

**TM 160-30**

Product information

Drummotors

**TM 160-30**



*Van der Graaf*  
Power Transmission Equipment

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

# The TM 160's



**playground**





# TM 160-30

## 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.

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# Selection table

TYPE TM 160.30	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													
230 230 Z 230 ZV	2,20	4,00 520	3,40 615	2,80 745	2,60 805	2,10 995	1,70 1230				400	450	4,6	32	
		1,40 1495	1,20 1740	1,15 1815	1,00 2090	0,90 2320	0,85 2460	0,80 2610							
		1,30 1610													
220 220 Z 220 ZV	1,50	4,00 355	3,40 420	2,80 510	2,60 550	2,10 680	1,70 840				350	400	3,1	31	
		1,40 1020	1,30 1095	1,20 1190	1,15 1240	1,00 1425									
		0,90 1585	0,85 1675	0,80 1780											
420 420 ZV	1,50	2,50 570	2,10 680	1,80 790	1,60 890	1,30 1095	1,10 1295				400	450	3,7	32	
		0,85 1675	0,80 1780	0,75 1900	0,70 2035	0,65 2190	0,60 2375	0,55 2590							
415 415 Z 415 ZV	1,10	2,00 525	1,70 615	1,40 745	1,25 835	1,10 950	0,85 1230				350	400	2,8	31	
		0,70 1495	0,60 1740	0,55 1900	0,50 2090	0,45 2320	0,40 2615								
		0,65 1610													
410 410 Z 410 ZV 410 PL2	0,75	2,00 355	1,70 420	1,40 510	1,25 570	1,10 650	0,85 840	0,75 950	0,70 1020		350	400	1,9	30	
		0,65 1095	0,60 1190	0,55 1295	0,50 1425										
		0,45 1585	0,40 1780	0,34 2095											
		0,27 2555	0,23 3000												
475 475 Z 475 ZV 475 PL2	0,55	2,00 260	1,70 305	1,40 375	1,25 420	1,10 475	0,85 615	0,75 695	0,70 745	0,55 950	350	400	1,6	29	
		0,65 800	0,50 1045	0,45 1160	0,40 1305	0,34 1535									
		0,31 1685													
		0,18 2810													
675 675 Z 675 ZV	0,55	0,95 550	0,60 870								350	400	1,6	31	
		0,37 1410													
		0,29 1800	0,27 1935	0,23 2270											
605 605 Z 605 ZV 605 PL2	0,37	1,40 250	1,10 320	0,95 370	0,85 415	0,70 500	0,60 585	0,50 705	0,45 780	0,35 1005	350	400	1,4	30	
		0,30 1170	0,29 1210	0,27 1300											
		0,23 1530	0,20 1760												
		0,18 1890	0,15 2270	0,12 2835											
634 634 Z	0,25	1,40 170	1,10 215	0,95 250	0,85 280	0,70 340	0,60 395	0,50 475	0,45 530	0,35 680	0,30 790	350	400	0,9	29
		0,29 820	0,27 880	0,23 1035	0,20 1190										
834 834 Z 834 PL2	0,25	1,00 240	0,65 365	0,55 430	0,40 595	0,26 915					350	400	1,0	31	
		0,17 1395	0,15 1585												
		0,14 1645	0,12 1915	0,09 2555											
825 825 Z	0,18	1,00 170	0,85 200	0,70 245	0,65 265	0,55 310	0,40 430	0,35 490	0,26 660	0,23 745	350	400	0,9	30	
		0,20 855	0,17 1005	0,15 1140											
818 818 Z	0,13	1,00 125	0,85 145	0,70 175	0,65 190	0,55 225	0,40 310	0,35 355	0,26 475	0,23 535	350	400	0,6	29	
		0,20 620	0,17 725	0,15 825											

## Selection table Dahlander motors

<b>1218</b>		<b>0,45</b> 275	<b>0,33</b> 375								350	400			
<b>1218 Z</b>	<b>0,13</b>	<b>0,13</b> 950	<b>0,11</b> 1125	<b>0,10</b> 1235							350	400	0,9	31	
<b>1218 PL2</b>		<b>0,09</b> 1330	<b>0,07</b> 1710	<b>0,06</b> 1995							400	425			
<b>1213</b>		<b>0,65</b> 145	<b>0,55</b> 175	<b>0,45</b> 210	<b>0,40</b> 240	<b>0,33</b> 290	<b>0,27</b> 350	<b>0,24</b> 395	<b>0,22</b> 430	<b>0,17</b> 560	<b>0,14</b> 680	350	400	0,8	30
<b>1213 Z</b>	<b>0,10</b>	<b>0,13</b> 730	<b>0,11</b> 865	<b>0,10</b> 950											

Available standard facewidth's: 350 - 400 - 425 - 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 100 mm

The total weight of a Drummotor grows approx. 2,5 kg per 100 mm; Available torque: (Beltpull N x drum diameter m) / 2 Nm

