

Product information

Drummotors

**TM 138-25**



*Van der Graaf*  
Power Transmission Equipment

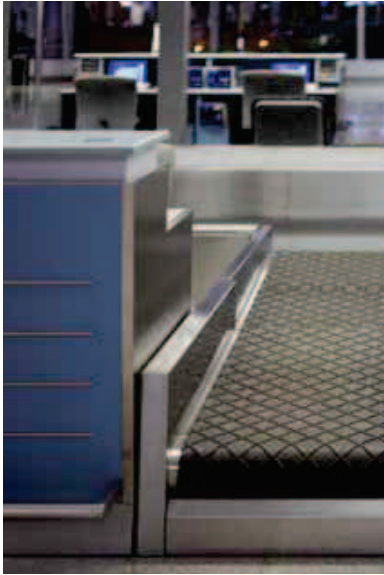
[www.vandergraafpte.nl](http://www.vandergraafpte.nl)







The TM 138's  
playground



# TM 138-25

## A wide range of applications

Van der Graaf has achieved a prominent position on both the domestic and international market with its "GV" Drummotors.

The "GV" Drummotor has found success in a wide range of applications including the following: automotive, X-ray, construction, postal, courier, mining, aggregate, airline baggage, package flow, tyre manufacturing, fish processing, poultry processing, meat processing, agriculture, fruit and vegetable, farming, forestry, baking, dairy and many more.

4	Introduction
5	Selection table
6	Selection table Dahlander motors
7	Dimensions Drummotors mild steel
8	Dimensions Drummotors stainless steel
9	Dimensions Taildrums mild steel
10	Dimensions Taildrums stainless steel
11	Dimensions bracket
12	Cable exit
13	Cross sectional / parts description
16	Options
19	Product range
20	Contact us



## Selection table

TYPE TM 138.25	Power kW	Beltspeed m/s at 50 Hz						Min. L mm Design A	Min. L mm Design B	Full load curr. 400 V - 50 Hz I = ... A	Weight kg L=350	
		Beltpull N										
415 Z	1,10	1,40 745	1,10 950	0,90 1160	0,55 1925			350	350	2,8	23	
210 Z	0,75	2,80 255	2,20 325	1,80 395				300	325	1,4	22	
410 Z	0,75	1,40 510	1,10 650	0,90 790	0,70 1015	0,55 1295		300	325	1,9	22	
410 PL2		0,32 2155	0,26 2655	0,22 3135	0,17 3800			350	375			
275 Z	0,55	2,80 185	2,20 240	1,80 290				275	300	1,1	20	
475 Z	0,55	1,40 375	1,10 475	0,90 580	0,70 745	0,55 950	0,45 1160	275	300	1,3	20	
475 PL2		0,32 1580	0,26 1945	0,22 2300	0,17 2975			325	350			
405 Z	0,37	1,40 250	1,10 320	0,90 390	0,70 500	0,55 640	0,45 780	0,35 1005	275	300	1,0	19
405 PL2		0,22 1545	0,17 2000						325	350		
405 PL3		0,050 3800	0,039 3800	0,033 3800	0,026 3800				375	400		
605 Z	0,37	0,27 1300						275	300	1,1	20	
605 PL2		0,15 2270	0,12 2835					325	350			
434 Z	0,25	1,40 170	1,10 215	0,90 265	0,70 340	0,55 430	0,45 530	0,35 680	250	275	0,7	18
834 Z	0,25	0,27 880	0,22 1080	0,17 1395				275	300	1,0	20	
834 PL2		0,13 1770	0,11 2090	0,09 2555				325	350			
834 PL3		0,025 3800	0,019 3800	0,016 3800	0,013 3800			375	400			
825 Z	0,18	0,27 635	0,22 775	0,17 1005				275	300	0,8	19	
818 Z	0,13	0,27 455	0,22 560	0,17 725				250	275	0,6	18	
1218 Z	0,13	0,13 950	0,11 1125					300	325	0,9	22	
1218 PL2		0,09 1330	0,08 1495	0,06 1995				350	375			
1218 PL3		0,016 3800	0,013 3800	0,011 3800	0,009 3800			400	450			
1213 Z	0,10	0,13 730	0,11 865					275	300	0,6	20	

Available standard facewidth's: 250 - 275 - 300 - 325 - 350 - 375 - 400 - 450 - 500 - 550 - 600 - 650 - 700 - 750 - 800 - 850 - 900 - 950 - 1000 mm

When an electro-mechanical brake is fitted, the minimum facewidth is increased by 75 mm

The total weight of a Drummotor grows approx. 2,0 kg per 100 mm

Maximum beltpull: 3800 N (Imax on request or on data plate)

Available torque: (Beltpull N x drum diameter m) / 2 Nm

## Selection table Dahlander motors

TYPE TM 127.25	Power kW	Beltspeed m/s at 50 Hz						Min. L mm Design A	Min. L mm Design B	Full load curr. 400 V - 50 Hz I = ... A	Weight kg L=350
		Beltpull N									
475/210 Z	0,55/0,75	1,40/2,80 375/255	1,10/2,20 475/325	0,90/1,80 580/395	0,70/1,40 745/510	0,55/1,10 950/650	0,45/0,90 1160/790	300	325	1,4/1,7	22
437/275 Z	0,27/0,55	1,40/2,80 185	1,10/2,20 240	0,90/1,80 290	0,70/1,40 375	0,55/1,10 475	0,45/0,90 580	275	300	0,9/1,3	20
825/405 Z	0,18/0,37	0,35/0,70 500	0,27/0,54 650	0,22/0,44 800	0,17/0,34 1035			275	300		
825/405 PL2		0,13/0,26 1310	0,11/0,22 1545	0,09/0,18 1890				325	350	1,0/0,9	20
825/405 PL3		0,025/0,050 3800	0,020/0,040 3800	0,017/0,034 3800	0,013/0,026 3800			375	400		

Available standard facewidth's: 275 - 300 - 325 - 350 - 375 - 400 - 450 - 500 - 550 - 600 - 650 - 700 - 750 - 800 - 850 - 900 - 950 - 1000 mm

When an electro-mechanical brake is fitted, the minimum facewidth is increased by 75 mm

