



## MOTORIZED PULLEYS FOR BELT CONVEYORS BULK HANDLING

GENERAL CATALOGUE

**Moving ahead.**



**SCHIKI**





**MOTORIZED PULLEYS  
FOR BELT CONVEYORS  
BULK HANDLING**

**Moving ahead.**



**SCHIKI**





# Rulmeca - Moving ahead.



*Since its foundation in 1962, Rulmeca, headquartered in Bergamo (Almé), Italy, has grown to become one of the world's leading manufacturers of conveyor rollers/idlers, motorized pulleys, fabricated pulleys and other components for the bulk handling industry. 1,200 employees in sixteen production and sales companies around the globe serve clients in 85 countries.*

*Today, Rulmeca Group's global business incorporates the product brands Rulmeca, Precismeca and Melco. All three of them specialize in the supply of long-lasting premium belt conveyor components.*

*Rulmeca Group products are developed and produced to meet the most demanding everyday challenges of all major bulk handling applications: coal and lignite mining, cement, steel, quarries, tunneling, power plant installations, ports, salt and fertilizers, sugar plants, recycling and demolition, crushing and screening.*

*The close partnership with our customers, OEMs, engineering companies and end users has made us one of the most trusted brands in the industry.*

*As a family-owned business with a long-term perspective, our combination of traditional values and openness to innovation continues to be one of our key success factors.*

*This is also seen in our consistent environmental and social responsibility throughout the value chain. We are committed to the continuous improvement of our range, often considered among the best in the market.*

*Our research departments are equipped with state-of-the-art test facilities, where our products are thoroughly examined under extreme conditions.*

*Every day and on all continents, Rulmeca products improve the performance, safety and reliability of systems, equipment and machines within the bulk handling industry. Whatever your materials handling problem might be, talk to us. We have the expertise, the experience – and the products you need.*

## **Your Rulmeca Team**

*de@rulmeca.com*



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Production location of RULMECA Germany in the Center of Germany.





## GENERAL DESCRIPTION

**The Rulmeca Motorized Pulley was first produced in 1953 specifically for use on conveyors belt applications.**

**The aim was to produce a compact, hermetically sealed, highly efficient conveyor drive unit that would be unaffected by dust, water, oil, grease or other harmful substances. A Motorized Pulley that would be quick and simple to install and require virtually no maintenance.**

These aims were achieved and today the Rulmeca Motorized Pulley is considered to be one of the most reliable, effective and safe conveyor drive systems available throughout the world.

The Rulmeca Motorized Pulley is a highly efficient geared motor drive, which is hermetically sealed in a steel cylindrical shell.

The shell, which is normally crowned to ensure belt tracking, is fitted with bearing housings incorporating precision bearings, double lipped oils seals and rotates on a pair of shafts.

The motor stator is fixed to the shafts and the motor winding cables passes through one of the shafts, eliminating the need for slip rings and brushes.

The squirrel cage induction motor, manufactured in steel laminate, is machined concentric to high tolerances and designed to give a strong starting torque for 3 phase versions.

The rotor pinion is coupled directly to the gearbox.

The gearbox transmits torque to the shell through a geared rim and provides a highly efficient motor, with very little frictional losses.

The Motorized Pulley is oil filled, which acts as a lubricant and coolant. Heat is dissipated through the shell and conveyor belt.

All vital parts are CNC machined!

**Motorized Pulleys are produced according to following standards:**

### **DIN VDE 0100**

Group 400 "Protective measures"

### **VDE 0298**

Application of cables and cords in power installations

### **VDE 0530**

Rotating electrical machines (part of IEC 60034)

### **Directive 2014/30/EU**

EMC - Electromagnetic compatibility

### **VDE 0839-6-4:2011-09**

EMC- Electromagnetic compatibility-  
Emission standard for industrial environments

### **VDE 0838-3:2014-03**

EMC- Electromagnetic compatibility-  
Limitation of voltage changes, voltage fluctuations and flicker...

### **CE-Declaration:**

**CE-Declaration label on Motorized Pulley is valid for product conformity to Directive 2014/30/EU (EMC) and to Directive 2014/35/EU (low voltage limits)**

Rulmeca Motorized Pulleys are manufactured according to the Council Directives of the European Communities.



Sea-dredged aggregates working in wet, salty and aggressive environment! IP66/67 sealing – a MUST – often with re-greasable seals!



Recycling application benefiting from IP66/67 sealing systems avoiding internal damage from aggressive ambient environments containing air or gas of high PH-values.

# FEATURES AND BENEFITS OF RULMECA MOTORIZED PULLEYS

## **Purpose-built design**

The Rulmeca Motorized Pulley has been specifically designed for belt conveyors.

## **Totally enclosed**

The motor, gearbox and bearings are totally enclosed and sealed inside a steel shell; therefore they are unlikely to fail due to harmful environmental conditions such as water, dust, grit chemicals, grease, oil, etc.

## **Space saving design**

Because the drive unit and the bearings are mounted inside the Motorized Pulley shell, it takes up much less room than a conventional drive. No need for costly extras like chains, v-belts, couplings, bearings, support structure and special guarding.

## **Safety**

The Rulmeca Motorized Pulley is probably one of the safest drives available because the motor is completely enclosed and the external shafts are always stationary. The only moving external parts are the Motorized Pulley shell and bearing housings.

## **Low purchasing and installation cost**

The Rulmeca Motorized Pulley is quite often less expensive than exposed drives because it has fewer parts. Therefore less conveyor design and parts purchasing costs. It is also much quicker and easier to install - certainly less than a quarter of the time taken to fit an exposed system.

## **Low maintenance cost**

The end user also benefits from the Rulmeca Motorized Pulley, because it requires no maintenance other than the recommended oil change every 20,000 hours and oil seal change every 30,000 hours. In other words almost 10 years between oil changes based on an 8-hour/day working week. Synthetic oil can be specified to extend the service range up to 50,000 hours.

## **Efficiency**

The Rulmeca Motorized Pulley usually has a much higher efficiency from electrical motor to shell (Pulley face) than conventional drives, because it has fewer frictional losses, and therefore mechanical efficiencies of up to 97% can be achieved.

## **Cleanliness**

Because the Rulmeca Motorized Pulley is hermetically sealed it cannot contaminate any conveying materials such as food, electrical components, plastics and other materials that must be kept perfectly clean during handling.

## **Aesthetic appearance**

If installed correctly the Rulmeca Motorized Pulley always looks good. Due to its compact size and smooth lines, quite often the Motorized Pulley is out of sight, because it is hidden within the conveyor frame.

## **Thermal protection**

All three phase Rulmeca Motorized Pulleys are protected by our thermal protection switch. This heat sensitive switch is built into the motor windings to protect the motor from overheating. The thermal protector must be connected to a normally closed circuit.

## **Weight saving and distribution**

Often the Rulmeca Motorized Pulley is lighter than conventional drives and often it is possible to reduce the cost of the conveyor structure, because the weight is evenly distributed within the conveyor frame.

## **Variable frequency converter**

All Rulmeca Motorized Pulleys with 3 phase motors can be easily controlled by variable frequency converters. For further details we refer to the technical descriptions at the end of the catalog.

## **Fewer parts**

A Rulmeca Motorized Pulley consists of the Motorized Pulley and two fixing brackets! Exposed drives can require up to eight or more separate components, most of which have to be purchased from different suppliers or custom manufactured.

## **Low noise**

Thanks to the totally sealed enclosure and high quality gears the Rulmeca Motorized Pulley runs almost at a whisper – a very important fact in today's modern factory environments. However, for some special application, a lower noise level could be required.

The Rulmeca Motorized Pulley – the ideal drive unit for conveyors **“Fit it and forget it”**.





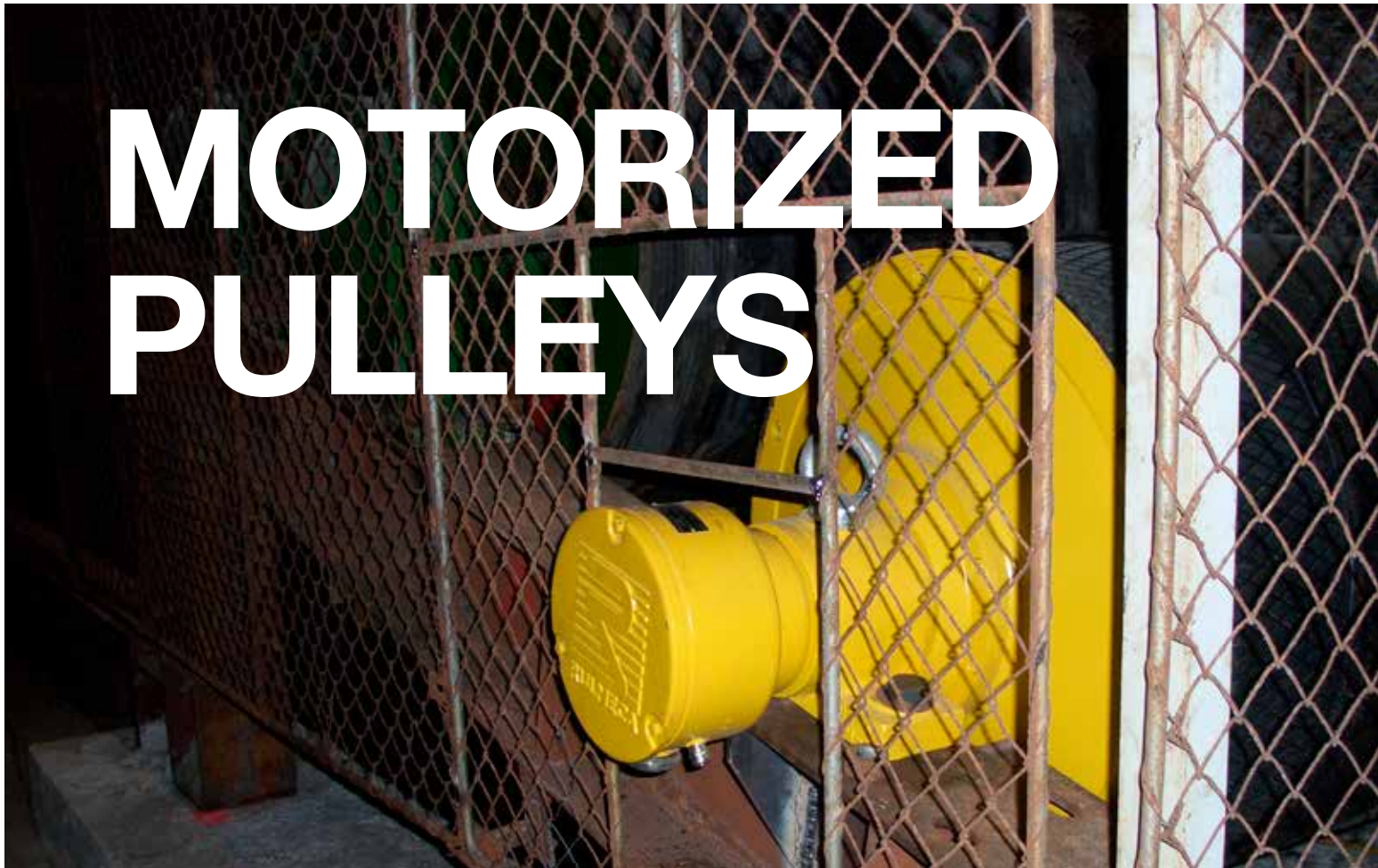
Excavators in different applications are using Motorized pulleys with driving power up to 250 KW.  
Compact design and equal weight distribution gives the design engineer a lot of options to create an efficient solution.



Sectioned model of Motorized Pulley type 220M.



# MOTORIZED PULLEYS









# MOTORIZED PULLEY 138LS

Ø 138 mm



Motorized Pulley 138LS, with machined helical gear box, performs an efficiency, in a compact diameter of 138 mm only. With a min RL of 300 mm and powers ranging from 0.10 to 1.0kW this size of motorized pulley is suitable for most duties requiring such a small diameter - e.g.:

- Light agriculture and bulk solids handling conveyors
- Mobile or portable conveyors
- As a drive unit for brush cleaners etc.

Motorized pulley 138LS has standard IP66/67 enclosure and is available in complete stainless steel execution for wash down application.

For the choice of the Motorized Pulley it is very important to know or to calculate the belt tension T1+T2 (radial load). This **MUST NOT OVERCOME** the "max. radial load" allowed as shown in the catalogue.

Be careful to very high belt tensions when using thick, heavy and/or large belts.

If the type 138LS cannot provide the necessary max. radial load T1+T2, you have to choose a Motorized Pulley with a bigger diameter.

## STANDARD SPECIFICATION of motorized pulley

- Crowned mild steel shell, outside diameter 138mm.
- Mild steel shafts.
- Shell and shafts treated with anti-rust wax.
- Die cast aluminium bearing houses.
- Gearbox from die cast aluminium 2- and 3-stages.
- Sealing system-degree of protection IP66/67 (EN60034-5).
- Die cast aluminium terminal box with WAGO clamp.  
Voltage: most common globally used voltages available. Please specify!
- 3-phase induction motor with one rated voltage – either low or high voltage
- Available in both 50Hz or 60Hz.
- Star connection (Delta connection on request).
- Motor windings with insulation class F (insulation class H on request).
- Dynamical balanced rotor.
- Two oil plugs (one with magnet).
- Minimum roller length (RL) 300mm (0.75kW: min RL 320mm).
- Max. RL 1800mm (from RL800 with reinforced shaft, from RL1000 plus reinforced shell).
- Standard mineral oil ISOVG150 (synthetic oil ISOVG220 on request).
- Oil change recommended every 20.000 operational hours.
- Single phase AC motors available in 0.20, 0.37 and 0.55kW, supplied with all necessary run and start capacitors (if needed) together with current depending relay.
- Without start capacitor the starting torque is 70% of the nominal torque only
- Horizontal installation (angled and vertical installation on request)

## STAINLESS STEEL

Stainless steel version or rust-resistant version on request -  
For an optimum design of the correct anti-corrosion performance, we need the properties of the materials being conveyed. Our sales team will offer you the best available solution.

- Environmental consideration: page 72/73
- Technical precautions: page 75 ff.,
- Optional extras: page 15,
- Connection diagram: page 91 ff.

# MOTORIZED PULLEY 138LS

## Optional extras



SPECIFICATIONS		138LS
Stainless steel option	Re-greasable labyrinth seals!	On request!
Food grade oil & grease - FDA & USDA recognized - available on request		x
Dust explosion proof Motorized Pulleys - ATEX 95 - Zone 22 - for applications handling of dusty grain etc. According to European Directive 94/9/EC.		On request!
TOTAL acid resistant stainless steel option - AISI 316		x
Black rubber lagging - STANDARD specifications: - Smooth lagging - Hardness 60 ±5 Shore A - Diamond lagging - Hardness 60 ±5 Shore A		o
White smooth rubber lagging (FDA). Oil, fat & grease resistant		o
SPECIAL lagging available on request - e.g. hot vulcanized etc.		o
Single phase motors available on request		x
Electromagnetic brake		x
	Min. RL dimensions by (mm)	50
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 - Allowable ambient temperature: -25°C/+40°C		x
Low noise drives for noise sensitive areas		x
Parallel shell		x
Thermal protector		Std.
IP66/67 Compact stainless steel - AISI 304 or 316 range - terminal box		x
Straight or elbow connector with flying lead		x
Straight connector with flying lead - Stainless steel - AISI 304 range		x
Shaft sealing system - degree of protection IP66/67 (EN60034-5)		Std.
Screened cables - a MUST together with Frequency Converters		x
Euro wide range voltage (3x220-240V / 380-415V 50 Hz) with +/-10% tolerance - DIN IEC 38 or (3x380-400V / 660-690V 50 Hz)		Std.
Special voltages - 50 and/or 60 Hz Please specify!		On request!
CSA approved motors - available on request only!		x

x = Optional extras

o = Available as option with certain limitations. Please refer to Technical precautions pages 75 ff.

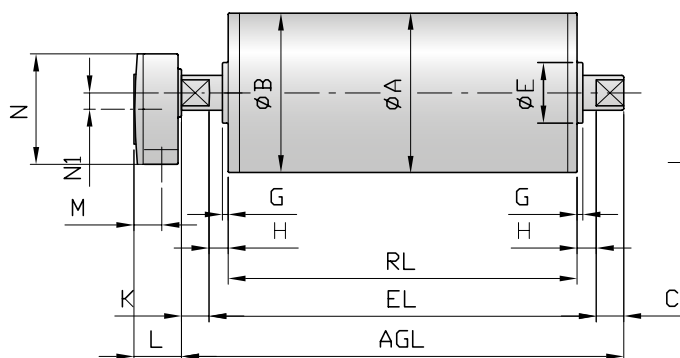
Std. = Fitted as standard

# MOTORIZED PULLEY 138LS

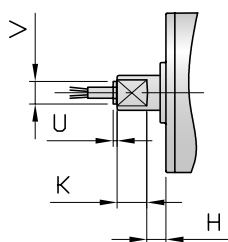
## Ø 138 mm



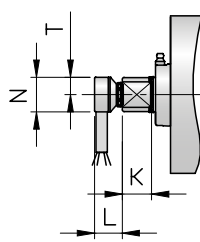
### Motorized Pulley with Terminal box



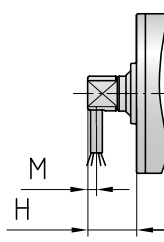
### Motorized Pulley with cable Straight connector



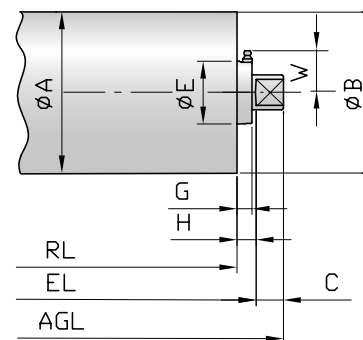
### Elbow connector



### Front shaft with cable slot



### Idler pulley stainless steel version; cylindric option



Standard measurements Type / Option	Ref.	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	U mm	V mm	R mm	S mm	T mm
138LS (UT138LS) / Terminal box		138.5	137	25	30	54	20	5	15	25	36	41	24	95	14					
SS version (regreasable seals)					64.5		20	13.5					36		3.5	19.5				
Straight connector									15	25		3.5				3.5	19.5			
Elbow connector									15	25		20						20	48	12
Front shaft with cable slot										25			8-11							

Idler/UT pulley - minimum requirement :

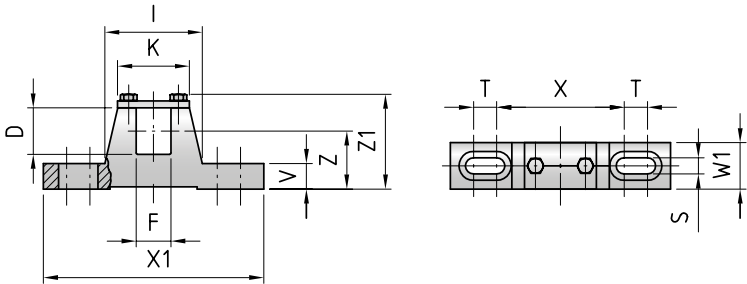
- use of a belt
- the belt need to cover 2/3 of the RL of the pulley
- minimum 180 ° wrap angle

# MOTORIZED PULLEY 138LS

Ø 138 mm



Mounting brackets  
KL30



Motorized Pulley	Material	Dimension												Weight
Type		D mm	F mm	I mm	K mm	S mm	T mm	V mm	W1 mm	X mm	X1 mm	Z mm	Z1 mm	kg
138LS	Cast iron	30	20	86	57	11	17	12	24	110	180	44.5	72	0.7

Further product details:



[https://www.rulmeca.com/contenuti/qr\\_code/english/138.pdf](https://www.rulmeca.com/contenuti/qr_code/english/138.pdf)

# MOTORIZED PULLEY 138LS

Ø 138 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Weight in kg for STANDARD width Dimension RL in mm																	Type of Bracket														
Power kW/HP	No. of Poles	Gear stages					300	320	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	per 50 mm up to 1800															
0.10/ 0.13	12	3	0.04 0.05 0.06	159 138 111	2295 1990 1600	4740																		Available on request	KL30													
		2	0.10	62	895																																	
0.18 0.25	8	3	0.08 0.10 0.13	163 131 108	2350 1890 1555																																	
		2	0.16 0.20	73 62	1050 890		14	14.5	15	16	17	18	19	20	21.5	23	24	25	26	27	28	29																
0.24/ 0.33	6	3	0.10 0.13 0.16	163 131 108	2255 1735 1410																																	
		2	0.20 0.25 0.32	73 62 50	1050 890 720																																	
0.37/ 0.50	6	3	0.13	168	2425		4740																															
	4	3	0.16 0.20 0.25	153 126 104	2205 1815 1500																																	
		2	0.32 0.40 0.50 0.63 0.80	70 60 48 40 30	1010 865 690 575 430			15	15.5	16.5	17.5	18.5	19.5	20.5	22	23.5	24.5	25.5	26.5	27.5	28.5	29.5																
0.55/ 0.75	2	3	0.25 0.32 0.40 0.50	152 129 104 86	2190 1860 1500 1240		14	14.5	15	16	17	18	19	20	21.5	23	24	25	26	27	28	29																
		2	0.63 0.80 1.00	58 49 40	835 705 575																																	
				1.25 1.60	33 24	475 345	4250																															
0.75/ 1.00	4	3	0.32	159	2295	4740		15	15.5	16.5	17.5	18.5	19.5	20.5	22	23.5	24.5	25.5	26.5	27.5	28.5	29.5																
		2	0.40 0.50 0.63	127 102 84	1830 1470 1210																																	
	2	2	0.80 1.00	67 54	965 775																																	
			1.25 1.60	44 33	635 1312																		4250															
1.00/ 1.34	2	3	0.50 0.63	145 109	2090 1570	4740			15.5	16.5	17.5	18.5	19.5	20.5	22	23.5	24.5	25.5	26.5	27.5	28.5	29.5																
		2	0.80 1.00 1.30 1.60	84 67 56 41	121 965 805 590	3690			15.5	16.5	17.5	18.5	19.5	20.5	22	23.5	24.5	25.5	26.5	27.5	28.5	29.5																

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

**MOTORIZED PULLEY 138LS**  
Ø 138 mm - 50 Hz



Motor	Max. Radial Load T1+T2*  N	Weight in kg for STANDARD width Dimension RL in mm																	Type of Bracket
		300	320	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	per 50 mm upto 1800	
Idler Pulley UT138E	4740	6.5	7	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	16.5	18.5	19.5	20	21.5	Available on request	KL30

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.



# MOTORIZED PULLEY 165LS

Ø 165 mm



Motorized Pulley 165LS, with machined helical gear box, performs an efficiency, in a compact diameter of 165 mm only. With a min RL of 400 mm and powers ranging from 0.11kW to 1.5kW this size of motorized pulley is suitable for most duties requiring such a small diameter – e.g.:

- Light agriculture and bulk solids handling conveyors
- Mobile or portable conveyors
- As a drive unit for brush cleaners etc.

Motorized pulley 165LS has standard IP66/67 enclosure and is available in complete stainless steel execution for wash down application.

For the choice of the Motorized Pulley it is very important to know or to calculate the belt tension  $T_1 + T_2$  (radial load). This **MUST NOT OVERCOME** the “max. radial load” allowed as shown in the catalogue.

Be careful to very high belt tensions when using thick, heavy and/or large belts.

If the type 165LS cannot provide the necessary max. radial load  $T_1 + T_2$ , you have to choose a Motorized Pulley with a bigger diameter.

## STANDARD SPECIFICATION of motorized pulley

- Crowned mild steel shell, outside diameter 165mm.
- Mild steel shafts.
- Shell and shafts treated with anti-rust wax.
- Die cast aluminium bearing houses.
- Gearbox from die cast aluminium 2- and 3-stages.
- Sealing system-degree of protection IP66/67 (EN60034-5).
- Die cast aluminium terminal box with WAGO clamp.  
Voltage: most common globally used voltages available. Please specify!
- 3-phase induction motor with one rated voltage – either low or high voltage
- Available in both 50Hz or 60Hz.
- Star connection (Delta connection on request).
- Motor windings with insulation class F (insulation class H on request).
- Dynamical balanced rotor.
- Two oil plugs (one with magnet).
- Minimum roller length (RL) 400mm (0.37kW: min RL 350mm).
- Max. RL 1800mm (longer RL on request).
- Standard mineral oil ISOVG150 (synthetic oil ISOVG220 on request).
- Oil change recommended every 20.000 operational hours.
- Single phase AC motors available in 0.37kW and 1.10kW, supplied with all necessary run and start capacitors (if needed) together with current depending relay.
- Without start capacitor the starting torque is 70% of the nominal torque only
- For horizontal installation (angled and vertical installation on request)

## STAINLESS STEEL

Stainless steel version or rust-resistant version on request -

For an optimum design of the correct anti-corrosion performance, we need the properties of the materials being conveyed. Our sales team will offer you the best available solution.

