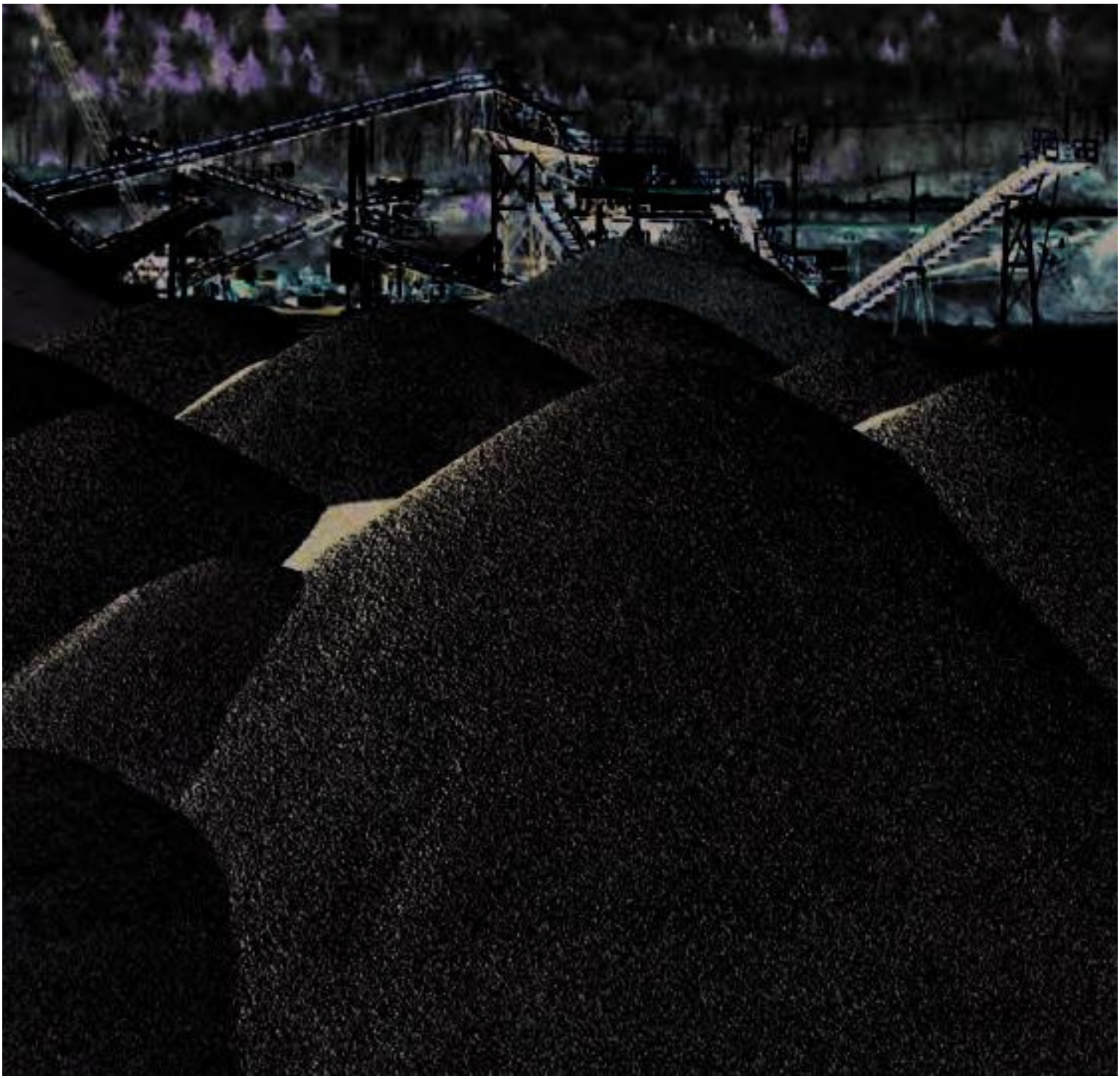
Product information

Drummotors

TM 315-50

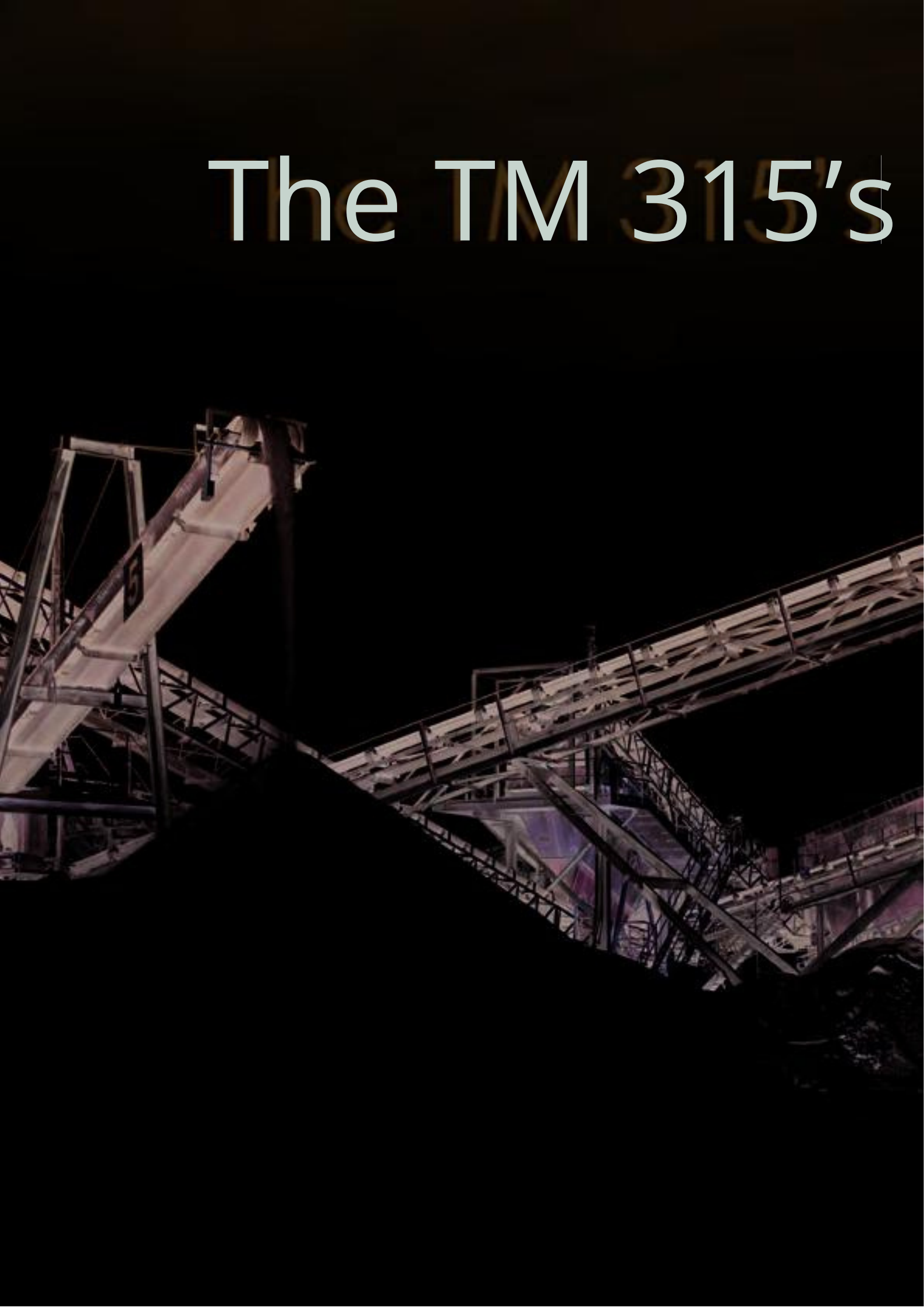


Van der Graaf

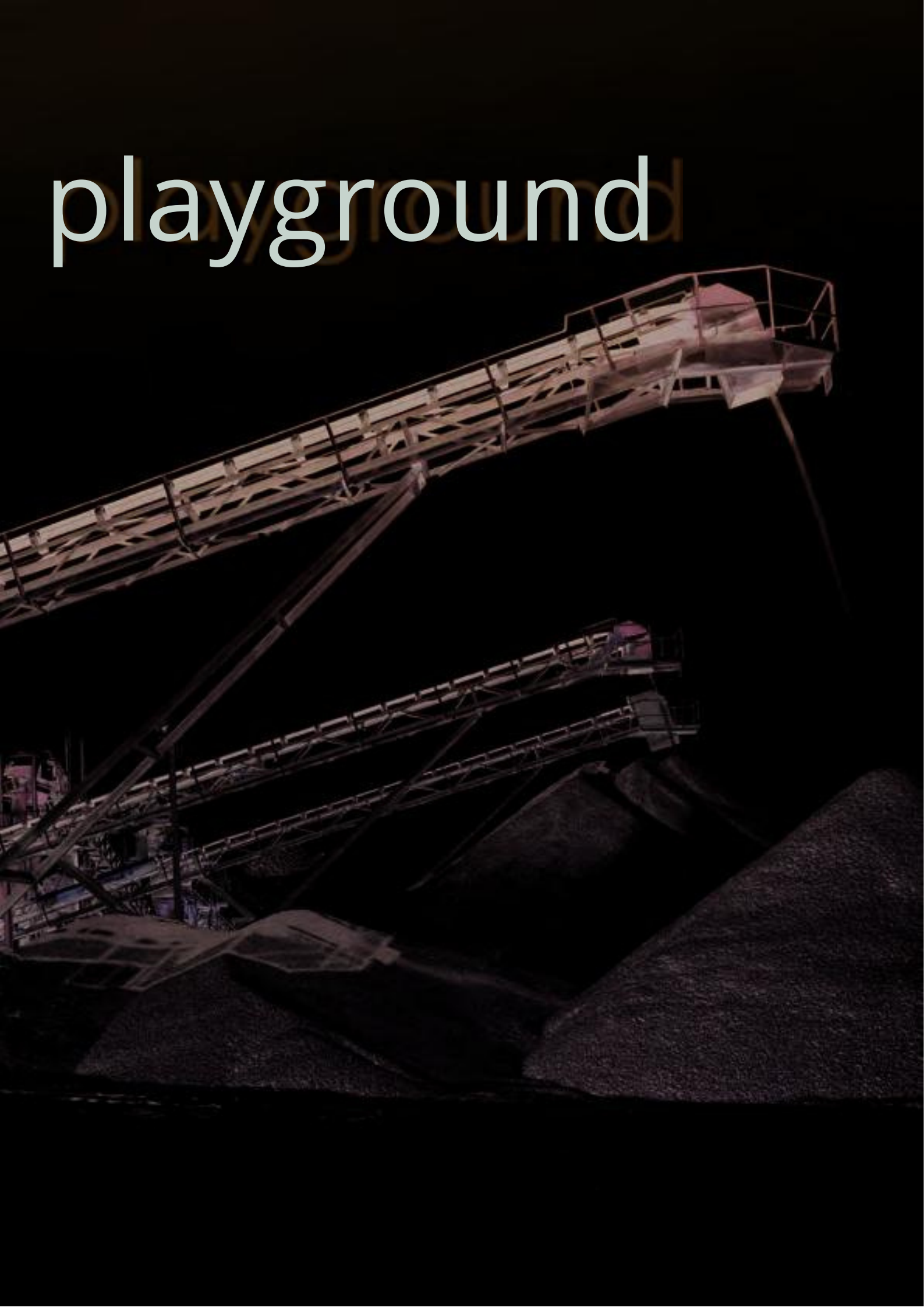
Power Transmission Equipment

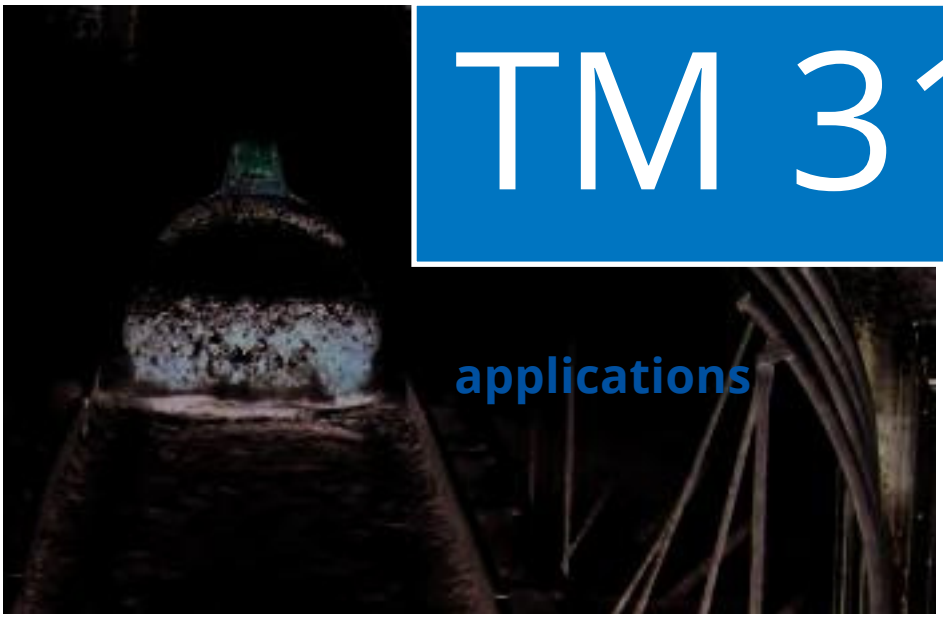
www.vandergraafpte.nl

The TM 315's



playground





TM 315-50

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 fl ow, tyre manufacturing, fi sh 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 315.50	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=600