## Dahlander motors

TYPE TM 160.30	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											
<b>410/220</b>		<b>2,00/4,00</b> 355	<b>1,70/3,40</b> 420	<b>1,40/2,80</b> 510	<b>1,30/2,60</b> 550	<b>1,05/2,10</b> 680	<b>0,85/1,70</b> 840	<b>0,75/1,50</b> 950	<b>0,70/1,40</b> 1020				
<b>410/220 Z</b>	<b>0,75/1,50</b>	<b>0,65/1,30</b> 1095	<b>0,60/1,20</b> 1190	<b>0,55/1,10</b> 1295	<b>0,50/1,00</b> 1425					400	450	2,3/3,3	32
<b>410/220 ZV</b>		<b>0,45/0,90</b> 1585	<b>0,42/0,84</b> 1695	<b>0,40/0,80</b> 1780	<b>0,35/0,70</b> 2035								
<b>475/215</b>		<b>2,00/4,00</b> 260	<b>1,70/3,40</b> 305	<b>1,40/2,80</b> 375	<b>1,25/2,50</b> 420	<b>1,05/2,10</b> 500	<b>0,85/1,70</b> 615	<b>0,75/1,50</b> 695	<b>0,70/1,40</b> 745				
<b>475/215 Z</b>	<b>0,55/1,10</b>	<b>0,65/1,30</b> 805	<b>0,60/1,20</b> 870	<b>0,55/1,10</b> 950	<b>0,50/1,00</b> 1045	<b>0,45/0,90</b> 1160	<b>0,42/0,84</b> 1245	<b>0,40/0,80</b> 1305	<b>0,35/0,70</b> 1495	350	400	1,6/2,5	31
<b>475/215 ZV</b>		<b>0,31/0,62</b> 1685											
<b>405/210</b>		<b>2,00/4,00</b> 180	<b>1,70/3,40</b> 210	<b>1,40/2,80</b> 255	<b>1,25/2,50</b> 285	<b>1,05/2,10</b> 340	<b>0,85/1,70</b> 420	<b>0,75/1,50</b> 475	<b>0,70/1,40</b> 510				
<b>405/210 Z</b>	<b>0,37/0,75</b>	<b>0,65/1,30</b> 550	<b>0,60/1,20</b> 595	<b>0,55/1,10</b> 650	<b>0,50/1,00</b> 715	<b>0,45/0,90</b> 790	<b>0,42/0,84</b> 850	<b>0,40/0,80</b> 890	<b>0,35/0,70</b> 1020	350	400	1,0/1,8	29
<b>405/210 ZV</b>		<b>0,31/0,62</b> 1150											
<b>837/475</b>		<b>1,00/2,00</b> 260	<b>0,85/1,70</b> 305	<b>0,70/1,40</b> 375	<b>0,65/1,30</b> 400	<b>0,55/1,10</b> 475	<b>0,45/0,90</b> 580	<b>0,40/0,80</b> 655	<b>0,35/0,70</b> 745	350	400		
<b>837/475 Z</b>	<b>0,27/0,55</b>	<b>0,26/0,52</b> 1005	<b>0,23/0,46</b> 1135							350	400	1,5/1,3	31
<b>837/475 ZV</b>		<b>0,20/0,40</b> 1305	<b>0,17/0,34</b> 1535	<b>0,15/0,30</b> 1740						350	400		
<b>837/475 PL2</b>		<b>0,13/0,26</b> 1945	<b>0,11/0,22</b> 2300	<b>0,09/0,18</b> 2810						400	425		
<b>825/405</b>		<b>1,00/2,00</b> 175	<b>0,85/1,70</b> 205	<b>0,70/1,40</b> 250	<b>0,65/1,30</b> 270	<b>0,55/1,10</b> 320	<b>0,45/0,90</b> 390	<b>0,40/0,80</b> 440	<b>0,35/0,70</b> 500	350	400		
<b>825/405 Z</b>	<b>0,18/0,37</b>	<b>0,26/0,52</b> 675	<b>0,23/0,46</b> 765	<b>0,20/0,40</b> 880	<b>0,17/0,34</b> 1035	<b>0,15/0,30</b> 1170				350	400	1,2/1,0	30
<b>825/405 PL2</b>		<b>0,13/0,26</b> 1310	<b>0,11/0,22</b> 1545	<b>0,09/0,18</b> 1890						400	425		

Available standard facewidth's: 350 - 400 - 425 - 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 100 mm

