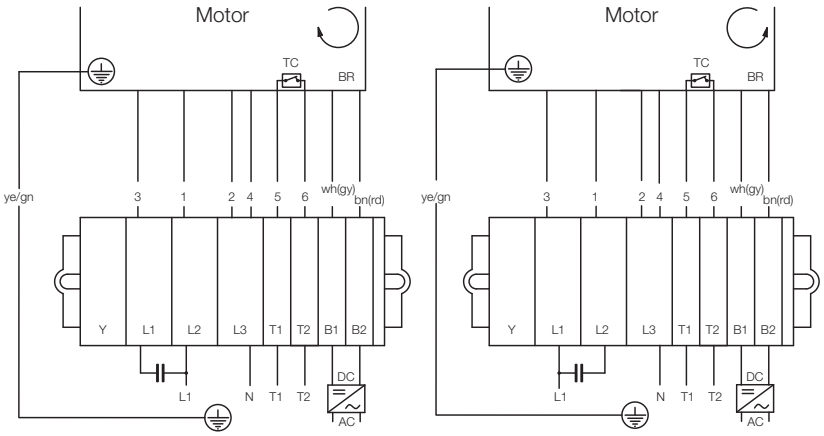
Ω1 =
Ω2



1-phase voltage BR-option

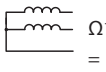
Main Winding = Auxiliary Winding

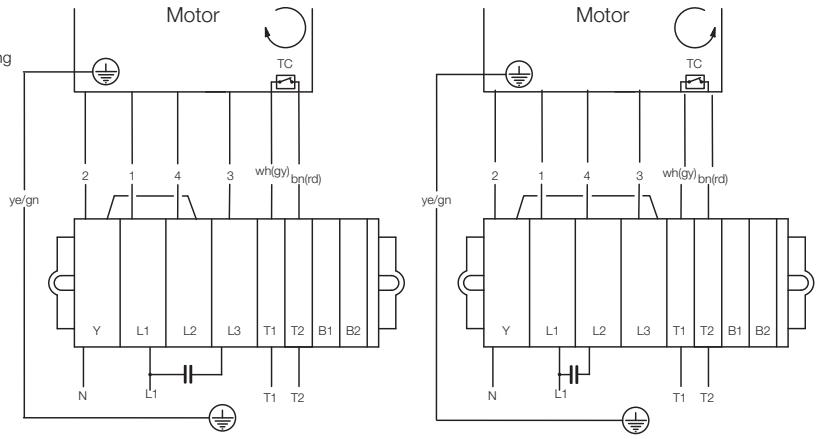
Ω1 =
Ω2



1-phase voltage

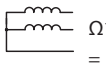
Main Winding < Auxiliary Winding

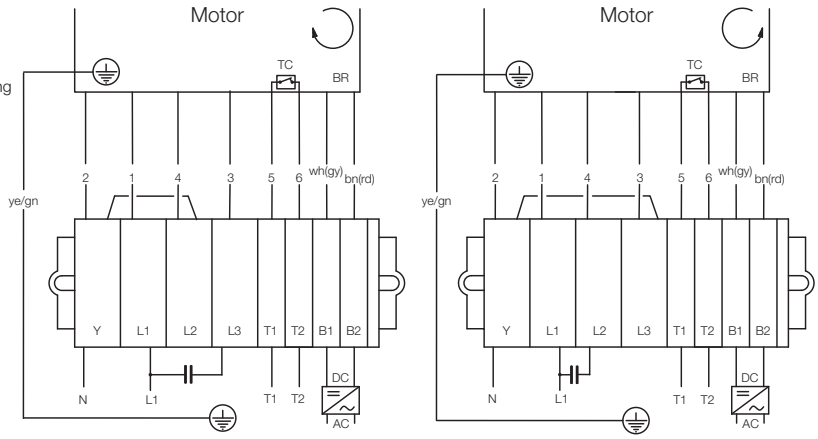




1-phase voltage BR-option

Main Winding < Auxiliary Winding





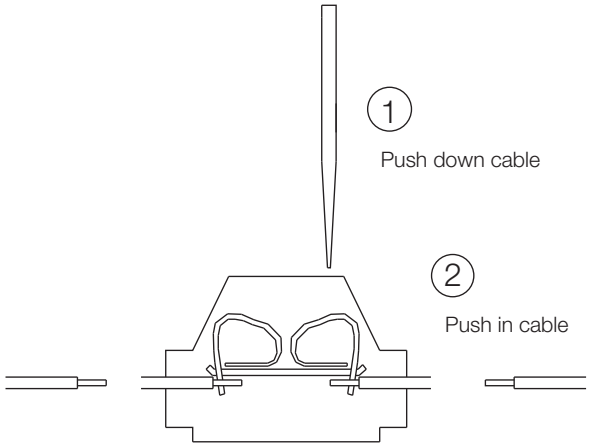
Connection Diagrams with WAGO Clamps for 220M - 400L for power ≤ 4,0 kW

