



## MOTORIZED PULLEYS FOR BELT CONVEYORS

SUMMARY TABLE

**Moving ahead.**





## 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.

### APPLICATION INDICATIONS AND DESIGN CRITERIA GENERAL DESCRIPTION

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

### 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 efficiencies of up to 95-97% 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 are easily controlled by variable frequency converters working in the 15 Hz to 65 Hz frequency range. See Technical Precautions in the catalogue.

#### Fewer parts

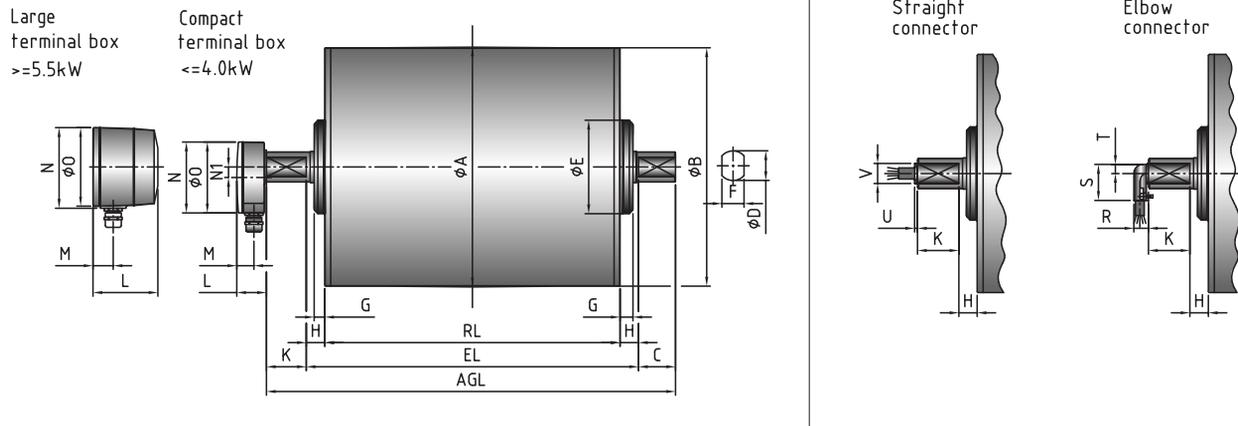
A Rulmeca Motorized Pulley consists of the Motorized Pulley and two fixing brackets! Exposed drives can require up to eight or more separate components, most of which have to be purchased from different suppliers or custom manufactured.

#### 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.

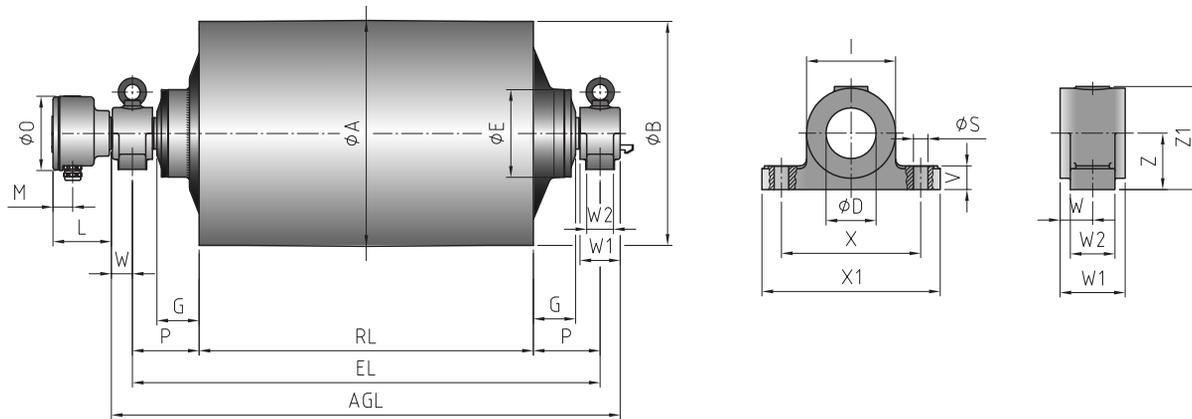
The Rulmeca Motorized Pulley – the ideal drive unit for conveyors  
**"Fit it and forget it".**