**When ordering, please specify the required voltage, electrical connection, options, brackets and idler pulleys.**

- Environmental consideration: page 72/73
- Technical precautions: page 75 ff.,
- Optional extras: page 21,
- Connection diagram: page 91 ff.



# MOTORIZED PULLEY 165LS

## Optional extras



SPECIFICATIONS		165LS
Total stainless steel option AISI 304 range	Re-greasable labyrinth seals!	On request!
Food grade oil & grease - FDA & USDA recognized - available on request		x
Dust explosion proof Motorized Pulleys - ATEX 95 - Zone 22 - for applications handling of dusty grain etc. according to European Directive 94/9/EC.		On request!
Black rubber lagging - STANDARD specifications: - Smooth lagging - Hardness 60 ±5 Shore A - Diamond lagging - Hardness 60 ±5 Shore A		o
White smooth rubber lagging (FDA). Oil, fat & grease resistant		o
Single phase motors available on request		x
Electromagnetic brake (for 5.5 kW not available)		x
Min. RL dimensions by (mm)		50
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 - Allowable ambient temperature: -25°C/+40°C		x
SPECIAL motors for applications with NO belt contact		o
Low noise drives for noise sensitive areas		x
Parallel shell		x
Thermal protector		Std.
IP66/67 Compact stainless steel - AISI 304 or 316 range - terminal box		x
Straight or elbow connector with flying lead		x
Straight connector with flying lead - Stainless steel - AISI 304 range -		x
Shaft sealing system - degree of protection IP66/67 (EN60034-5)		Std.
Screened cables - a MUST together with Frequency Converters		x
Euro wide range voltage (3x220-240V / 380-415V 50 Hz) with +/-10% tolerance - DIN IEC 38 or (3x380-400V / 660-690V 50 Hz)		Std.
Special voltages - 50 and/or 60 Hz Please specify!		x
CSA approved motors - available on request only!		x

x = Optional extras

o = Available as option with certain limitations. Please refer to Technical precautions pages 75 ff.

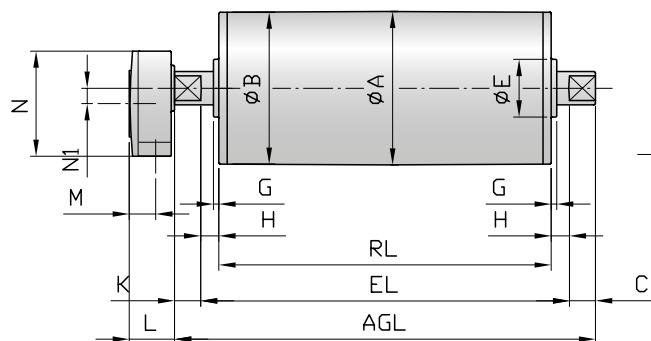
Std. = Fitted as standard

# MOTORIZED PULLEY 165LS

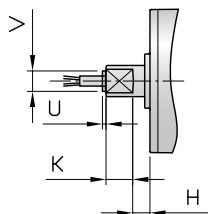
## Ø 165 mm



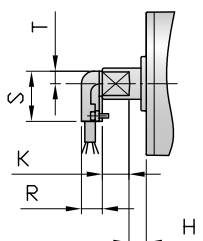
### Motorized Pulley with Terminal box



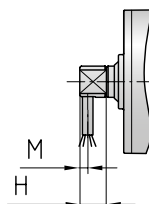
### Straight connector



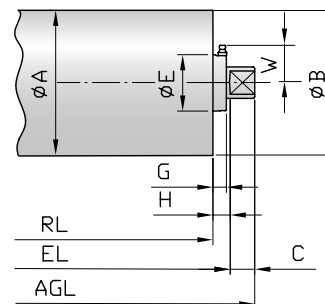
### Elbow connector



### Front shaft with cable slot



### Idler pulley SS version



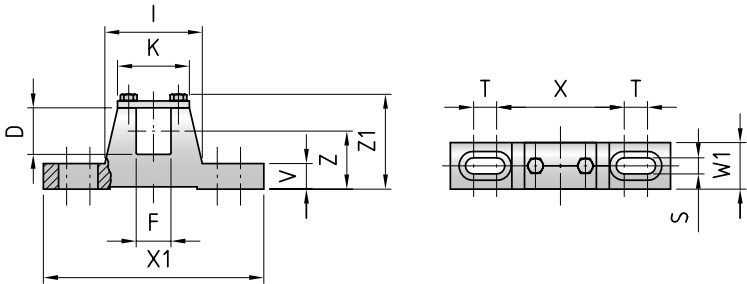
Standard measurements		A	B	C	D	E	F	G	H	K	W	L	M	N	N1	U	V	R	S	T
Type / Option	Ref.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
165 LS / UT165LS		165	163.5	45	40	80	30	10	20	45	48	41	24	95	14					
SS version (regreasable seals)						64.5		13.5	20							4	27			
Straight connector									20	45						4	27			
Elbow connector									20	45								20	48	12
Front shaft with cable slot										45			8-11							

# MOTORIZED PULLEY 165LS

Ø 165 mm



Mounting brackets  
KL40



Motorized Pulley	Material	Dimension												Weight
Type		D mm	F mm	I mm	K mm	S mm	T mm	V mm	W1 mm	X mm	X1 mm	Z mm	Z1 mm	kg
165 LS	Steel	40	30	84	62	14	20	22	40	110	190	50	83	2.1

Further product details:



[https://www.rulmeca.com/contenuti/qr\\_code/english/165.pdf](https://www.rulmeca.com/contenuti/qr_code/english/165.pdf)

# MOTORIZED PULLEY 165LS

Ø 165 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Weight in kg for STANDARD width Dimension RL in mm																	Type of Bracket
Power kW/HP	No. of Poles	Gear stages					350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	per 50 mm up to 1800	
0.11/ 0.15	12	3	0.05 0.06 0.08 0.10	170 141 113 86	2070 1700 1375 1045	9330		29	30.5	32	33	34	35	36.5	38	39	40	41.5	43	44	46	47	Available on request	KL40
0.37 0.50	6	3	0.13 0.16	239 193	2905 2345	9330		30	31.5	33	34	35	36	37.5	39	40	41	42.5	44	45	47	48		
	4	3	0.20 0.25 0.32 0.40	157 127 97 77	1910 1545 1175 930	9330	26	28	29.5	31	32	33	34	35.5	37	38	39	40.5	42	43	45	46		
		2	0.50 0.63 0.80 1.00	60 49 38 29	73 59 45 36																			
		6	3	0.16	341																			
0.75/ 1.00	4	3	0.20 0.25 0.32 0.40	302 248 189 162	3665 3005 2295 1815	9330		31	32.5	34	35	36	37	38.5	40	41	42	43.5	45	46	48	49		
		2	0.50 0.63 0.80 1.00	119 96 72 57	143 116 88 70																			
1.10/ 1.50	4	3	0.25 0.32	332 272	4030 3305	9330		34	35.5	37	38	39	40	41.5	43	44	45	46.5	48	49	51	52		
	2	3	0.40 0.50 0.63 0.80	226 183 139 110	2745 2220 1690 1340	9330	33	34.5	36	37	38	39	40.5	42	43	44	45.5	47	48	50	51			
		2	1.00	87	106																			
			1.25 1.60	70 54	855 650																	8700		
			2.00 2.50	42 34	515 420	6950																		
			1.50/ 2.00	2	3	0.50 0.63 0.80																237 195 154		
2	1.00	122	148																					
	1.25 1.60	98 75	1195 910		8700																			
	2.00 2.50 3.15	59 48 39	720 585 485		6950																			

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

**MOTORIZED PULLEY 165LS**  
Ø 165 mm - 50 Hz



Motor	Max. Radial Load T1+T2*  N	Weight in kg for STANDARD width Dimension RL in mm																	Type of Bracket
		350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	per 50 mm up to 1800	
Idler Pulley UT165 LS	9330	12.5	14.0	15.5	17.0	18.5	20.0	21.5	23.0	24.5	26.0	27.5	29.0	30.5	32.0	33.5	35.0	Available on request	KL40

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.



Rulmeca Motorized Pulleys in mobile Crushing & Screening. Features: Compact, reliable and requires NO maintenance!

# MOTORIZED PULLEY 220M & 220H

## Ø 216 mm



To match your requirements in diameter 216 mm, our product range offers two different loading performances for your BULK applications:

- M for Medium-duty
- H for Heavy-duty

You have a choice.

Therefore, it is important to notice the differences to choose the right type of pulley for the right application based on estimated belt tension (radial load) =  $T_1 + T_2$ . The actual radial load **MUST** be **LESS** than the max. allowable radial load shown in this catalogue.

Be aware of increased belt tensions using *multi-ply thick heavy belts* and/or larger belt widths. If you do not find the belt tension needed in this diameter, you might have to choose a larger one.

### M for Medium-duty

The internal parts of 220M are designed to match irregular working conditions in applications such as mobile crushing & screening, cement & concrete plants, mobile conveyors and open stone & gravel pits. 220M provide sufficient belt tension.

### H for Heavy-duty

A reinforced 3-stage-gearbox provides 220H with the necessary strength needed for low speeds, high torque and the listed belt tension. 220H is popular in re-cycling (hand sorter conveyors), bunker discharge conveyors and where a combination of slow speed and high torque is required. For the choice of the Motorized Pulley it is very important to know or to calculate the belt tension  $T_1 + T_2$  (radial load). This **MUST NOT OVERCOME** the "max. radial load" allowed as shown in the catalogue.

Be careful to very high belt tensions when using thick, heavy and/or large belts. If this type cannot provide the necessary max. radial load  $T_1 + T_2$ , you have to choose a Motorized Pulley with a bigger diameter.

### STANDARD SPECIFICATION of Motorized Pulley

- 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 IP66/67 (EN60034-5)
- Compact powder coated die cast aluminium terminal box
- Larger powder coated die cast aluminium terminal box  $\geq 5.5$  kW
- 3-phase induction motors with thermal protector
- Voltage: wide range 3-phase single voltage. Most common voltages available. Please specify!
- Motor winding insulation Class F
- Dynamically balanced rotor
- One out of two oil plugs fitted with a magnet to filter the oil
- Oil change recommended every 20.000 operational hours
- Minimum RL. Please refer to pages 30/31
- Maximum RL – Please inquire!
- Non standard RL's available
- To be used in horizontal positions  $\pm 5$  degree only!

### Please note:

- Straight or elbow connector available
- Parallel shell available. Diameter equal to dimension Ø A
- Two speed motors on request
- Special speed available on request
- Motorized Pulleys for non-horizontal positions available on request
- The high speed of 2-pole motors can cause higher noise levels and are therefore not recommended in noise sensitive areas

### STAINLESS STEEL

Stainless steel version or rust-resistant version on request -  
For an optimum design of the correct anti-corrosion performance, we need the properties of the materials being conveyed. Our sales team will offer you the best available solution.

### Electrical connection options:

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

**When ordering, please specify the required voltage, electrical connection, options, brackets and idler pulleys.**

- Environmental consideration: page 72/73
- Technical precautions: page 75 ff.,
- Optional extras: page 27,
- Connection diagram: page 91 ff.

# MOTORIZED PULLEY 220M & 220H

## Optional extras



SPECIFICATIONS	220M & 220H
Food grade oil & grease - FDA & USDA recognized - available on request	x
Dust explosion proof Motorized Pulleys - ATEX 95 - Zone 22 - for applications handling of dusty grain etc. According to European Directive 2014/34EG	On request!
TOTAL acid resistant stainless steel option - AISI 316	x
Re-greasable labyrinth seals - mild steel	x
Black rubber lagging - STANDARD specifications:	o
- Smooth lagging - Hardness 60 ±5 Shore A	5 mm
- Diamond lagging - Hardness 60 ±5 Shore A	6 mm
White smooth rubber lagging (FDA). Oil, fat & grease resistant	x
SPECIAL lagging available on request - e.g. hot vulcanized etc.	x
Single phase motors available on request	x
Electromagnetic brake (for 5.5 kW not available)	x
Min. RL dimensions increases by (mm)	100
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 with NO belt contact	x
Low noise drives for noise sensitive areas	x
Parallel shell	x
Thermal protector	Std.
IP66/67 Compact powder coated aluminium terminal box - food grade approved	Std. ≤ 4.0 KW
IP66/67 Compact stainless steel - AISI 304 or 316 range - terminal box	≤ 4.0 KW
IP66/67 Larger powder coated aluminium terminal box - food grade approved	Std. ≥ 5.5 KW
Straight or elbow connector with flying lead	≤ 4.0 KW
Straight connector with flying lead - Stainless steel - AISI 304 range -	≤ 4.0 KW
Shaft sealing system - degree of protection IP66/67 (EN60034-5)	Std.
Screened cables - a MUST together with Frequency Converters	x
3-phase single voltage (3 x 400V) or (3 x 690V) 50Hz +/-10% tolerance - DIN IEC 38	Std.
Euro wide range voltage (380-415V 50 Hz) with +/-10% tolerance - DIN IEC 38 or (660-690V 50 Hz)	x
Special voltages - 50 and/or 60 Hz Please specify!	On request!
Dual voltage - delta/star - connection possibility!	x
CSA approved motors - available on request only!	x

x = Optional extras

o = Available as option with certain limitations. Please refer to Technical precautions pages 75 ff.

Std. = Fitted as standard



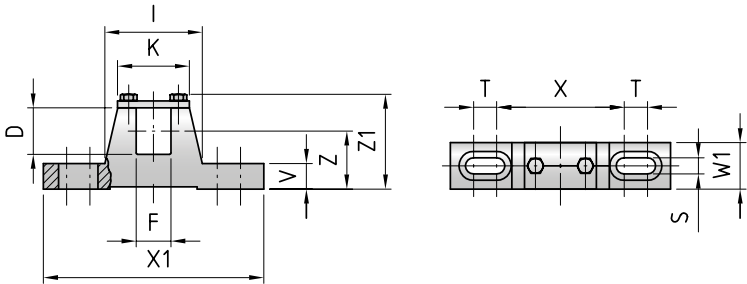
→ Idler Pulley shown with re-greasable seals

# MOTORIZED PULLEY 220M & 220H

Ø 216 mm



Mounting brackets  
KL41-HD



Motorized Pulley	Material	Bracket description	Dimensions												Weight
			D mm	F mm	I mm	K mm	S mm	T mm	V mm	W1 mm	X mm	X1 mm	Z mm	Z1 mm	
Type															kg
220M & 220H	Steel	KL41-HD	40	30	84	62	14	20	22	40	110	190	50	83	2.1



Mobile Crushing & Screening – Features: Compact, equal weight, distribution, reliable and LOW maintenance.

Further product details:



<https://www.rulmeca.com/contenuti/qrcode/english/220.pdf>

# MOTORIZED PULLEY 220M & 220H

## Ø 216 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Special min. RL	Type	Weight in kg for STANDARD width										Type of Bracket
Power kW/HP	No. of Poles	Gear stages							Dimension RL in mm (RL >2000 mm available on request)										
									400	450	500	550	600	650	700	750	800	per 50 mm up to 2000	
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-HD
		0.55/ 0.75	8	3	0.13 0.16	432 351	4019 3265	25000	500	220H			71	74	77	80	83	86	89
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-HD
0.75/ 1.00	8			3	0.13 0.16	592 481	5510 4476	25000	500	220H			71	74	77	80	83	86	89
		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-HD
		1.10/ 1.50	6	3	0.16 0.20	705 564	6558 5246	25000	500	220H			68	71	74	77	80	83	86
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
Motor					Max. Radial Load T1+T2* N	Special min. RL	Type	Weight in kg for STANDARD width										Type of Bracket	
Dimension RL in mm (RL >2000 mm available on request)																			
									400	450	500	550	600	650	700	750	800	per 50 mm up to 2000	
Idler Pulley					11500	400	UT220M	25	27	29	31	33	35	37	39	41	2 kg	KL41-HD	
					25000	400	UT220H		29	31	33	35	37	39	41	43	2 kg	KL41-HD	

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

# MOTORIZED PULLEY 220M & 220H

## Ø 216 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Special min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)										Type of Bracket
Power kW/HP	No. of Poles	Gear stages							400	450	500	550	600	650	700	750	800	per 50 mm up to 2000	
1.50/ 2.00	4	3	0.25	616	5730	25000	450	220H		61	65	68	71	74	77	80	83	3 kg	KL41-HD
		2	0.32	481	4476														
			0.40	385	3581														
			0.50	307	2856														
			0.63	243	2260														
			0.80	191	1777														
			1.00	153	1423	11500	400	220M	48	51	54	57	60	63	66	69	72	3 kg	KL41-HD
			1.25	123	1144														
2.20/ 3.00	4	3	0.40	564	5246	25000	500	220H			68	72	75	78	81	84	87	3 kg	KL41-HD
		2	0.50	451	4195														
			0.63	358	3330														
			0.80	282	2623														
			1.00	226	2102	11500	450	220M		55	58	61	64	67	70	73	76	3 kg	KL41-HD
			1.25	180	1674														
			1.60	140	1302														
			2.00	115	1070														
3.00/ 4.00	4	3	0.63	616	5730	25000	550	220H				74	77	80	83	86	89	3 kg	KL41-HD
		2	0.80	385	3581														
			1.00	307	2856														
			1.25	245	2279	11500	500	220M			60	63	66	69	72	75	78	3 kg	KL41-HD
			1.60	192	1786														
			2.00	154	1433														
			2.50	123	1144														
4.00/ 5.50	2	3	0.80	649	6037	25000	550	220H				74	77	80	83	86	89	3 kg	KL41-HD
		2	1.00	409	3805														
			1.25	327	3042														
			1.60	255	2372	11500	500	220M			60	63	66	69	72	75	78	3 kg	KL41-HD
			2.00	204	1898														
			2.50	163	1516														
5.50/ 7.50	2	3	0.80	702	6530														
			1.00	562	5228														
			1.25	450	4186	25000	550	220H				74	77	80	83	86	89	3 kg	KL41-HD
			1.60	351	3265														
			2.00	281	2614														
			2.50	225	2093														

Motor	Max. Radial Load T1+T2* N	Special min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)										Type of Bracket
				400	450	500	550	600	650	700	750	800	per 50 mm up to 2000	
Idler Pulley	11500	400	UT220M	25	27	29	31	33	35	37	39	41	2 kg	KL41-HD
	25000	400	UT220H		29	31	33	35	37	39	41	43	2 kg	KL41-HD

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

# MOTORIZED PULLEY 320L, 320M & 320H

## Ø 320 mm



To match your requirements in diameter 320 mm, our product range offers three different loading performances for your BULK applications:

- L for Light-duty
- M for Medium-duty
- H for Heavy-duty

You have a choice.

Therefore, it is important to notice the differences to choose the right type of Pulley for the right application based on estimated belt tension (radial load) = T1+T2. The actual radial load **MUST** be **LESS** than the max. allowable radial load shown in this catalogue. Be aware of increased belt tensions using *multi-ply thick heavy belts* and/or larger belt widths.

If you do not find the belt tension needed in this diameter, you might have to choose a larger one.

### *L for Light-duty*

320L is meant for applications with regular and constant operating conditions. Max. allowable radial load has to be respected; therefore it is advisable to rubber lag these Pulleys to increase grip and to *limit* belt tension.

320L should NOT be used for e.g. feeder conveyors. (Motor/gearbox origin from 220M).

### *M for Medium-duty*

The internal parts of 320M are designed for TOUGH and IRREGULAR working conditions - e.g. in crusher & screening applications, asphalt, cement and concrete plants etc.

### *H for Heavy-duty*

Due to a solid 3-stage gearbox, Ø 50 mm shafts, matching bearings etc, 320H provides the necessary forces needed for low speeds combined with high power, and is designed to handle irregular loadings in BRUTAL conditions.

### STANDARD SPECIFICATION of Motorized Pulley

- Crowned mild steel Ø 320 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 IP66/67 (EN60034-5)
- Compact powder coated die cast aluminium terminal box m=4.0 kW
- Larger Powder coated die cast aluminium terminal box M=5.5 kW
- 3-phase induction motors with thermal protector
- Voltage: wide range 3-phase single voltage. Most common voltages available. Please specify!
- Motor winding insulation Class F
- Dynamically balanced rotor
- One out of two oil plugs fitted with a magnet to filter the oil – 320L
- Two oil plugs fitted with a magnet to filter the oil – 320M & 320H
- Oil change recommended every 20.000 operational hours
- Minimum RL. Please refer to pages 38-39
- Maximum RL – Please inquire!
- Non standard RL's available
- To be used in horizontal positions ± 5 degree only!

### Please note:

- Straight or elbow connector available
- Parallel shell available. Diameter equal to dimension Ø A
- Two speed motors on request
- Special speed available on request
- Motorized Pulleys for non-horizontal positions available on request
- The high speed of 2-pole motors can cause higher noise levels and are therefore not recommended in noise sensitive areas

### STAINLESS STEEL

Stainless steel version or rust-resistant version on request -

For an optimum design of the correct anti-corrosion performance, we need the properties of the materials being conveyed. Our sales team will offer you the best available solution.

### Other Options:

- Complete Motorized Pulleys in acid resistant stainless steel – AISI 316 range – on request.

### Electrical connection options:

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

**When ordering, please specify the required voltage, electrical connection, options, brackets and idler pulleys.**

- Environmental consideration: page 72/73
- Technical precautions: page 75 ff.,
- Optional extras: page 33,
- Connection diagram: page 91 ff.

# MOTORIZED PULLEY 320L, 320M & 320H

## Optional extras



SPECIFICATIONS	320L	320M & 320H
Food grade oil & grease - FDA & USDA recognized - available on request	x	x
Dust explosion proof Motorized Pulleys - ATEX 95 - Zone 22 - for applications handling of dusty grain etc. According to European Directive 2014/34EG	On request!	On request!
TOTAL acid resistant stainless steel option - AISI 316	x	x
Re-greasable labyrinth seals - mild steel	x	x
Black rubber lagging - STANDARD specifications: - Smooth lagging - Hardness 60 ±5 Shore A - Diamond lagging - Hardness 60 ±5 Shore A	o 5/8 mm 6/8 mm	o 5/8 mm 6/8 mm
White smooth rubber lagging (FDA). Oil, fat & grease resistant	x	x
SPECIAL lagging available on request - e.g. hot vulcanized, ceramic etc.	x	x
Electromagnetic brake	x	x
Min. RL dimensions increases by (mm)	100	100
Mechanical backstop	x	x
Min. RL dimensions increases by (mm)		50
Modified for vertical mounting	o	o
Modified for mounting between 5° - ≤ 90° - e.g. for magnetic separators	o	o
Insulation class F - Allowable ambient temperature: -25°C-+40°C	Std.	Std.
Insulation class H with synthetic oil	x	x
SPECIAL motors for applications with NO belt contact	x	x
Low noise drives for noise sensitive areas	x	x
Parallel shell	x	x
Thermal protector	Std.	Std.
IP66/67 Compact powder coated aluminium terminal box - food grade approved	Std.	Std. ≤ 4.0 kW
IP66/67 Compact stainless steel - AISI 304 or 316 range - terminal box	x	≤ 4.0 kW
IP66/67 Larger powder coated aluminium terminal box - food grade approved		Std. ≥ 5.5 kW
Straight or elbow connector with flying lead	x	≤ 4.0 kW
Straight connector with flying lead - Stainless steel - AISI 304 range -	x	≤ 4.0 kW
Shaft sealing system - degree of protection IP66/67 (EN60034-5)	Std.	Std.
Screened cables - a MUST together with Frequency Converters	x	x
3-phase single voltage (3 x 400V) or (3 x 690V) 50Hz +/- 10% - DIN IEC 38	Std.	Std.
Euro wide range voltage (3 x 380-415V 50 Hz) with +/-10% tolerance -DIN IEC 38 or (3 x 660-690V 50 Hz)	x	x
Special voltages - 50 and/or 60 Hz Please specify!	x	x
Dual voltage - delta/star - connection!	x	x
CSA approved motors - available on request only!	x	x

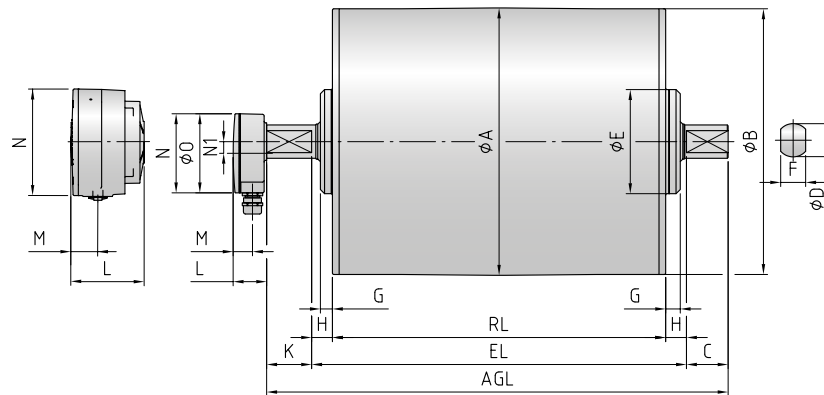
x = Optional extras

o = Available as option with certain limitations. Please refer to Technical precautions pages 75 ff.