The total weight of a Drummotor grows approx. 1,5 kg per 100 mm

Maximum beltpull: 3800 N (I<sub>max</sub> on request or on data plate)

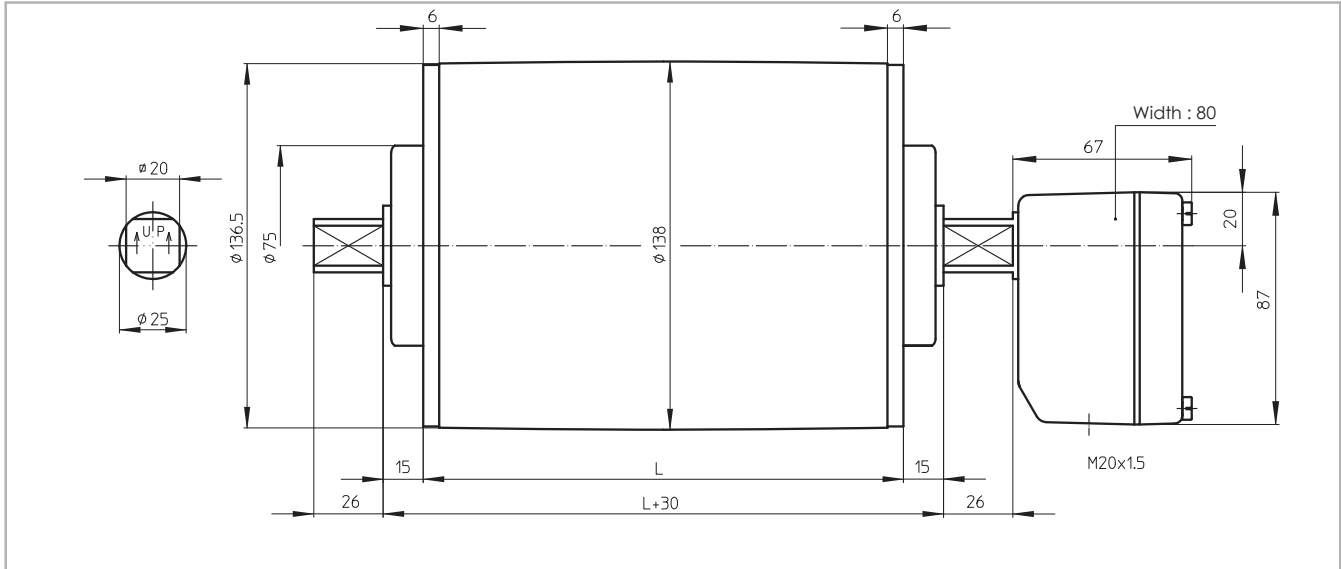
Available torque: (Beltpull N x drum diameter m) / 2 Nm