# MOTORIZED PULLEY 138-500M



Type	Motorized pulleys or idler pulleys (UT)											Compact terminal box ≤4.0 kW				Larger terminal box ≥5.5 kW				Straight connector ≤ 4.0 kW		Elbow connector ≤ 4.0 kW		
	A mm	B mm	C mm	D mm	E mm	F mm	G mm	G TS9/11 mm	H mm	K mm	L mm	M mm	N mm	N1 mm	L mm	M mm	N mm	O mm	U mm	V mm	R mm	S mm	T mm	
138	138.5	137	23.5	30	54	20	5		16.5	23.5	41	24	95	14					3.5	19.5	20	48	12	
165	165	163.5	43.5	40	80	30	10	13.5	21.5	41.5	41	24	95	14					4	27	20	48	12	
220M & 220H	216	214.5	43.5	40	100	30	15.5	19.5	21.5	41.5	41	24	95	14	87	27	107	105	4	27	20	48	12	
320L	323	319	50	40	96	30	15	19.5	25	54	41	24	95	14					4	27	20	48	12	
320M	321	319	50	40	125	30	17.5	22.5	25	54	41	24	95	14	87	27	107	105	4	27	20	48	12	
320H	321	319	50	50	148	40	11	20.5	25	55	41	24	95	14			107		4	27	20	48	12	
400M & 400H	404	400	50	60	194	45	23		25	50					131	46		165						
500L & 500M	501	497	50	60	194	45	23		25	50					131	46		165						
UT138	137	23.5	30	54	20	5		16.5																
UT165	163.5	43.5	40	80	30	10	13.5	21.5																
UT220M & UT220H	216	214.5	43.5	40	100	30	15.5	22.5	21.5															
UT320M	321	319	50	40	125	30	14.5	22.5	25															
UT320H	321	319	50	50	148	40	11	20.5	25															
UT400M & UT400H	404	400	50	60	168	45	20		25															

## MOTORIZED PULLEY 500H-1000HD



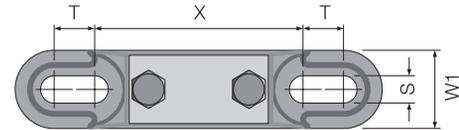
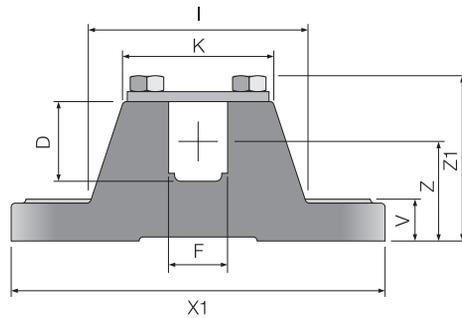
Type	Motorized pulleys or idler pulleys (UT)						Terminal box				Brackets							
	A mm	B mm	C mm	D mm	E mm	G mm	L mm	M mm	O mm	P mm	S mm	W mm	W1 mm	W2 mm	X mm	X1 mm	Z mm	Z1 mm
500H upto 22kW	501	497		65	192	95	131	46	165	150	23	45	90	60	180	240	80	141
500H 22 & 30KW	501	497		65	192	95	166	54	230	150	23	45	90	60	180	240	80	141
630M upto 22KW	630	626		65	192	95	131	46	165	150	23	45	90	60	180	240	80	141
630M 22 & 30KW	630	626		65	192	95	166	54	230	150	23	45	90	60	180	240	80	141
630H	630	626		90	268	88	166	54	230	150	26	58.5	117	80	250	320	100	183
800M	800	796		90	268	88	166	54	230	150	26	61	117	80	250	320	100	183
800H	800	796		120	330	80	206	67	260	150	33	95	160	120	300	370	110	213
800HD	800	796		120	330	80	206	67	260	150	33	95	160	120	300	370	110	213
1000H & HD	1020	1014		203	520	145	218	122	325	215	50	228	143	130	560	717	215	412
UT500H	501	497		65	235	95				150	23	45	90	60	180	240	80	141
UT630M	630	626		90	226	85				150	26	45	117	80	250	320	100	183
UT630H	630	626		120	330	75				150	33	58,5	160	120	300	370	110	213

The dimension "W" is the distance between the centre of the fixing hole of the bracket to the end of the terminal box.