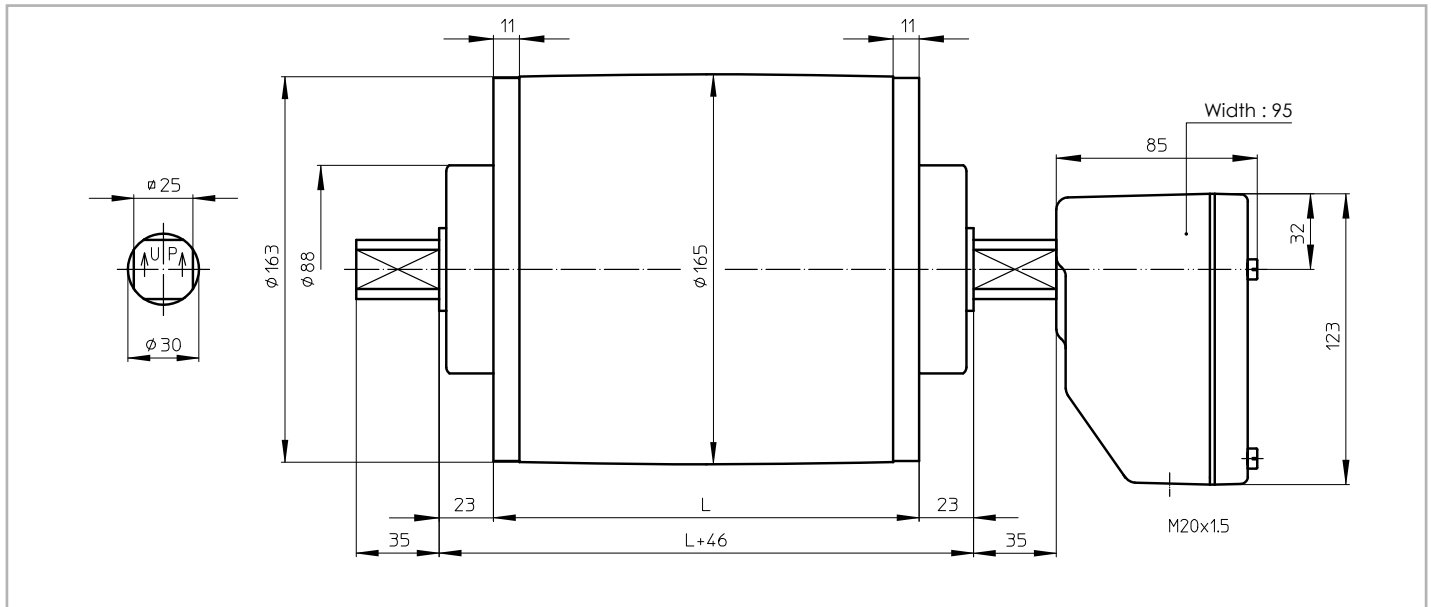
The total weight of a Drummotor grows approx. 2,5 kg per 100 mm; Available torque: (Beltpull N x drum diameter m) / 2 Nm



