

Product information

Drummotors

TM 215-30



Van der Graaf
Power Transmission Equipment

www.vandergraafpte.nl



The TM 215's



playground

TM 215-30

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.

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 / Cable exit
12	Cross sectional / parts description
16	Options
19	Product range
20	Contact us



Selection table

TYPE TM 215.30	Power kW	Beltspeed m/s at 50 Hz Beltpull N								Min. L mm Design A	Min. L mm Design B	Full load curr. 400 V - 50 Hz I = ... A	Weight kg L=500
230 230 ZV	2,20	5,30 395 1,90 1100	4,50 460 1,70 1230	3,70 565 1,60 1305	3,40 615 1,50 1395	2,80 745 1,40 1495	2,30 905 1,20 1745			400	450	4,6	48
220 220 Z	1,50	5,30 270 1,90 750	4,50 315 1,70 840	3,70 385 1,60 890	3,40 420 1,50 950	2,80 510 1,40 1020	2,30 620 1,20 1190	1,10 1295		350	400	3,1	47
420 420 Z 420 ZV	1,50	3,30 430 1,10 1295 0,90 1585	2,80 510 1,00 1425 0,85 1675	2,40 595 0,80 1780	2,10 680 0,70 2035	1,70 840	1,50 950			400	450	3,7	48
415 415 Z 415 ZV	1,10	2,70 385 0,90 1160 0,65 1610	2,30 455 0,85 1230 0,60 1725	1,90 550 0,80 1305 0,55 1900	1,70 615 0,75 1395	1,40 745	1,20 870			350	400	2,8	47
410 410 Z 410 ZV 410 PL2	0,75	2,70 265 0,85 840 0,45 1585 0,36 1915	2,30 310 0,80 890 0,30 2300	1,90 375 0,75 950	1,70 420 0,65 1095	1,40 510 0,60 1190	1,20 595 0,55 1295	1,00 715 0,90 790		350 350 350 400	400 400 400 425	1,9	46
475 475 Z 475 PL2	0,55	2,70 195 0,85 615 0,24 2110	2,30 225 0,65 805	1,90 275 0,60 870	1,70 305 0,55 950	1,40 375 0,45 1160	1,20 435 0,40 1305	1,00 525 0,90 580 0,70 745		350 350 400	400 400 425	1,6	45
675 675 Z 675 ZV	0,55	1,25 420 0,50 1045 0,30 1740	0,75 695 0,38 1375 0,36 1450	0,36						350	400	1,6	47
605 605 Z 605 PL2	0,37	1,80 195 0,45 780 0,24 1420	1,50 235 0,40 880 0,20 1700	1,25 280 0,38 925 0,16 2130	1,20 295 0,36 975	0,90 390 0,30 1170	0,75 470 0,27 1300	0,65 540 0,60 585		350 350 400	400 400 425	1,4	46
634 634 Z	0,25	1,80 130 0,38 625	1,50 160 0,36 660	1,25 190 0,30 790	1,20 200 0,27 880	0,90 265	0,75 315	0,65 365	0,60 395	0,45 530	0,40 595	0,9	45
834 834 Z 834 PL2	0,25	1,40 170 0,22 1080 0,18 1280	0,85 280 0,20 1190 0,16 1440	0,70 340 0,12 1915	0,55 430	0,50 475				350 350 400	400 400 425	1,0	47
825 825 Z	0,18	1,40 120 0,26 660	1,20 145 0,22 775	0,90 190 0,20 855	0,85 200	0,70 245	0,55 310	0,50 340	0,45 380	0,34 505	0,30 570	0,9	46
818 818 Z	0,13	1,40 90 0,26 475	1,20 105 0,22 560	0,90 135 0,20 620	0,85 145	0,70 175	0,55 225	0,50 245	0,45 275	0,34 365	0,30 410	0,6	45

Selection table Dahlander motors

1218		0,60 205	0,18 685									350	400		
1218 Z	0,13	0,17 725	0,15 825	0,13 950								350	400	0,9	47
1218 PL2		0,12 995	0,09 1330	0,08 1495								400	425		
1213		0,85 110	0,70 135	0,60 160	0,55 175	0,45 210	0,36 265	0,32 300	0,29 330	0,22 430	0,18 530	350	400	0,8	46
1213 Z	0,10	0,17 560	0,15 635	0,13 730											

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. 4,5 kg per 100 mm

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

Dahlander motors

TYPE		Power	Beltspeed m/s at 50 Hz							Min. L	Min. L	Full load	Weight
TM 215.30		kW	Beltpull N							Design	Design	400 V -	kg
										A	B	50 Hz	
												I = ... A	L=500
410/220	0,75/1,50	2,70/5,40	2,30/4,60	1,90/3,80	1,70/3,40	1,40/2,80	1,20/2,40	1,00/2,00	0,90/1,80	400	450	2,3/3,3	48
410/220 Z		265	310	375	420	510	595	715	790				
410/220 ZV		0,85/1,70	0,80/1,60	0,75/1,50	0,65/1,30	0,60/1,20	0,55/1,00	0,50/1,00					
		840	890	950	1095	1190	1295	1425					
		0,45/0,90											
		1585											
475/215	0,55/1,10	2,70/5,40	2,30/4,60	1,90/3,80	1,70/3,40	1,40/2,80	1,20/2,40	1,00/2,00	0,90/1,80	350	400	1,6/2,5	47
475/215 Z		195	225	275	305	375	435	525	580				
		0,85/1,70	0,80/1,60	0,75/1,50	0,65/1,30	0,60/1,20	0,55/1,10	0,50/1,00	0,45/0,90				
		615	655	695	805	870	950	1045	1160				
		0,40/0,80											
		1305											
405/210	0,37/0,75	2,70/5,40	2,30/4,60	1,90/3,80	1,70/3,40	1,40/2,80	1,20/2,40	1,00/2,00	0,90/1,80	350	400	1,0/1,8	45
405/210 ZV		130	155	190	210	255	295	355	395				
		0,85/1,70	0,80/1,60	0,75/1,50	0,65/1,30	0,60/1,20	0,55/1,10	0,50/1,00	0,45/0,90				
		420	445	475	550	595	650	715	790				
		0,40/0,80											
		890											
837/475	0,27/0,55	1,35/2,70	1,15/2,30	0,95/1,90	0,85/1,70	0,70/1,40	0,60/1,20	0,50/1,00	0,45/0,90	350	400	1,5/1,3	47
		195	225	275	305	375	435	525	580				
		0,35/0,70	0,30/0,60										
837/475 Z		745	870										
		0,25/0,50	0,23/0,45	0,20/0,40									
		1045	1160	1305									
837/475 PL2		0,18/0,35	0,15/0,30	0,12/0,24									
		1445	1685	2110									
825/405	0,18/0,37	1,35/2,70	1,15/2,30	0,95/1,90	0,85/1,70	0,70/1,40	0,60/1,20	0,50/1,00	0,45/0,90	350	400	1,2/1,0	46
		130	155	185	205	250	295	350	390				
		0,35/0,70	0,30/0,60										
825/405 Z		500	585										
		0,25/0,50	0,23/0,45	0,20/0,40									
		705	780	880									
825/405 PL2		0,18/0,35	0,15/0,30	0,12/0,24									
		975	1135	1420									