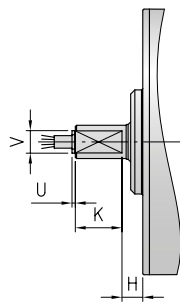
## MOTORIZED PULLEY 320L, 320M & 320H, Ø 320 mm



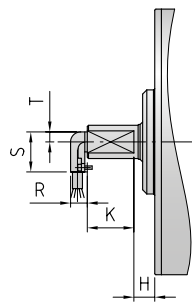
### Motorized Pulley with Terminal box



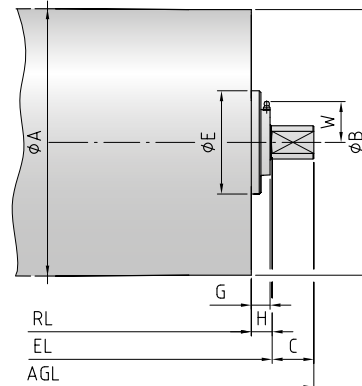
### Straight connector



### Elbow connector



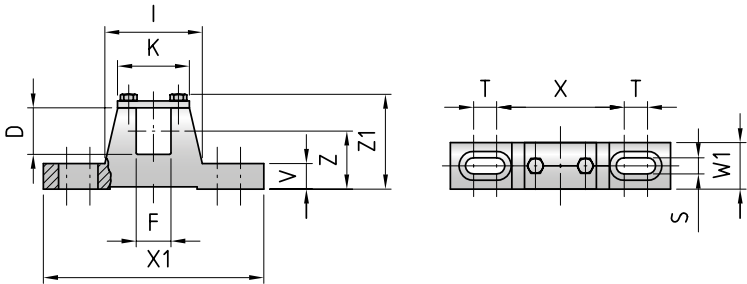
Idler pulley  
SS version

[illegible]





Mounting brackets  
KL41-HD & KL42



Motorized Pulley	Material	Bracket description	Dimensions												Weight
			D mm	F mm	I mm	K mm	S mm	T mm	V mm	W1 mm	X mm	X1 mm	Z mm	Z1 mm	
Type															kg
320L & 320M	Steel	KL41-HD	40	30	84	62	14	20	22	40	110	190	50	83	2.1
320H	Steel	KL42	50	40	121	90	18	30	25	50	150	250	70	110	4.5

Further product details:



[https://www.rulmeca.com/contenuti/qr\\_code/english/320.pdf](https://www.rulmeca.com/contenuti/qr_code/english/320.pdf)

# MOTORIZED PULLEY 320L

## Ø 320 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Special min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)												Type of Bracket
Power kW/HP	No. of Poles	Gear stages							400	450	500	550	600	650	700	750	800	850	per 50 mm up to 2000		
0.75/ 1.00	8	2	0.32	356	2218	11500	450	320L											4 kg	KL41-HD	
			0.40	285	1776																
			0.50	228	1421																
			0.63	181	1128					78	82	86	90	94	98	102	106	110			
			0.80	142	885																
			1.00	114	710																
			1.25	92	573																
1.10/ 1.50	4	2	0.63	265	1651	11500	400	320L	73	76	80	84	88	92	96	100	104	108	4 kg	KL41-HD	
			0.80	209	1302																
			1.00	167	1040																
			1.25	134	835																
			1.60	105	654																
			2.00	84	524																
			2.50	67	417																
1.50/ 2.00	4	2	0.63	362	2255	11500	400	320L	75	78	82	86	90	94	98	102	106	110	4 kg	KL41-HD	
			0.80	285	1776																
			1.00	228	1421																
			1.25	182	1134																
			1.60	143	891																
			2.00	114	710																
			2.50	92	573																
2.20/ 3.00	4	2	0.80	418	2604	11500	450	320L											4 kg	KL41-HD	
			1.00	334	2081																
			1.25	265	1651					82	86	90	94	98	102	106	110	114			
			1.60	209	1302																
			2.00	167	1040																
			2.50	134	835																
3.00/ 4.00	4	2	1.25	362	2255	11500	500	320L											4 kg	KL41-HD	
			1.60	285	1776																
			2.00	228	1421						90	94	98	102	106	110	114	118			
			2.50	182	1134																
4.00/ 5.50	2	2	1.60	380	2368	11500	500	320L											4 kg	KL41-HD	
			2.00	304	1894						90	94	98	102	106	110	114	118			
			2.50	243	1514																

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

# MOTORIZED PULLEY 320M & 320H

## Ø 320 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Special min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)										Type of Bracket
Power	No. of Poles	Gear stages							450	500	550	600	650	700	750	800	850	per 50 mm up to 2000	
kW/HP																			
0.75/ 1.00	12	3	0.13	876	5475	35000	550	320H			135	139	144	149	154	159	164	5 kg	KL42-HD
		2	0.16	712	4453	20000	500	320M	110	114	118	122	126	130	134	138	4 kg	KL41-HD	
			0.20	570	3562														
			0.25	456	2841														
			0.32	356	2218														
			0.40	285	1776														
			0.50	228	1421														
			0.63	181	1128														
			0.80	142	885														
1.10/ 1.50	12	3	0.13	1286	8039	35000	550	320H			135	139	144	149	154	159	164	5 kg	KL42-HD
		2	0.20	836	5225	20000	500	320M	110	114	118	122	126	130	134	138	4 kg	KL41-HD	
		8	2	0.25	669														4181
	0.32			522	3252														
	0.40			418	2604														
	0.50			334	2081														
	0.63			265	1651														
	0.80			209	1302														
	1.00			167	1040														
1.25	134			835															

Motor	Max. Radial Load T1+T2* N	Special min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)										Type of Bracket
				450	500	550	600	650	700	750	800	850	per 50 mm up to 2000	
Idler Pulley	20000	450	UT320M	50	54	58	62	66	70	74	78	82	4 kg	KL41-HD
	35000	450	UT320H		61	65	69	73	77	81	85	89	4 kg	KL42-HD

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

# MOTORIZED PULLEY 320M & 320H

## Ø 320 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque	Belt Pull	Max. Radial Load T1+T2*	Special min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)											Type of Bracket																
Power  kW/HP	No. of Poles	Gear stages							450	500	550	600	650	700	750	800	850	per 50 mm up to 2000																		
									N	N	N																									
1.50/ 2.00	8	3	0.16 0.20	1425 1140	8906 7125	35000	550	320H			135	139	144	149	154	159	164	5 kg	KL42-HD																	
		2	0.25 0.32	912 712	5700 4436	20000	500	320M	110	114	118	122	126	130	134	138	4 kg	KL41-HD																		
			0.40 0.50 0.63 0.80 1.00 1.25	570 456 362 285 228 182	3551 2841 2255 1776 1421 1134													KL41-HD																		
2.20/ 3.00	8	3	0.20 0.25	1672 1338	10450 8362	35000	550	320H			135	139	144	149	154	159	164	5 kg	KL42-HD																	
		2	0.32 0.40 0.50	1045 836 669	6531 5225 4181	20000	500	320M	110	114	118	122	126	130	134	138	4 kg	KL41-HD																		
	4	2	0.63 0.80 1.00 1.25 1.60 2.00 2.50	522 418 334 265 209 167 134	3252 2604 2081 1651 1302 1040 835													100	104	108	112	116	120	124	128	4 kg	KL41-HD									
3.00/ 4.00	6	3	0.25 0.32 0.40	1824 1425 1140	11400 8906 7125	35000	550	320H			135	139	144	149	154	159	164	5 kg	KL42-HD																	
	4	2	0.50 0.63	912 727	5700 4525	20000	500	320M	100	104	108	112	116	120	124	128	4 kg	KL41-HD																		
			0.80 1.00 1.25 1.60 2.00 2.50	570 456 362 285 228 182	3562 2841 2255 1776 1421 1134													KL41-HD																		
4.00/ 5.50	6	3	0.32 0.40 0.50	1900 1520 1216	11875 9499 7600	35000	550	320H			135	139	144	149	154	159	164	5 kg	KL42-HD																	
	4	2	0.63 0.80	965 760	6031 4735	20000	500	320M	110	114	118	122	126	130	134	138	4 kg	KL41-HD																		
			1.00 1.25 1.60 2.00 2.50	608 486 380 304 243	3788 3028 2368 1894 1514													KL41-HD																		

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

# MOTORIZED PULLEY 320M & 320H

## Ø 320 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Special min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)											Type of Bracket						
Power kW/HP	No. of Poles	Gear stages							450	500	550	600	650	700	750	800	850	per 50 mm up to 2000								
5.50/ 7.50	4	3	0.40	2090	13062	35000	550	320H											5 kg	KL42-HD						
			0.50	1672	10450																					
		2	0.63	1327	8294																4 kg	KL41-HD				
			0.80	1045	6531																					
7.50/ 10.00	2	3	1.00	836	5225	20000	500	320M																		
			1.25	671	4180																					
		2	1.60	524	3259																4 kg	KL41-HD				
			2.00	418	2604																					
11.00/ 15.00	2	3	2.50	334	2081																					
		2	0.80	1424	8909	35000	550	320H											5 kg	KL42-HD						
			1.00	1140	7125																					
	3	1.25	911	5700																178	182	5 kg	KL42-HD			
		1.60	712	4453																						
		2	2.00	570	3562	20000	500	320M											4 kg	KL41-HD						
			2.50	456	2850																					
			2	1.00	1672				10450	35000	1100	320H	Note for: 11kW: min. RL 1100								173	178	4 kg	KL41-HD		
				1.25	1327				8294																	
	3	1.60	1045	6531																						
		2.00	836	5225																						

Motor	Max. Radial Load T1+T2*  N	Special min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)											Type of Bracket
				450	500	550	600	650	700	750	800	850	per 50 mm up to 2000		
Idler Pulley	20000	450	UT320M	50	54	58	62	66	70	74	78	82	4 kg	KL41-HD	
	35000	450	UT320H	57	61	65	69	73	77	81	85	89	4 kg	KL42-HD	

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

# MOTORIZED PULLEY 400M & 400H

## Ø 400 mm



To match your requirements in diameter 400 mm, our product range offers three different loading performances for your BULK applications:

- M for Medium-duty
- H for Heavy-duty

You have a choice.

Therefore, it is important to notice the differences to choose the right type of pulley for the right application based on estimated belt tension (radial load) =  $T_1 + T_2$ . The actual radial load **MUST** be **LESS** than the max. allowable radial load shown in this catalogue.

Be aware of increased belt tensions using *multi-ply thick heavy belts* and/or larger belt widths.

If you do not find the belt tension needed in this diameter, you might have to choose a larger one.

### *M for Medium-duty*

The internal parts of 400M are designed for tough, irregular and extreme working conditions.

400M are typically used in grain storage, cement, steel, fertilities and heavy mobile crushing & screening applications.

### *H for Heavy-duty*

Due to a solid 3-stage gearbox, 400H provides the necessary forces needed for low speeds, combined with high power, and is designed to handle irregular loadings in BRUTAL conditions.

### STANDARD SPECIFICATION of Motorized Pulley

- Crowned mild steel Ø 400 mm steel shell painted yellow – min. layer of 60 µm
- Bolted powder coated cast iron bearing housings and covers, all painted yellow – min. layer of 60 µm
- Mild steel shafts treated with anti-rust wax
- Shaft sealing system - degree of protection IP66/67 (EN60034-5)
- Powder coated aluminium terminal box – 400L
- Cast iron terminal box 400M & 400H painted yellow – min. layer of 60 µm
- 3-phase induction motors with thermal protector
- Voltage: 3-phase single voltage. Most common voltages available. Please specify!
- Motor winding insulation Class F
- Dynamically balanced rotor
- Two oil plugs each fitted with a magnet to filter the oil
- Oil change recommended every 20.000 operational hours
- Minimum RL. Please refer to pages 46/47
- Maximum RL – Please inquire!
- Non standard RL's available
- To be used in horizontal positions ±5 degree only!

### Please note:

- Straight or elbow connector available – 400L ≤ 4.0 kW
- Special speeds available on request.
- Parallel shell available. Diameter equal to dimension Ø A.
- Motorized Pulleys for non-horizontal positions available on request.

### STAINLESS STEEL

Stainless steel version or rust-resistant version on request -

For an optimum design of the correct anti-corrosion performance, we need the properties of the materials being conveyed. Our sales team will offer you the best available solution.

### Other Options:

- FDA & USDA food grade recognized oil and grease are available on request
- Complete Motorized Pulleys in acid resistant stainless steel – AISI 316 range – on request.

### Electrical connection options:

- Salt water resistant powder coated aluminium terminal box with zinc plated exterior bolts
- Stainless steel terminal box – AISI 304 range (400L - ≤ 4.0 kW only)
- Straight stainless steel connector with flying lead – AISI 304 range - ≤ 4.0 kW.

**When ordering, please specify the required voltage, electrical connection, options, brackets and idler pulleys.**

- Environmental consideration: page 72/73
- Technical precautions: page 75 ff.,
- Optional extras: page 41,
- Connection diagram: page 91 ff.

# MOTORIZED PULLEY 400M & 400H

## Optional extras



SPECIFICATIONS	400M & 400H
Food grade oil & grease - FDA & USDA recognized - available on request	x
Dust explosion proof Motorized Pulleys - ATEX 95 - Zone 22 - for applications handling of dusty grain etc. According to European Directive 2014/34EG	On request!
TOTAL acid resistant stainless steel option - AISI 316	x
Re-greasable labyrinth seals - mild steel	x
Black rubber lagging - STANDARD specifications:	o
- Smooth lagging - Hardness 60 ±5 Shore A	8 mm
- Diamond lagging - Hardness 60 ±5 Shore A	8 mm
White smooth rubber lagging (FDA). Oil, fat & grease resistant	x
SPECIAL lagging available on request - e.g. hot vulcanized, ceramic etc.	x
Electromagnetic brake	x
Min. RL dimensions increases by (mm)	100
Mechanical backstop - 400M from RL750mm & 400H from RL800 mm	x
Min. RL dimensions increases by (mm)	
Insulation class F - Allowable ambient temperature: -25°C-+40°C	Std.
Insulation class H with synthetic oil	x
Parallel shell	x
Thermal protector	Std.
IP66/67 cast iron terminal box painted yellow	Std.
Shaft sealing system - degree of protection IP66/67 (EN60034-5)	Std.
3-phase single voltage (3 x 400V) or (3 x 690V) 50Hz +/- 10% tolerance - DIN IEC 38	Std.
Euro-voltage (3x230/400V or 400/690V 50 Hz) with +/-10% tolerance -DIN IEC 38	Std.
Special voltages - 50 and/or 60Hz Please specify!	x
Dual voltage - delta/star - connection possibility!	x
CSA approved motors - available on request only!	x

x = Optional extras

o = Available as option with certain limitations. Please refer to Technical precautions pages 75 ff.

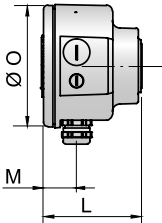
Std. = Fitted as standard

# MOTORIZED PULLEY 400M & 400H

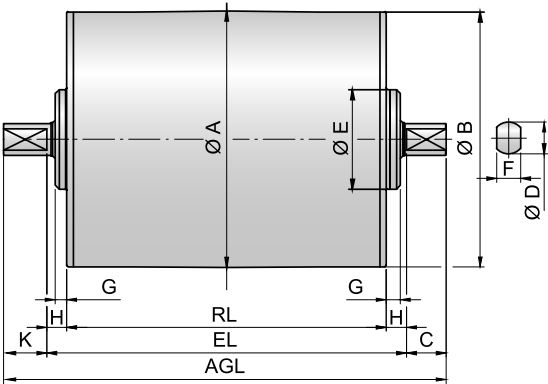
Ø 400 mm



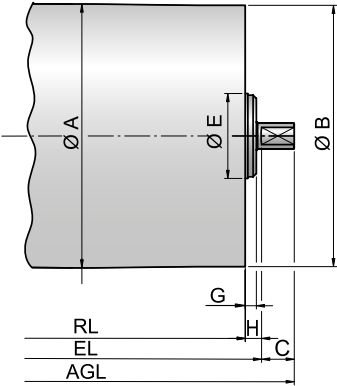
400M & 400H  
terminal box



Motorized Pulley with terminal box



Idler Pulley  
UT400L / UT400M / UT400H



Type	Motorized Pulley or Idler Pulley (UT)									Terminal box			
	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	K mm	L mm	M mm	N mm	O mm
400M & 400H	404	400	50	60	194	45	15	25	50	131	46	–	165
UT400M & UT400H	404	400	50	60	168	45	20	25	–				

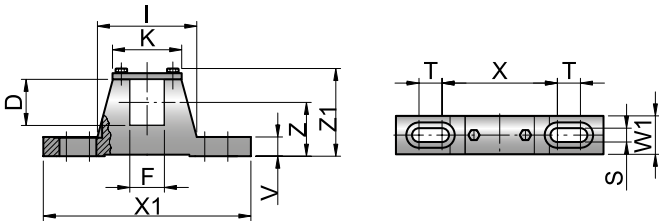


# MOTORIZED PULLEY 400M & 400H

Ø 400 mm



Mounting brackets  
KL41-HD & KL60



Motorized Pulley	Material	Bracket description	Dimensions												Weight
			D mm	F mm	I mm	K mm	S mm	T mm	V mm	W1 mm	X mm	X1 mm	Z mm	Z1 mm	
Type															kg
400M & 400H	Steel	KL60	60	45	132	90	18	30	25	50	150	270	70	115	4.8

Further product details:



[https://www.rulmeca.com/contenuti/qr\\_code/english/400.pdf](https://www.rulmeca.com/contenuti/qr_code/english/400.pdf)

# MOTORIZED PULLEY 400M & 400H

## Ø 400 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Special min. RL	Type	Weight in kg for STANDARD width													Type of Bracket
Power kW/HP	No. of Poles	Gear stages							Dimension RL in mm (RL >2000 mm available on request)													
									500	550	600	650	700	750	800	850	900	950	1000	per 50 mm up to 2000		
2.20/ 3.00	8	3	0.16	2638	13062	50000	650	400H					235	241	247	253	259	265	271	277	6 kg	KL60
			0.20	2111	10450																	
			0.25	1688	8360																	
		2	0.32	1306	6465	40500	600	400M				194	200	206	212	218	224	230	236	242	6 kg	KL60
			0.40	1045	5173																	
			0.50	836	4139																	
			0.63	663	3282																	
			0.80	522	2584																	
1.00	418	2090																				
1.25	334	1670																				
1.60	265	1325																				
4.00/ 5.50	8	3	0.25	3070	15200	50000	650	400H					244	250	256	262	268	274	280	286	6 kg	KL60
			0.32	2399	11875																	
			0.40	1919	9500																	
		2	0.50	1520	7525	40500	600	400M				203	209	215	221	227	233	239	245	251	6 kg	KL60
			0.63	1206	5970																	
			0.80	960	4750																	
			1.00	760	3800																	
			1.25	608	3040																	
1.60	475	2375																				
5.50/ 7.50	4	3	0.40	2638	13063	50000	650	400H					235	241	247	253	259	265	271	277	6 kg	KL60
			0.50	2111	10450																	
			0.63	1675	8294																	
		2	0.80	1306	6465	40500	600	400M				194	200	206	212	218	224	230	236	242	6 kg	KL60
			1.00	1045	5173																	
			1.25	844	4180																	
			1.60	660	3265																	
			2.00	528	2620																	
2.50	422	2090																				
3.15	332	1659																				
7.50/ 10.00	6	3	0.50	2878	14250	50000	710	400H						265	271	277	283	289	295	6 kg	KL60	
			0.63	2284	11310																	
			0.80	1799	8906																	
		2	1.00	1425	7054	40500	600	400M				200	206	212	218	224	230	236	242	248	6 kg	KL60
			1.25	1140	5644																	
			1.60	891	4411																	
			2.00	712	3525																	
			2.50	570	2822																	
3.15	452	2238																				

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

# MOTORIZED PULLEY 400M & 400H

## Ø 400 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Special min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)												Type of Bracket		
Power	No. of Poles	Gear stages							500	550	600	650	700	750	800	850	900	950	1000	per 50 mm up to 2000			
kW/HP																							
11.00/ 15.00	4	3	0.80	2638	13063	50000	710	400H															
			1.00	2111	10450									265	271	277	283	289	295	6 kg	KL60		
			1.25	1688	8360																		
		2	1.60	1306	6465	40500	660	400M															
			2.00	1045	5173									230	236	242	248	254	260	6 kg	KL60		
			2.50	844	4180																		
		3.15	660	3265																			
15.00/ 20.00	2	3	1.00	2878	14250	50000	710	400H															
			1.25	2303	11400																		
			1.60	1799	8906									265	271	277	283	289	295	6 kg	KL60		
		2	2.00	1439	7125	40500	660	400M															
			2.50	1142	5700																		
			3.15	907	4523																		

Motor					Max. Radial Load T1+T2* N	Special min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)												Type of Bracket	
								500	550	600	650	700	750	800	850	900	950	1000	per 50 mm up to 2000		
Idler Pulley					40500	600	UT400M				113	119	126	132	138	142	148	154	160	6 kg	KL60
					50000	650	UT400H					124	131	137	143	147	153	159	165	6 kg	KL60

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

# MOTORIZED PULLEY 500L, 500M & 500H

## Ø 500 mm



To match your requirements in diameter 500 mm, our product range offers three different loading performances for your BULK applications:

- L for Light-duty
- M for Medium-duty
- H for Heavy-duty

You have a choice.

Therefore, it is important to notice the differences to choose the right type of pulley for the right application based on estimated belt tension (radial load) =  $T1+T2$ . The actual radial load **MUST** be **LESS** than the max. allowable radial load shown in this catalogue.

Be aware of increased belt tensions using *multi-ply thick heavy belts* and/or larger belt widths.

If you do not find the belt tension needed in this diameter, you might have to choose a larger one.

### L for Light-duty

500L is meant for similar applications as 400M *except* for the fact that the belt requires a larger pulley diameter. (Motor/gearbox origin from 400M). 500L are typically used in grain storage, cement, steel, fertilizer and heavy mobile crushing & screening applications. As to outer dimensions, 500L cannot replace 500H (Former TM500/TM501).

### M for Medium-duty

Using a solid and robust 3-stage gearbox, 500M provides the necessary torque & belt pull needed for low speeds combined with high power for irregular loadings. (Motor/gearbox origin from 400H). As to outer dimensions, 500M cannot replace 500H (Former TM500/TM501).

### H for Heavy-duty

The construction of 500H is the heaviest of this particular range with internal parts such as gearbox, Ø 65 mm shaft, matching bearings etc. are designed for tough, irregular, extreme and brutal working conditions.