## Dimensions Drummotors mild steel

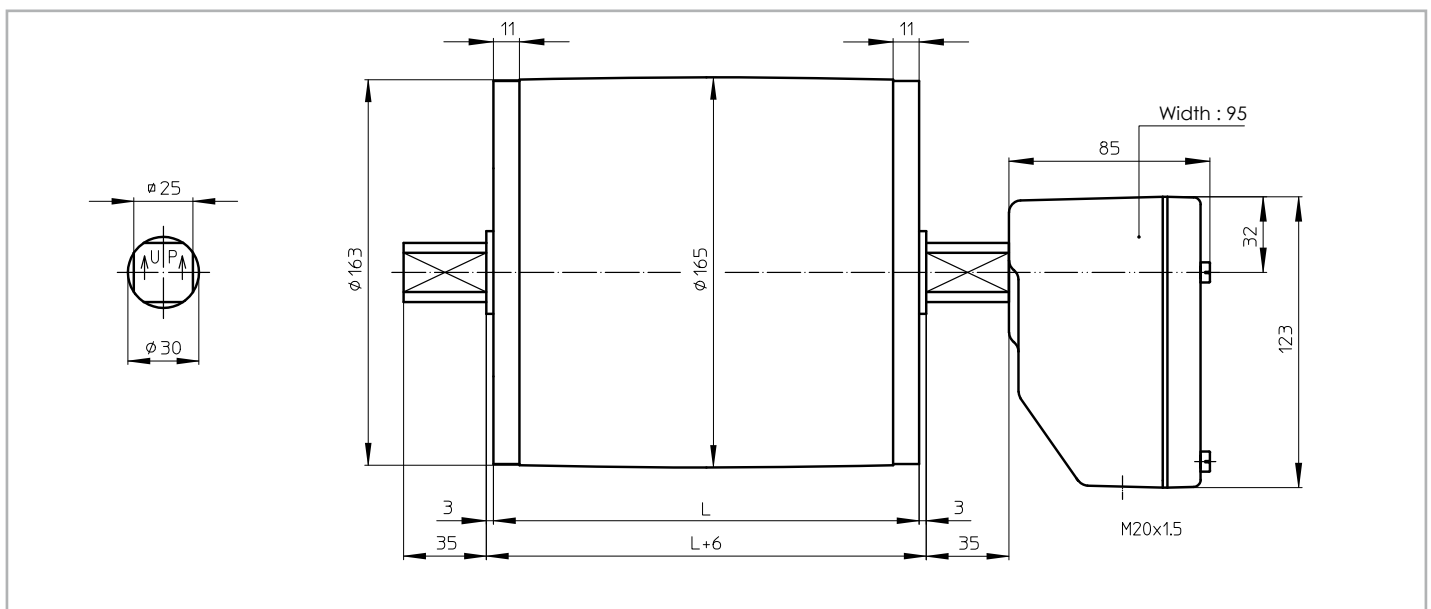
### TM 160A30

TM 160A30, mild steel Drummotor with cast iron junctionbox



### TM 160B30

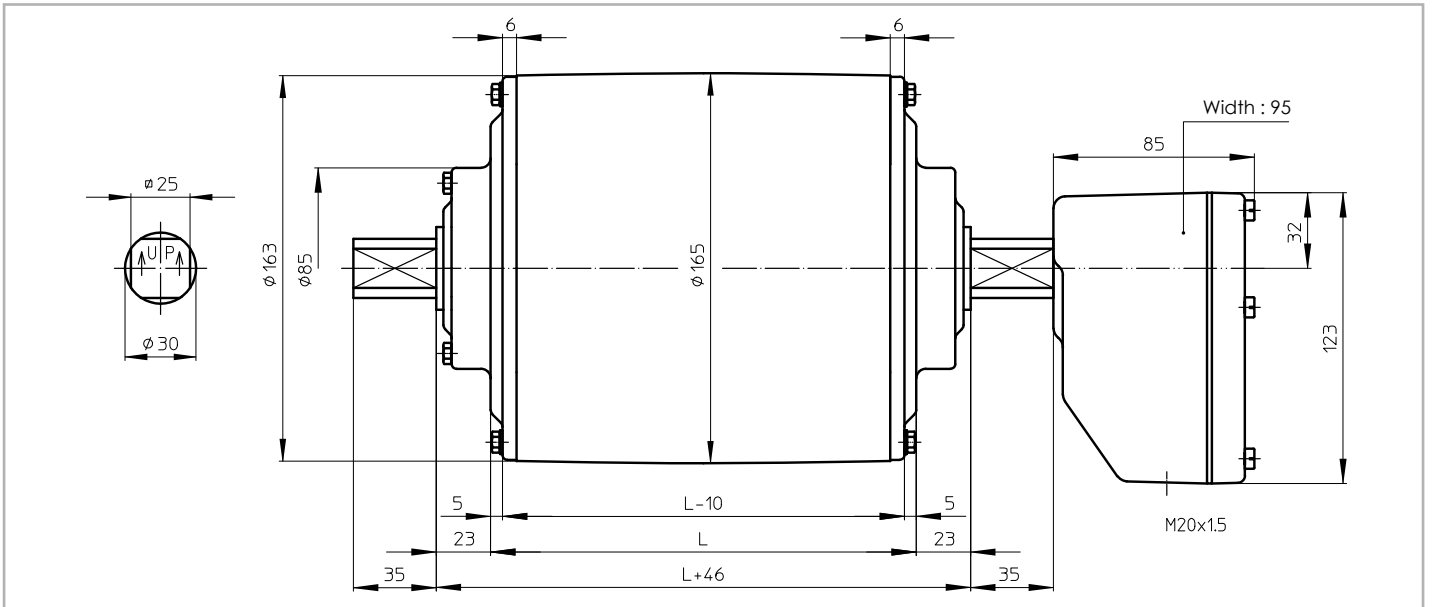
TM 160B30, mild steel Drummotor with cast iron junctionbox