Available standard facewidth's: 350 - 400 - 425 - 450 - 500 - 550 - 600 - 650 - 700 - 750 - 800 - 850 - 900 - 950 - 1000 mm

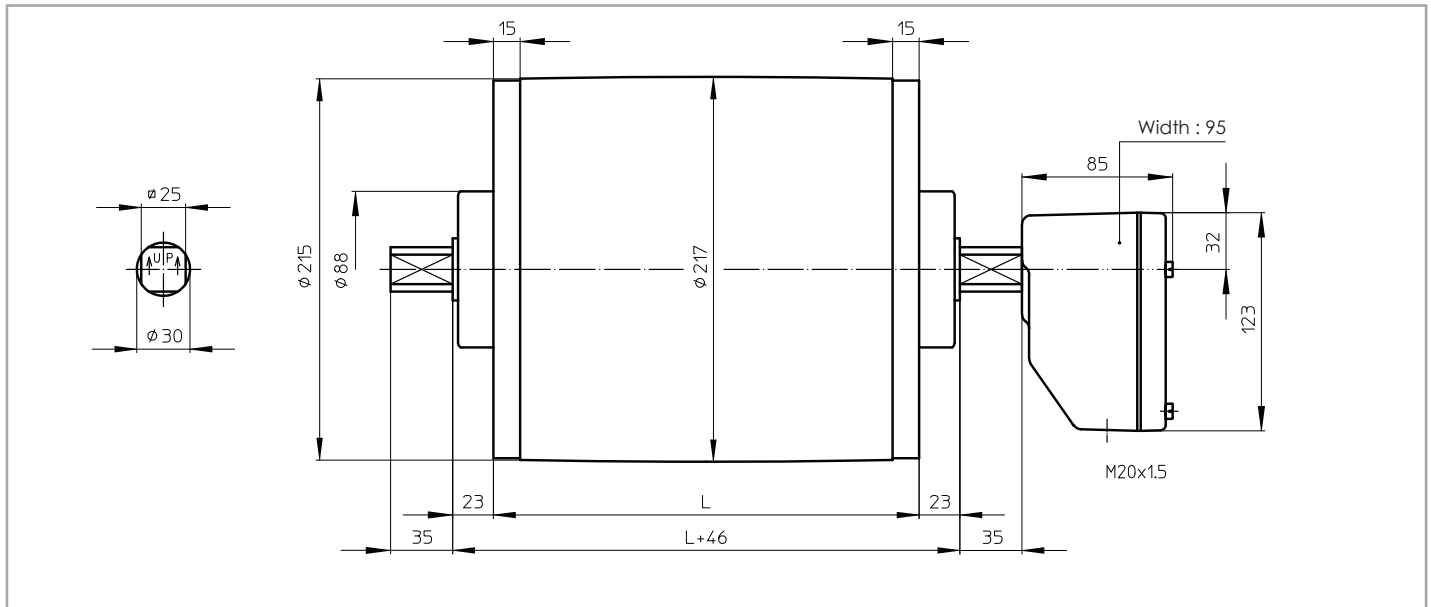
When an electro-mechanical brake is fitted, the minimum facewidth is increased by 100 mm