### STANDARD SPECIFICATION of Motorized Pulley

- Crowned mild steel Ø 500 mm steel shell painted yellow – min. layer of 60 µm
- Bolted powder coated cast iron bearing housings and covers, all painted yellow – min. layer of 60 µm
- Mild steel shafts
- Shaft sealing system - degree of protection IP66/67(EN60034-5)
- Cast iron terminal box painted yellow – min. layer of 60 µm
- 3-phase induction motors with thermal protector
- 3-phase single voltage.  
Most common voltages available.  
Please specify!
- Motor winding insulation Class F
- Dynamically balanced rotor
- Two oil plugs each fitted with a magnet to filter the oil
- Black painted brackets – KL60 for 500L and 500M available on request
- Yellow painted graphite cast iron mounting brackets – 500H only!
- Oil change recommended every 20.000 operational hours
- Maximum RL – Please inquire!
- Non standard RL's available
- To be used in horizontal positions ±5 degree only!
- Nitrided shaft sleeves

### Please note:

- Special speeds available on request.
- Motorized Pulleys for non-horizontal positions available on request
- Parallel shell available. Diameter equal to dimension Ø A

### STAINLESS STEEL

Stainless steel version or rust-resistant version on request -

For an optimum design of the correct anti-corrosion performance, we need the properties of the materials being conveyed. Our sales team will offer you the best available solution.

**When ordering, please specify the required voltage, electrical connection and options, brackets and idler pulleys.**

- Environmental consideration: page 72/73
- Technical precautions: page 75 ff.,
- Optional extras: page 47,
- Connection diagram: page 91 ff.

# MOTORIZED PULLEY 500L, 500M & 500H

## Optional extras



SPECIFICATIONS	500L	500M & 500H
Dust explosion proof Motorized Pulleys - ATEX 95 - Zone 22 - for applications handling of dusty grain etc. According to European Directive 2014/34EG	On request!	On request!
Black rubber lagging - STANDARD specifications:	o	o
- Smooth lagging - Hardness 60 ±5 Shore A	8 mm	8 mm
- Diamond lagging - Hardness 60 ±5 Shore A	8 mm	8 mm
White smooth rubber lagging (FDA). Oil, fat & grease resistant	x	x
SPECIAL lagging available on request - e.g. hot vulcanized, ceramic etc.	x	x
Electromagnetic brake	x	x
Min. RL dimensions increases by (mm)	100	100
Mechanical backstop 500L from RL750mm & 500M from RL800 mm	x	x
Insulation class F - Allowable ambient temperature: -25°C - +40°C	Std.	Std.
Insulation class H with synthetic oil	x	x
Parallel shell	x	x
Thermal protector	Std.	Std.
IP66/67 cast iron terminal box painted yellow	Std.	Std.
Shaft sealing system - degree of protection IP66/67 (EN60034-5)	Std.	Std.
3-phase single voltage (3 x 400V) or (3 x 690V), 50 Hz, with +/-10% tolerance - DIN IEC 38	Std.	Std.
Special voltages - 50 and/or 60Hz Please specify!	x	x
Dual voltage - delta/star - connection possibility!	x	x
CSA approved motors - available on request only!	x	x

x = Optional extras

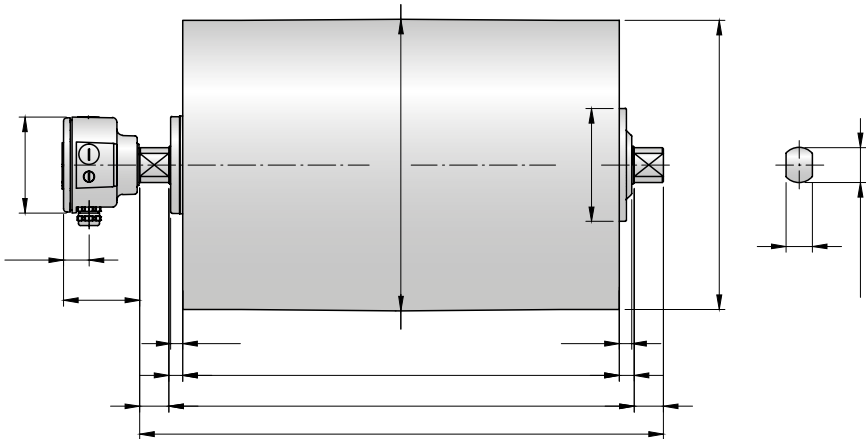
o = Available as option with certain limitations. Please refer to Technical precautions pages 75 ff.

Std. = Fitted as standard

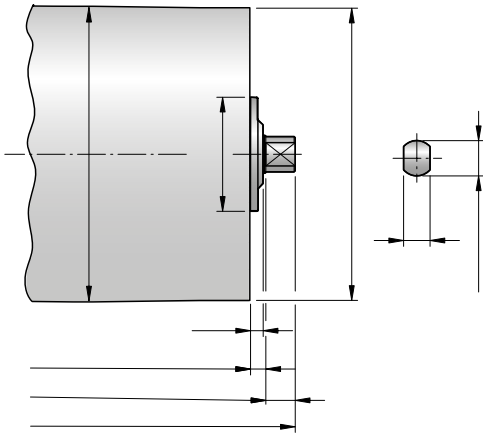
MOTORIZED PULLEY 500L & 500M  
Ø 500 mm



Motorized Pulley with terminal box



Idler Pulley UT400M & UT400H



Type	Motorized Pulley or Idler Pulley (UT)									Larger terminal box			
	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	K mm	L mm	M mm	N mm	O mm
500L & 500M	501	497	50	60	194	45	23	25	50	131	46	–	165
UT400M & UT400H	404	400	50	60	168	45	20	25	–				

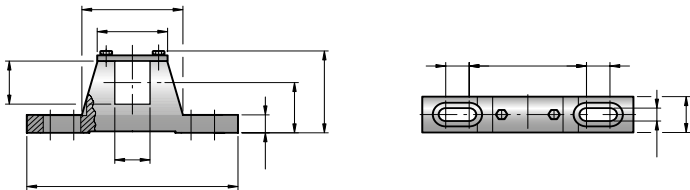


# MOTORIZED PULLEY 500L & 500M

Ø 500 mm



Mounting bracket  
KL60



Motorized Pulleys & Idler Pulleys (UT)	Material	Bracket description	Dimensions												Weight
			D mm	F mm	I mm	K mm	S mm	T mm	V mm	W1 mm	X mm	X1 mm	Z mm	Z1 mm	
Type															kg
500L & 500M and UT400M & UT400H	Steel	KL60	60	45	130	90	18	30	25	50	150	270	70	115	4.8

Further product details:



[https://www.rulmeca.com/contenuti/qr\\_code/english/500.pdf](https://www.rulmeca.com/contenuti/qr_code/english/500.pdf)

# MOTORIZED PULLEY 500L & 500M

## Ø 500 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Special min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)											Type of Bracket
Power kW/HP	No. of Poles	Gear stages							600	650	700	750	800	850	900	950	1000	per 50 mm up to 2000		
2.20/ 3.00	8	3	0.20	2613	10542	42200	650	500M		258	265	272	279	286	293	300	307	7 kg	KL60	
			0.25	2090	8360															
			0.32	1633	6532															
		2	0.40	1306	5224	35000	600	500L	216	223	230	237	244	251	258	265	272			
			0.50	1045	4180															
			0.63	829	3316															
4.00/ 5.50	8	3	0.40	2375	9500	42200	650	500M		267	274	281	288	295	302	309	316	7 kg	KL60	
			0.50	1900	7600															
			0.63	1508	6032															
		2	0.80	1188	4752	35000	600	500L	225	232	239	246	253	260	267	274	281			
			1.00	950	3800															
			1.25	760	3040															
5.50/ 7.50	4	3	0.80	1632	6528	42200	650	500M		258	265	272	279	286	293	300	307	7 kg	KL60	
			0.63	2073	8292															
			0.50	2612	10448															
		2	1.00	1306	5214	35000	600	500L	216	223	230	237	244	251	258	265	272			
			1.25	1045	4180															
			1.60	816	3264															
7.50/ 10.00	6	3	1.781	7124	42200	710	500M				278	285	292	299	306	313	7 kg	KL60		
			0.80	2226				8904												
			0.63	2827				11308												
		2	1.25	1425	5700	35000	600	500L	222	229	236	243	250	257	264	271			278	
			1.60	1113	4452															
			2.00	891	3564															
7.50/ 10.00	4	2	2.50	712	2848	35000	600	500L										7 kg	KL60	
			3.15	570	2280															
			2.00	891	3564															
		3	0.63	2827	11308	42200	710	500M												
			0.80	2226	8904															
			1.00	1781	7124															

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

# MOTORIZED PULLEY 500L & 500M

## Ø 500 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Special min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)										Type of Bracket
Power kW/HP	No. of Poles	Gear stages							600	650	700	750	800	850	900	950	1000	per 50 mm up to 2000	
11.00/ 15.00	4	3	1.00	2612	10448	42200	710	500M				290	297	304	311	318	325	7 kg	KL60
			1.25	2090	8630														
			1.60	1633	6532														
		2	2.00	1306	5224	35000	660	500L				255	262	269	276	283	290		
			2.50	1045	4180														
			3.15	829	3316														
15.00/ 20.00	2	3	1.25	2850	11400	42200	710	500M				290	297	304	311	318	325	7 kg	KL60
			1.60	2227	8908														
			2.00	1782	7128														
		2	2.50	1425	5700	35000	660	500L				255	262	269	276	283	290		
			3.15	1131	4524														

Motor					Max. Radial Load T1+T2* N	Special min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)										Type of Bracket
								600	650	700	750	800	850	900	950	1000	per 50 mm up to 2000	
Idler Pulley					40500	600	UT400M	113	119	126	132	138	142	148	154	160	7 kg	KL60
					50000	650	UT400H		124	131	137	143	147	153	159	165	7 ka	KL60

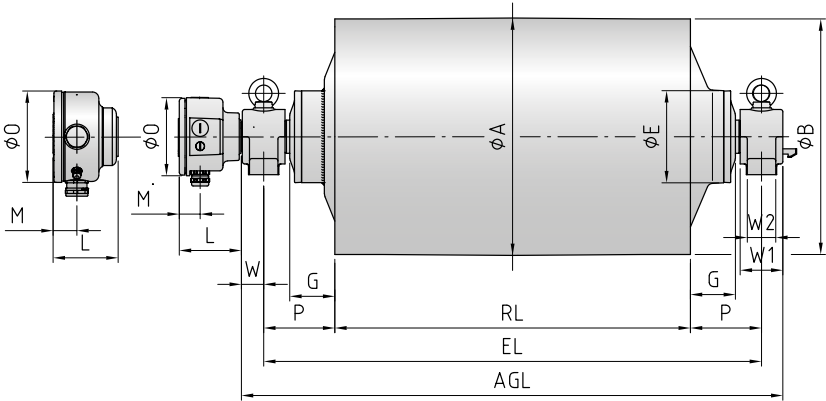
\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

# MOTORIZED PULLEY 500H

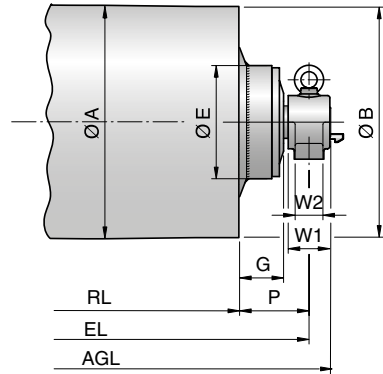
Ø 500 mm



Motorized Pulley with terminal box



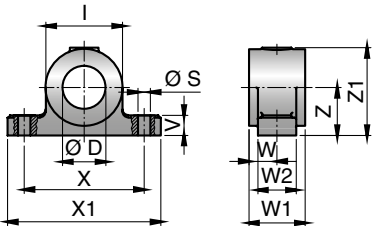
Idler Pulley UT500H



Type	A mm	B mm	C mm	D mm	E mm	G mm	L mm	M mm	O mm	P mm
500H	501	497	–	65	192	95	131	46	165	150
500H (22 & 30kW)	521*	517*	–	65	235	95	166	54	230	150
UT500H	501	497	–	65	235	95	–	–	–	150

\* including ceramic lagging

## Mounting bracket AL65 & ALO65



Further product details:



[https://www.rulmeca.com/contenuti/qr\\_code/english/500H-800H.pdf](https://www.rulmeca.com/contenuti/qr_code/english/500H-800H.pdf)

Motorized Pulleys & Idler Pulleys (UT)	Material	Bracket description	Dimensions											Weight kg
			D mm	I mm	S mm	V mm	W mm	W1 mm	W2 mm	X mm	X1 mm	Z mm	Z1 mm	
500H & UT500H	Spheroidal cast iron	AL65 / ALO65	65	115	23	34	45	90	60	180	240	80	141	8.0

# MOTORIZED PULLEY 500H

## Ø 500 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)										Type of Bracket
Power kW/HP	No. of Poles	Gear stages							600	650	700	750	800	850	900	950	1000	per 50 mm up to 2000	
5.50/ 7.50	8	2	0.50	2612	10427	46000	750	500H											AL65 / ALO65
			0.63	2073	8276														
			0.80	1632	6515														
	6	2	1.00	1306	5214							339	348	357	365	374	381	8 kg	
			1.25	1045	4172														
			1.60	816	3258														
7.50/ 10.00	8	2	2.00	653	2607	46000	750	500H											AL65 / ALO65
			2.50	522	2084														
			0.63	2827	11285														
	6	2	0.80	2226	8887														
			1.00	1780	7106							349	358	367	375	384	390	8 kg	
			1.25	1424	5685														
11.0/ 15.0	6	2	1.60	1113	4443	46000	750	500H											AL65 / ALO65
			2.00	890	3553														
			2.50	712	2843														
	4	2	1.00	2611	10423														
			1.25	2089	8340														
			1.60	1632	6515							359	369	379	389	399	405	8 kg	
15.0/ 20.0	4	2	2.00	1306	5214	46000	750	500H											AL65 / ALO65
			2.50	1045	4172														
			1.00	3644	14450														
	4	2	1.25	2850	11377														
			1.60	2226	8886														
			2.00	1781	7110							370	378	385	393	400	409	8 kg	
18.5 25.0	4	2	2.50	1425	5689	46000	750	500H											AL65 / ALO65
			3.15	1131	4515														
			1.25	3596	14356														
	4	2	1.60	2746	10962														
			2.00	2197	8771							380	388	395	403	410	419	8 kg	
			2.50	1757	7014														
22.0/ 30.0	4	2	3.15	1395	5569	46000	850	500H											AL65 / ALO65
			1.60	3444	13750														
			2.00	2611	10423														
	2	2	2.50	2089	8340														
			3.15	1600	6385							380	388	395	403	410	419	8 kg	
			1.60	4236	16977														
1*) 30.0/ 40.0	4	2	2.00	3801	15236	46000	850	500H											AL65 / ALO65
			2.50	3049	12222														
			3.15	2498	10012														
	4	2	4.00	1901	7618														
			1.60	4236	16977														
			2.00	3801	15236														

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

1\*) Please note the 30kW motor will be delivered with 10mm bonded ceramic lagging!

# MOTORIZED PULLEY 630M & 630H

## Ø 630 mm



To match your requirements in diameter 630 mm, our product range offers two different loading performances for your **BULK** applications:

- 630M and
- 630H

You have a choice.

Therefore, it is important to notice the differences to choose the right type of pulley for the right application based on estimated belt tension (radial load) =  $T_1 + T_2$ . The actual radial load **MUST** be **LESS** than the max. allowable radial load shown in this catalogue.

Be aware of increased belt tensions using *multi-ply thick heavy belts* and/or larger belt widths.

If you do not find the belt tension needed in this diameter, you might have to choose a larger one.

Except for the fact that motor/gearbox of 630M originates from 500H, both types – 630M and 630H – are designed for **HEAVY DUTY** applications. They provide the necessary torque and belt pull.

Both pulleys are designed for tough, irregular, extreme and brutal working conditions.

### STANDARD SPECIFICATION of Motorized Pulley

- Crowned mild steel Ø 630 mm steel shell painted yellow - min. layer of 60 µm
- Bolted powder coated cast iron bearing housings and covers, all painted yellow – min. layer of 60 µm
- Mild steel shafts
- Shaft sealing system - degree of protection IP66/67 (EN60034-5)
- Cast iron terminal box painted yellow – min. layer of 60 µm
- 3-phase induction motors with thermal protector
- Voltage: 3-phase single voltage. Most common voltages available. Please specify!
- Motor winding insulation Class F
- Dynamically balanced rotor
- Two oil plugs each fitted with a magnet to filter the oil
- Yellow painted cast steel mounting brackets – one type AL & one type ALO
- Oil change recommended every 20.000 operational hours
- Maximum RL – Please inquire!
- Non standard RL's available
- To be used in horizontal positions ±5 degree only!
- Special speeds available on request.

### SEMI-RUST-FREE options

Stainless steel version or rust-resistant version on request -

For an optimum design of the correct anti-corrosion performance, we need the properties of the materials being conveyed. Our sales team will offer you the best available solution.

**When ordering, please specify the required voltage, electrical connection, options, brackets and idler pulleys.**

- Environmental consideration: page 72/73
- Technical precautions: page 75 ff.,
- Optional extras: page 55,
- Connection diagram: page 91 ff.



# MOTORIZED PULLEY 630M & 630H

## Optional extras



SPECIFICATIONS	630M	630H
Dust explosion proof Motorized Pulleys - ATEX 95 - Zone 22 - for applications handling of dusty grain etc. According to European 2014/34EG	On request!	On request!
Re-greasable labyrinth seals - mild steel	x	x
Black rubber lagging - STANDARD specifications: - Smooth lagging - Hardness 60 ±5 Shore A - Diamond lagging - Hardness 60 ±5 Shore A	o 10 mm 10 mm	o 10 mm 10 mm
White smooth rubber lagging (FDA). Oil, fat & grease resistant	x	x
SPECIAL lagging available on request - e.g. hot vulcanized, ceramic etc.	x	x
External brake shaft for connection to mechanical brake	x	x
Mechanical backstop	x	x
Insulation class F - Allowable ambient temperature: -25°C-+40°C	Std.	Std.
Insulation class H with synthetic oil	x	x
Parallel shell	x	x
Thermal protector	Std.	Std.
IP66/67 cast iron terminal box painted yellow	Std.	Std.
Shaft sealing system - degree of protection IP66/67 (EN60034-5)	Std.	Std.
3-phase single voltage (3 x 400V) or (3 x 690V), 50 Hz, with +/-10% tolerance - DIN IEC 38	Std.	Std.
Special voltages - 50 and/or 60Hz      Please specify!	x	x
Dual voltage - delta/star - connection possibility!	x	x
CSA approved motors - available on request only!	x	x
Electromagnetic brake      Min RL dimension increases by (mm)	100	-

x = Optional extras

o = Available as option with certain limitations. Please refer to Technical precautions pages 75 ff.

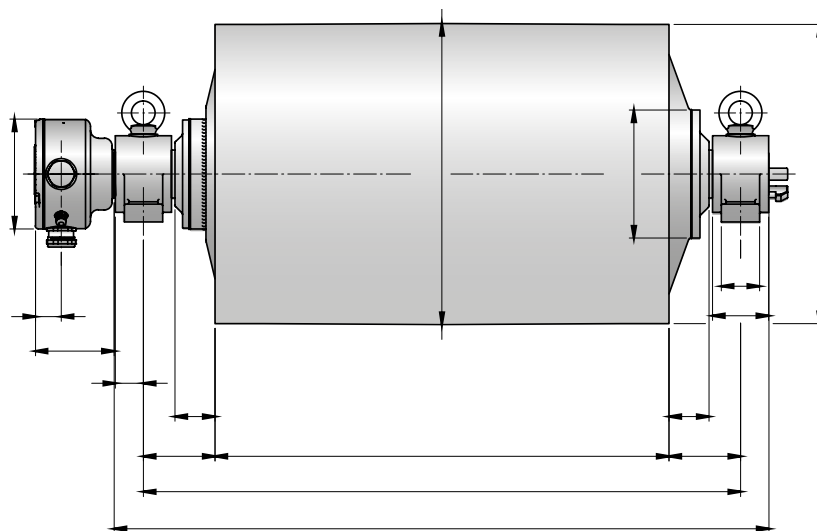
Std. = Fitted as standard

# MOTORIZED PULLEY 630M & 630H

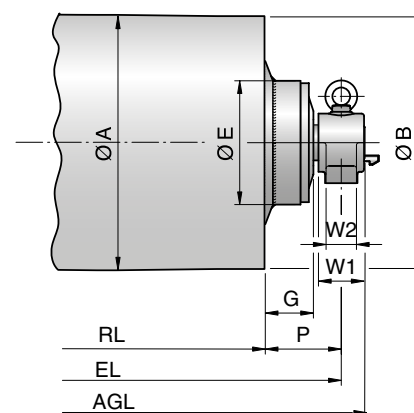
## Ø 630 mm



Motorized Pulley with terminal box

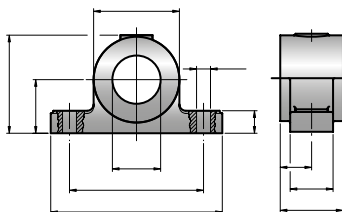


Idler Pulley UT500H / UT502H



Type	A mm	B mm	C mm	D mm	E mm	G mm	L mm	M mm	O mm	P mm
630M	630	626	-	65	192	95	131	46	165	150
630M (22&30kW) / 630H	630	626	-	90	268	84	166	54	230	150
UT500H	501	497	-	65	235	95	-	-	-	150
UT502H	501	497	-	90	226	85	-	-	-	150

Mounting brackets  
AL65 & ALO65  
AL90 & ALO90



Motorized Pulleys & Idler Pulleys (UT)	Material	Bracket description	Dimensions											Weight kg
			D mm	I mm	S mm	V mm	W mm	W1 mm	W2 mm	X mm	X1 mm	Z mm	Z1 mm	
630M	Spheroidal cast iron	AL65 / ALO65	65	115	23	34	45	90	60	180	240	80	141	8.0
630H	Cast steel	AL90 / ALO90	90	160	26	42	58.5	117	80	250	320	100	183	19.0

# MOTORIZED PULLEY 630M

## Ø 630 mm - 50 Hz



Motor		Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)								Type of Bracket															
Power kW/HP	No. of Poles							750	800	850	900	950	1000	1050	1100		per 50 mm up to 2000														
5.50/ 7.50	8	0.63	2612	8292	46000	750	630M	395	404	413	422	431	441	450	459	9 kg	AL65/ALO65														
		0.80	2057	6530																											
		1.00	1645	5222																											
	6	1.25	1316	4178																											
		1.60	1028	3264																											
		2.00	823	2613																											
7.50/ 10.0	8	2.50	658	2089	46000	750	630M	404	413	422	431	440	450	459	468	9 kg	AL65/ALO65														
		3.15	522	1657																											
		0.80	2805	8905																											
	6	1.00	2243	7121																											
		1.25	1795	5699																											
		1.60	1402	4451																											
11.0/ 15.0	6	2.00	1122	3562	46000	750	630M	419	428	438	447	456	466	475	484	9 kg	AL65/ALO65														
		2.50	897	2848																											
		3.15	712	2261																											
	15.0/ 20.0	4	1.25	2631														8356	46000	750	630M	430	439	449	458	467	477	486	495	9 kg	AL65/ALO65
			1.60	2056														6527													
			2.00	1645														5222													
18.5/ 25.0		4	2.50	1316	4178	46000	750	630M	440	449	459	468	477	487	496	505	9 kg	AL65/ALO65													
			3.15	1045	3318																										
			2.00	2767	8784																										
22.0/ 30.0	4	2.50	2213	7026	46000														750	630M	440	449	459	468	477	487	496	505	9 kg	AL65/ALO65	
		3.15	1757	5578																											
		2.00	3222	10450																											
	2	2.50	2634	8362		46000	750	630M	440	449	459	468	477	487	496	505	9 kg	AL65/ALO65													
		3.15	2090	6635																											

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

Note: for MP 630M & H electromagnetic brake is not possible

Further product details:



[https://www.rulmeca.com/contenuti/qr\\_code/english/500H-800H.pdf](https://www.rulmeca.com/contenuti/qr_code/english/500H-800H.pdf)

# MOTORIZED PULLEY 630H

## Ø 630 mm - 50 Hz



Motor		Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)									Type of Bracket	
Power	No. of Poles							950	1000	1050	1100	1150	1200	1250	1300	per 50 mm up to 2000		
kW/HP																		
22.0/ 30.0	8	1.00	6583	20899	73600	950	630H		805	818	830	843	855	865	878	891	13 kg	AL90/ALO90
		1.25	5265	16714														
		1.60	4113	13057														
		2.00	3290	10445														
		2.50	2632	8356														
		3.15	2089	6632														
30.0/ 40.0	8	1.25	7179	22791	98100	950	630H		825	838	850	863	875	885	898	911	13 kg	AL90/ALO90
		1.60	5609	17807														
		2.00	4487	14245														
		2.50	3589	11394														
		3.15	2849	9045														
37.0/ 50.0	6	1.60	6920	21969	98100	950	630H		825	838	850	863	875	885	898	911	13 kg	AL90/ALO90
		2.00	5534	17569														
		2.50	4427	14054														
		3.15	3513	11153														
45.0/ 61.0	4	2.50	5384	17092	88300	950	630H		845	858	870	883	895	905	918	931	13 kg	AL90/ALO90
		3.15	4273	13565														
		4.00	3365	10683														
55.0/ 75.0	4	2.50	6584	20902	88300	950	630H		845	858	870	883	895	905	918	931	13 kg	AL90/ALO90
		3.15	5223	16581														
		4.00	4113	13057														

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

Note: for MP 630M & H electromagnetic brake is not possible

# MOTORIZED PULLEY 800M, H & 800HD

## Ø 800 mm



To match your requirements in diameter 800 mm, our product range offers two different loading performances for your **BULK** applications:

- 800M, 800H
- 800HD

You have a choice.