# Dimensions Drummotors stainless steel

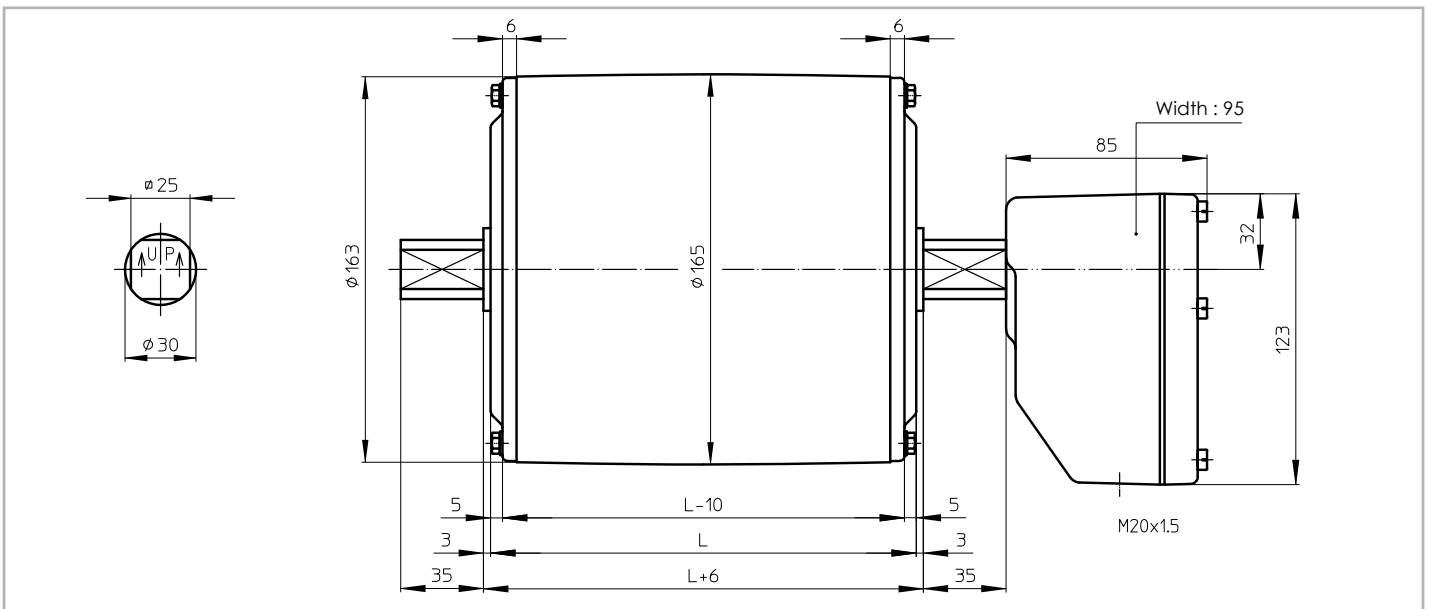
## TM 160A30 CR

TM 160A30 CR, stainless steel Drummotor with polyamide junctionbox and CR sealing



## TM 160B30 CR

TM 160B30 CR, stainless steel Drummotor with polyamide junctionbox and CR sealing