The total weight of a Drummotor grows approx. 4,5 kg per 100 mm

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

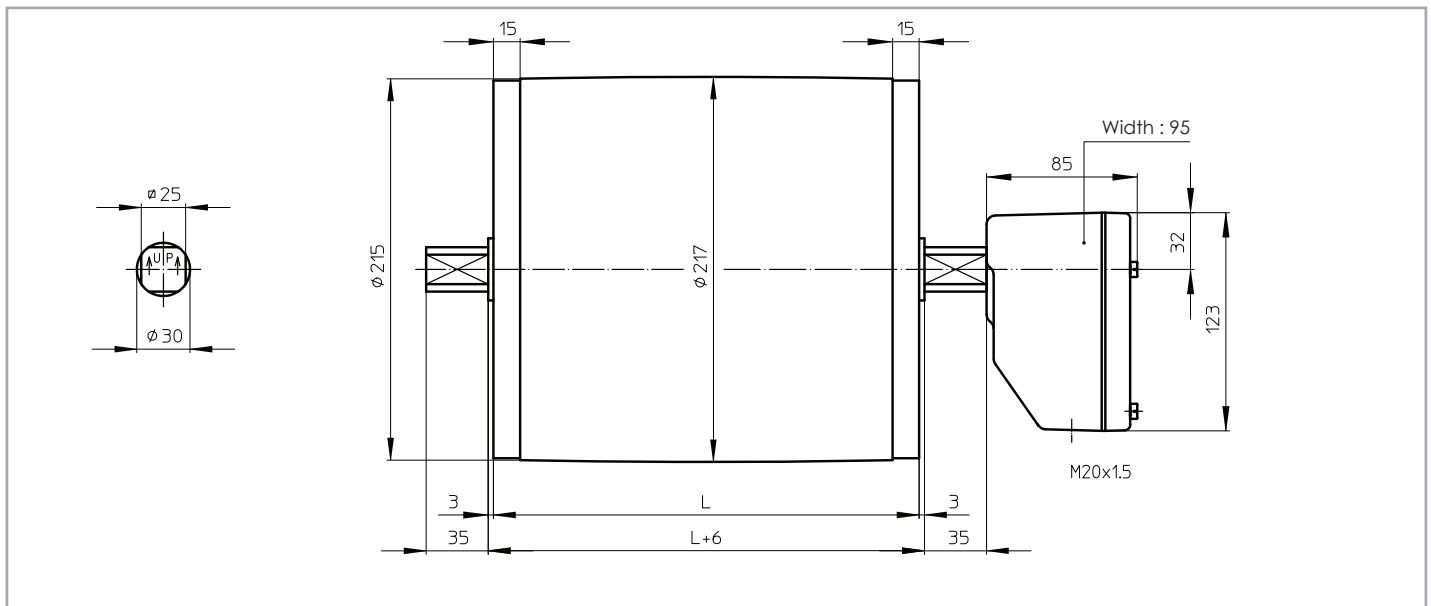
TM 215A30

TM 215A30, mild steel Drummotor with cast iron junctionbox



TM 215B30

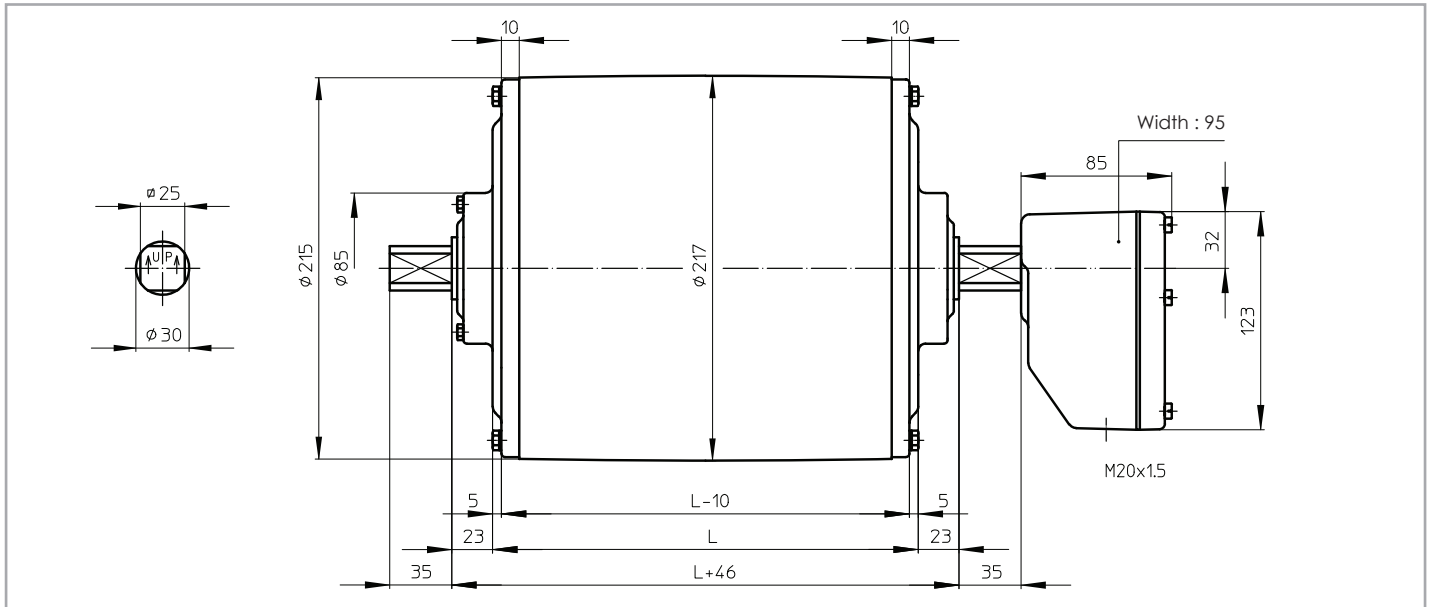
TM 215B30, mild steel Drummotor with cast iron junctionbox



Dimensions Drummotors stainless steel

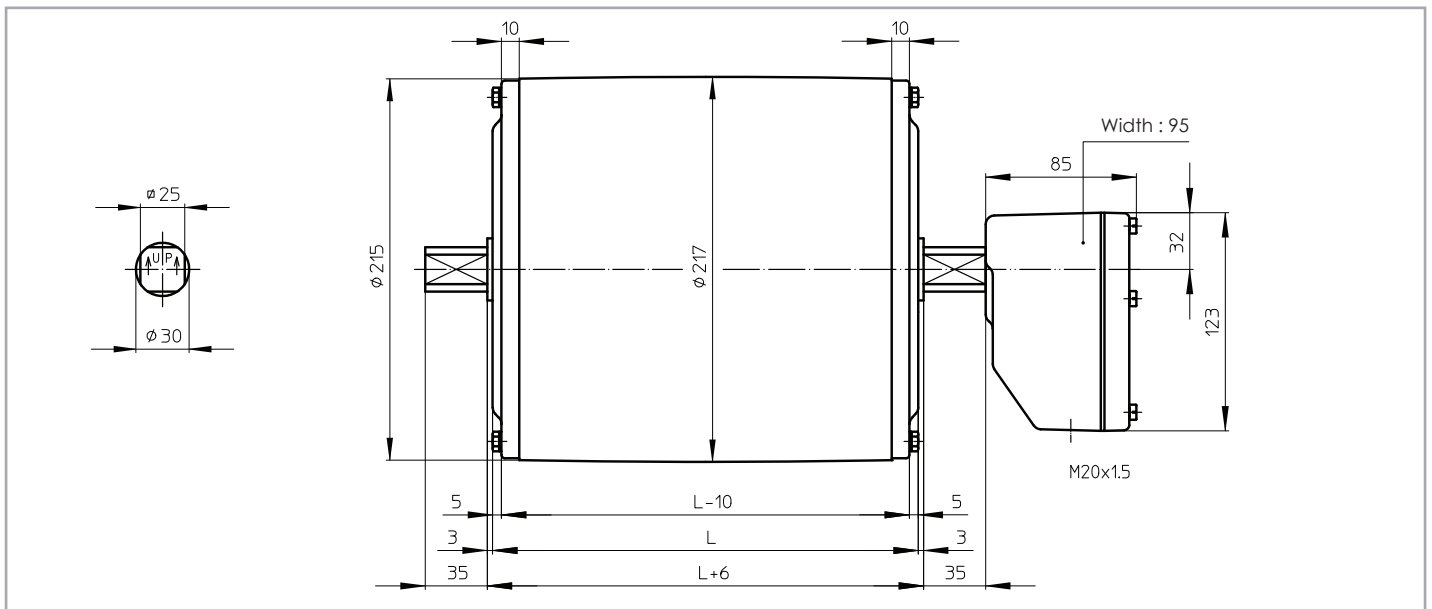
TM 215A30 CR

TM 215A30 CR, stainless steel Drummotor with polyamide junctionbox and CR sealing