Therefore, it is important to notice the differences to choose the right type of pulley for the right application based on estimated belt tension (radial load) = T1+T2. The actual radial load **MUST** be **LESS** than the max. allowable radial load shown in this catalogue.

Be aware of increased belt tensions using multi-ply thick heavy belts and/or larger belt widths.

Motor/gearbox of 800M has its origin from 630H.

800M, H & 800HD are designed for **HEAVY DUTY** applications and they provide the necessary torque, belt pull and allowable belt tension in order to handle the toughest, irregular & most extreme and brutal working conditions.

### STANDARD SPECIFICATION of Motorized Pulley

- Crowned mild steel Ø 800 mm steel shell painted yellow - min. layer of 60 µm
- Bolted painted yellow cast iron bearing housings and covers, all painted yellow – min. layer of 60 µm
- Mild steel shafts
- Shaft sealing system - degree of protection IP66/67 (EN60034-5)
- Cast iron terminal box painted yellow – min. layer of 60 µm
- 3-phase induction motors with thermal protector
- Voltage: 3-phase single voltage. Most common voltages available. Please specify!
- Motor winding insulation Class F
- Dynamically balanced rotor
- Two oil plugs each fitted with a magnet to filter the oil
- Yellow painted cast steel mounting brackets – one type AL & one type ALO
- Oil change recommended every 20.000 operational hours
- Maximum RL – Please inquire!
- Non standard RL's available
- To be used in horizontal positions ±5 degree only!
- Special speeds available on request.

### STAINLESS STEEL

Stainless steel version or rust-resistant version on request -

For an optimum design of the correct anti-corrosion performance, we need the properties of the materials being conveyed. Our sales team will offer you the best available solution.

**When ordering, please specify the required voltage, electrical connection options, brackets and idler pulleys.**

- Environmental consideration: page 72/73
- Technical precautions: page 75 ff.,
- Optional extras: page 60
- Connection diagram: page 91 ff.

# MOTORIZED PULLEY 800M, H & 800HD

## Optional extras



SPECIFICATIONS	800M	800H/HD
Dust explosion proof Motorized Pulleys - ATEX 95 - Zone 22 - for applications handling of dusty grain etc. According to European Directive 2014/34EG	On request!	On request!
Re-greasable labyrinth seals - mild steel	x	x
Black rubber lagging - STANDARD specifications: - Smooth lagging - Hardness 60 ±5 Shore A - Diamond lagging - Hardness 60 ±5 Shore A	o 10 mm 10 mm	o 10 mm 10 mm
White smooth rubber lagging (FDA). Oil, fat & grease resistant	x	x
SPECIAL lagging available on request - e.g. hot vulcanized, ceramic etc.	x	x
External brake shaft for connection to mechanical brake	x	x
Mechanical backstop	x	x
Insulation class F - Allowable ambient temperature: -25°C-+40°C	Std.	Std.
Insulation class H with synthetic oil	x	x
Parallel shell	x	x
Thermal protector	Std.	Std.
IP66/67 cast iron terminal box painted yellow	Std.	Std.
Shaft sealing system - degree of protection IP66/67 (EN60034-5)	Std.	Std.
3-phase single voltage (3 x 400 V) or (3 x 690V), 50 Hz, with +/-10% tolerance - DIN IEC 38	Std.	Std.
Special voltages - 50 and/or 60Hz Please specify!	x	x
Dual voltage - delta/star - connection possibility!	x	x
CSA approved motors - available on request only!	x	x

x = Optional extras

o = Available as option with certain limitations. Please refer to Technical precautions pages 75 ff.

Std. = Fitted as standard

Further product details:



[https://www.rulmeca.com/contenuti/qr\\_code/english/500H-800H.pdf](https://www.rulmeca.com/contenuti/qr_code/english/500H-800H.pdf)

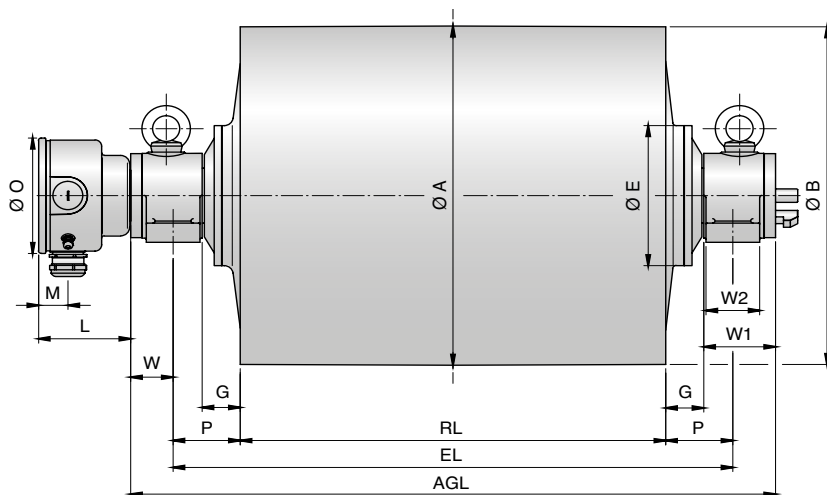


# MOTORIZED PULLEY 800M, H & 800HD

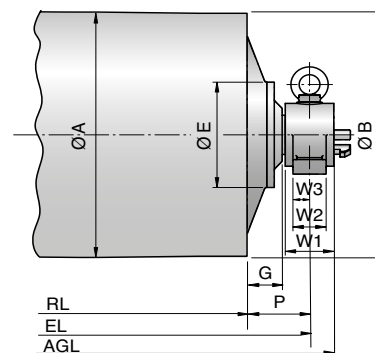
## Ø 800 mm



Motorized Pulley with terminal box

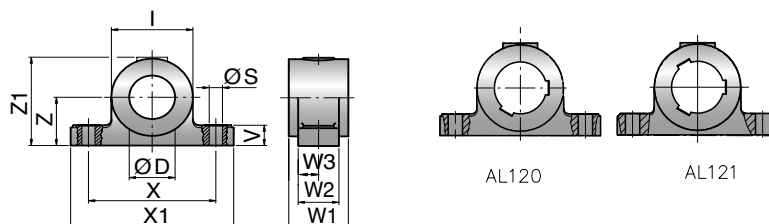


Idler Pulley UT630M / UT630H



Type	A mm	B mm	C mm	D mm	E mm	G mm	L mm	M mm	O mm	P mm
800M	800	796	-	90	268	88	166	54	230	150
800H/HD	800	796	-	120	330	80	206	67	260	150
UT630M	630	626	-	90	226	85	-	-	-	150
UT630H	630	626	-	120	330	75	-	-	-	150

Mounting brackets  
AL90 & ALO90  
AL120 & ALO120  
AL121 & ALO121



Motorized Pulleys & Idler Pulleys (UT)	Material	Bracket description	Dimensions												Weight kg
			D mm	I mm	S mm	V mm	W mm	W1 mm	W2 mm	W3 mm	X mm	X1 mm	Z mm	Z1 mm	
800M	Cast steel	AL90/ALO90	90	160	26	42	58.5	117	80	58.5	250	320	100	183	19.0
800H	Cast steel	AL120/ALO120	120	200	33	50	95	160	120	65.0	300	370	110	213	38.0
800HD	Cast steel	AL121/ALO121	120	200	33	50	95	160	120	65.0	300	370	110	213	38.0

# MOTORIZED PULLEY 800M

## Ø 800 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)								Type of Bracket
Power kW/HP	No. of Poles	Gear stages							950	1000	1050	1100	1150	1200	1250	per 50 mm up to 2000	
22.0/ 30.0	8	2	1.25	6688	16720	73600	950	800M	935	948	960	973	985	995	1005	13 kg	AL90/ALO90
			1.60	5223	13058												
			2.00	4178	10445												
			2.50	3343	8358												
			3.15	2653	6633												
30.0/ 40.0	8	2	1.60	7122	17805	98100	950	800M	975	988	1000	1013	1025	1035	1045	13 kg	AL90/ALO90
			2.00	5698	14245												
			2.50	4558	11395												
			3.15	3617	9043												
37.0/ 50.0	6	2	2.00	7030	17575	98100	950	800M	975	988	1000	1013	1025	1035	1045	13 kg	AL90/ALO90
			2.50	5622	14055												
			3.15	4462	11155												
			4.00	3513	8783												
45.0/ 61.0	4	2	3.15	5426	13565	88300	950	800M	995	1008	1020	1033	1045	1055	1065	13 kg	AL90/ALO90
			4.00	4273	10683												
55.0/ 75.0	4	2	3.15	6584	14581	88300	950	800M	995	1008	1020	1033	1045	1055	1065	13 kg	AL90/ALO90
			4.00	5223	13058												

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

# MOTORIZED PULLEY 800H/HD

## Ø 800 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Min. RL	Type	Weight in kg for STANDARD width Dimension RL in mm (RL >2000 mm available on request)								Type of Bracket
Power kW/HP	No. of Poles	Gear stages							1400	1450	1500	1550	1600	1650	1700	per 50 mm up to 2000	
55.0/ 75.0	8	3	1.00	20884	54974	200000	1300	800HD	2390	2420	2450	2455	2485	2515	2546	30 kg	AL121/ALO121
	6		1.25	16707	41300												
	8	2	1.60	13052	32630	200000	1150	800H	2150	2175	2200	2225	2250	2275	2300	25 kg	AL120/ALO120
	6		2.00	10450	26125												
			2.50	8360	20900												
			3.15	6635	16588												
			4.00	5225	13063												
4.50	4644	11610															
75.0/ 100.0	6	3	1.25	22527	56318	200000	1300	800HD	2390	2420	2450	2455	2485	2515	2546	30 kg	AL121/ALO121
			1.60	18496	46240												
		2	2.00	14244	35610	200000	1150	800H	2150	2175	2200	2225	2250	2275	2300	25 kg	AL120/ALO120
			2.50	11395	28488												
			3.15	9044	22610												
			4.00	7122	17805												
	4.50	6331	15828														
90.0/ 120.0	6	3	1.60	21181	52953	200000	1550	800HD				2575	2530	2560	2590	30 kg	AL121/ALO121
			2.00	18496	46240												
		2	2.50	13674	34185	200000	1400	800H	2200	2225	2250	2275	2300	2325	2350	25 kg	AL120/ALO120
			3.15	10852	27130												
			4.00	8546	21365												
	4.50	7597	18993														
110.0/ 150.0	4	3	2.00	21915	54789	180000	1550	800HD				2575	2605	2635	2665	30 kg	AL121/ALO121
			2.50	17994	44984												
		2	3.15	13264	33160	180000	1400	800H	2175	2200	2225	2250	2275	2300	2325	25 kg	AL120/ALO120
	4.00		10445	26113													
4.50	9265	23163															
132.0/ 180.0	4	3	2.50	21592	53981	180000	1550	800HD				2615	2645	2675	2705	30 kg	AL121/ALO121
			3.15	15153	37882												
		2	4.00	12535	31338	180000	1400	800H	2215	2240	2265	2290	2315	2340	2365	25 kg	AL120/ALO120
	4.50		11142	27855													

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

# MOTORIZED PULLEY 1000H & 1000HD

## Ø 1000 mm



The RULMECA motorized pulley type 1000HD is a highly developed reliable and strong drive with an outstanding power range of 160 – 250 kW. It is able to take a high radial load and robust in design. Therefore it is especially developed for use in:

- Mining conveyors,
- Excavators,
- Stackers,
- Reclaimers,
- Heavy loaded conveyors in gravel and sand

The motorized pulley 1000HD is designed for tough, irregular, extreme and brutal working condition.

The compact design allows the design engineers to save material and cost when developing the conveyor.

A high protection rate connected with the standard labyrinth sealing system it can be used in all ambient conditions.

### STANDARD SPECIFICATION of Motorized Pulley

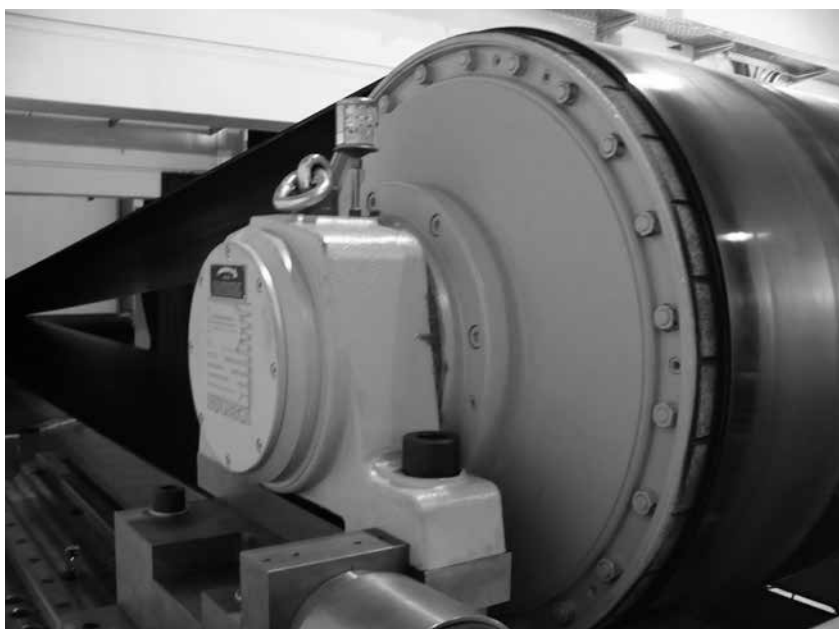
- Crowned mild steel shell + ceramic lagging, outside diameter 1020mm.
- Mild steel shafts.
- Totally enclosed cast iron brackets,
- Shell lagged with a 10mm bonded ceramic lagging,
- Bearing houses from cast steel.
- Gear 3-stage boxes from cast steel.
- Sealing system with degree of protection IP66/67 (EN60034-5).
- Terminal box from cast iron.
- 3-phase induction motors with 3 phase single voltage,
- Possible voltages 400V, 415V, 525V, 690V, 50Hz & 460V, 575V 60Hz

### Please specify!

- Motor winding insulations class H,
- 3 bimetallic thermal protectors in connected series, 2 temperature resistors Pt100 and 3 PTC-resistors connected in series installed in the winding.
- Rotor dynamically balanced.
- 2 oil plugs (with magnet).
- Minimum roller length RL = 1400mm at 160kW & 1500 at 250kW,
- Synthetic oil EP220.
- First oil change recommended after 50.000 operational hours.
- Regreasable labyrinth seals with automatic greasing system,
- Special speeds available on request,

### Please Note!

- Environmental consideration: page 72/73
- Technical precautions: page 75 ff.,
- Optional extras: page 65,
- Connection diagram: page 91 ff.



# MOTORIZED PULLEY 1000H & 1000HD

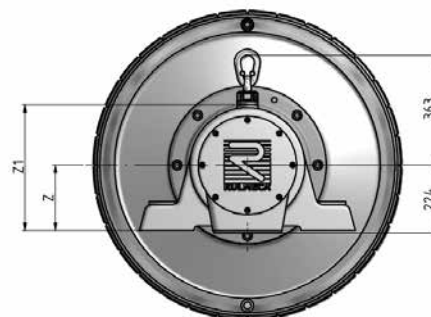
## Optional extras



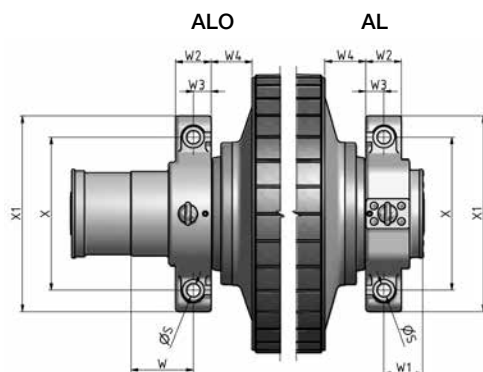
SPECIFICATIONS	1000HD
Different types and shapes of ceramic lagging	x
Mechanical backstop RL + 0	x
External brake shaft RL + 0	x
Allowable ambient temperatures -25°C until +40°C	Std.
Insulation class H with synthetic oil	Std.
Motor protection and Control by 3 bimetallic thermal protectors connected in series, 2 temperature resistors PT100 and 3 PTC-resistors connected in series	Std.
Dust Explosion proof Motorized Pulleys – ATEX95 – Zone 22 – for applications handling of dusty grain etc. according to European Directive 2014/34EG	x
Thermal winding protection	Std.
IP66/67 cast iron terminal box	Std.
Degree of protection IP66/67	Std.
Triphase single voltage (3x400V, 415V, 525V & 690V at 50Hz & 460V, 575V 60Hz) with tolerances +/-10% (DIN IEC 38)	Std.
Other voltages on request and after checking the technical feasibility	x
CSA approved motors	x

Std. = standard

x = available as option

[illegible]

A mm	B mm	D mm	E mm	G mm	G1 mm	L mm	M mm	O mm	P mm	W mm	W1 mm	W4 mm
1020	1014	203	520	145	114	218	122	325	215	228	143	150



Key A22x14x220

Retaining Ring  
DIN471-85x3

10

Ø95

205

236

8

Ø85 js6 (+0.017/-0.013)

Type	S mm	W2 mm	W3 mm	X mm	X1 mm	Z mm	Z1 mm
AL	50	130	65	560	717	215	412
ALO	50	130	65	560	717	215	412

# MOTORIZED PULLEY 1000H

Ø 1020 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Min. RL	Type	Weight in kg for STANDARD width RL in mm												
Power kW/HP	No. of Poles	Gear stages							1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	per 50mm up to 2500
160.0/ 218.0	6	2	3.00	25160	49330		1300	1000H													65 kg
			3.50	21030	41240					4005	4075	4120	4185	4250	4315	4380	4445	4510	4575	4640	
			4.00	18830	36930																
	4		4.50	16770	32890		1250		3755	3825	3870	3935	4000	4065	4130	4195	4260	4325	4390	4455	
			5.50	14020	27500																
			6.50	11310	22170																
			7.00**	10750	21080	300															
			7.50**	10230	20060																
			8.50	8870	17390																
9.50	7740	15180																			
200.0/ 272.0	2	4.50	20960	41110		300	300	1000H	4005	4075	4120	4185	4250	4315	4380	4445	4510	4575	4640	65 kg	
		5.50	17530	34370																	
		6.50	14130	27720																	
		7.00**	13440	26350		220	220														
		7.50**	12790	25080																	
		8.50	11089	21740																	
		9.50	9670	18970																	
250.0/ 340.0	2	4.50	26200	51390		300	300	1000H													
		5.50	21900	42950																	
		6.50	17650	34650																	
		7.00**	16800	32940		220	220														
		7.50**	15980	31350																	
		8.50	13850	27170																	
		9.50	12000	23710																	

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

\*\* for speeds marked with double star optional gear ratios possible on request.



# MOTORIZED PULLEY 1000HD

## Ø 1020 mm - 50 Hz



Motor			Nominal belt speed at Full Load 50Hz m/sec	Torque Nm	Belt Pull N	Max. Radial Load T1+T2* N	Min. RL	Type	Weight in kg for STANDARD width RL in mm													per 50mm up to 2500
Power kW/HP	No. of Poles	Gear stages							1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800		
160.0/ 218.0	6	3	1.60	45540	89280	300	1450	1000 HD					4450	4520	4565	4630	4695	4760	4825	4890	65kg	
	4		2.00 **	36310	71200		1400															
			2.50	30300	59400																	
			3.15	24400	47800							4200	4270	4315	4380	4445	4510	4575	4640	4705		
			4.00	19200	37600																	
			4.50	16700	32700																	
200.0/ 272.0	4	3	2.00 **	45390	89000	300	1450	1000 HD														
			2.50 **	37950	74300																	
			3.15 **	30600	60000								4450	4520	4565	4630	4695	4760	4825	4890		
			4.00	24000	47000																	
			4.50	20900	40950																	
			5.50	17600	34500																	
250.0/ 340.0	4	3	2.50 **	47430	93010	300	1500	1000 HD														
			3.15 **	38250	75010																	
			4.00	30000	58830									4700	4770	4815	4880	4945	5010	5075		
			4.50	26150	51250																	
			5.50	22000	43100																	

\* T1+T2 value is valid for shortest available RL – in case of any questions please contact Rulmeca sales.

\*\* Power and speeds marked with a star can be used with 100% load at clockwise direction of rotation only!

For anti-clockwise direction the motorized pulley has to be assembled in an opposite way.

Note: Please specify the outer dimension of your power supply cable.

Because of high torque the start-up of the motorized pulley has to be done with a soft starter or VFD.

# MOTORIZED PULLEYS

## Information needed when ordering



CLIENT..... Name.....  
 Address.....  
 Phone..... Fax..... E-mail..... Date.....