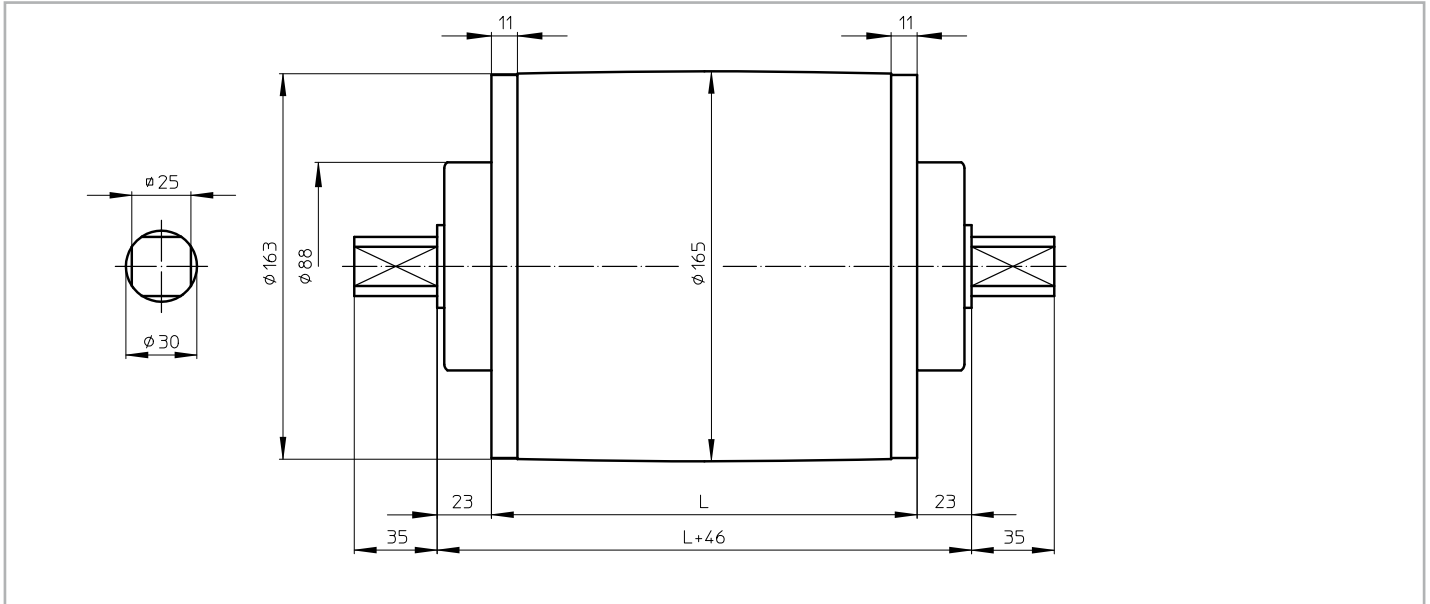




# Dimensions Taildrums mild steel

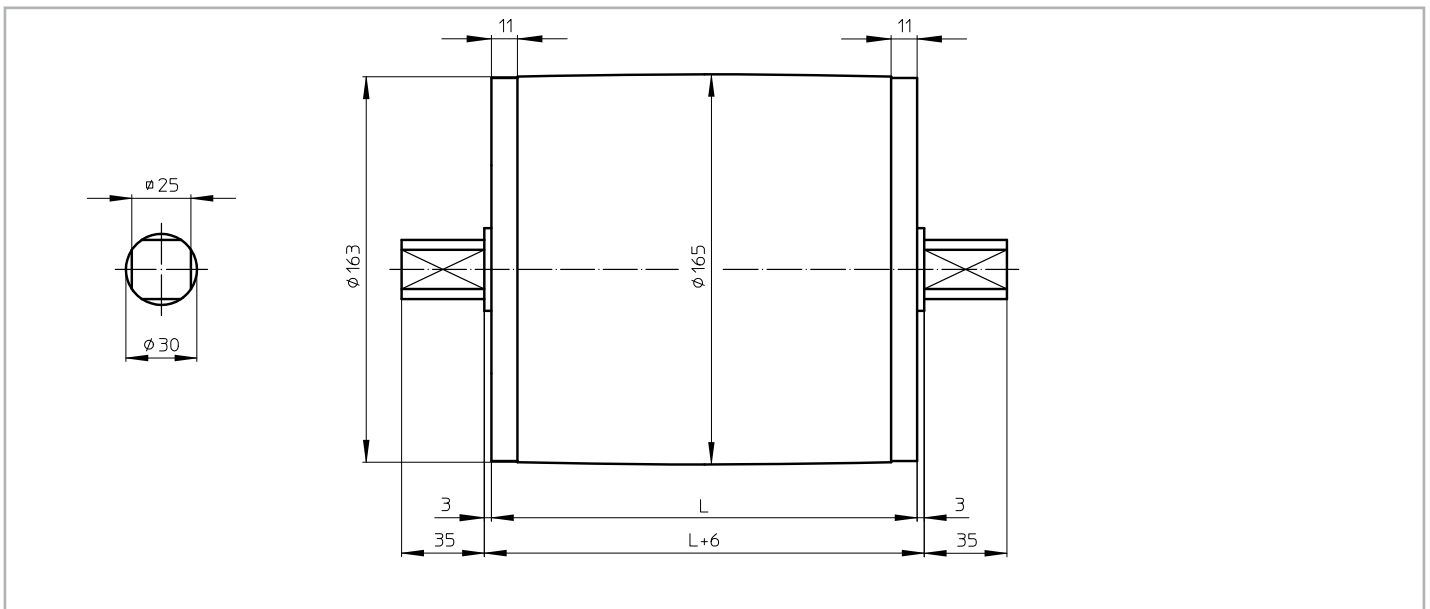
## KT 160A30

KT 160A30, mild steel Taildrum



## KT 160B30

KT 160B30, mild steel Taildrum



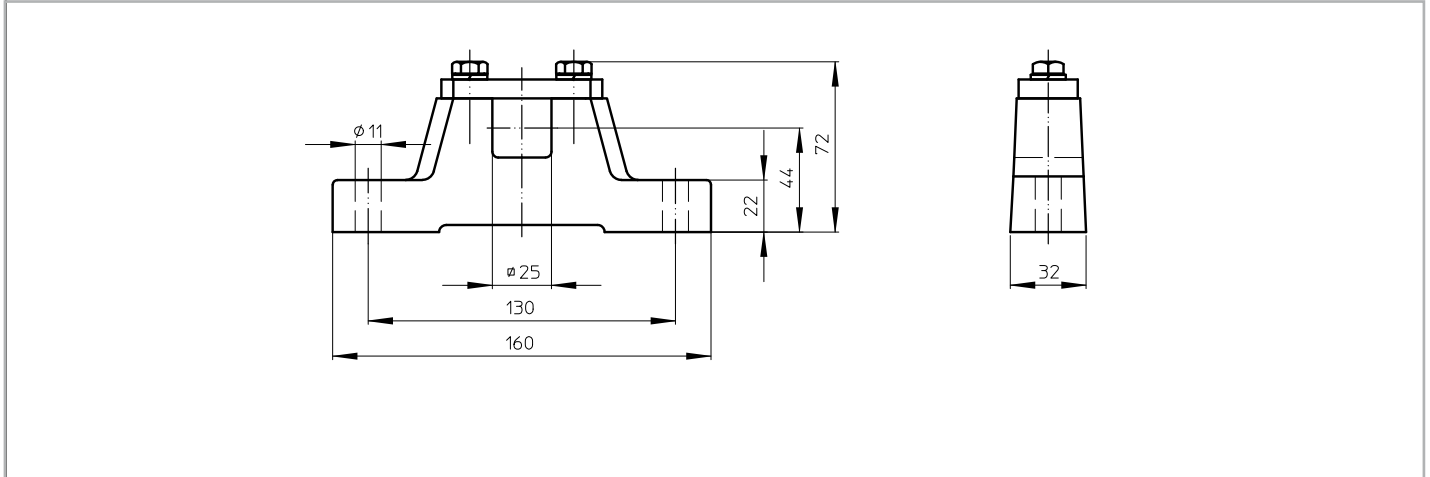




## Dimensions bracket / Cable exit

### AB 30

AB 30, cast iron or stainless steel bracket  
Weight: 2,4 kg per pair

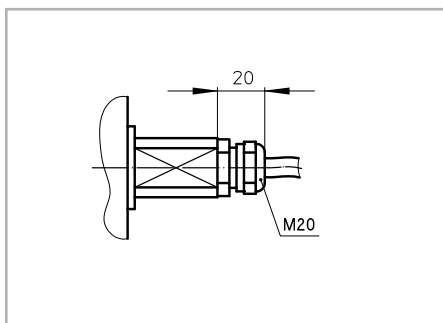


Standard design of a TM 160-30 is with a cast iron terminal box. For stainless steel design, this can be either a polyamide or stainless steel junctionbox.

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.