Motorized pulleys	Dia-meter	Power	Max. radial load T1+T2 in (N)			Nominal belt speed at full load at 50 Hz (m/sec)																Type of Motorized Pulleys - L, M or H			Minimum shell width (RL)*
			<1.25 m/s	1.25& 1.6 m/s	>=2.0 m/s	0.04	0.05	0.06	0.08	0.10	0.13	0.16	0.20	0.25	0.32	0.40	0.50	0.63	0.80	1.00	1.25	1.60	Type E		
Type	(mm)	(kW)	<1.25 m/s	1.25& 1.6 m/s	>=2.0 m/s	0,13	0,16	0,20	0,25	0,32	0,40	0,50	0,63	0,80	1,00	1,25	1,60	2,00	2,50	3,15	4,00	4,50	Type E		
138	138.5	0.10	4740			LS	LS	LS		LS													300		
138	138.5	0.18	4740						LS	LS	LS	LS											300		
138	138.5	0.24	4740							LS	LS	LS	LS	LS									300		
138	138.5	0.37	4740								LS					320									
138	138.5	0.55	4740	4250										LS	300										
138	138.5	0.75	4740	4250											LS	320									
165	165	0.11	9330				LS	LS	LS	LS													400		
Type	(mm)	(kW)	<1.25 m/s	1.25& 1.6 m/s	>=2.0 m/s	0,13	0,16	0,20	0,25	0,32	0,40	0,50	0,63	0,80	1,00	1,25	1,60	2,00	2,50	3,15	4,00	4,50	Type E		
165	165	0.37	9330			LS	LS	LS	LS	LS	LS	LS	LS	LS									350		
165	165	0.75	9330				LS							400											
165	165	1.10	9330	8700	6950				LS						400										
165	165	1.50	9330	8700	6950							LS					400								
Type	(mm)	(kW)	L	M	H	0,13	0,16	0,20	0,25	0,32	0,40	0,50	0,63	0,80	1,00	1,25	1,60	2,00	2,50	3,15	4,00	4,50	L	M	H
220M/220H	216	0.37		11500	25000	H	H	M	M	M	M	M	M	M	M									400	450
220M/220H	216	0.55		11500	25000	H	H	M	M	M	M	M	M	M	M									450	500
220M/220H	216	0.75		11500	25000	H	H	M	M	M	M	M	M	M	M									450	500
220H	216	1.10			25000		H	H																	500
220M/220H	216	1.10		11500	25000				H	H	M	M	M	M	M	M	M	M						400	450
220M/220H	216	1.50		11500	25000				H	H	M	M	M	M	M	M	M	M						400	450
220M/220H	216	2.20		11500	25000					H	H	M	M	M	M	M	M	M						450	500
220M/220H	216	3.00		11500	25000						H	H	M	M	M	M	M	M						500	550
220M/220H	216	4.00		11500	25000							H	H	M	M	M	M	M						500	550
220H	216	5.50			25000								H	H	H	H	H	H							550
320L	320	0.75	11500							L	L	L	L	L	L									450	
320L	320	1.10	11500									L	L	L	L	L	L	L						400	
320L	320	1.50	11500										L	L	L	L	L	L						400	
320L	320	2.20	11500											L	L	L	L	L						450	
320L	320	3.00	11500												L	L	L	L						500	
320L	320	4.00	11500													L	L	L						500	
320M/320H	320	0.75		20000	35000	H	M	M	M	M	M	M	M	M										500	550
320M/320H	320	1.10		20000	35000	H	H	M	M	M	M	M	M	M	M									500	550
320M/320H	320	1.50		20000	35000		H	H	M	M	M	M	M	M	M									500	550
320M/320H	320	2.20		20000	35000			H	H	M	M	M	M	M	M	M	M							500	550
320M/320H	320	3.00		20000	35000				H	H	H	M	M	M	M	M	M							500	550
320M/320H	320	4.00		20000	35000					H	H	H	M	M	M	M	M							500	550
320M/320H	320	5.50		20000	35000								H	H	H	M	M	M						500	550
320M/320H	320	7.50		20000	35000									H	H	H	M	M						500	550
400M/400H	400	2.20		40500	50000		H	H	H	M	M	M	M	M	M									600	650
400M/400H	400	4.00		40500	50000				H	H	H	M	M	M	M	M								600	650
400M/400H	400	5.50		40500	50000					H	H	H	M	M	M	M	M	M						600	650
400M/400H	400	7.50		40500	50000						H	H	H	M	M	M	M	M						600	710
400M/400H	400	11.00		40500	50000									H	H	H	M	M	M					660	710
400M/400H	400	15.00		40500	50000										H	H	H	M	M	M				660	710