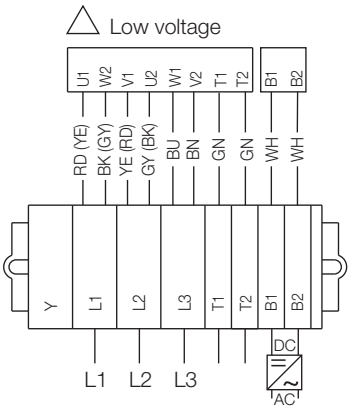
Characters in brackets for 2-stage gearbox!

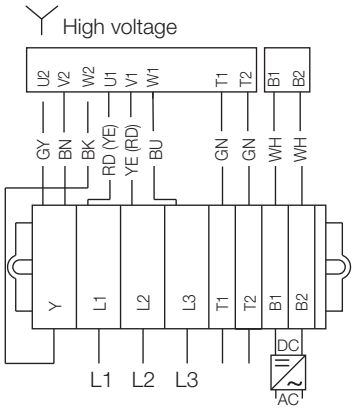
Clamps B1 and B2 are for standard unassigned

rd	=	red
ye	=	yellow
bu	=	blue
gy	=	gray
bk	=	black
bn	=	brown
gn	=	green
wh	=	white

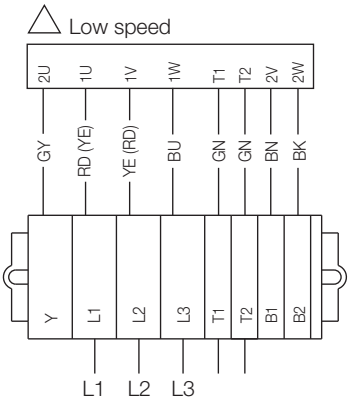
TP = Thermal protection
B1/B2 = Electromagnetic brake (ELB)

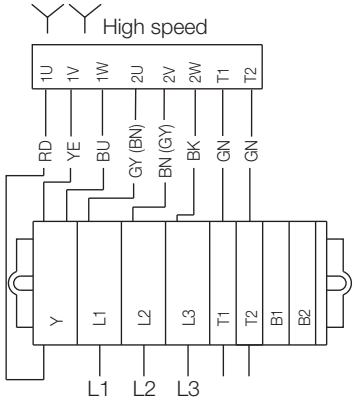






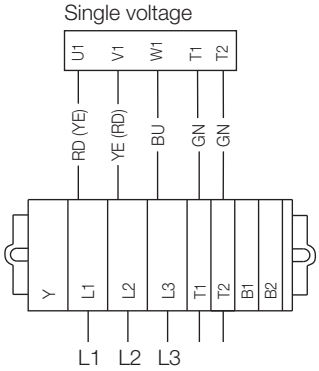
Dahlander – Connection (2-speed motor)