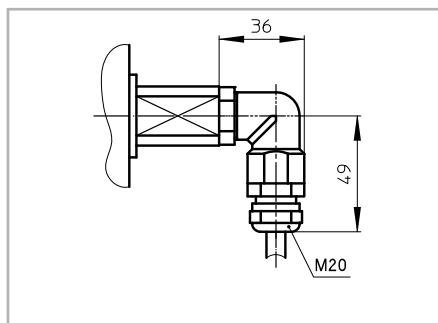
### Option 1

Straight cable exit with cable gland



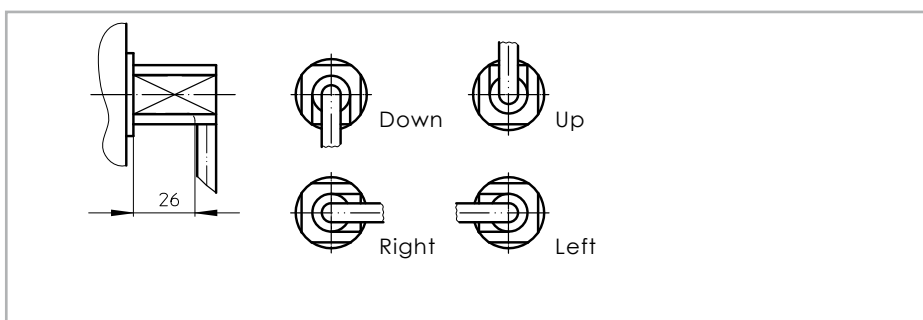
### Option 3

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



### Option 4

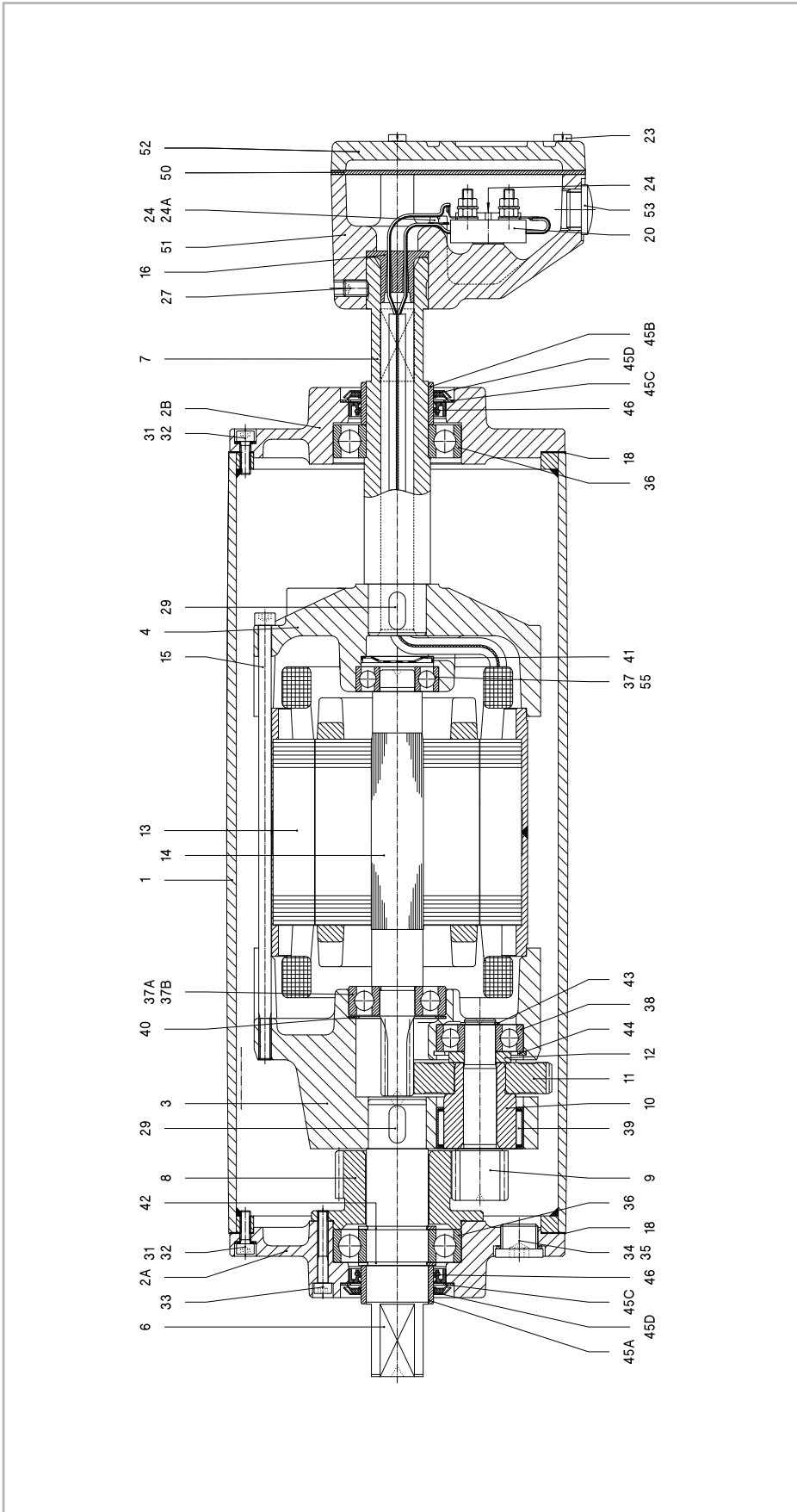
Open cable exit (minimum facewidth increases with 25 mm)



# Cross sectional / parts description

TM 160A30

Legenda



Remark: Drummotor also available in B-design (TM160B30)