# Dimensions Drummotors mild steel

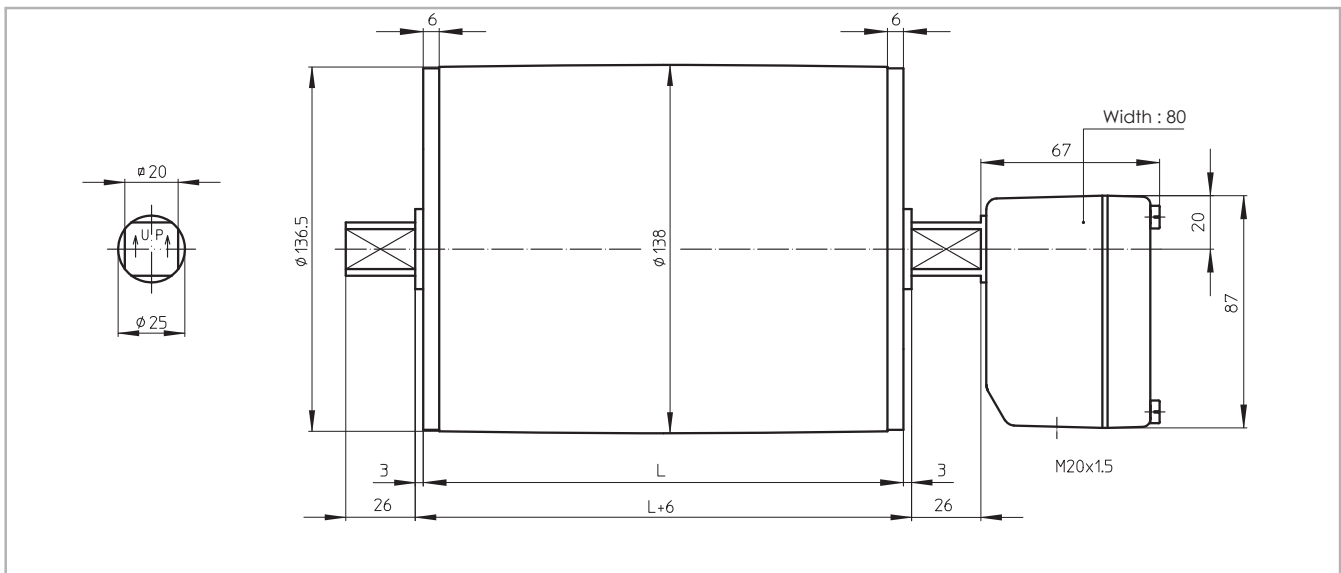
## TM 138A25

TM 138A25, mild steel Drummotor with cast iron junctionbox



## TM 138B25

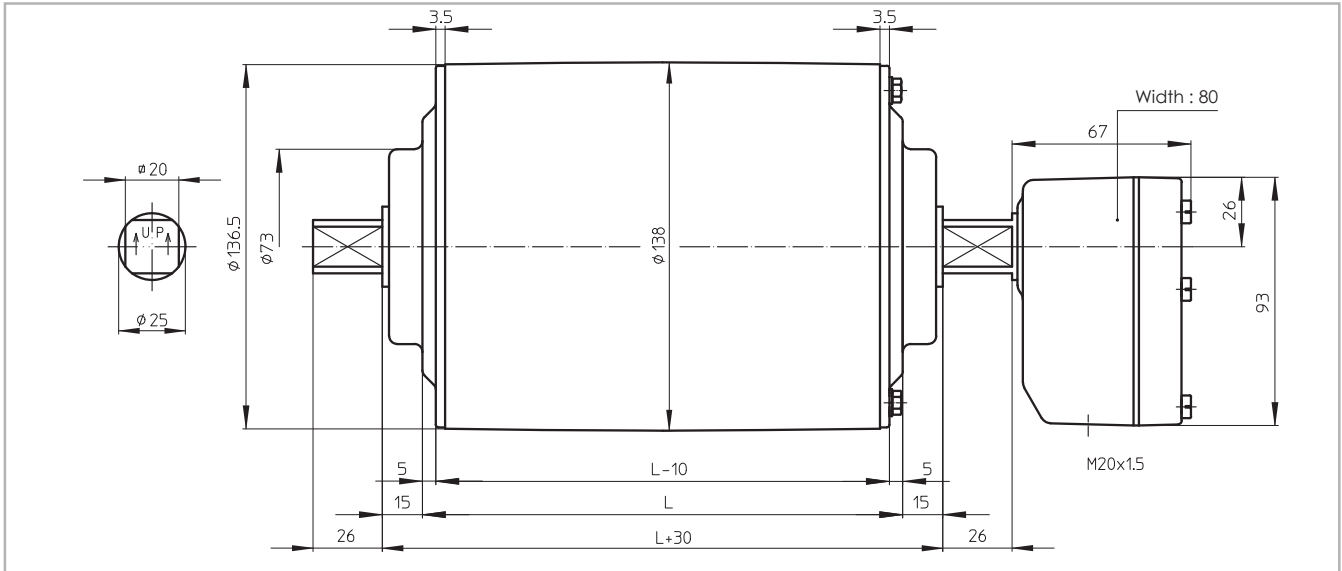
TM 138B25, mild steel Drummotor with cast iron junctionbox



# Dimensions Drummotors stainless steel

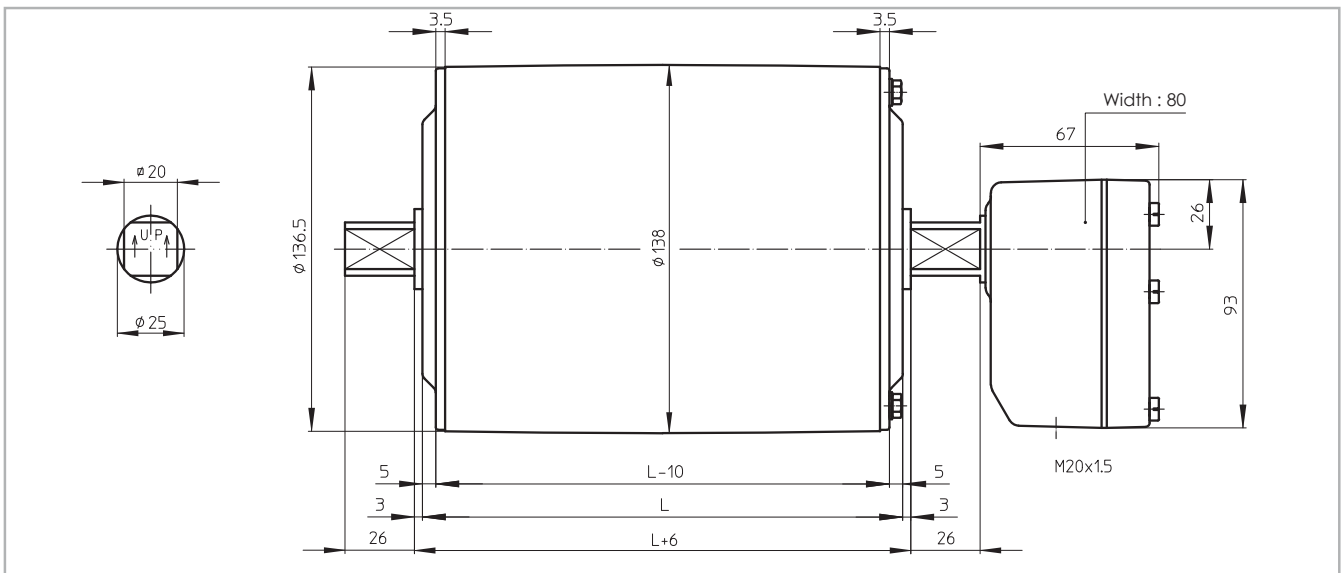
## TM 138A25 CR

TM 138A25 CR, stainless steel Drummotor with polyamide junctionbox and CR sealing



## TM 138B25 CR

TM 138B25 CR, stainless steel Drummotor with polyamide junctionbox and CR sealing