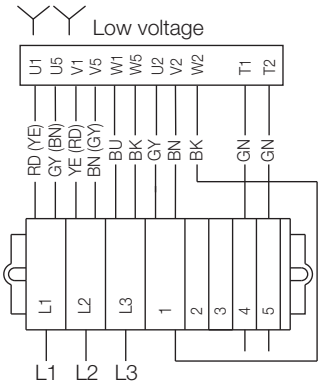


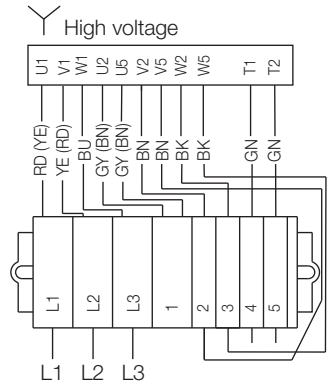


3-PH USA – Connection

Single voltage



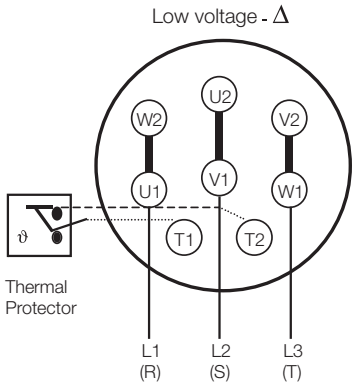


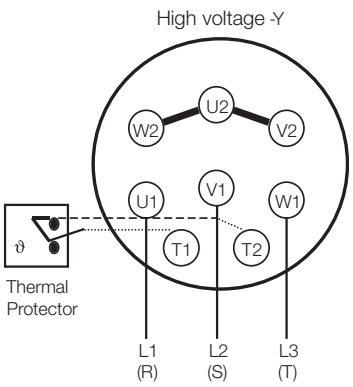


During reconnection check star U5/V5/W5

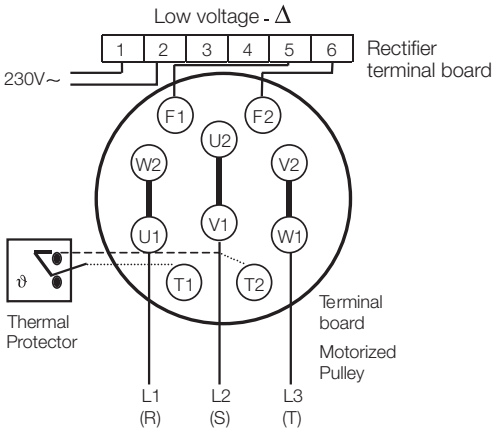
External Connection Diagrams for Belt Drives 220H - 800H