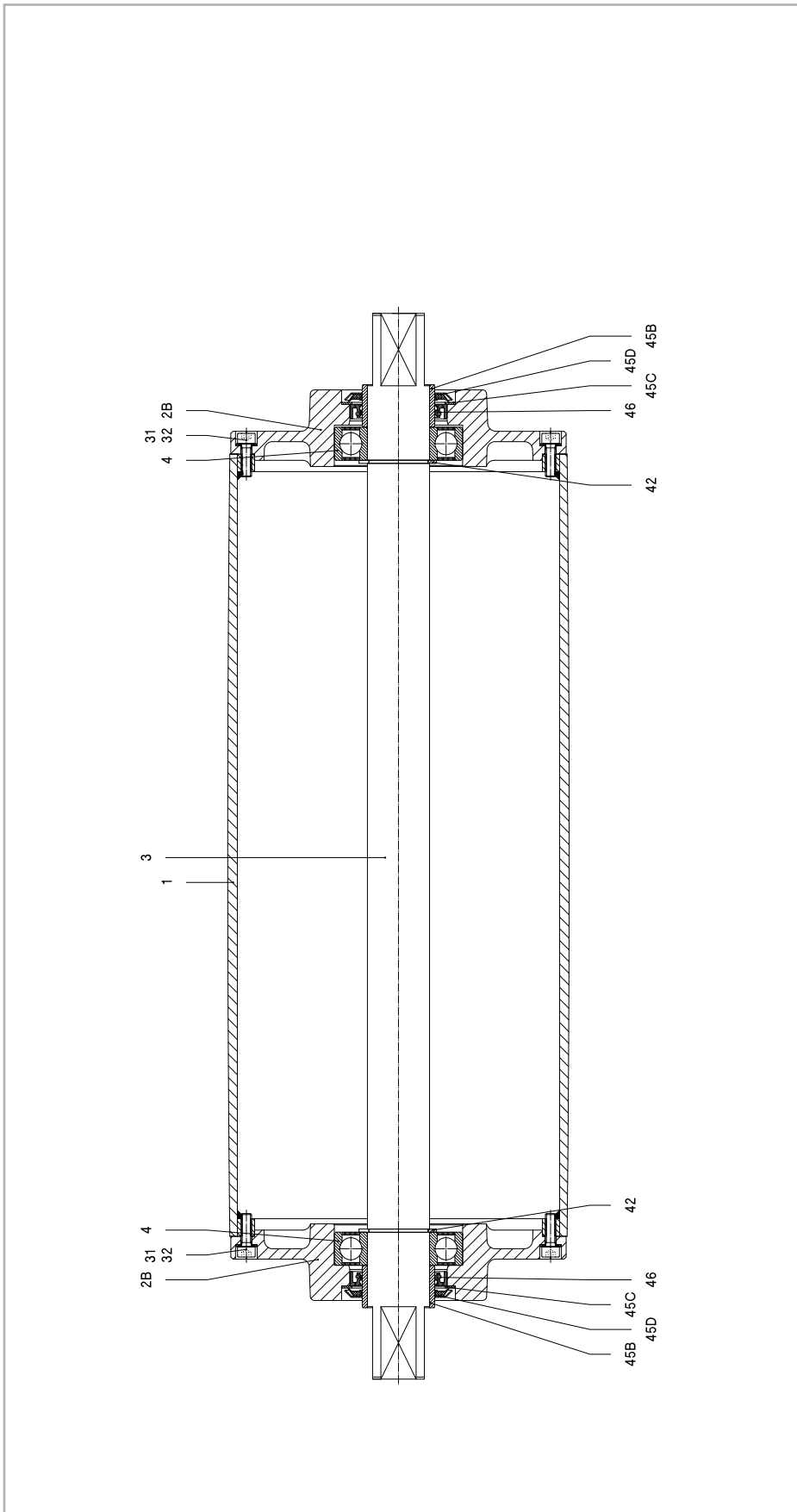
1	Shell	27	Setscrew	38	Ballbearing	45D	Gammaring
2A	Endflange	29	Key	39	Needlebearing	46	Oilseal
2B	Endflange	31	Int. hex screw	40	Shim	50	Seal
3	Gearhousing	32	Washer	41	Disc	51	Junctionbox
4	Motoflange	33	Int. hex screw	42	Circlip	52	Junctionbox cover
6	Shaftend	34	Fillerplug	43	Circlip	53	Stopping plug
7	Hollow shaft	35	Washer	44	Circlip	55	Ballbearing incl. backstop
8	External gear	36	Ballbearing	45A	Bearing race	57	Dataplate
9/10	Pinion with bush	37	Ballbearing	45B	Bearing race		
11	Gear	37A/B	Ballbearing	45C	Shim plated		
		12	Distance ring				
		13	Stator				
		14	Rotor				
		15	Int. hex screw				
		16	Cable passage				
		18	Gasket				
		20	Terminalboard				
		23	Cyl. head screw				
		24	Cyl. head screw				
		24A	Toothed lock washer				
		29	Distance ring				
		31	Int. hex screw				
		32	Washer				
		33	Int. hex screw				
		34	Fillerplug				
		35	Washer				
		36	Ballbearing				
		37	Ballbearing				
		37A/B	Ballbearing				
		40	Shell				
		42	Endflange				
		44	Endflange				
		46	Gearhousing				
		50	Motoflange				
		51	Shaftend				
		52	Hollow shaft				
		53	External gear				
		55	Pinion with bush				
		57	Gear				





KT 160A30

Legenda



Remark: Taildrum also available in B-design (KT1 60B30)

1	Shell	42	Circlip
2B	Endflange	45B	Bearing race
3	Shaft	45C	Shim plated
4	Ballbearing	45D	Gammaring
31	Int. hex screw	46	Oliseal
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.

## 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)		•
Twin drive (double power)		•
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)		•



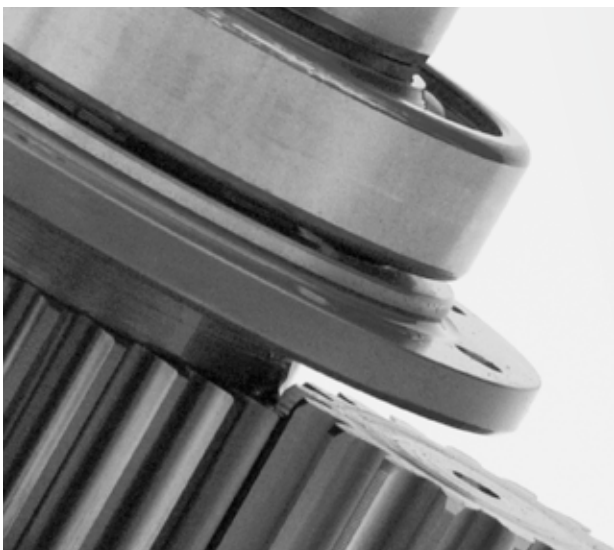
## Product range

### 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





# Van der Graaf

## Power Transmission Equipment

### Contact us

#### Netherlands

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