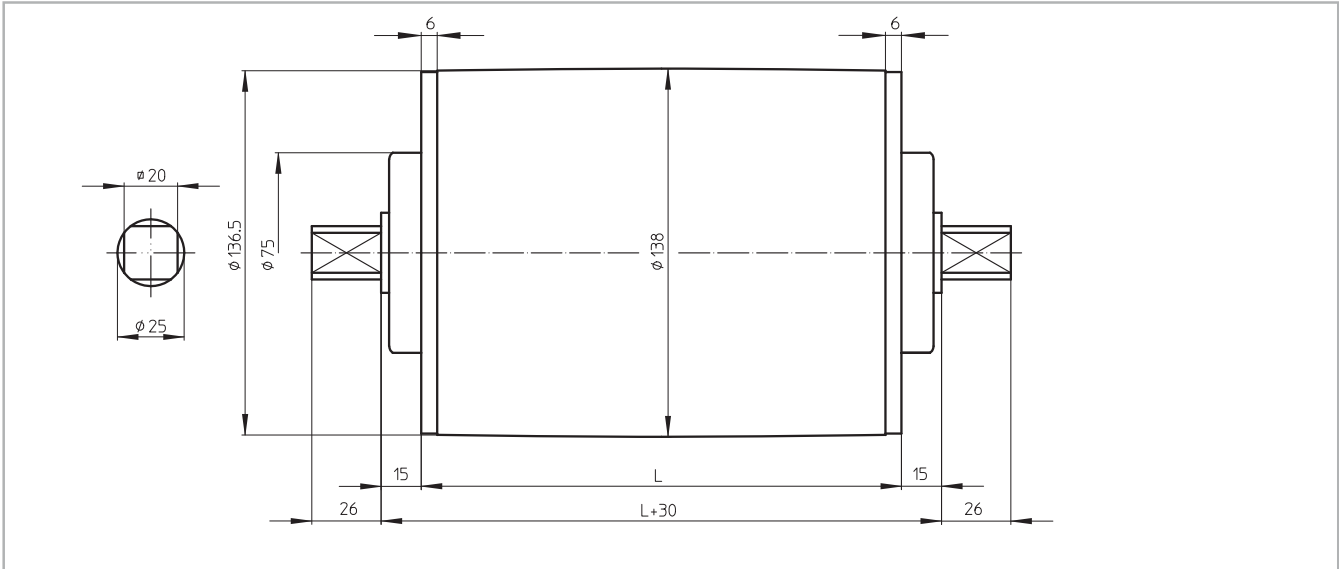




# Dimensions Taildrums mild steel

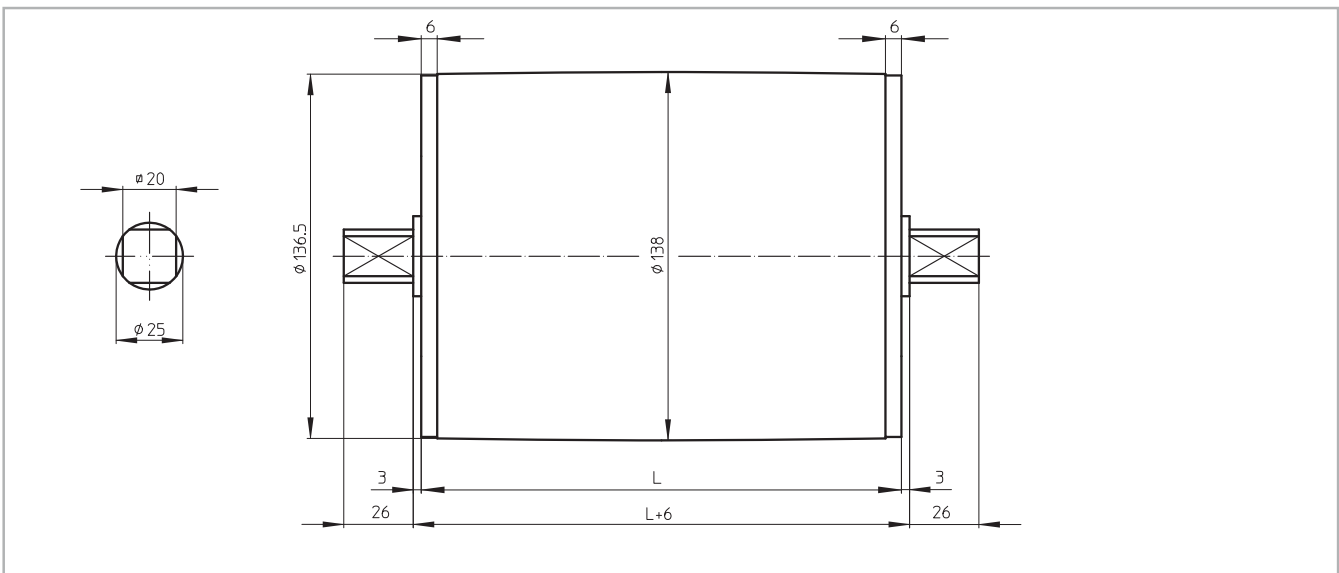
## KT 138A25

KT 138A25, mild steel Taildrum



## KT 138B25

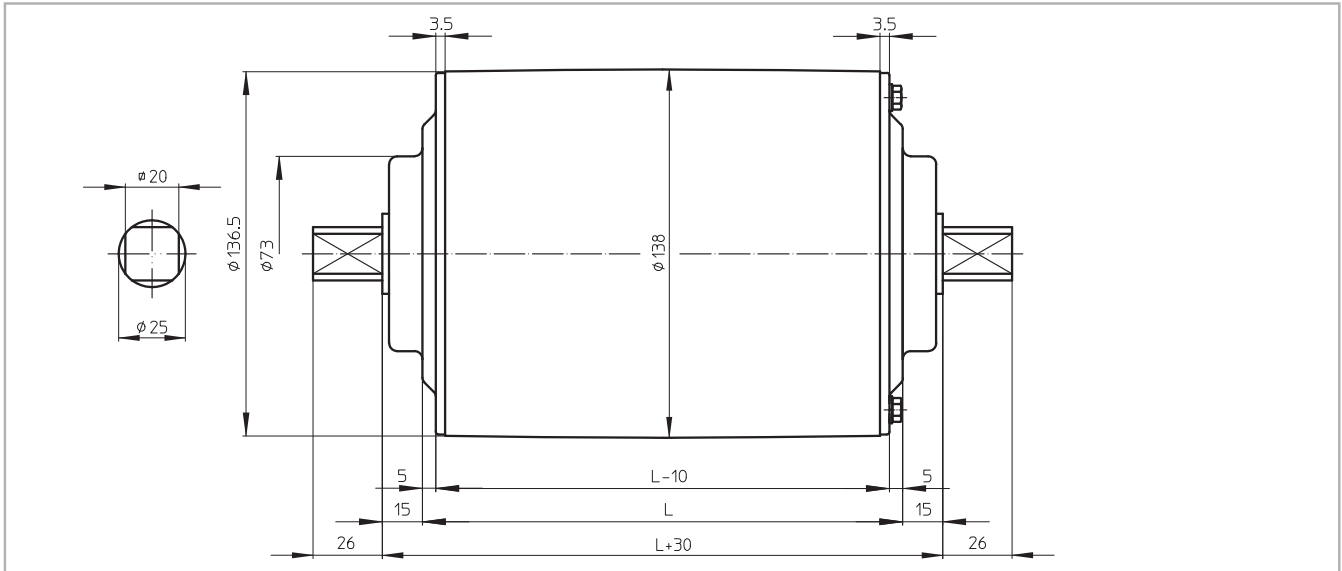
KT 138B25, mild steel Taildrum



# Dimensions Taildrums stainless steel

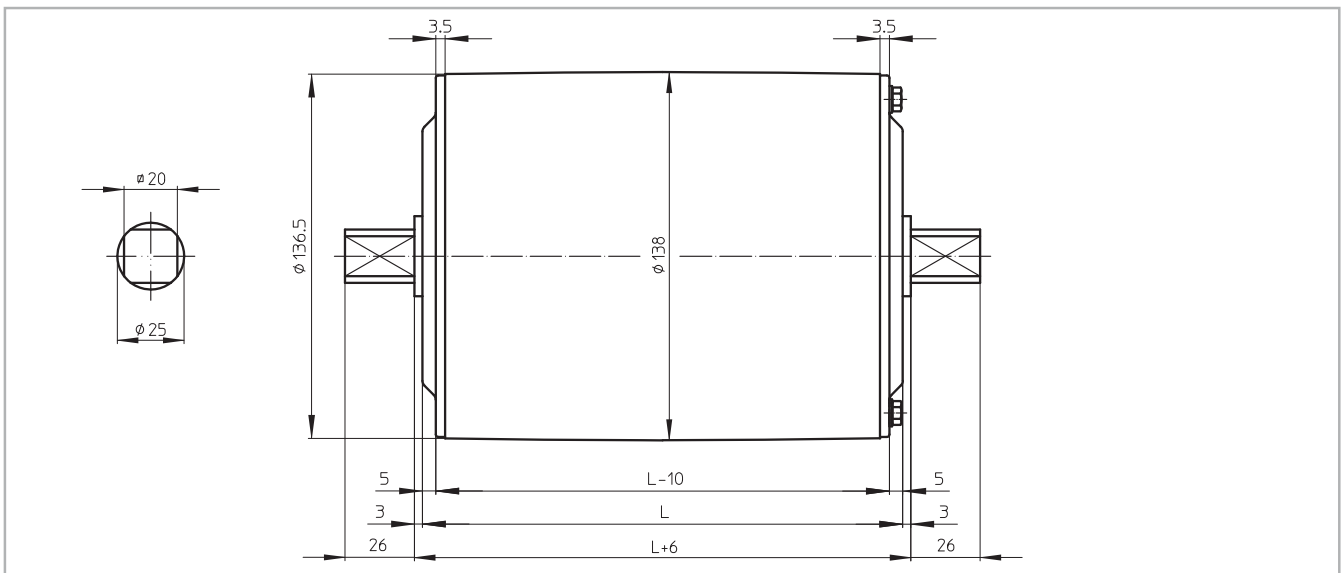
## KT 138A25 CR

KT 138A25 CR, stainless steel Taildrum with CR sealing



## KT 138B25 CR

KT 138B25 CR, stainless steel Taildrum with CR sealing

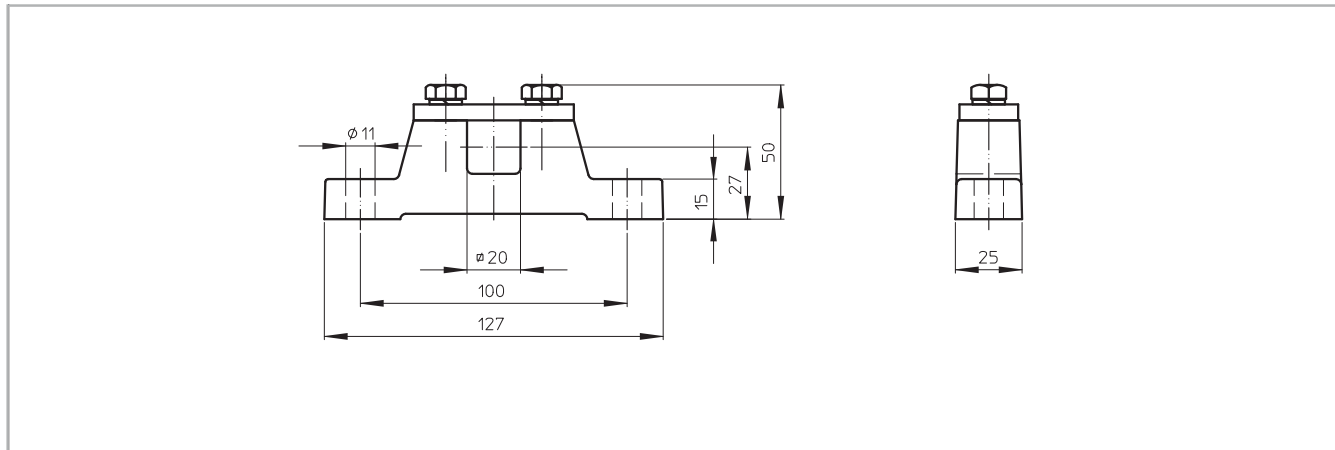




## Dimensions bracket

### AB 25

AB 25, cast iron or stainless steel bracket  
Weight: 1,2 kg per pair



# Cable exit

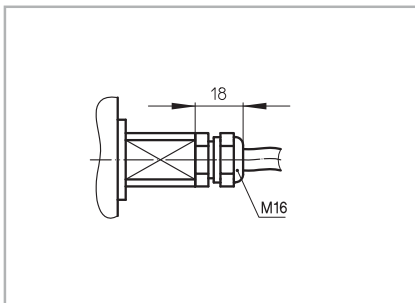
Standard design of a TM 138-25 is with a cast iron junctionbox. For stainless steel design, this can be either a polyamide or stainless steel junctionbox.

On request a Drummotor can be fitted with a cable. In this case it is important to know the available voltage (preferably 1 voltage), the length of the cable, whether the cable is shielded or not and the type of cable exit.

An overview of available cable exits is shown below.