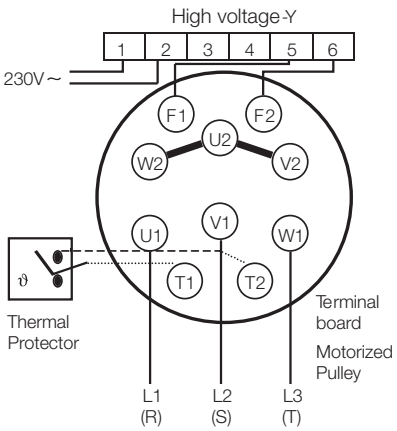
Terminal Box
5.5 kW – 132 kW



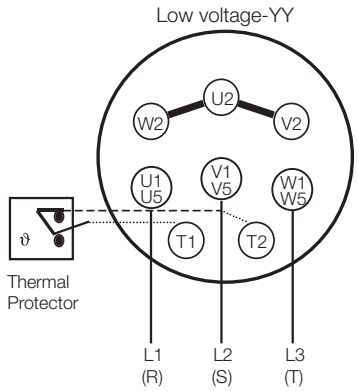


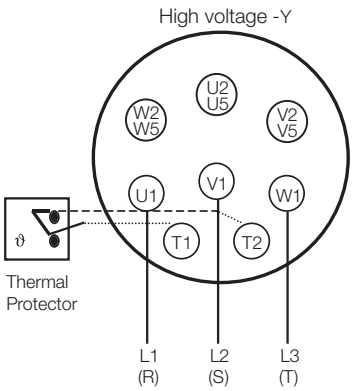
Electromagnetic Brake Execution





USA-Execution



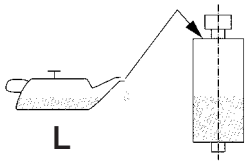


Oil Contents in Litres for normal Installation

Type / RL in mm	80s	113s	80i	113i*		138i*		165i*		216i*	
200			0.12								
250			0.14	0.40							
255											
262		0.42									
270	0.17	0.44									
300	0.23	0.52	0.17	0.50	0.40	0.70					
350	0.33	0.68	0.21	0.60	0.40	0.80	0.70				
400	0.42	0.86	0.25	0.60	0.50	1.00	0.80	1.20		3.10	
450	0.52	0.98	0.29	0.70	0.60	1.10	1.00	1.40	1.20	3.30	3.10
500	0.61	1.10	0.32	0.80	0.70	1.30	1.10	1.60	1.40	3.70	3.30
550	0.71	1.22	0.36	0.90	0.80	1.40	1.30	1.80	1.60	4.10	3.70
600	0.80	1.34	0.40	1.00	0.90	1.60	1.40	1.90	1.80	4.50	4.10
650	0.90	1.46	0.44	1.10	1.00	1.70	1.60	2.10	2.00	4.90	4.50
700	0.99	1.58	0.48	1.20	1.10	1.90	1.70	2.30	2.10	5.30	4.90
750	1.09	1.70	0.51	1.30	1.20	2.00	1.90	2.50	2.30	5.70	5.30
800	1.20	1.82	0.55	1.40	1.30	2.20	2.00	2.70	2.50	6.10	5.70
850	1.28	1.94	0.59	1.50	1.40	2.30	2.20	2.90	2.70	6.50	6.10
900	1.37	2.06	0.63	1.60	1.50	2.50	2.30	3.10	2.90	6.90	6.50
950	1.47	2.18	0.67	1.70	1.60	2.60	2.40	3.30	3.10	7.30	6.90
1000		2.30	0.70	1.80	1.70	2.70	2.60	3.50	3.30	7.70	7.30
1050		2.42		1.90	1.80	2.90	2.70	3.70	3.50	8.10	7.70
1100		2.54		2.00	1.90	3.00	2.90	3.80	3.70	8.50	8.10
1150				2.10	2.00	3.20	3.00	4.00	3.90	8.90	8.50
1200				2.20	2.10	3.30	3.20	4.20	4.00	9.30	8.90
1250				2.30	2.20	3.50	3.30	4.40	4.20	9.70	9.30
1300				2.40	2.30	3.60	3.50	4.60	4.40	10.10	9.70
1350				2.50	2.40	3.80	3.60	4.80	4.60	10.50	10.10
1400				2.60	2.50	3.90	3.80	5.00	4.80	10.90	10.50
1450				2.70	2.60	4.10	3.90	5.20	5.00	11.30	10.90
1500				2.80	2.70	4.20	4.10	5.40	5.20	11.70	11.30
1550				2.90	2.80	4.40	4.20	5.60	5.40	12.10	11.70
1600				3.00	2.90	4.50	4.40	5.70	5.60	12.50	12.10

* Standard version / High Power version

Oil Contents in Litres for Vertical Mounting

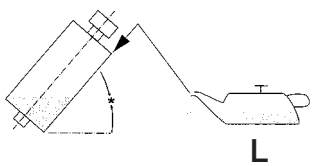


Type	Litres	Electrical connection	Construction
80s	0.32	At the top	Standard
113s	1.00	At the top	Special Construction
80i	0.20	At the top	Special Construction
113i	0.60	At the top	Special Construction
138i	2.00	At the top	Special Construction
165i	3.00	At the top	Special Construction
216i	5.00	At the top	Special Construction

Special Versions

Please contact your Interroll Partner

Please note: the oil fill quantities shown above are valid only for standard execution drum motors.



80s -113s: 2°-90°
80i, 113i -165i: 5°-90°
For installation please contact Interroll.

For special execution it is possible that the oil quantities may vary. Always refer to the data label for the correct type and volume of oil.