215 215 Z 215 ZV	11,0	4,4 237 3,8 275 3,4 307 3,0 348 2,8 373 2,5 418 2,4 435 2,2 475										600	650	19,7	178
410 410 ZV	7,5	4,1 3,4 3,0 2,4 2,20 3240 1,90 3750 1,70 4190 1,50 4750										600	650	15,0	178
475 475 Z 475 ZV	5,5	4,10 3,40 3,0 2,4 2,20 2375 1,90 2750 1,70 3075 1,50 3485 1,40 3730 1,25 4180 1,2 1,1 0,95 5500 0,80 6530 1,2 435 1,1 475										550	600	10,5	173
455 455 Z 455 ZV	4,0	4,10 925 3,40 3,00 1265 2,40 1585 2,30 1650 1,90 2000 1,70 2235 1,50 2535 1,40 2715 1,20 3165 1,10 3455 0,90 0,80 4750 0,70 5430 0,65 3845 0,60 6335 0,55 6910										500	550	7,8	168
440 440 Z 440 ZV	3,0	2,30 1240 1,90 1500 1,70 1675 1,50 1900 1,40 2035 1,20 2375 1,10 2590 0,90 3165 0,80 3565 0,70 4070 0,60 4750 0,55 5180 0,50 5700										500	550	6,6	168
640 640 ZV	3,0	2,70 1,60 178 0,45 0,40 0										500	550	7,1	168
630 630 Z 630 ZV	2,2	1,5 1,20 1740 1,10 1900 0,90 2320 0,80 2615 0,70 2985 0,60 3485 0,50 4180 0,4 464 0,38 5500 0,34 6145										500	550	4,9	168
820 820 Z 820 ZV	1,5	1,1 0,9 158 0,8 167 0,65 2190 0,60 2375 0,55 2590 0,45 3165 0,40 3565 0,3 385 0,3 445 0,2 491										500	550	4,6	168
1220 1220 Z	1,5	0,7 0,3 407										550	600	5,8	173
815 815 Z	1,1	1,1 0,9 0,8 123 0,6 161 0,60 1740 0,55 1900 0,45 2320 0,40 2615 282 0,3 0,2 360 0,2 418										500	550	3,3	168
1215 1215 Z 1215 ZV	1,1	0,7 0,35 0,2 435 0,16 6530										500	550	5,9	168

Available standard facewidth's: 500 - 550 - 600 - 650 - 700 - 750 - 800 - 850 - 900 - 950 - 1000 - 1050 - 1100 - 1150 mm When an electro-mechanical brake is fitted, the minimum facewidth is increased by 150 mm
When a backstop is fitted in a 2-pole drum motor, the minimum facewidth is increased by 50 mm
The total weight of a Drummotor grows approx. 7 kg per 100 mm
Available torque: (Beltpull N x drum diameter m) / 2 Nm