### What is the application?.....

(Describe type of application, material and ambient condition)

☐ Abrasive ☐ Corrosive ☐ Wet ☐ Wash down ☐ Humid ☐ Dry ☐ Dusty ☐ Other

### Motorized Pulleys:

Quantity?.....(Pieces) Power?..... ☐ kW ☐ HP ☐ Dual drive  
 Diameter of shell?.....(mm without lagging) Shell width (RL).....(mm)  
 Belt speed?.....(m/sec.) Frequency? ☐ 50Hz ☐ 60Hz  
 Voltage?.....(V) No. of phases? ☐ 3 phase ☐ Single phase  
☐ Matching standard terminal box? ☐ Stainless steel terminal box?  
☐ Cable solution? ☐ Straight connector? ☐ Elbow connector? ☐ Screened cable?  
☐ Cable length? ☐ 1m (Standard) ☐ 3 m  
☐ Electromagnetic brake? ☐ External brake shaft?  
☐ Mechanical backstop? ☐ Clockwise rotation (Standard) ☐ Anti-clockwise rotation  
☐ Mounting brackets? Type?..... Quantity?.....(Pieces)  
☐ Lagging? ☐ Rubber? ☐ Black? ☐ White? ☐ Smooth? ☐ Diamond? ☐ Hot vulcanised?  
☐ Ceramic type? ☐ Oil; Fat & Grease ☐ Thickness?.....(mm)

### Motorized Pulleys Options:

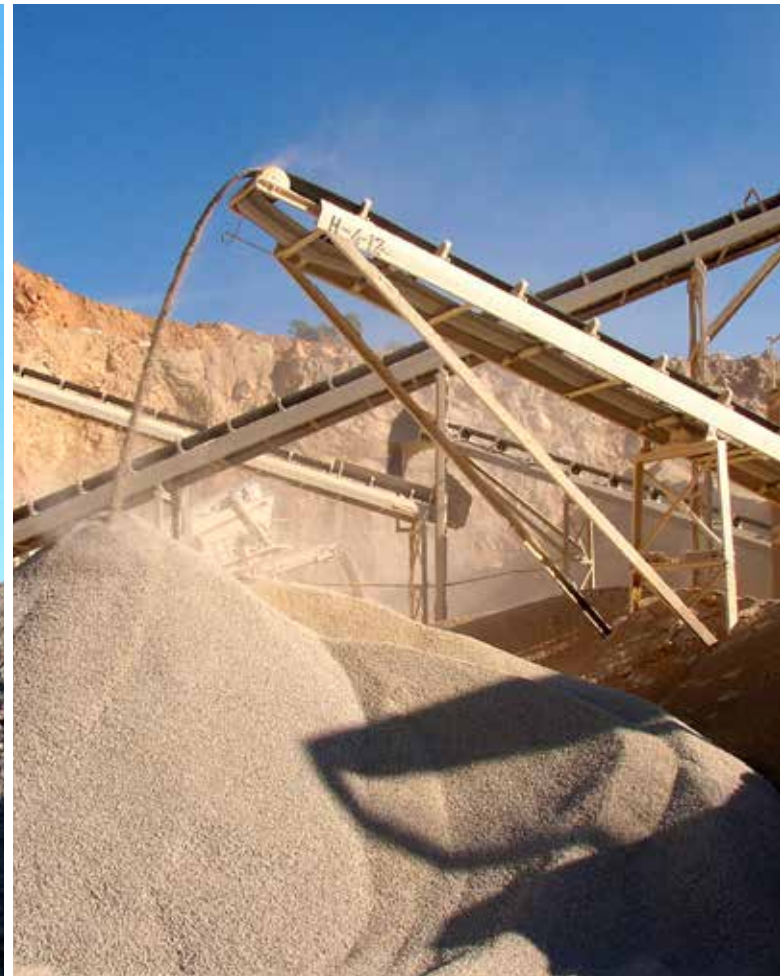
☐ 2-speed motors? ☐ CSAus approved motors?  
☐ Insulation Class? ☐ Class F (Standard) ☐ Class H  
☐ Special oil? ☐ Synthetic ☐ Food grade  
☐ Vertical or non-horizontal installation ☐ Vertical ☐ NON-horizontal between 5° - ≤90°  
☐ TOTAL stainless steel with re-greasable seals  
☐ TOTAL stainless steel without re-greasable seals  
☐ Semi-rust-free  
☐ Re-greasable labyrinth seals ☐ Anticondensation heater  
☐ Non-regreasable labyrinth seals ☐ Dust explosion proof – ATEX 95 – Zone 22 ☐ Parallel shell (cylindrical)

### Idler Pulleys:

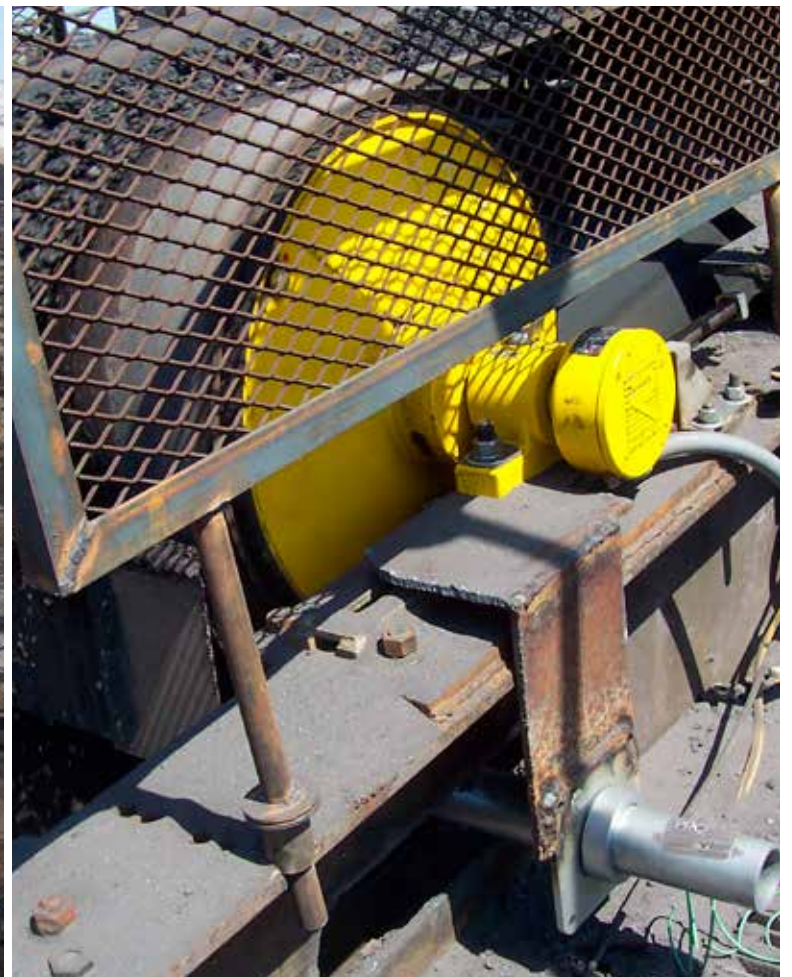
☐ Idler Pulley? Qty.:..... Diameter of Pulley?.....(mm) Type:.....  
☐ Idler Pulley? Qty.:..... Diameter of Pulley?.....(mm) Type:.....  
☐ Mounting brackets? Type:..... Qty.:.....  
 NOTES, special options, parallel shell, lagging, re-greasable labyrinth seals etc.....

### To be filled in by Rulmeca:

SUGGESTED Motorized Pulley:..... EDP No..... Qty.:.....  
 Options:..... Mounting brackets:..... Qty.:.....  
 Idler Pulley/EDP no.:..... Qty.:..... Mounting brackets:..... Qty.:.....  
 Accessories, types, options and comments.....









# APPLICATIONS IN SPECIAL ENVIRONMENTAL CONDITIONS

## Low ambient temperature

For low temperatures below  $-25^{\circ}\text{C}$  please consult Rulmeca. Special oil, special seals, and possible anti-condensation heater may be required. Re-greasable seals to avoid drying out the labyrinth seals.

## High ambient temperature

For high ambient temperatures above  $+40^{\circ}\text{C}$  please consult Rulmeca.

## Extremely dusty/ abrasive, wet/ high humidity

IP6X re-greasable seals, special finish, e.g. stainless steel – AISI 303/4 or even AISI 316, semi-rust-free, special coating, rubber lagging.

## Grain handling - Extremely dusty where dangerous atmospheric conditions apply

Frequent start/ stops

Type	Max. No. of Start/stops
138LS	240 per hour
165LS	180 per hour
220M & H	120 per hour
320M & 320H, 400M & 400H	25 per hour
500L, 500M, 500H, 630M & 630H, 800M, 800H/HD	10 per hour
1000HD	5 per hour

The number of start / stops depends largely on the conditions of use. The values given are a guide under optimal conditions of use. The actual maximum number of starts / stops can be determined by the technical department of Rulmeca and is binding only by written confirmation.

## Food handling applications

Re-greasable seals; Stainless steel versions for high pressure and chemical wash down; food grade oil and grease; Food quality rubber lagging being oil, fat & grease resistant. FDA, USDA, FSIA & FESD recognized materials.

## Underwater applications

Where IP6X specified, the Rulmeca Motorized Pulley has been tested for 30 minutes under 1 m of water. However, the motor is NOT intended for continuous underwater performances (IEC 529). If in doubt, please consult Rulmeca.

## Indexing conveyor/ decline conveyor/ reversible inclined conveyor

Electromagnetic brake. Special shafts prepared to fit an external brake - 500H-1000HD.

## Inclined conveyor (not reversible)

Mechanical backstop

## Reversible conveyor

Sufficient time delay between forward and reverse. The Motorized Pulley must come to a complete stop before reversing.

## Variable speed conveyor

Two speed motor. AC frequency converter.

## Using a Motorized Pulley without conveyor belt or with a belt covering less than 2/3 of the Pulley face width

Use drives only from a special range of Motorized Pulleys developed for this purpose. Do not use standard Motorized Pulleys unless accepted by Rulmeca. Insulation class H, extra oil. Connect thermal protector.

## Motorized Pulleys mounted non-horizontally between $5^{\circ}$ - $\leq 90^{\circ}$

Special execution! Please consult Rulmeca. Extra oil, grease packed top bearing. Electrical outlet:

- To be re-positioned to the opposite end of standard
- To be positioned at the top when installed.

## Impact load

Over-sized Motorized Pulley. Please consult Rulmeca.

## High power rated motors. Starting under load

All RULMECA Motorized Pulleys are developed for direct starting (except 1000HD).

To reduce the starting current it is possible to use starting devices such as star/delta starter, electronic soft starter etc. Please be aware that, when connecting a star/delta switch, the power of the motor will drastically be reduced and could cause overheating of the motor. If full torque is required during start a soft starter with torque boost should be used.

## Extremely low noise/vibration requirements

Balanced shell. Special oil. Please contact Rulmeca for special solution.

RULMECA Motorized Pulleys can be used in many dust-prone areas. For your specific application, please contact Rulmeca technical office for approval of suitability.

**Marine environment. Ship loading/  
un-loading conveyors etc.**

Re-greasable IP66/67 sealing system and/  
or stainless steel or semi stainless options.  
Rubber or ceramic lagging.

**High altitude > 1000 m**

Please consult Rulmeca.

**Chemical and/or aggressive  
environments**

Please consult Rulmeca.

**Underground mining/tunnelling  
applications where possible dangerous  
atmospheric conditions apply or where  
the Motorized Pulley is to be flame  
proof or intrinsically safe**

Rulmeca Motorized Pulleys are not  
intrinsically safe or explosion proof to  
meet these requirements. Please consult  
Rulmeca.

**Critical speed requirements**

Nominal speeds can deviate by +/- 10%.  
Where exact speeds are required, please  
consult Rulmeca.

**Recycling, aggressive environments**

Stainless steel shafts, re-greasable  
labyrinth seals, special painting and/or  
special oil.

**Metal separators and metal detectors**

Special execution as to amount of oil, type  
of bearings, electrical connection and built-  
in position.



Application: Fertilizer and potash.  
Still in work after more than 30 years in an aggressive environment.

# APPLICATION WORKSHEET - BULK MATERIALS HANDLING

Motorized Pulleys - Complete this form and submit to Rulmeca for a power calculation and Motorized. Pulley recommendation.

Contact Person..... Date..... Ref # .....

Company.....

Address.....

Phone..... Fax..... E-mail.....

What is the application? (Describe type of application, material and ambient condition) .....

☐ Abrasive ☐ Corrosive ☐ Very dirty ☐ Wet ☐ Wash Down ☐ Humid ☐ Dry ☐ Dusty ☐ Other .....

## Standard Loading Conditions:

Conveyor Length (m).....

Belt Speed (m/s).....

Material Lift Height (m).....

Ambient Temperature (°O) Min .....

Ambient Temperature (°O) Max .....

Initial Velocity of Material (m/s).....

Number of Belt Cleaners .....

Number of Belt Plows .....

Length of Skirt Zone (m).....

Depth of Material in Skirt Zone (mm).....

Number of Nondriven Pulleys .....

Elevation (km)	Idler Roll Diam. (mm)	Type of Lagging
<input type="checkbox"/> 1.0	<input type="checkbox"/> 108	<input type="checkbox"/> Full
<input type="checkbox"/> 1.5	<input type="checkbox"/> 133	<input type="checkbox"/> Partial
<input type="checkbox"/> 2.0	<input type="checkbox"/> 159	<input type="checkbox"/> None
<input type="checkbox"/> 3.0		
<input type="checkbox"/> 4.0		
<input type="checkbox"/> 5.0		
<input type="checkbox"/> Other		

Belt Width (mm)	CEMA Type	Type of Take-up
<input type="checkbox"/> 500	<input type="checkbox"/> A	<input type="checkbox"/> Automatic
<input type="checkbox"/> 650	<input type="checkbox"/> B	<input type="checkbox"/> Manual
<input type="checkbox"/> 800	<input type="checkbox"/> C	<input type="checkbox"/> None
<input type="checkbox"/> 900	<input type="checkbox"/> D	
<input type="checkbox"/> 1000	<input type="checkbox"/> E	
<input type="checkbox"/> 1200	Troughing Idler Spacing (m)	Angle of Wrap (deg)
<input type="checkbox"/> 1400		
<input type="checkbox"/> 1600	<input type="checkbox"/> 0.8	<input type="checkbox"/> 180
<input type="checkbox"/> 1800	<input type="checkbox"/> 1.0	<input type="checkbox"/> 200
<input type="checkbox"/> 2000	<input type="checkbox"/> 1.2	<input type="checkbox"/> 210
	<input type="checkbox"/> 1.4	<input type="checkbox"/> 220
	<input type="checkbox"/> 1.6	<input type="checkbox"/> 240
		<input type="checkbox"/> 360
		<input type="checkbox"/> 420

Type of Belt	Belt Carcass
<input type="checkbox"/> 1 ply, 160 piw	<input type="checkbox"/> fabric
<input type="checkbox"/> 2 ply, 225 piw	<input type="checkbox"/> steel cord
<input type="checkbox"/> 3 ply, 330 piw	
<input type="checkbox"/> 4 ply, 440 piw	

Frequency Hz 50/60 .....

## OPTIONS:

- ☐ Lagging? ☐ Rubber? ☐ Black? ☐ White? ☐ Smooth? ☐ Diamond?  
☐ Ceramic? ☐ Oil, fat & grease? ☐ Thickness? (mm) ☐ Dust explosion proof - ATEX - Zone 22  
☐ Matching terminal box ☐ Dualdrive ☐ Non-regreasable ☐ Total in stainless steel labyrinth seals  
☐ With cable ☐ Straight connector ☐ Elbow connector 90° ☐ Total in stainless steel labyrinth seals  
☐ Food application ☐ Re-greaseable labyrinth seals ☐ Parallel shell (cylindrical)  
☐ Reversible belt ☐ Electromagnetic brake ☐ Anti-clockwise direction  
☐ Mechanical backstop ☐ Clockwise direction ☐ Mounting bracket Qty: .....

NOTES: special options .....

Please attach a photo, drawing or sketch of the application

## Material (frictional coefficient)

<input type="checkbox"/> ashes, coal, dry	0.0571
<input type="checkbox"/> bauxite, ground	0.1881
<input type="checkbox"/> cement, Portland, dry	0.2120
<input type="checkbox"/> cement clinker	0.1228
<input type="checkbox"/> clay, ceramic, dry fines	0.0924
<input type="checkbox"/> coal, bituminous mined	0.0754
<input type="checkbox"/> coke, ground fine	0.0452
<input type="checkbox"/> cullet (broken glass)	0.0836
<input type="checkbox"/> grains, wheat, corn, rye	0.0433
<input type="checkbox"/> gravel, bank run	0.1145
<input type="checkbox"/> iron ore, 200 lbs/cu ft	0.2760
<input type="checkbox"/> limestone, pulverized dry	0.1280
<input type="checkbox"/> phosphate rock, dry	0.1086
<input type="checkbox"/> salt, common, dry fine	0.0814
<input type="checkbox"/> sand, dry, bank	0.1378
<input type="checkbox"/> wood chips	0.0095

## Material Bulk Density (kg/m³)

<input type="checkbox"/> ashes, coal, wet	800
<input type="checkbox"/> bagasse	160
<input type="checkbox"/> bark, wood	320
<input type="checkbox"/> bauxite, ground, dry	1090
<input type="checkbox"/> bauxite, crushed	1370
<input type="checkbox"/> beans, navy, dry	770
<input type="checkbox"/> beets, whole	770
<input type="checkbox"/> borax, 3" & under	1120
<input type="checkbox"/> cement, portland	1590
<input type="checkbox"/> clay, ceramic, dry, fines	1280
<input type="checkbox"/> clay, dry, fines	1920
<input type="checkbox"/> coal, bituminous	880
<input type="checkbox"/> coal, lignite	720
<input type="checkbox"/> coke	720
<input type="checkbox"/> corn, ear	900
<input type="checkbox"/> cullet	1920
<input type="checkbox"/> gravel, bank run	1600
<input type="checkbox"/> iron ore	3200
<input type="checkbox"/> iron ore pellets	2080
<input type="checkbox"/> limestone, crushed	1440
<input type="checkbox"/> paper pulp stock	960
<input type="checkbox"/> phosphate rock	1360
<input type="checkbox"/> potash salts	1280
<input type="checkbox"/> rock, crushed	2320
<input type="checkbox"/> rock, soft	1760
<input type="checkbox"/> rye	740
<input type="checkbox"/> salt, common dry, fine	1280
<input type="checkbox"/> sand, bank, damp	2080
<input type="checkbox"/> sand, bank, dry	1760
<input type="checkbox"/> sand, foundry	1600
<input type="checkbox"/> sawdust	210
<input type="checkbox"/> sewage sludge, moist	880
<input type="checkbox"/> soybeans, whole	800
<input type="checkbox"/> sugar, raw, cane	1040
<input type="checkbox"/> taconite pellets	2080
<input type="checkbox"/> traprock, 23" lumps	1760
<input type="checkbox"/> wheat, cracked	720
<input type="checkbox"/> wood chips	480

## Operating Conditions:

Duty Cycle (Start/stops per hour) .....

Hours of Operation (hrs/day) .....

Days of Operation (days/week) .....

Is this a reversing belt? .....

Additional Comments: .....

## Special Loading Conditions:

### Hopper Feeder Parameters:

Hopper Opening Width (mm) .....

Hopper Opening Length (mm) .....

### Slider Bed Parameters:

Slider Bed Length (m) .....

## Slider Bed Material (frictional coefficient)

<input type="checkbox"/> steel	0.90
<input type="checkbox"/> UHMW polyethylene	0.545
<input type="checkbox"/> urethane	0.88
<input type="checkbox"/> wood	1.00

## Sidewall & Cleated Belt Parameters:

Sidewall & cleat height (mm) .....

Thickness of sidewall (mm) .....

Distance between cleats (mm) .....

Thickness of cleats (mm) .....

## Tripper Design Parameters:

Tripper Length (m) .....

Tripper Material Lift Height (m) .....

Number of Tripper Belt Cleaners .....

Tripper Skirt Zone Length (m) .....

Depth of Material in Skirt Zone (mm) .....

No. of Tripper Nondriven Pulleys .....

No. of Vploughs .....

**For free "downloadable" power calculation program, complete with definitions of all terminology, go to [www.rulmeca.com](http://www.rulmeca.com).**

# TECHNICAL PRECAUTIONS FOR DESIGN, INSTALLATION AND MAINTENANCE

## ⚠ WARNING

### Read and follow all safety instructions!

These instructions contain important sections relative to safety, use, Maintenance, parts replacement and other technical information. Always include these instructions with the pulley.



## CONTENTS

### Installation & Maintenance

- |   |  |
|---|--|
| a) Transport and Handling                             | n) Surface Coating                                   |
| b) Motorized Pulley Mounting Orientation              | o) Belt Pull   |
| c) Mounting Brackets                                  | p) Mechanical Backstops                              |
| d) Electrical Installation                            | q) Electromagnetic Brake                             |
| e) Motor Current Overload and Over current Protection | r) Reversing Conveyors                               |
| f) Thermal Protection                                 | s) Oil and Oil Seal Maintenance                      |
| g) Belt Tension                                       | t) Re-greasable labyrinth seals                      |
| h) Belt Alignment                                     | u) Pulley Diameter                                   |
| i) Start-up   | v) Terminal Box                                      |
| j) Lagging  | w) Variable frequency drive                          |
| k) Rubber lagging limitations                         | x) Capacitors  |
| l) Actual Belt Speed vs. Nominal Belt Speed           | y) Maintenance                                       |
| m) Ambient Temperature                                | z) Aftermarket Service                               |
|   | aa) Winding Diagrams                                 |
|   | bb) Storage of Motorized Pulleys                     |
|   | cc) Dust explosion proof motorized pulleys (ATEX 95) |

## ⚠ CAUTION

Read the manual before installing or operating the pulley. Failure to understand how to install or operate the Pulley could cause personal injury or even death. Any modification made to or unintended use of the pulley could create a hazardous condition that could cause death or serious injury. Precautions which could effect warranty or create hazardous condition are marked with a safety symbol.



The drum motor must not be put into service until the machinery into which it is incorporated has been declared in conformity with the provision of the Directive 98/37/EEC & amendments. Also for testing the motor shafts have to be fixed to a frame properly before it is connected to the power supply and switched on. The shell has to be protected against accidental contact because of rotating.

## IMPORTANT INFORMATION!

- After unpacking the pulley, inspect carefully for any damage that may have occurred during transit. Check to be sure all supplied accessories are enclosed with the unit. If you have questions regarding safety or damaged or missing parts, please call one of your nearest RULMECA representative listed at the back of the manual.
- It is the responsibility of the contactor, installer, owner and User to install, maintain and operate the conveyor, components and conveyor assemblies in such a manner as to comply with: The Williams-Steiger Occupational Safety and Health Act and with any and all state and local laws and ordinances as to the national and international standards as to:
  - ANSI – B20.1 Safety Code and Conveyor Equipment Manufacturers Association (CEMA) voluntary consensus standards which may prevail,
  - ANSI – Z535 Warning label Series
  - ISO 3864-2 Product Safety labels

When existing equipment is being retrofitted, upgraded or even changed, it is in customer's best interest to bring the equipment up to today's standards. If there are any questions, please contact RULMECA.

## NOTICE

Refer to page 90 for explanation of the safety symbols used in this section of the catalogue.



Do not install standard motorized pulleys in areas with potentially explosive concentrations of vapors, gases, mists and dust.



# TECHNICAL PRECAUTIONS FOR DESIGN, INSTALLATION AND MAINTENANCE



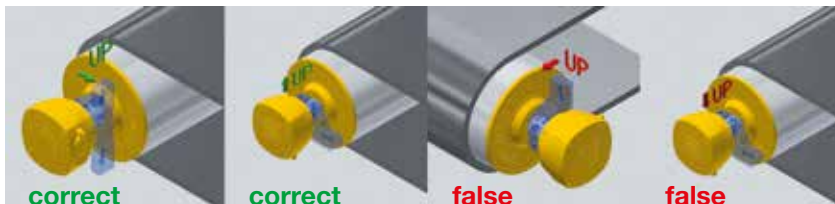
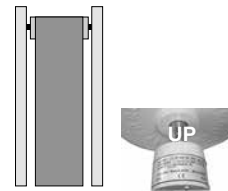
## a) Transport/Handling:

- For safety reasons during transport and assembly a lifting rope according to the max. weight of the Pulley has to be used. The weight of the Pulley is stamped on the data plate and /or given in the catalogue.
- The rope has to be fixed on the shaft ends.
- As to Motorized Pulley types 500H – 1000HD, a steel rope or chains should be fixed to the eyebolts, which are located on the mounting brackets.

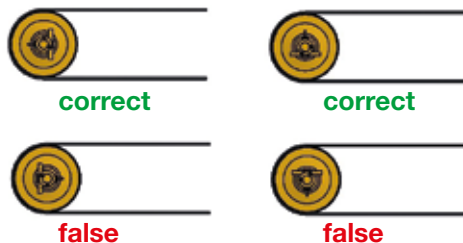


## b) Motorized Pulley Mounting Orientation:

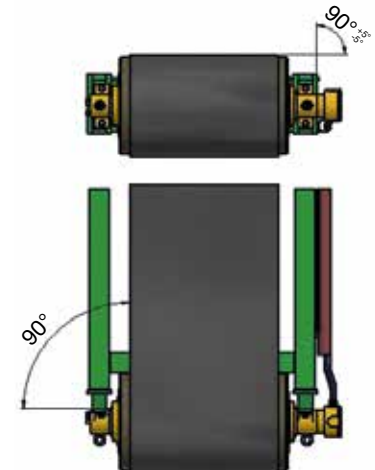
- Before installing the Motorized Pulley, please ensure that the data plate information is correct to your specification.
- At any time, Rulmeca Motorized Pulleys should always be mounted so that the Pulley shafts are
  - Horizontal,
  - Parallel to idler rollers, and
  - Perpendicular to the conveyor belt **centreline**.
- As to Motorized Pulley types 138E to 500M “UP” is indicated with the word “UP” stamped on the Pulley shaft.
- All Motorized Pulleys are to be mounted as shown on the sketch below.



- This instruction does not apply to types 500H - 1000HD.
- In case of a non-horizontal installation, of more than  $\pm 5$  degree, please consult Rulmeca.
- For Motorized Pulley types 500H - 1000HD please ensure that:  
Motorized Pulley's are positioned in such a way that the mounting brackets are located horizontal or vertical to the conveyor frame. The cable entry of the terminal box should be located downwards or in a  $90^\circ$  position.