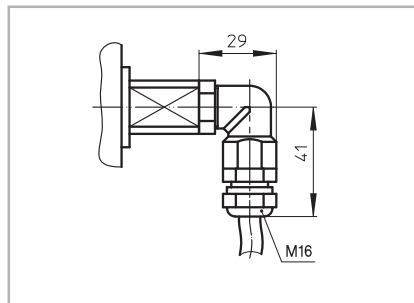
## Option 1

Straight cable exit with cable gland



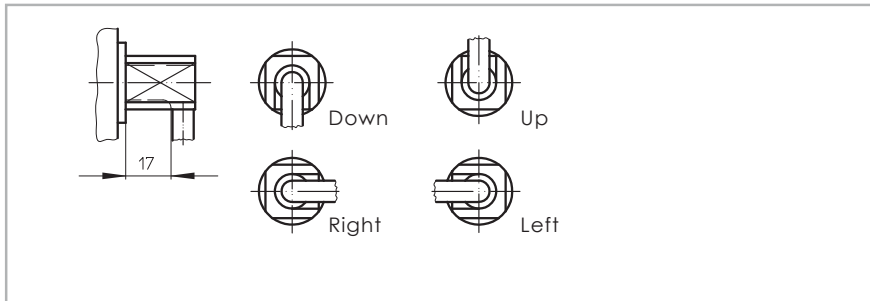
## Option 3

Elbow cable exit with cable gland  
(minimum facewidth increases with 25 mm)



## Option 4

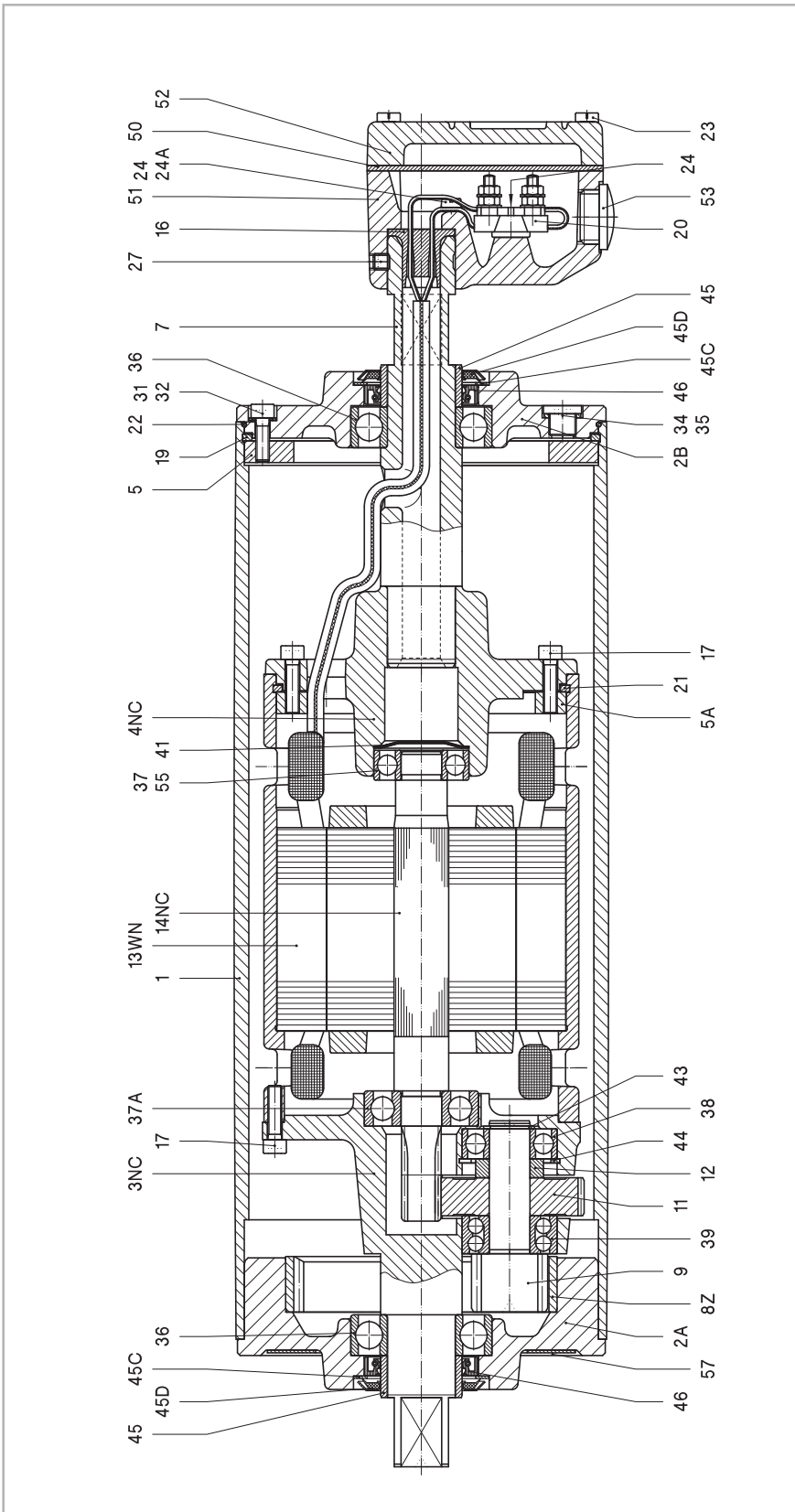
Open cable exit (minimum facewidth increases with 25 mm)





TM 138A25 Z

Legenda



Remark: Drummotor also available in B-design (TM138B25 Z)

1	Shell	11	Gear	37A	Ballbearing	50	Seal
2A	Endflange	12	Distance ring	38	Ballbearing	51	Junctionbox
2B	Endflange	13WN	Stator	39	Double-row ballbearing	52	Junctionbox cover
3NC	Gearhousing	14NC	Rotor	41	Locking disc	53	Stopping plug
4NC	Motorflange	16	Cable passage	43	Circlip	55	Ballbearing incl. backstop
5	Mountingring	17	Int. hex screw	44	Circlip	57	Dataplate
5A	Mountingring	19	Springring	45	Bearing race		
7	Hollow shaft	20	Terminalboard	45C	Shim plated		
8Z	Internal gear	21	Springring	45D	Gammaring		
9	Pinion	22	O-ring	46	Oilseal		
		23	Gear				
		24	Distance ring				
		24A	Stator				
		27	Rotor				
		31	Cable passage				
		32	Int. hex screw				
		34	Springring				
		35	Terminalboard				
		36	Springring				
		37	O-ring				
		37	Cyl. head screw				
		37A	Cyl. head screw				
		38	Toothed lock washer				
		39	Seiscrew				
		41	Int. hex screw				
		43	Washer				
		44	Fillerplug				
		45	Washer				
		45C	Ballbearing				
		45D	Ballbearing				
		46	Oilseal				
		47					
		50					
		51					
		52					
		53					
		55					
		57					
		58					
		59					
		60					
		61					
		62					
		63					
		64					
		65					
		66					
		67					
		68					
		69					
		70					
		71					
		72					
		73					
		74					
		75					
		76					
		77					
		78					
		79					
		80					
		81					
		82					
		83					
		84					
		85					
		86					
		87					
		88					
		89					
		90					
		91					
		92					
		93					
		94					
		95					
		96					
		97					
		98					
		99					
		100					