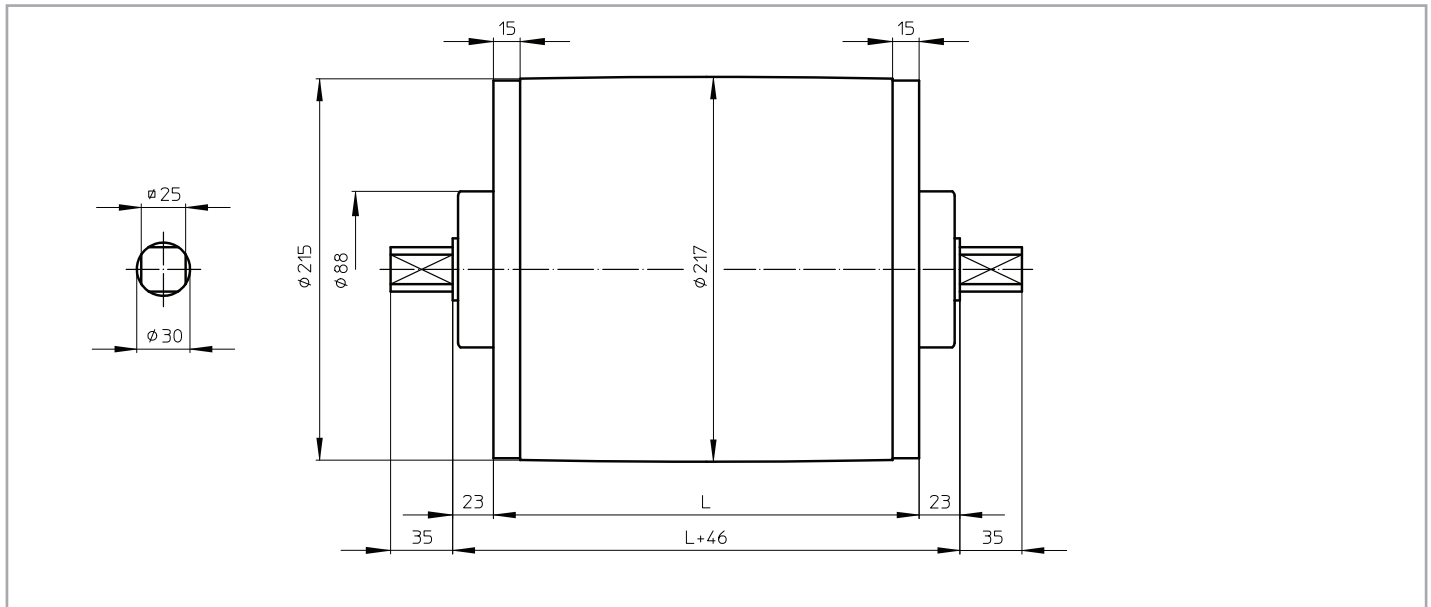
TM 215B30 CR

TM 215B30 CR, stainless steel Drummotor with polyamide junctionbox and CR sealing