## NOTICE



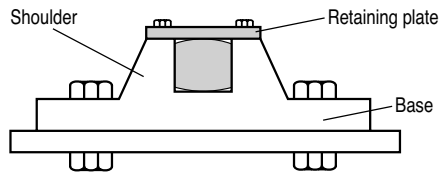
## NOTICE

- At any time all Rulmeca Motorized Pulleys shown in this catalogue must be fitted with a conveyor belt to prevent overheating.  
**Motorized Pulleys fitted without a belt must be referred to Rulmeca.**
- Installation and mounting of the Motorized Pulley in another position as described could cause severe product damage and voids product warranty.

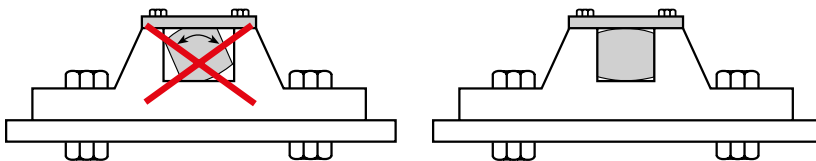


### c) Mounting Bracket:

- As listed in the catalogue, use the **correct Rulmeca** mounting brackets matching the respective types of Motorized Pulleys.
- Note that it is physically possible, but not permissible, to interchange mounting brackets between models. Mounting brackets designed for smaller diameters or lower-powered Pulleys may not be used for larger diameters or higher-powered Pulleys.**
- Mounting brackets must be mounted to frame in such a way that belt pull is resisted by the shoulder or base of the mounting bracket. Motorized Pulleys types 138E to 500M have a top shaft retaining plate. This plate is not designed to resist belt pull.

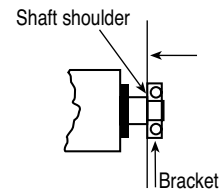


- The designer must select appropriate mounting bolts to resist belt forces and/or the weight of the Pulley depending on the mounting position of the Pulley.
- All types of mounting brackets must be fully supported by and fastened to the conveyor frame in such a way that the shafts ends do not deform. Shaft ends must always be fully supported by the brackets.
- Where solid mounting brackets type AL and ALO are used, the brackets have to be assembled close to the shoulder of the round shaft. This is to ensure that the drum motor has no axial clearance.
- The AL type of bracket is fitted with one or two keys depending on load.
- Keys must be securely fixed and checked regularly and locked if necessary.
- Mounting brackets should be fitted in such a way that they are in contact with the shoulder of each shaft. This will:
  1. Eliminate Motorized Pulley axial play between mounting brackets.
  2. Keep shaft deflection to a minimum.



- In noise-sensitive areas, the designer should use heavier gauge support structure and appropriate vibration isolating material, as necessary.
- When Rulmeca Motorized Pulley mounting brackets are NOT used, it is essential that:**
  1. The mounting equipment supports at least 80% of the shaft flats.
  2. It has to be assembled without any clearance between the support and the shoulder of the shaft.
  3. The clearance between the shaft flats shoulder and the support should be less than 0.4 mm (torsion play).
- A Motorized Pulley with frequent reversible operations or many start/stops should be mounted with NO axial clearance between the shaft flat shoulder and the brackets
- Failing to follow these precautions could cause Pulley and/or mounting bracket damage and voids product warranty.

### NOTICE



### NOTICE

### NOTICE

# TECHNICAL PRECAUTIONS FOR DESIGN, INSTALLATION AND MAINTENANCE

## d) Electrical Installation:

- Always use licensed electrician to install the unit. All electrical installation and wiring shall Conform to the national code of the National Electrical Standards. Turn the electrical power off at the electrical panel board (circuit breaker or fuse box) and lock or tag the panel board door to prevent someone from turning on power while you are working on the unit, failure to do so could result in serious electrical shock, burns or possible death. According to the European Council Directives related to machinery, the equipment manufacturer (OEM) has to secure that the Motorized Pulley is NOT put into operation before it is
  - Correctly installed,
  - Correctly connected to the power supply,
  - Correctly protected against rotating parts.
- A specialist must perform the electrical connection of the Motorized Pulley in accordance with electrical regulations. If in doubt, contact Rulmeca.
- A wiring diagram is always supplied with the Motorized Pulley. Always refer to the connection instructions and ensure that the motor power and control circuits are properly connected.
- The wiring diagram is inserted in the accompanying booklet and into the terminal box.
- As standard, Rulmeca Motorized Pulleys are delivered with clockwise rotation when viewed from the terminal box end of the Motorized Pulley.
- Always refer to the connection instructions and ensure that the motor is connected as required to the correct mains supply.
- As a safety measure, please use the earth screw located in the terminal box.
- The protective conductor has to be connected to the earth screw.
- When using cable options the green/ yellow wire has to be connected to the protective conductor of the main supply.

**All safety devices, including wiring of electrical safety devices itself will not result in a hazardous condition.**

## e) Motor Current Overload and Over current Protection:

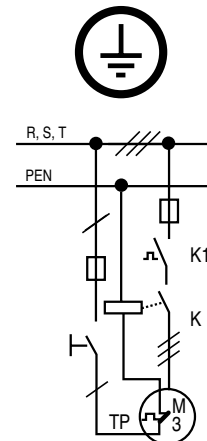
- Motor control systems must include protection against operating Pulley motors in excess of Full Load Amperage (FLA.). The control system should also include protection against voltage spikes and excessive jogging of motors. Failing to provide adequate current overload and over current protection could stress the motor and **voids product warranty**.
- FLA data is available for all motors upon request. FLA data is also supplied on motor label for each Motorized Pulley.
- Electrical power, control, and protection for Motorized Pulleys must adhere to all pertinent regulations.

## f) Motor Thermal Protection:

- **All Motorized Pulley motors are supplied with a built-in thermal protector in each phase.** Protection consists of heat-sensitive, bi-metallic switches built into each motor phase winding. The switches are designed to open if motor temperature elevates to an inappropriately high level. 2.5 Amps are the permissible current of standard versions. The voltage is 230V.
- These switches must be connected to a normally closed control circuit (in series with a magnetic coil/relay device and contactor) in order **to validate product warranty**.
- A motor control circuit should kill motor power if thermal switch opens. Thermal switches will automatically close as motor cools. Cooling times vary with Pulley model, power, and size. However, 30 to 60 minutes is common with most motors in an ambient temperature of 20°C.



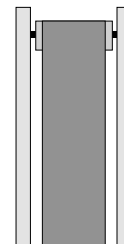
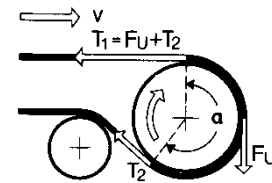
Earth connection



#### g) Belt Tension:

- The conveyor belt should never be over-tensioned. It should be installed with **sufficient belt tension only** to prevent belt slippage.  
**Refer to the motorized pulley range for the list of belt tension!**
- To keep the radial load as low as possible to drive the belt without slipping anti-slip lagging should be used.
- Maximum allowable radial load of each Motorized Pulley (MP) is specified in this catalogue. Subjecting the Motorized Pulley to a higher than specified maximum radial load may damage internal components and shorten product lifetime and, therefore, **voids product warranty**.
- To check Pulley radial load, do a vector summation of the loads on the Pulley.
- For example, as shown in the diagram,
  1. Radial load equals  $T_1 + T_2$ .
  2.  $T_1$ , tight side tension, equals Belt Pull ( $F_u$ ) plus  $T_2$ .
  3.  $T_2$ , slack side tension, is determined using CEMA standard calculations or DIN 22101 to provide enough friction between the Pulley and the belt to drive the belt.
 Belt type, belt thickness and the right diameter of the Pulley have to be selected according to Belt Supplier Requirements.

#### NOTICE



#### h) Belt Alignment:

- Motorized Pulleys must be installed with Pulley shaft perpendicular to belt centreline and parallel to all idler rollers.
- Belt centreline must be straight and parallel to side walls of slider bed (if any) and perpendicular to idler rollers and all Pulleys
- Belt and/or roller misalignment may cause high friction and overload the conveyor belt drive motor.
- Belt misalignment may cause premature wear of Pulley lagging.

#### i) Start-up:

- **Prior to initial start-up of Motorized Pulley:**
  - Verify that Motorized Pulley nameplate data matches customer specification.
  - Ensure electrical connections are correct.
  - Check that Motorized Pulley is free to rotate.
  - Check that slack side belt tension is adequate to prevent belt slippage.
  - Check that belt is not over-tensioned.
  - Ensure the oil is present in the Motorized Pulley.

#### Lagging options:

- Smooth and diamond pattern lagging is available in black synthetic rubber and white synthetic rubber.  
Approximate rubber hardness is 65 durometer (shore hardness A).
- Standard lagging is cold-bonded to Pulley shell.
- Optional hot vulcanised lagging is available for high power/high torque/high temperature applications and for Motorized Pulleys with Class H motors.
- Oil & grease resistant synthetic rubber is also available for oily operating conditions and/or for certain types of belting material. Check with belting supplier if belt/lagging material compatibility could be a problem.
- Adequate Motorized Pulley heat dissipation is necessary.

**Lagging thickness and width greatly affect Pulley heat dissipation characteristics!**

# TECHNICAL PRECAUTIONS FOR DESIGN, INSTALLATION AND MAINTENANCE

Lagging Limitations: Lagging limitation (brief overview - for detailed proposal please ask your Rulmeca partner):

Motorized Pulley type /power	RL (mm)	Cold bonded 3mm	Cold bonded 5mm	Cold bonded 6mm	Hot vulc. 6mm	Cold bonded 8mm	Hot vulc. 8mm	Cold vulc. 10mm	Hot vulc. 10mm	Partial hot vulc. 10mm	Partial cold vulc. 10mm	Ceramic 10mm, moulded or direct glued	Ceramic/ rubber 10mm
<b>138LS</b> up to 0.37kW 0.55 & 0.75 & 1.0kW 0.55 & 0.75 & 1.0kW 0.55 & 0.75 (>= 0.63m/s)	up to 599 from 600 from 600	x x x x	x x x x	x x x x	x - - x	x - - x	x - - x	- - - x	- - - x	- - - -	- - - -	- - - -	- - - -
<b>165LS</b> up to 0.75kW 1.1 & 1.5kW 1.1; 1.5 kW 1.1; 1.5 kW (>=1.25m/s)	up to 599 from 600 from 600	x x x x	x - x x	x x x x	x - x x	x - - x	x - x x	x - - x	x - - x	- - - -	- - - -	- - - -	- - - -
<b>220M &amp; 220H</b> up to 1.5kW 2.2 & 3.0kW dito 4.0kW dito 5.5kW dito	from 400 up to 799 from 800 up to 699 from 700 up to 849 from 850	x x x x x x x	- - - - - - x	x x x - x - x	x x x x x - x	x - x - - - - -	x - x - - - - -	x - - - - - - -	x - - - - - - -	- - - - - - -	- - - - - - -	x x x x x x x	- - - - - - -
<b>320M / 320H</b> up to 5.5kW 7.5kW < RL1000 7.5kW > RL1000	- - -	x - -	x - x	x - x	x x x	x - -	x - -	- - -	- - -	- - -	- - -	x x x	x - -
<b>400M &amp; 400H</b> up to 11.0kW 15.0kW (<= 1.6m/sec.) 15.0kW (> 1.6m/sec.) 15.0kW (>= 1.6m/sec.) 15.0kW (>= 1.6m/sec.)	- - up to 1149 up to 1150 from 1600	- - - - -	- - - - -	x - - - -	x - - x x	- - - - x	x x x x x	- - - - -	- - - - -	x x x x x	- - x x x	x x x x x	x - Partial Partial x
<b>500L &amp; 500M</b> up to 15.0kW	-	-	-	-	-	x	x	-	-	x	x	x	x
<b>500H</b> up to 18.5kW 22.0kW 30.0kW	- - from 1050	- - -	- - -	- x -	- - -	x - -	x x -	- - -	- - -	x x -	x x -	x x x	x Partial Partial
<b>630M</b>	-	-	-	-	-	x	x	-	x	x	x	x	x
<b>630H</b> 22.0kW 30.0kW (<1.6m/sec.) 30.0kW (>=1.6m/sec.) 37.0kW 45.0kW 45.0kW 55.0kW	- - - - up to 1299 from 1300 -	- - - - - - -	- - - - - - -	- - - - - - -	- - - - - - -	x - - - - x -	x - - - - x -	x - - - - - -	x x x x x x -	x x x x x x -	x x x x x x -	x x x x x x -	x x Partial Partial Partial x Partial
<b>800M</b> 45.0kW 55.0kW	- - -	- - -	- - -	- - -	- - -	x -	x -	x -	x -	x -	x -	x x	x x
<b>800H</b> 55.0kW 55.0kW 75.0kW 75.0kW up to 132.0kW	up to 1299 from 1300 up to 1299 from 1300 -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- x - x -	- - - - -	- x - - -	x x x x -	- x - x -	x x x x x	Partial Partial Partial Partial Partial
<b>1000HD</b> 160.0kW 200.0kW 250.0kW		- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	x x x	- - -

\*The data given here are indicative. For the exact final occupancy of the MP please contact RULMECA.

#### I) Actual Belt Speed vs. Nominal Belt Speed:

- Two key specifications for each Motorized Pulley are Power (kW) and nominal belt speed (m/sec.), as given in the respective specifications in this catalogue.
- Nominal belt speed is a design target, providing consistent choices among all models and powers.
- Actual full load belt speed is almost never exactly equal to nominal belt speed.
- Actual belt speed is a function of the motor pole numbers, gear ratio and load. This catalogue displays the nominal belt speed at 50Hz.
- Note that **all** belt speeds shown in this catalogue refer to **un-lagged Pulleys** because:
  1. Belt speed for each model is a function of Pulley diameter,
  2. Pulleys are available with and without lagging,
  3. Lagging changes the Pulley diameter,
  4. Various lagging thickness are available.
- Note that each Rulmeca Motorized Pulley for a three-phase power supply uses an asynchronous squirrel cage induction motor with about 5% slip. In a no load condition, motor RPM is nearly equal to "synchronous speed" RPM. The slip rate is dependent on power and design of the motor. Low powered motors have a lower slip rate than high-powered motors. At full load, the motor RPM is about 5% less than synchronous.
- Pulley by Pulley the "nominal belt speed" displayed in this catalogue is based on un-lagged Pulleys running at full load, nominal voltage (e.g. 400V) and 50Hz.
- The nominal full load belt speed of a lagged Pulley running at
  1. Full load,
  2. Nominal voltage (e.g. 400 volts),
  3. 50 Hz
 – equals the nominal full load belt speed specified in this catalogue, times the ratio of the lagged/un-lagged Pulley diameters.

#### NOTICE

#### Example:

A 4.0kW Motorized Pulley 320M with an un-lagged Pulley diameter of 321mm has a nominal belt speed of 0.8 m/sec.

The actual belt speed is a function of

- The rotor speed (RPM),
- Gear ratio,
- Shell diameter and
- Load.

**E.g.** the above mentioned 320M with a nominal belt speed of 0.8m/sec. has

1. A gear ratio of  $i = 28.6$ ,
2. A rotor speed of  $n = 1440$  (1/min),
3. A shell diameter of 0.321 m.

The actual belt speed at full load is

$$v \text{ (m/sec)} = \pi \times d \text{ (m)} \times n \text{ (1/min)} / 60 \times i$$

$\pi$  = Pie (3.14),

$d$  = Pulley diameter,

$n$  = revolutions per minute,

$i$  = gear ratio

$$v = (3.14 \times 0.321 \text{ m} \times 1440 \text{ 1/min}) / (60 \times 28.6) = 0.85 \text{ m/sec.}$$

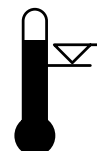
If this Pulley is supplied with 10mm thick lagging, the belt speed of the lagged Pulley equals

$$0.85\text{m/sec.} \times (0.341\text{m}/0.321\text{m}) = 0.90\text{m/sec. at full load, nominal voltage and 50Hz.}$$

# TECHNICAL PRECAUTIONS FOR DESIGN, INSTALLATION AND MAINTENANCE

## m) Ambient Temperature:

- Motorized Pulleys are normally cooled by dissipating heat through contact between the surface of the Pulley and the conveyor belt. It is essential that each Pulley have an adequate thermal gradient between the Pulley's motor stator and its ambient operating temperature.
- All Motorized Pulleys in this catalogue are designed and tested under full load without rubber lagging for a use in a max. ambient temperature of +40 oC. degree.
- Rubber lagging and/or higher ambient temperatures than +40 oC as well as conveying hot material will reduce the heat transfer from the electrical motor through the Pulley body to the air and/or the conveyor belt. This will always switch off the motor winding protection switch (motor thermal protection) and could possibly end-up in a burned motor winding.**
- Example:** A conveyor is running in a facility with an ambient temperature of 45 oC. The temperature of the motor cannot be dissipated as it should be. The motor temperature will increase to a dangerous level.
- Example:** A conveyor belt in an application with an ambient temperature of +24 oC, carrying processed material at a temperature of +70 oC, will have a Motorized Pulley "ambient temperature" that is significantly higher than +40 oC.  
In this case, the temperature of the material is higher than the max. allowed ambient temperature which is necessary for a proper heat dissipation. A situation is then created due to **heat accumulation (heat storage) between the bottom of the belt and the Motorized Pulley body.**
- For ambient operating conditions lower or higher than allowable ambient temperature (-25 oC to 40 oC), contact Rulmeca.**
- In many cases it is possible to use specially designed Motorized Pulleys to perform tasks for special applications – e.g. modular plastic belts and v-belts for Motorized Pulley types 138E & 165E. Please contact Rulmeca for such applications.**
- Operating Rulmeca Motorized Pulleys to drive standard conveyor belts outside of the allowable ambient temperature range voids product warranty.**



## NOTICE

## n) Surface Coating:

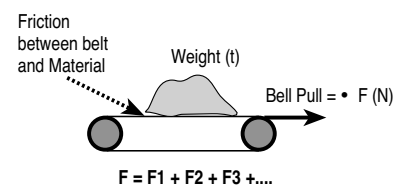
- The Motorized Pulley types 400L to 1000HD are supplied with a salt water resistant primary paint coat of 60µm. For aggressive environmental conditions the Motorized Pulley should be painted to a thickness of 120µm.
- In this case it is essential to ensure that no paint material enters the gap between the shaft and the end housing to prevent possible damage to the shaft sealing.  
Motorized Pulley types 220M to 320H are supplied with high resistant powder coated end housings. The shells and shafts are treated with anti-rust wax.



## o) Belt Pull:

- The catalogue specifies "Actual Belt Pull" for each model, power, and speed of Pulley. Note that the specified actual belt pull allows for motor and gearbox efficiency losses (95 – 97%).
- Always select the Motorized Pulley power by comparing calculated "required belt pull (F)" with "Actual Belt Pull" and not simply on the basis of calculated Power (kW).
- Belt pull "F" is a summary of all of the existing forces to convey the material. E.g.
  - F1 - force to move the belt,
  - F2 - force to accelerate the material,
  - F3 - force to lift or lower the conveyed material,
  - F4 - force to clean the belt,
  - F5 - force to overcome the skirt board friction or roller resistance,
  - F6 - force to frictional resistance of ploughs, etc.

Furthermore, with special application additional power requirements can be needed (e.g. for belt operating under a hopper, squeezing of belt, belt guiding, extreme stiff belts etc.).



**p) Mechanical Backstops:**

- **Motorized Pulleys fitted with mechanical backstops are used on inclined conveyors to prevent run back of the loaded belt when power supply is off.**
- The backstop is built into the Motorized Pulley and is mounted on the rotor shaft.
- If Pulley is supplied with optional mechanical backstop, direction of proper rotation of Pulley is indicated by an aluminium arrow or plastic sticker fastened to the end housing on the terminal box (or power cord) side of the Pulley. Clockwise or counter clockwise backstops are available.
- **Rotation direction is to be specified when placing the order.**
- Pulley rotation is specified from the point of view of a person looking at the Pulley from the terminal box (or power cord) side of the Pulley.
- It is essential that the identity of each of the three phases of the power supply be determined before attaching power supply wires to the Pulley to prevent motor from driving against the backstop. The identity of each of the three phases of the motor is clearly labelled on the terminal board, terminal strip, or wires (in power cord type).
- **Driving the motor against the mechanical backstop may damage motor and/or backstop and voids product warranty.**



**NOTICE**

**q) Electromagnetic Brake:**

- The spring-loaded electromagnetic brake is intended for use as a conveyor belt holding brake and a positioning brake.
- The control circuit for the Motorized Pulley motor and brake must be designed to stop the Pulley motor before brake clamps are shut and start the Pulley motor after the brake is released.
- Spring-loaded electromagnetic brakes are designed to release when power is applied to the brake coil. This is a "fail safe" feature. The clamp shuts when brake power is removed (either during normal operation or during an emergency loss of overall system power.)
- **Control circuits must be designed so that motor and brake NEVER work against each other. The brake should never be clamped shut when the motor is on except for "emergency stop" condition. The motor should never be powered on (including "jog" command) when the brake is clamped shut.**
- Electromagnetic brakes are DC-powered. They are supplied with AC to DC rectifiers to be mounted in a remote panel (by others). Rectifiers must be fuse-protected.
- Motor control circuits must be designed to kill motor power in the event of loss of brake power. If this safety provision is not made, it is possible for Pulley motor to be "powered through" a clamped brake, burning brake and/or motor.
- A wiring diagram is supplied with every Motorized Pulley. Always ensure that motor and brake power and control circuits are connected according to instructions.
- For rectifier connection and protection instructions, refer to rectifier data sheet supplied with Motorized Pulley.
- **Neglecting these instructions could cause damage to the motor and/or brake and voids product warranty.**

**NOTICE**

**r) Reversing Conveyors:**

- All Motorized Pulleys for a three-phase power supply are reversible. Mechanical backstop option is not possible for reversible conveyor applications.
- The conveyor drive control system must be designed to bring the Motorized Pulley to a complete stop before reversing conveyor belt direction.
- **Reversing conveyor direction without stopping the drive motor will damage motor and gearbox and voids product warranty.**

**NOTICE**



# TECHNICAL PRECAUTIONS FOR DESIGN, INSTALLATION AND MAINTENANCE

## s) Oil and Oil Seal Maintenance:

- Oil type and contents are given on the motor nameplate.
- Standard, 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 92.
- Motorized Pulleys require periodic oil changes and are supplied with two oil fill/drain plugs in end housing.
- Under normal operating condition the standard filling of the mineral oil should be changed after 20,000 operational hours. This is due to normal wear of gears.
- Synthetic oils should be changed after each 50,000 hours of normal operating condition.
- Magnetic oil plug(s) should be cleaned during each oil change. A red dot plastic sticker indicates the position of the magnetic oil plug.
- Only approved non-conductive oil may be used in Motorized Pulleys.
- Note that oil seals, regardless of oil type used, should be changed after 30,000 operating hours. On Motorized Pulley types 320M to 1000HD oil seals may be changed **without** removing Motorized Pulley from conveyor. Motorized Pulley standard types 220M to TM320L require Pulley disassembly to change oil seals. Rulmeca service personal or authorized local service providers to perform this work.

**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 Pulley with "Clean-Flush-Lubricate" (CFL) fluid;
  3. Run Pulley for 20 minutes;
  4. Drain CFL fluid completely; then
  5. Fill Pulley with appropriate amount of new synthetic oil.
- Failing to observe these oil and oil seal precautions could shorten Pulley service life and voids product warranty.
- **All the above instructions refer to Motorized Pulleys CONSTANTLY working under FULL LOAD. In case of Motorized Pulleys NOT working continuously under full load, the service life will increase considerably! When checking the oil, the cleanness of the oil is always the best guideline of**
  - The wear and present position of the gears and bearings
  - Whether to change the oil immediately
  - Whether it is possible to delay the oil change.

## t) Re-greasable labyrinth seals:

- All Rulmeca Motorized Pulleys are hermetically sealed. Standard oil seals are designed to contain oil within the Motorized Pulley during normal operating conditions. They are capable of withstanding an internal pressure rise that occurs as the Pulley motor temperature increases.
- Optional re-greasable labyrinth seals are available to protect oil seals from harsh operating or maintenance conditions. Each labyrinth seal provides a barrier of steel and grease to prevent ingress of dust and fluid through the oil seal.
- In abrasive operating conditions labyrinth seals should be periodically grease-purged to flush abrasive dust away from the oil seal.
- In wet and/or dirty conditions, where it is common to wash down equipment with high-pressure detergent spray, labyrinth seals should be refilled with grease after each wash-down. High-pressure sprays remove grease from the labyrinth seal, removing an important part of the barrier to fluid ingress.
- It has to be secured that grease is always seen at the labyrinth gap.
- If in some circumstances the re-grease frequency is too high a so-called "**Grease Man**" is recommended.
- Failing to perform necessary labyrinth seal maintenance could shorten service life and voids product warranty.