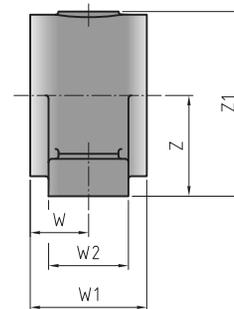
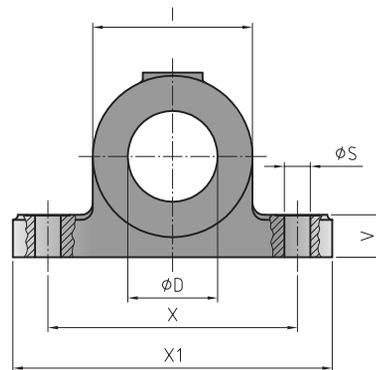
## MOUNTING BRACKETS



Motorized Pulley	Material	Bracket description	Dimension												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	kg
Type															
138	Steel	KL30	30	20	86	57	11	17	12	24	110	180	44.5	72	0.7
165 & 220H	Steel	KL41-HD	40	30	84	62	14	20	22	40	110	190	50	83	2.1
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
400M & 400H	Steel	KL60	60	45	130	90	18	30	25	50	150	270	70	115	4.8
500L & 500M	Steel	KL60	60	45	130	90	18	30	25	50	150	270	70	115	4.8

## MOUNTING BRACKETS

Type AL - with key  
& ALO - without key



Motorized Pulley	Material	Bracket description	Dimension												Weight
			D mm	I mm	S mm	V mm	W mm	W1 mm	W2 mm	X mm	X1 mm	Z mm	Z1 mm	kg	
Type															
500H	Spheroidal cast iron	AL65/AL065	65	115	23	34	45	90	60	180	240	80	141	8.0	
630M	Spheroidal cast iron	AL65/AL065	65	115	23	34	45	90	60	180	240	80	141	8.0	
630H	Cast steel	AL90/AL090	90	160	26	42	58.5	117	80	250	320	100	183	19.0	
800M	Cast steel	AL90/AL090	90	160	26	42	58.5	117	80	250	320	100	183	19.0	
800H	Cast steel	AL120/AL0120	120	200	33	50	95	160	120	300	370	110	213	38.0	
800HD	Cast steel	AL121/AL0121	120	200	33	50	95	160	120	300	370	110	213	38.0	
1000HD	Cast steel	AL200		443	50	95	228	143	130	560	717	215	412	164	
		ALO200	203	458										156	

## NEW ENLARGED PRODUCT RANGE

Rulmeca have just launched a product range, which has been reviewed, enlarged and up-graded to meet customer requirements.

In this connection, it was necessary to rename all product descriptions to secure an easier choice of the right pulley for the right application.

The NEW product range offers three different loading performances:

- L for Light-duty
- M for Medium-duty
- H/HD for High-duty

In most cases 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 the wanted diameter, you might have to choose a larger one.

The three above loading performances offers a product range suitable for any type of application whether working under/with

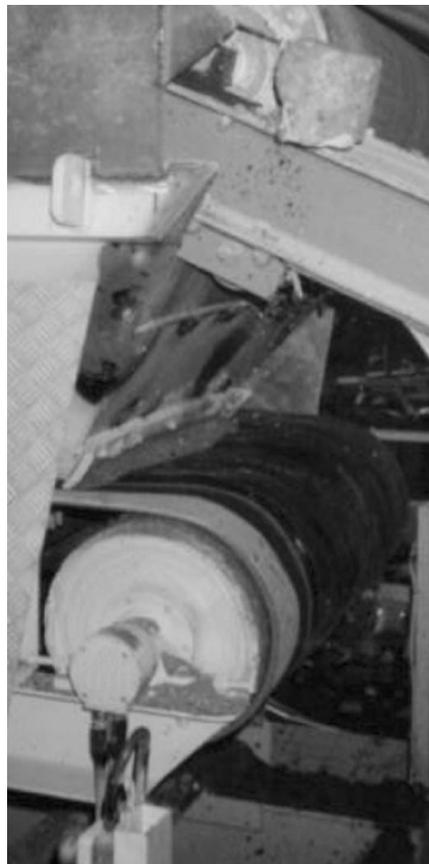
- regular and constant operating conditions
- TOUGH and IRREGULAR working conditions
- irregular and extreme loadings in BRUTAL conditions.

For further information, please open our web-site - [www.rulmeca.com](http://www.rulmeca.com) - or contact your nearest Rulmeca distributor.

The latest **Rulmeca Motorized Pulley catalogue** is available



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 audio or video cassette tapes and aggressive ambient environments containing air or gas of high Ph-values.

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# Moving ahead.

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