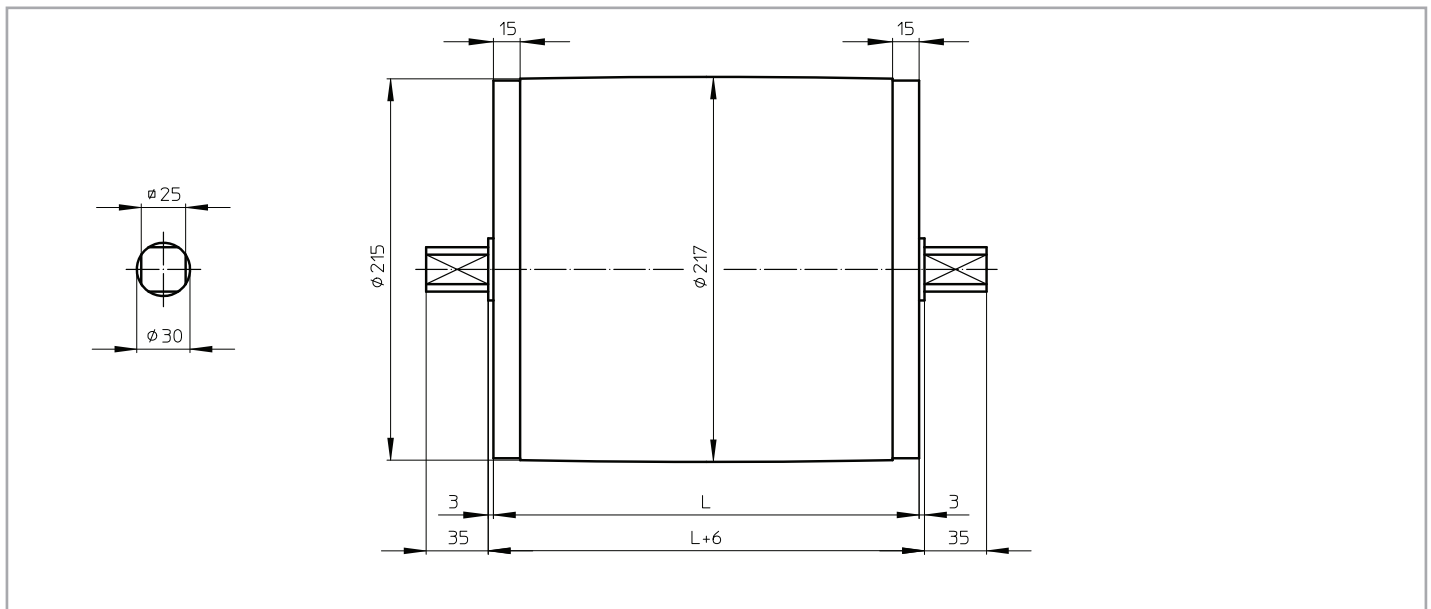
KT 215A30

KT 215A30, mild steel Taildrum



KT 215B30

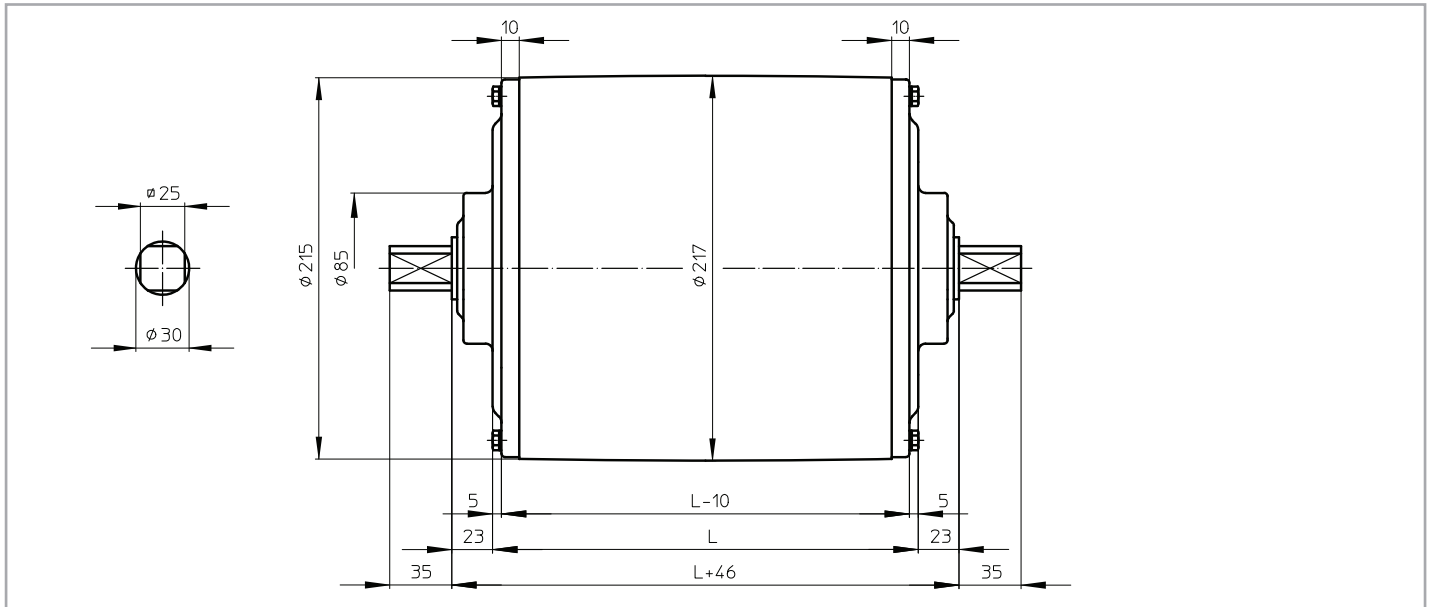
KT 215B30, mild steel Taildrum



Dimensions Taildrums stainless steel

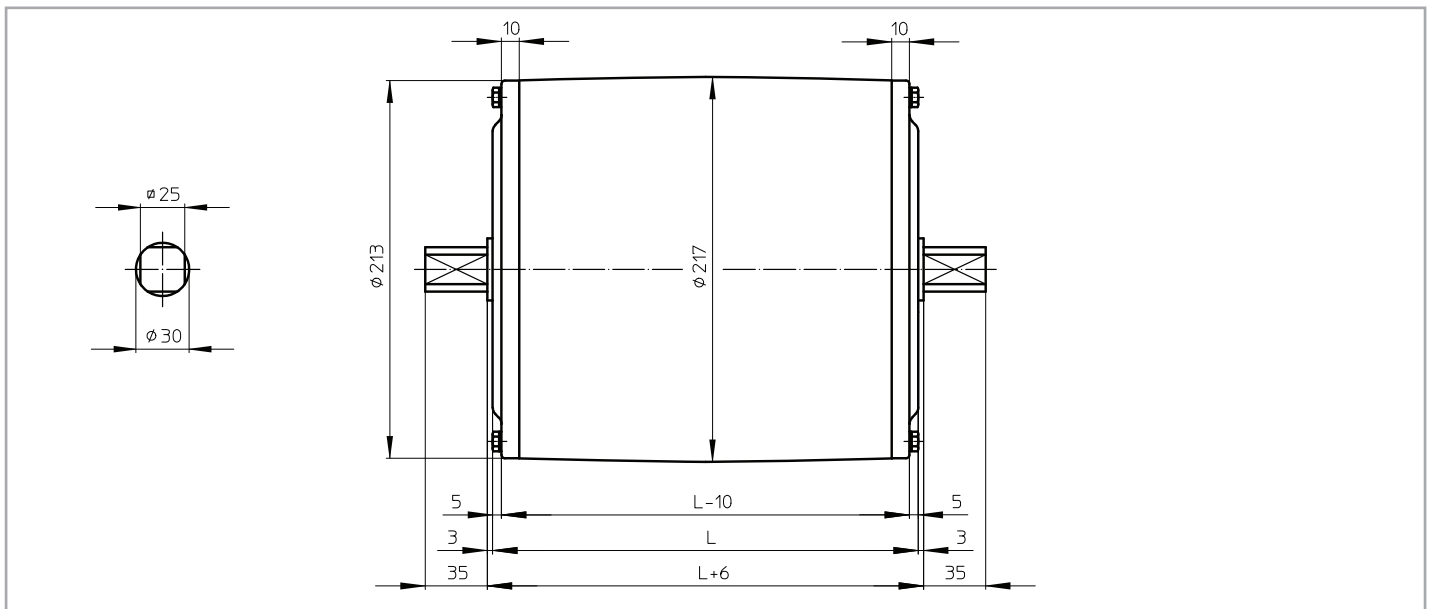
KT 215A30 CR

KT 215A30 CR, stainless steel Taildrum with CR sealing



KT 215B30 CR

KT 215B30 CR, stainless steel Taildrum with CR sealing

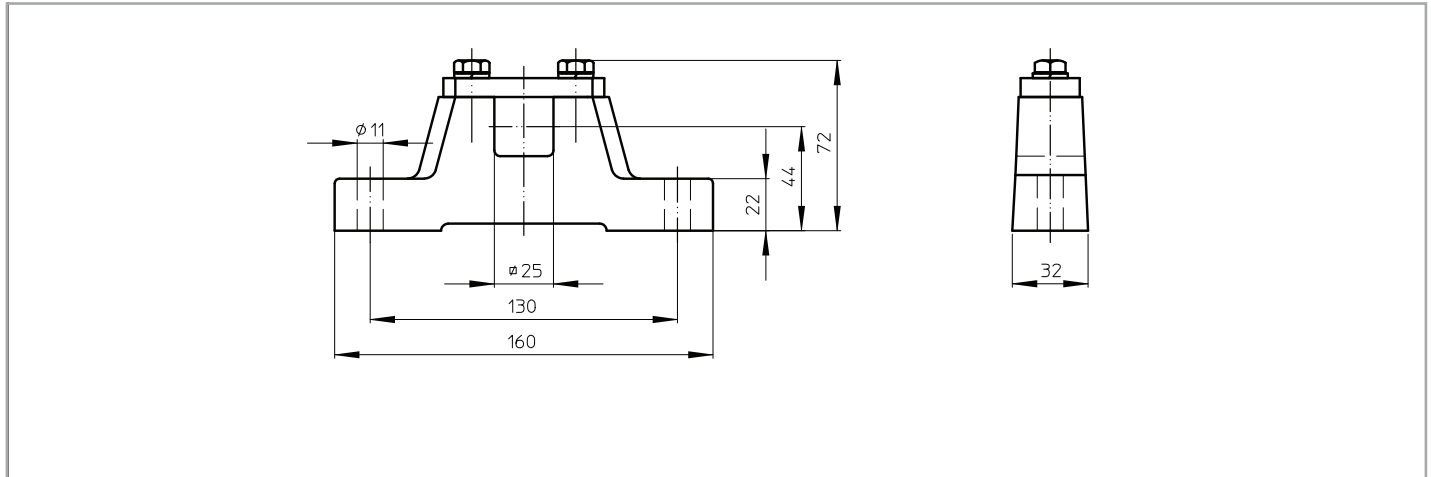




Dimensions bracket / Cable exit

AB 30

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

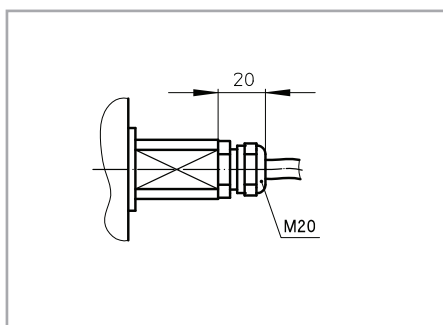


Standard design of a TM 215-30 is with a cast iron junctionbox. For stainless steel design, this can be either a polyamide or stainless steel junctionbox.

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.