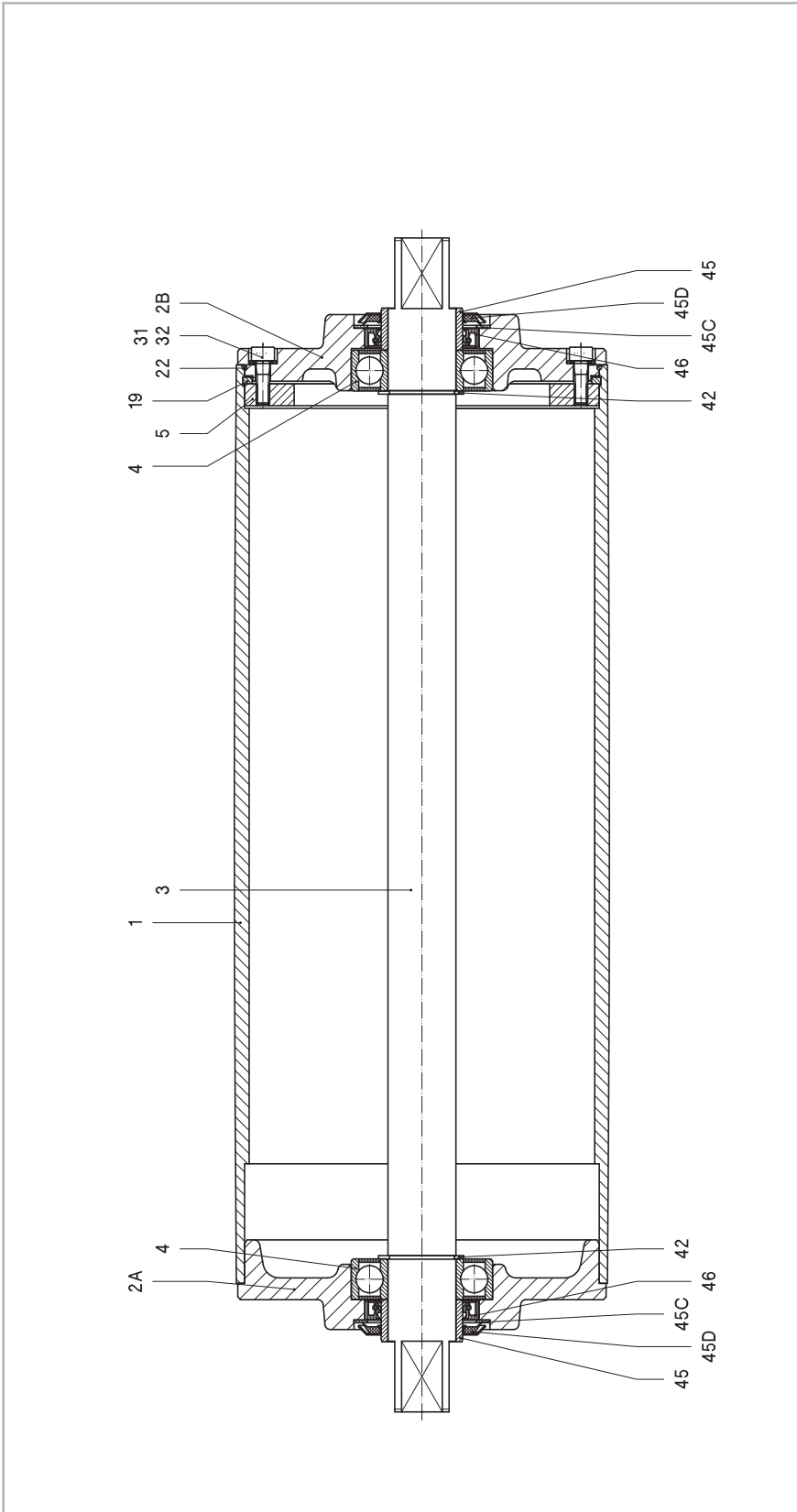




# Cross sectional / parts description

KT 138A25

Legenda



Remark: Taildrum also available in B-design (KT138B25)

1	Shell	42	Circclip
2A	Endflange	45	Bearing race
2B	Endflange	45C	Shim plated
3	Shaft	45D	Gammaring
4	Ballbearing	46	Oilseal
5	Mountingring		
19	Springring		
22	O-ring		
31	Int. hex screw		
32	Washer		

## Material

The external parts of the Drummotor are made from mild steel and cast iron. Depending on the application it is also possible to manufacture in stainless steel (complete or part). You can choose between stainless steel 304 (general food industry) and stainless steel 316 (salt water applications).

## Backstop - Brake

If an inclined belt conveyor is stopped fully loaded, it could run backwards.

To prevent this we can install a backstop. One of the bearings in the Drummotor is replaced by a one way bearing. The way this bearing is installed determines the direction of rotation of the drum. TBRH indicates a cw rotation and TBLH ccw.

In situations where a Drummotor needs to be able to drive in both directions it is not possible to use a backstop. In this case we use a brake. When an declined belt or a horizontal belt needs to be stopped quickly to pick or place items a brake is the best solution.

## Inclined position

Sometimes a Drummotor needs to be installed on an inclined or even vertical position. This is possible, but we need to make adjustments to the oil level in the drum as the oil will flow to the lower side of the Drummotor causing the top bearing to run without lubrication. To prevent problems we will need to know the installation angle so we can fill the drum with extra oil and fit a double sealed bearing on the upper side.

## Thermal protection

A Van der Graaf Drummotor can be fitted with thermal protection. This consists of either a thermistor (PTC) or bi-metal (klixon). We install these on each phase of the electric motor.

## Encoder - Sensor bearing

In certain applications it is required to measure the speed or position of a conveyor belt. For this type of application we can install an encoder or sensor bearing to accurately measure rotational speed of the Drummotor.