## NOTICE

## NOTICE

## NOTICE

#### u) Pulley Diameter:

- The type and size of conveyor belt will determine the minimum allowable Motorized Pulley diameter. Using a too small Pulley diameter, which does not match the belt, can cause belt de-lamination, belt splice damage and can shorten both belt and Pulley lagging life. Always contact your belting supplier before specifying a Pulley diameter.

#### v) Terminal Box:

- Rulmeca** Motorized Pulleys are available with terminal boxes or power cords to facilitate electrical installation. Motorized Pulleys with power cords are available up to 4kW.
- Two main types of terminal boxes are used:
  - A **compact terminal box** equipped with clamp terminals "WAGO" used for Motorized Pulley types up to 4.0 kW
  - Larger terminal boxes** with traditional threaded brass terminals.
- Switch off Motorized Pulley power supply and control circuit(s) before opening terminal box.
- Each terminal box has one or more conduit nipples and a cover plate. The cover plate should be removed to facilitate termination of power and control wires within the terminal box. After wire connections are made cover plate should be replaced.
- Terminal boxes should never be disassembled or removed from the end of the shaft to reorient conduit nipple location.
- Modifications to terminal boxes should only be made by an authorized **Rulmeca service centre** or after obtaining permission and instructions, in writing, from **Rulmeca**.
- A wiring diagram is placed inside the terminal box on the back of the terminal box cover. **Dismantling and reassembling terminal boxes could cause short circuits within the internal wiring, which is factory set (and tested) and would void product warranty.**



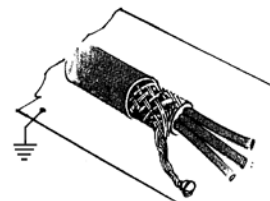
#### NOTICE

#### w) Variable frequency drive

- Basically, no drum motor is to be operated on a frequency converter, which is not marked and designated! The marking is located on the type plate on the terminal box of the drum motor.**
- EX "tc" drum motors marked with "inverter-proof" are suitable for operation on a frequency converter (FC) within the specified limits.  
The temperature monitoring by PTC temperature sensor must be included in the motor control so that it is reliably disconnected from the power supply when the nominal response temperature (NAT) is reached.
- The installer and the operator must comply with the current EN 60079-14
- The operator must ensure that the current national EMC guidelines are adhered to
- The motor cables must be shielded, and the max. Length must comply with the manufacturer's specifications.
- With a nominal motor voltage > 600V, a du / dt filter must be used, this is dependent to select from the rated current.
- The allowable voltage peak for motors rated  $\leq 690V$  is 980V.
- If frequency converters with pulse width modulation are used, ensure that no high-frequency transients occur with high voltage peaks.
- The following inverter data must be set and observed during operation:
  - Minimum clock frequency: 3kHz
  - Current limit:  $1.2 \cdot I_N$
  - Maximum overload time: 60s
  - Minimum frequency: 25Hz or 35Hz (at 60Hz base motor)
  - Maximum frequency: 50Hz or 60Hz (with 60Hz base motor)
- The current monitoring of the frequency converter must match the rms value of the machine current with a record tolerance of  $\pm 5\%$  relative to rated motor current.



#### NOTICE



## TECHNICAL PRECAUTIONS FOR DESIGN, INSTALLATION AND MAINTENANCE

### x) Capacitors (For Single Phase Motors):

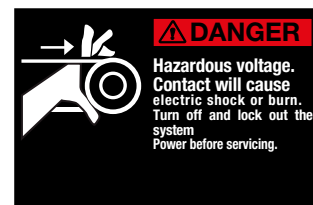
- Each single phase Motorized Pulley requires an appropriate capacitor. For models 138E and 165E Start & RUN capacitors are supplied with the Pulley. Detailed information available on request. Using other than the specified RUN capacitors and a current dependent switching relays may damage the motor and voids product warranty.
- The RUN capacitors must be permanently connected to the motor, as shown on the connection diagrams.
- RULMECA single-phase motors are “permanent split phase motors”. Each motor is supplied with two windings. They are designed so that an appropriately sized capacitor connected to one of the windings will start the motor rotating.
- Starting torque is limited to 70% of full running torque if used without starting capacitor.
- It is possible to increase starting torque to 100% by adding a second appropriately sized capacitor (START capacitor) to the circuit. Note that this circuit must be designed to drop the starting capacitor out of the circuit after the motor has reached its nominal speed. Contact RULMECA for more information on how to run single-phase motors using START and RUN capacitors.

### y) Maintenance:

- Normally Motorized Pulleys are maintenance free and require no specific attention during their operation. They are ready for operation immediately after connection to the power supply.
- **If repair or maintenance is required, the Motorized Pulley has to be disconnected from the supply before the terminal box can be opened. Turn the electrical power off at the electrical panel board (circuit breaker or fuse box) and lock or tag the panel board door to prevent someone from turning on power while you are working on the unit. Failure to do so could result in serious electrical shock, burn or possible death**
- During a test run, the shaft ends must be correctly fixed to the support frame, and suitable guarding must be provided around the rotating parts, for the protection of all personnel. **WARNING: DO NOT operate without guards in place. Failure to follow these instructions could result in death or serious injury.**

### z) After Sales Service

- Always contact your local authorized Rulmeca service centre or distributor for aftermarket service or please refer to nearest Rulmeca distributor listed on the back of our catalogue. Alternatively please refer to **[www.rulmeca.com](http://www.rulmeca.com)**.



#### aa) Wiring Diagrams

- Please refer to pages 93 ff.

#### NOTICE

#### bb) Storage of Motorized Pulleys

During storage RULMECA Motorized Pulleys

- should be stored in a house or as a minimum covered by an awning.
- have to be protected against direct influence of the sun to secure that the sealing system **does not dry out!**
- have to be turned 2 x 360° every year to make sure that all internal parts are being lubricated.

If Motorized Pulleys have stored longer than 1/2 year, they have to be tested before being put into operation. Such a test should include that

- The motor winding is checked with an insulation tester
- The winding resistance is checked
- The thermal protector is checked with continuity tester
- The Pulley is connected to the power supply and runs for a minimum of 30 minutes to check that there is NO oil leaks – make sure that the Pulley body temperature DOES NOT exceed 70°C degree.

**For safety reasons make sure that the Pulley is proper fixed to the test frame during test.**

#### cc) Dust explosion proof motorized pulleys (ATEX 95)

Since the use of electrical machinery in explosive dust areas is subject to strict legal regulations, we ask that you contact RULMECA and discuss the details of the operation before using Motorized Pulleys.

RULMECA will issue a case-related release for use.

# TECHNICAL PRECAUTIONS FOR DESIGN, INSTALLATION AND MAINTENANCE

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## Explanation of the symbols:

1. This is the alert symbol. It is used to alert you to potential bodily injury hazards.  
Obey all safety messages that follow this symbol to avoid possible injury or death.
2. These instructions and other product accompanying literature contain information that is important to know and understand. To help recognize the information, observe these symbols.



**Danger** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



**Warning** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



**Caution** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

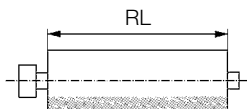


**Notice** indicates important information, that if not followed, may cause damages to equipment.



# OIL CONTENTS IN LITER FOR STANDARD

## Motorized Pulleys in HORIZONTAL applications

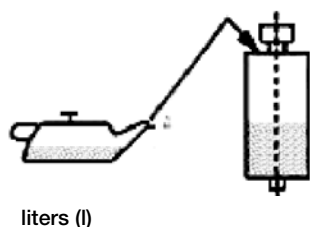


RL	138LS	165LS	220M & 220H		320M & 320H			400M	400H	500M	500H + 500L	630M	630H	800M	800H	800HD	1000HD
			0.37-0.55kW 1.1-1.5kW	0.75kW 2.2-5.5kW	0.75kW - 3.0kW	4.0 - 5.5kW	7.5kW 11.0kW										
300	0.7																
350	0.9	1.2															
400	1.1	1.4	3.00														
450	1.3	1.6	3.50	4.00													
500	1.5	1.8	4.00	5.00	3.50	8.0	10.0										
550	1.8	2.0	4.25	5.25	3.75	8.5	10.5										
600	2.0	2.3	4.50	5.50	4.00	9.0	11.0	8.0	16.0		10.0						
650	2.2	2.5	4.75	5.75	4.25	9.5	12.0	8.5	17.0	21.0	10.5						
700	2.4	2.7	5.00	6.00	4.50	10.0	13.0	9.0	18.0	22.0	11.0						
750	2.6	2.6	5.25	6.25	5.00	10.5	13.5	9.5	19.0	23.0	11.5	27.5					
800	2.8	3.1	5.50	6.50	5.50	11.0	14.0	10.0	20.0	24.0	12.0	28.0					
850	3.0	3.3	5.75	6.75	5.75	11.5	15.0	10.5	21.0	25.0	12.5	29.0					
900	3.2	3.5	6.00	7.00	6.00	12.0	16.0	11.0	22.0	26.0	13.0	30.0					
950	3.4	3.7	6.25	7.25	6.25	13.0	17.0	11.5	23.0	28.0	14.0	32.0	51.5	61.5			
1000	3.6	3.9	6.50	7.50	6.50	14.0	18.0	12.5	25.0	30.0	15.0	34.0	53.0	64.0			
1050	3.6	4.1	6.75	7.75	6.75	14.5	18.5	13.5	27.0	31.0	15.5	36.0	54.0	66.5			
1100	3.8	4.4	7.00	8.00	7.00	15.0	19.0	14.0	28.0	32.0	16.0	38.0	56.5	69.0			
1150	4.0	4.6	7.25	8.25	7.50	16.5	20.5	14.5	29.0	34.0	17.0	40.0	59.0	71.0	126.0		
1200	4.2	4.8	7.50	8.50	8.00	18.0	23.0	15.0	30.0	36.0	18.0	42.0	60.5	73.0	128.0		
1250	4.4	5.0	7.75	8.75	8.50	19.0	24.0	15.5	31.0	37.0	18.5	43.5	63.0	74.5	130.0		
1300	4.6	5.2	8.00	9.00	9.00	20.0	25.0	16.0	32.0	38.0	19.0	45.0	64.5	76.0	132.0	130.0	
1350	4.8	5.4	8.25	9.25	9.50	21.0	26.5	17.0	34.0	40.0	20.0	46.5	66.0	78.0	134.0	133.0	
1400	5.0	5.6	8.50	9.50	10.00	22.0	28.0	18.0	36.0	42.0	21.0	48.0	68.0	80.0	135.0	135.0	240.0
1450	5.1	5.8	8.75	9.75	10.50	23.0	29.0	18.5	37.0	43.0	21.5	49.0	70.0	82.0	137.5	138.0	243.0
1500	5.3	6.0	9.00	10.00	11.00	24.0	30.0	19.0	38.0	44.0	22.0	50.0	72.0	84.0	140.0	140.0	245.0
1550	4.8	5.8	9.25	10.25	12.00	25.0	31.5	19.5	39.0	46.0	23.0	51.5	74.0	86.0	142.5	143.0	248.0
1600	5.0	6.0	9.50	10.50	13.00	26.0	33.0	20.0	40.0	48.0	24.0	53.0	76.0	88.0	145.0	145.0	252.0
1650	5.1	6.2	10.00	11.00	14.00	27.0	34.0	20.5	41.0	50.0	25.0	54.0	79.0	90.0	147.5	148.0	255.0
1700	5.3	6.4	11.50	11.50	15.00	28.0	35.0	21.0	42.0	52.0	26.0	55.0	80.5	92.0	150.0	150.0	258.0
1750	5.5	6.6	12.00	12.00	16.00	29.0	36.0	22.0	44.0	54.0	27.0	56.5	82.0	94.0	152.5	153.0	262.0
1800	5.6	6.8	13.00	13.00	17.00	30.0	37.0	23.0	46.0	56.0	28.0	58.0	84.0	96.0	155.0	155.0	265.0
1850	5.8	7.0	13.50	13.50	18.00	30.5	38.5	23.5	47.0	60.0	30.0	59.5	86.0	98.0	157.5	158.0	268.0
1900	5.9	7.1	14.00	14.00	19.0	31.0	40.0	24.0	48.0	64.0	32.0	61.0	88.0	100.0	160.0	160.0	272.0
1950		7.3	15.50	14.50	20.0	31.5	40.5	24.5	49.0	68.0	34.0	61.5	90.0	102.0	162.0	162.0	275.0
2000		7.5	15.00	15.00	21.0	32.0	41.0	25.0	50.0	70.0	36.0	62.0	92.0	104.0	164.0	164.0	278.0

**Please Note!** The given oil contents are valid for STANDARD un-lagged Motorized Pulleys only!  
For SPECIAL options the oil contents might deviate severely. Therefore, ALWAYS use the given oil quantity listed on the MOTOR DATA PLATE!

# OIL CONTENTS IN LITER (L) FOR SPECIAL CONSTRUCTIONS

## Vertical applications

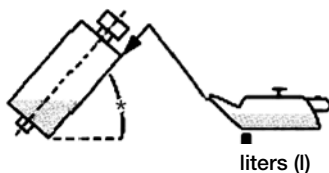


Type	Amount of oil in liter (l)	Specifications
138LS	1.4	Electrical connection to be located at the top
165LS	3.0	
220M	10.0	
220H	10.0	
320M	25.0	
320H	25.0	

### Please Note!

- The given oil contents are valid for STANDARD un-lagged Motorized Pulleys only!
- For SPECIAL options the oil contents might deviate severely.
- Therefore, ALWAYS use the given oil quantity listed on the DATA PLATE!

## Special Version - Please contact Rulmeca



Please note the indicated oil fill quantities are valid only for STANDARD execution Motorized Pulleys. With SPECIAL executions it is possible that the oil quantities vary. In such a case the given quantities on the motor data label is the valid indication

Product range Motorized Pulleys	Non-horizontal installation between	Typical application	Precautions
138LS & 165LS 220M & 220H 320M & 320H	5° - <90°	Magnetic Separations	Special design & special amount of oil! Please contact <b>Rulmeca</b> before placing the order.

## Oil Types

Type of Motorized Pulley	IEC34 Ins.Class	Ambient Temp.	ISO 3498 - DIN 51519	DIN 51517	Castrol	BP	Esso Mobil	Shell	Texaco
Ø138-800 Standard	F	-25°C+40°C	CC ISOVG 150	CLP ISOVG 150	ALPHA SP 150	ENERGOL GR-XP 150	MOBILGEAR 600 XP 150	OMALA 150	MEROPA 150
Ø138-1000 Synthetic option	F	-25°C+40°C	CC ISOVG 220	CLP ISOVG 220	ALPHA-SYN T 220		SHC 630V 220		
Ø138-1000 Standard	H	-25°C+40°C	CC ISOVG 220	CLP ISOVG 220	ALPHA-SYN T 220		SHC 630V 220		
Ø138-800 Food Grade	F & H	-30°C+40°C	CC ISO VG 220	Complies with Food Additive regulation 12 CPR				Shell Cassida GL220	

Synthetic oil is **not only** used for Insulation Class H, but also

- To reduce wear of gears and bearings and consequently increase the service life of the Pulley
- To reduce noise
- To reduce oil damages due to overheating in connection with certain options, types of rubber lagging etc. etc.

# CONNECTION DIAGRAMS FOR MOTORIZED PULLEYS 138LS - 320H

## Cable Connection

Cable wires with numbers

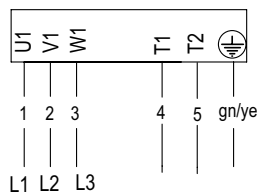
T1 & T2 = Thermal Protector

EB = Electromagnetic brake

B1 & B2 = EB

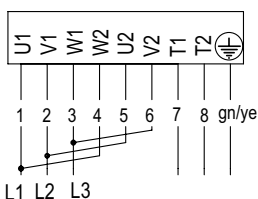
01

3-Ph-Motor

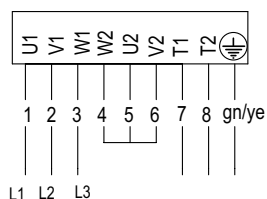


02

△ 3-Ph-Motor

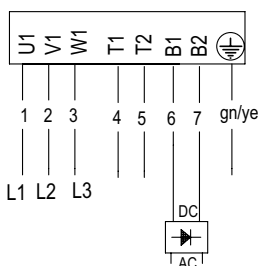


Y 3-Ph-Motor



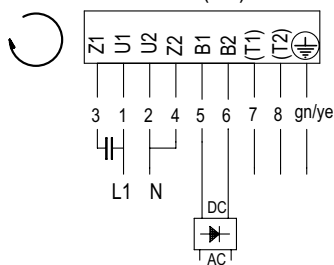
03

3-Ph-Motor EB

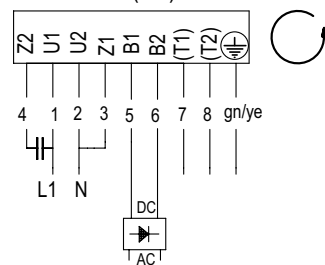


04

1-Ph-Motor (EB)



1-Ph-Motor (EB)





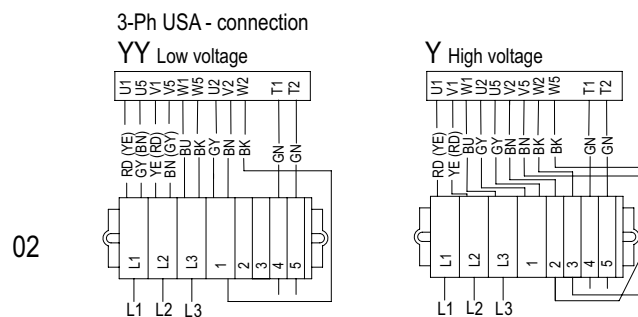
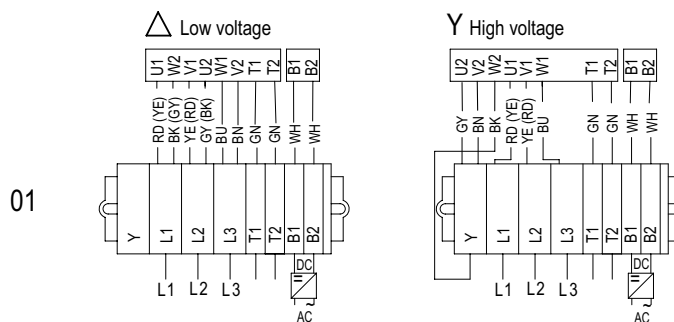
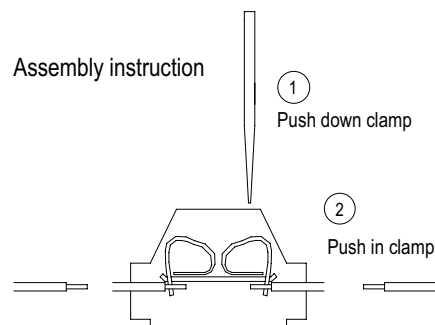
# CONNECTION DIAGRAMS FOR MOTORIZED PULLEY WITH COMPACT TERMINAL BOX AND WAGO-CLAMP 138LS - 320H POWER $\leq 4.0$ kW

Characters in brackets  
for 2 stage gearbox!

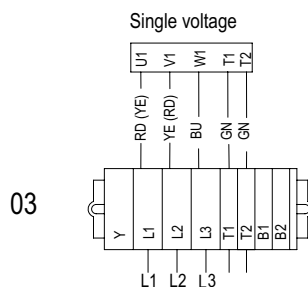
EB = Electromagnetic brake

Clamps B1 and B2  
are for standard unassigned

RD = Red  
YE = Yellow  
BK = Black  
GY = Grey  
BU = Blue  
GN = Green  
WH = White  
BN = Brown  
T1 & T2 = Thermal Protector  
B1 & B2 = Electromagnetic Brake

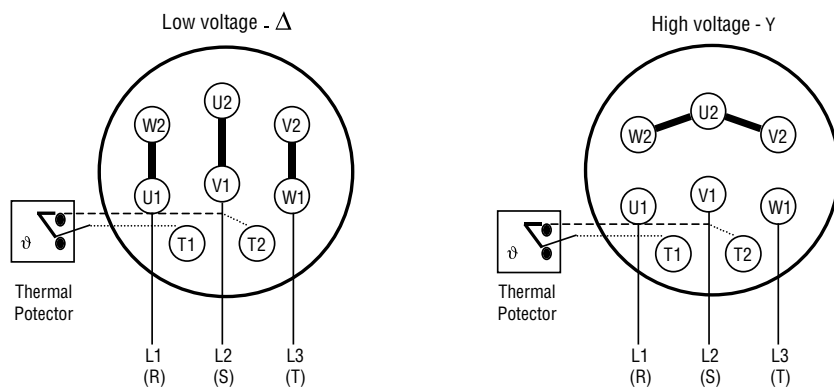


Note: check the star (U2/V2/W2) before reconnection!



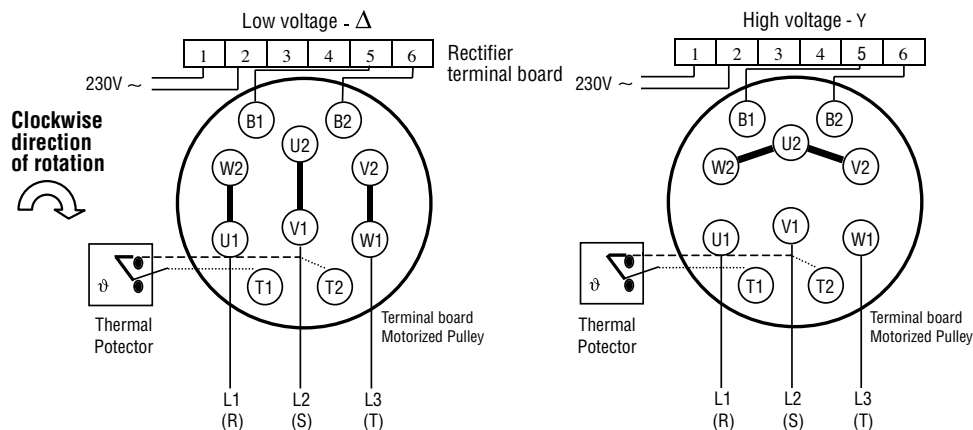
# EXTERNAL CONNECTION DIAGRAMS FOR MOTORIZED PULLEYS

5.5 kW 250 kW



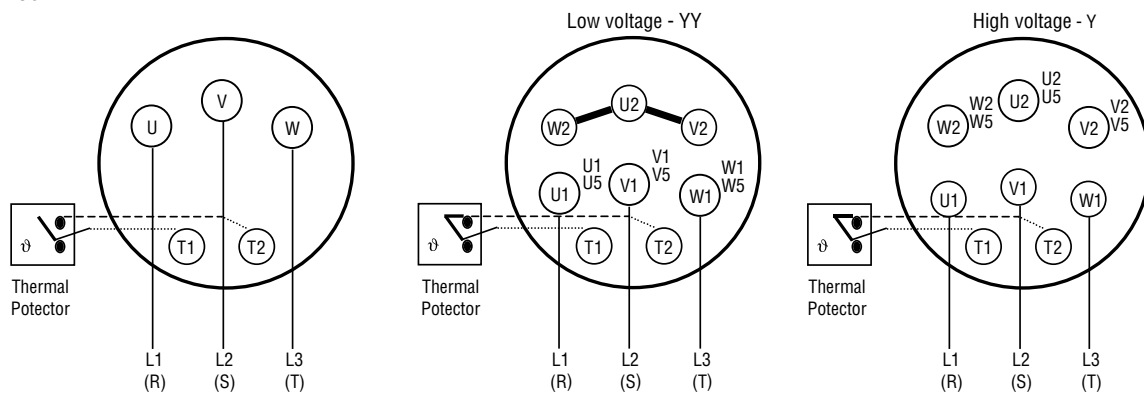
Terminal Box  
5.5 kW - 132 kW

## Electromagnetic Brake Execution



3-phase single voltage  
5.5kW - 250kW

## USA - Execution



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## Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

## Notes

[illegible]



# Moving ahead.

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**SCHIKI**