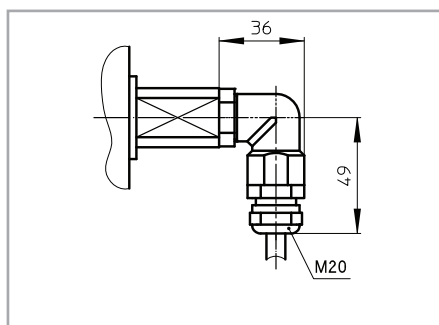
Option 1

Straight cable exit with cable gland



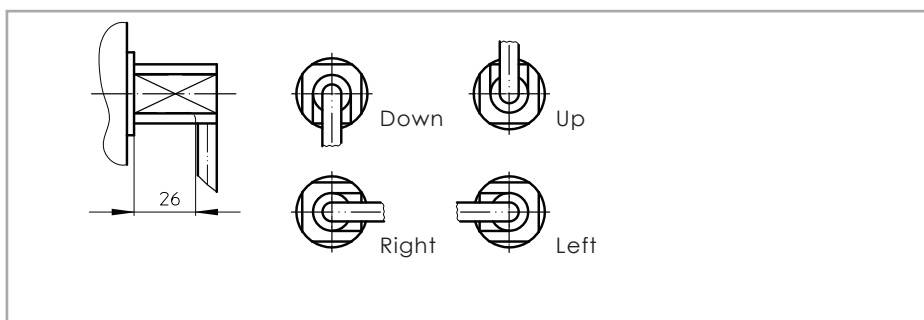
Option 3

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



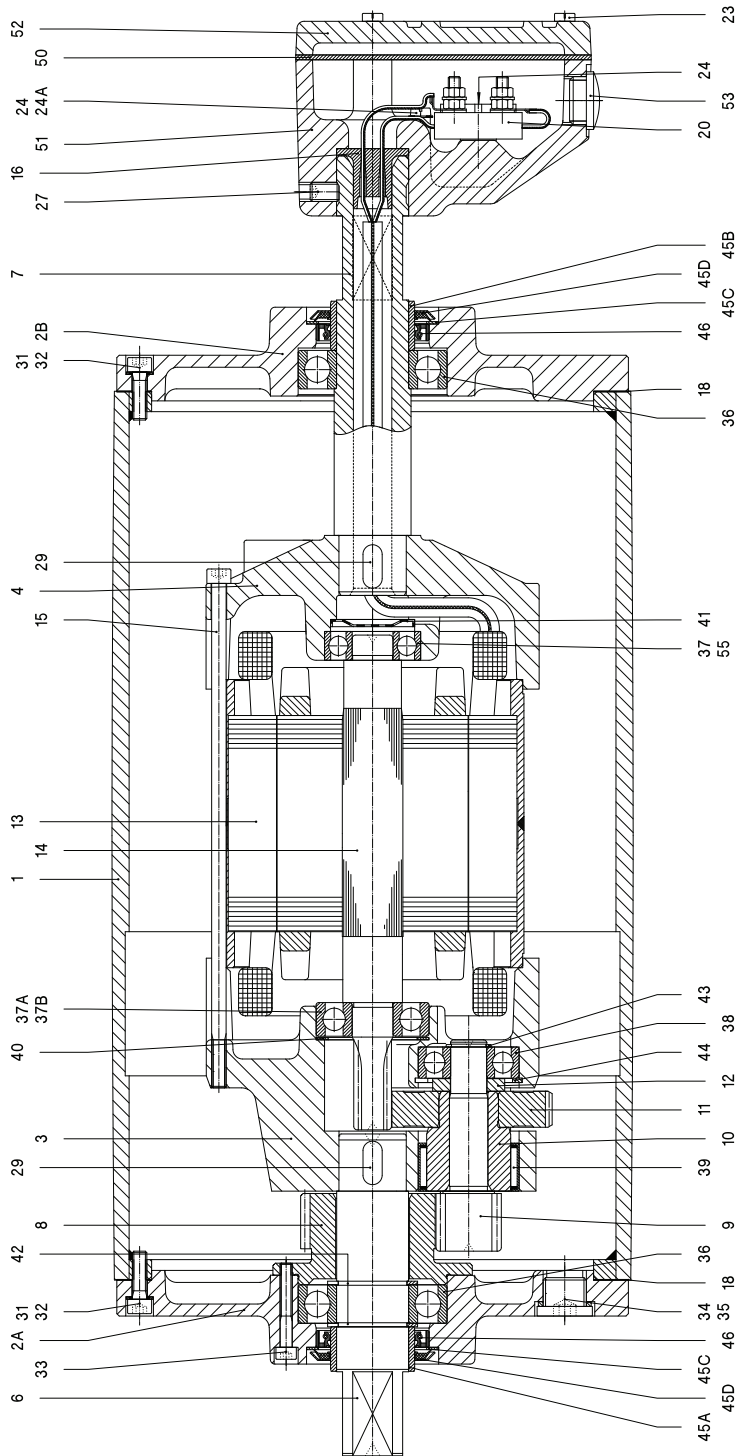
Option 4

Open cable exit (minimum facewidth increases with 25 mm)



TM 215A30

Legenda



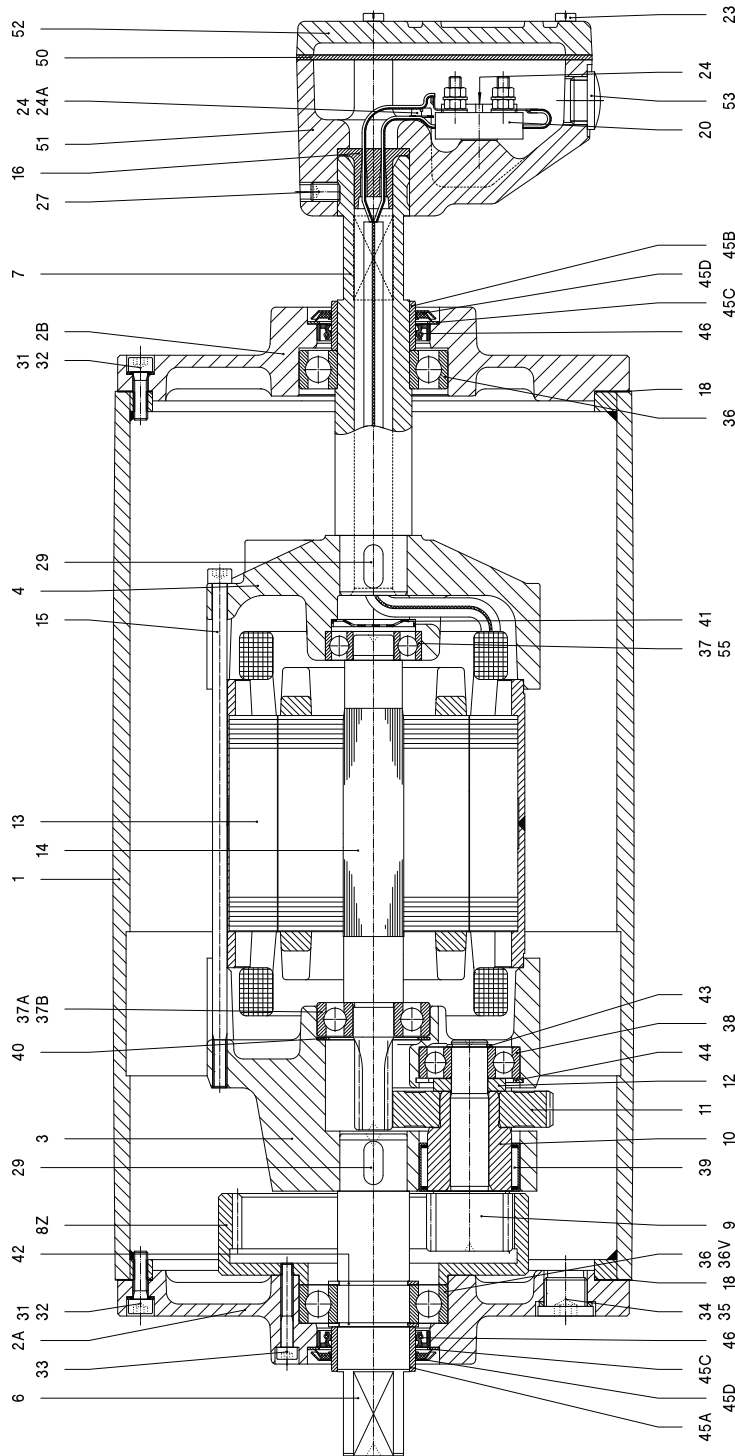
Remark: Drummotor also available in B-design (TM215B30)