The accuracy needed will determine the type of encoder or sensor used.

## Lagging

The power produced by the Drummotor has to be transferred to the belt and lagging is used to give more friction between the Drummotor and the conveyor belt. Van der Graaf can fit your Drummotor with different kinds of lagging.

There is a difference between cold and hot vulcanised lagging. Cold vulcanised means the lagging is glued to the Drummotor usually in sheet form and the join 'welded' together. Hot vulcanising is a process where the shell is wrapped around with thin layers of rubber. The shell with the rubber is then baked in an autoclave fusing the layers together creating a seamless finish.

It is possible to cut grooves (e.g chevron or diamond) in the lagging.

## Sprockets

Do you wish to use a Drummotor to drive modular belts? Van der Graaf can help you! Fitting sprockets suitable for various types of modular belts is a simple solution. The Drummotor is manufactured with a cylindrical shell and machined with a patented 'keying' system. The sprockets are simply 'slid' on and locked securely into position.



## Options

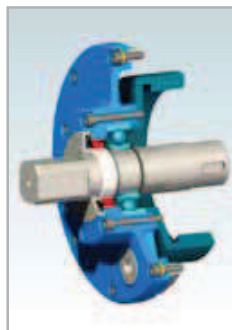
### Sealings for mild steel Drummotors

RB sealing - IP 66



This is Van der Graaf's standard sealing. This type of sealing will work in most conditions.

RBS sealing - IP 66



This sealing is specifically designed for those applications where high water pressure is used for cleaning.

HD sealing - IP 66



This sealing is designed for abrasive applications, like sand, gravel and soil.

### Sealings for stainless steel Drummotors

CR sealing - IP 66



This is our standard sealing for stainless steel Drummotors, a very effective, multi labyrinth sealing.

UW sealing - IP 68



This sealing is suitable for under water applications. The maximum depth is approx 2,5 m.

# Options

Specification	Standard	Optional
<b>Construction</b>		
Shafts and bolts	Mild steel	Stainless steel
Endflanges	Cast iron	Stainless steel
Shell	Mild steel	Stainless steel
Junctionbox	Cast iron	Stainless steel or polyamide
Cable		Shielded or non-shielded
Sealing mild steel	RB	RBS, HD
Sealing stainless steel	CR	UW
<b>Shell</b>		
Crowned	•	
Cylindrical		•
Balanced		•
Lagging, cold vulcanised		•
Lagging, hot vulcanised		•
Lagging, FDA approved		•
Fitted with grooves, patterns		•
Sprockets		•
<b>Electro motor</b>		
Three-phase asynchronous	•	
Power supply	230/400 V - 50 Hz	Other voltages and frequencies on request
Two speed (Dahlander)		•
Insulation class	F	H
Thermal protection		Bi-metal or thermistor
Run by frequency inverter	•	
<b>Other options</b>		
Food grade oil		•
Backstop, mechanical		•
Brake, electro mechanical		•
Clutch brake, electro mechanical		•
Inclined or vertical position		•
Other facewidth's		•
Different shaft designs		•
Encoder or sensor bearing in drum motor		•
Encoder or sensor bearing in tail drum		•
<b>Certificates</b>		
CE	•	
UL		•
CSA		•
ATEX zone 22, dust		•
UW Under water application (IP68)		•





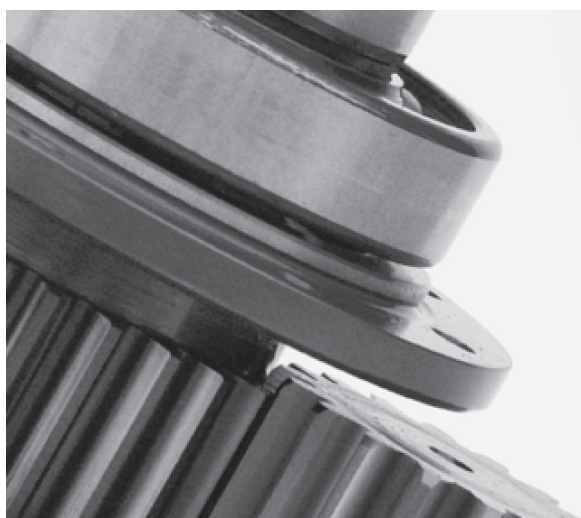
## Product range

### Our products, an overview

Drum motor type	TM 100B25	TM 113B25	TM 127.25	TM 138.25	TM 160.25	TM 160.30	TM 215.30	TM 215.40
Drum diameter (mm)	100	113	127	138	160	160	215	215
Shaft diameter (mm)	25	25	25	25	25	30	30	40
Power (kW)	0.05-0.37	0.04-0.55	0.10-1.1	0.10-1.1	0.10-0.75	0.10-2.2	0.10-2.2	0.37-5.5
Speed (m/s)	0.007-3.60	0.008-4.40	0.008-2.60	0.009-2.80	0.13-3.30	0.06-4.00	0.08-5.30	0.12-4.70

Drum motor type	TM 215B50	TM 273.40	TM 315.40	TM 315.50	TM 400A50	TM 400.60	TM 500A60	TM 500A75
Drum diameter (mm)	215	273	315	315	400	400	500	500
Shaft diameter (mm)	50	40	40	50	50	60	60	75
Power (kW)	1.5-4.0	0.37-5.5	0.37-5.5	1.1-11	1.1-11	1.5-22	1.5-22	11-30
Speed (m/s)	0.18-0.31	0.17-5.00	0.18-5.20	0.16-4.40	0.20-4.80	0.20-4.60	0.25-4.70	0.80-3.20

Drum motor type	TM 620A75	TM 630A100	TM 800A100	TM 800A130
Drum diameter (mm)	620	630	800	800
Shaft diameter (mm)	75	100	100	130
Power (kW)	11-30	22-55	22-55	55-132
Speed (m/s)	1.00-3.90	1.00-4.00	1.25-5.10	1.60-4.50



#### Design benefits

- Robust, industrial design
- Fully enclosed
- Oil filled
- Well-sized gears and bearings

#### Installation advantages

- Easy to install
- Compact and reliable
- Easy to clean
- Virtually maintenance free
- Low Life Cycle Costs