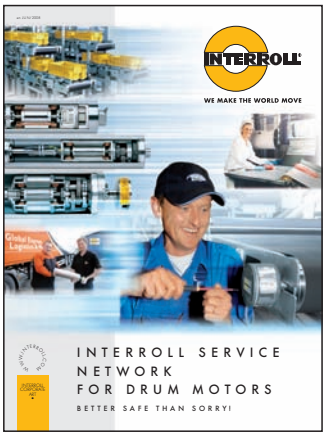
Oil Types

Only use Interroll proven oil types as stated in the table below.

These are tested for use with drum motors.

Oil type		IEC 34 Ins.class	Ambient Temperature	Castrol	BP	Shell
80s	Standard	F	+10°C +40°C	–	Bartran HV 68	–
	only 3-phase (Option)	F	-25°C +20°C	–	Tribol FoodProof 1835/22	–
113s	Standard	F	0°C +40°C	–	Bartran HV 32	–
	(Option)	F	-25°C +20°C	–	Tribol FoodProof 1835/22	–
80i	Standard	F	+5°C +40°C	–	Aral Degol BG 100 Plus	Omala 100
	(Option)	F	-20°C +40°C	Optileb HY 68 (foodproof) -10° +40° C for ELECTROMAGNETIC BRAKE option	–	Cassida HF 68 (foodproof) -10°C +40°C for ELECTROMAGNETIC BRAKE option
113i	Standard	F	+5°C +40°C	Optileb GT 150 (foodproof) +10°C +40°C for ELECTROMAGNETIC BRAKE option	Aral Degol BG 100 Plus +10°C +40°C for ELECTROMAGNETIC BRAKE option	Omala 100, Cassida Fluid GL 150 (foodproof) +10°C +40°C for ELECTROMAGNETIC BRAKE option
	(Option)	F	-25°C +40°C	Optileb GT 150 (foodproof) Optileb HY 68 (foodproof) -10°C +15°C for ELECTROMAGNETIC BRAKE option	–	Cassida Fluid GL 150 (foodproof) Cassida HF 68 (foodrpoof) -10°C +15°C for ELECTROMAGNETIC BRAKE option
138i 165i 216i	Standard	F	+5°C +40°C	Optileb GT 150 (foodproof) +10°C +40°C for ELECTROMAGNETIC BRAKE option	Aral Degol BG 100 Plus +10°C +40°C for ELECTROMAGNETIC BRAKE option	Omala 100 Cassida Fluid GL 150 (foodproof) +10°C +40°C for ELECTROMAGNETIC BRAKE option
	(Option)	F	-25°C +40°C	Optileb GT 150 (foodproof) Optileb HY 68 (foodproof) -10°C +15°C for ELECTROMAGNETIC BRAKE option	–	Cassida Fluid GL 150 (foodproof) Cassida HF 68 (foodproof) -10°C +15°C for ELECTROMAGNETIC BRAKE option

Interroll Drum Motor Service and Support



Gobal Security with Local Service
Interroll is represented in more than 40 countries world wide with established service and after sales facilities throughout the world. Interroll service centres provide fast delivery of standard drum motors and offer a quick efficient sales and repair service using skilled Interroll trained fitters and original stock parts.

Just call and we'll be there for you!
Not every Service network lives up to its name. But ours does. Every day of every week, around the clock and all over the globe you get to speak to a real service professional – not a microchip! They say "Action speaks louder than words". Well we do just that, acting fast and delivering professional, competent and reliable service with very few words.
On the very rare occasion when one of our drum motors really does go on strike, we pull out all the stops to find and rectify the problem. A promise is a promise. And incidentally our regular inspection visits and preventive maintenance contracts virtually rule out any such crashes, minimising unforeseen and expensive production stoppages.

Interroll's Global Service Network offers the following benefits:
- 24/7 Service helpline
- Authorised service partners worldwide
- Trained customer service professionals
- Certified service engineers
- Regular inspection visits
- Preventive maintenance
- Tailored service contracts
- 24-hour Repair service
- Technical support

Interroll Drum Motor Service – Keeping the world moving
If you are interested in our inspection services or preventative maintenance contracts please call your nearest Interroll representative shown in this catalogue or alternatively visit our service webpage at www.Interroll.com where you can find a list of contacts for our 24/7 service helpline.