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



TM 215A30 Z

Legenda

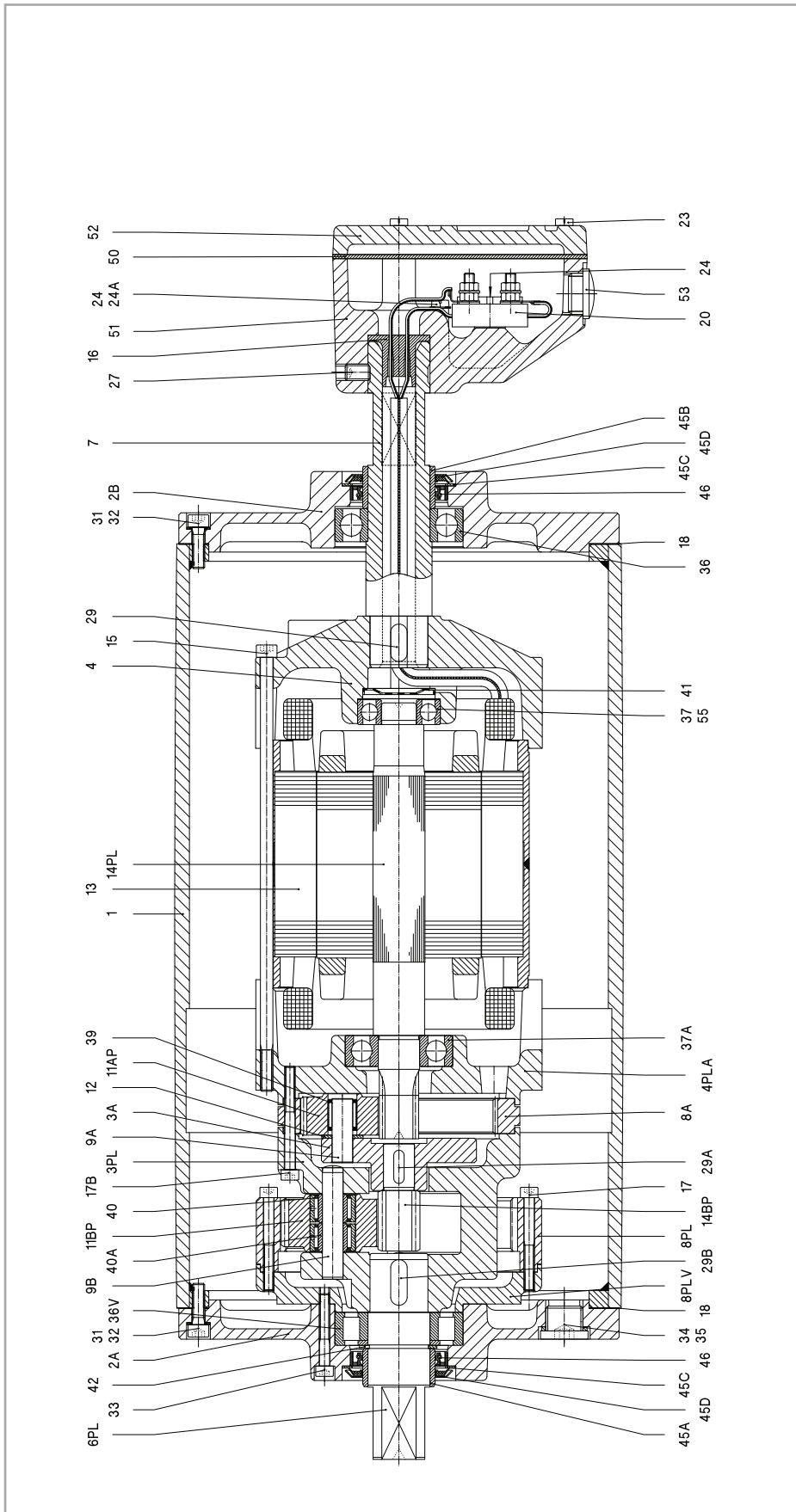


Remark: Drummotor also available in B-design (TM215B30 Z)

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

TM 215A30 PL2

Legenda

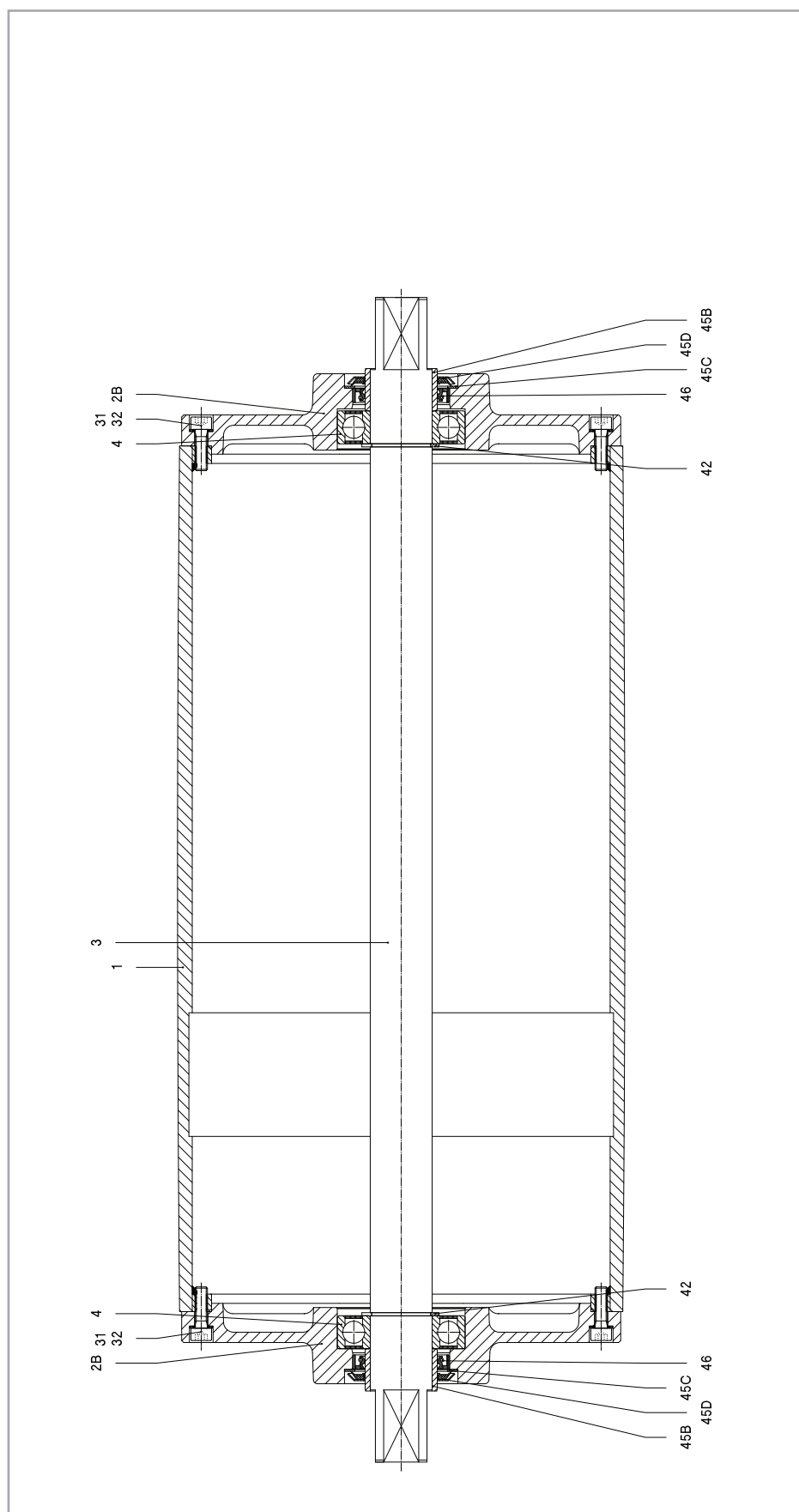


Remark: Drummotor also available in B-design (TM215B30 PL2)

1	Shell	9A	Cylindrical pin	18	Gasket	34	Fillerplug	45B	Bearing race
2A	Endflange	9B	Cylindrical pin	20	Terminalboard	35	Washer	45C	Shim plated
2B	Endflange	11AP	Planetary gear	23	Cyl. head screw	36	Ballbearing	45D	Gammaring
3A	Planetary housing	11BP	Planetary gear	24	Cyl. head screw	36V	Cyl. roller bearing	46	Oilseal
3PL	Planetary carrier	12	Shim	24A	Toothed lock washer	37	Ballbearing	50	Seal
4	Motorflange	13	Stator	27	Setscrew	37A	Ballbearing	51	Junctionbox
4PLA	Motorflange	14PL	Rotor	29	Key	39	Needlebearing	52	Junctionbox cover
6PL	Shaftend	14BP	Sunwheel	29A	Key	40	Needlebearing	53	Stopping plug
7	Hollow shaft	15	Int. hex screw	29B	Key	40A	Innerring	55	Ballbearing incl. backstop
8A	Internal gear	16	Cable passage	31	Int. hex screw	41	Disc	57	Dataplate
8PL	Internal gear	17	Int. hex screw	32	Washer	42	Circlip		
8PLV	Adapter ring	17B	Int. hex screw	33	Int. hex screw	45A	Bearing race		

KT 215A30

Legenda



Remark: Taildrum also available in B-design (KT215B30)

1	Shell	42	Circlip
2B	Endflange	45B	Bearing race
3	Shaft	45C	Shim plated
4	Ballbearing	45D	Gammaring
31	Int. hex screw	46	Oilseal
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
Construction		
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
Shell		
Crowned	•	
Cylindrical		•
Balanced		•
Lagging, cold vulcanised		•
Lagging, hot vulcanised		•
Lagging, FDA approved		•
Fitted with grooves, patterns		•
Sprockets		•
Electro motor		
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	•	
Other options		
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		•
Certificates		
CE	•	
UL		•
CSA		•
ATEX zone 22, dust		•
UW Under water application (IP68)		•



Product range

Our products, an overview

Drummotor 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

Drummotor type	TM 215B50	TM 273.40	TM 315.40	TM 315.50	TM 400.50	TM 400.60	TM 500.60	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	0.16-4.95	0.18-5.20	0.16-4.40	0.20-4.80	0.20-4.60	0.25-4.70	0.80-3.20

Drummotor 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

Van der Graaf B.V.
De Weijert 14
P.O. Box 3
8325 ZG Vollenhove
Tel: 00 31 527 241441
Fax: 00 31 527 241488
E-mail: info@vandergraafpte.nl
www.vandergraafpte.nl



Canada

Van der Graaf Inc.
2 Van der Graaf Court
Brampton
Ontario L6T 5R6
Tel: 00 1 905 793 8100
Fax: 00 1 905 793 812
E-mail: info@vandergraaf.com
www.vandergraaf.com



Great Britain

Van der Graaf U.K. Ltd.
Unit 23, The Metro Centre
Welbeck Way Woodston
Peterborough PE2 7UH
Tel: 00 44 1733 391777
Fax: 00 44 1733 391044
E-mail: sales@vandergraaf.co.uk
www.drummotor.com



USA

Van der Graaf Corp.
51515 Celeste
Shelby Township
48315 Michigan
Tel: 00 1 866 595 3292
Fax: 00 1 888 326 0089



Germany

Van der Graaf GmbH
Rheiner Straße 24 B
48432 Rheine-Mesum
Tel: 00 49 5975 306210
Fax: 00 49 5975 3062120
E-mail: info@vandergraaf.de
www.vandergraaf.de



Sweden

Van der Graaf Scandinavia AB
Spinngatan 2
267 73 Billesholm
Tel: 00 46 42 22 0802
Fax: 00 46 42 22 0803
E-mail: info@vandergraaf.se
www.vandergraaf.se



Finland

Van der Graaf Scandinavia AB
Tel: 00 358 400 419063
E-mail: info@vandergraaf.fi
www.vandergraaf.fi