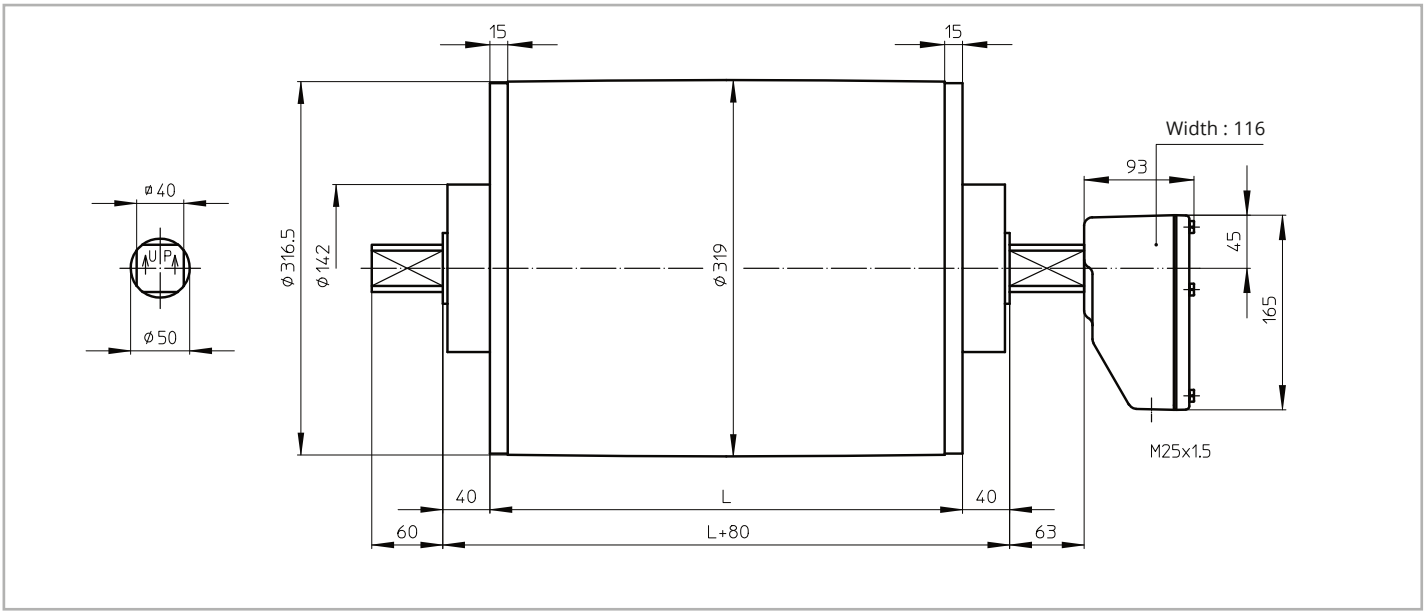
Selection table Dahlander motors

TYPE TM 315.50	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=600
470/210 470/210 Z 470/210 ZV	5,0/7,5	2,40/4,80 1980/1485 1,30/2,60 3655/2740 0,95/1,90 5000/3750	2,20/4,40 2160/1620 1,25/2,50 3800/2850 0,80/1,60 5940/4455	1,90/3,8 2500/187 0 5 1,20/2,4 3960/297 0	1,70/3,4 2795/209 0 5 1,10/2,2 4320/324 0	1,50/3,00 3165/2375				600	650	10,6/15,2	178
455/275 455/275 Z 455/275 ZV	4,0/5,5	2,40/4,80 1585/1090 1,10/2,20 3455/2375 0,80/1,60 4750/3265 0,70/1,40 5430/3730	2,20/4,40 1725/119 0,90/1,80 0 4220/290 0,65/1,30 5845/4020	1,90/3,80 2000/1375 0,60/1,20 6335/4355	1,80/3,60 2110/1450 0,55/1,10 6910/4750	1,70/3,40 2235/1535	1,50/3,00 2535/1740	1,40/2,80 2715/1865	1,20/2,40 3165/2175	550	600	7,8/10,9	173
440/255 440/255 Z 440/255 ZV	3,0/4,0	2,20/4,40 1295/865 0,80/1,60 3565/2375 0,70/1,40 4070/2715 0,55/1,10 5180/3455	1,80/3,60 1585/1055 0,65/1,30 4385/2925 0,50/1,00 5700/3800	1,70/3,40 1675/1120 0,60/1,20 4750/3165	1,50/3,00 1900/1265	1,40/2,80 2035/1355	1,20/2,40 2375/1585	1,10/2,20 2590/1725	0,90/1,80 3165/2110	500	550	5,8/7,1	168
830/440 830/440 ZV	2,2/3,0	1,10/2,20 1900/1295 0,40/0,80 5225/3565	0,90/1,80 2320/1585 0,35/0,70 5970/4070	0,85/1,7 0 2460/1675 0,32/0,6 4	0,75/1,5 0 2785/1900 0,30/0,6 0	0,70/1,40 2985/2035	0,60/1,20 3485/2375	0,55/1,10 3800/2590	0,45/0,90 4645/3165	550	600	7,7/5,9	173
820/430 820/430 Z 820/430 ZV	1,5/2,2	2,05/4,10 0,70/1,40 0,35/0,70 0,28/0,55 5180/3800	1,70/3,40 840/615 0,60/1,20 2375/1740 0,32/0,64 4455/3265 0,25/0,50 5700/4180	6530/4455 950/695 1,50/3,0 2590/1900 0 4750/3485 0,55/1,1 0 0,30/0,6 0	6965/4750 1190/870 1,20/2,4 3165/232 0 0 0,45/0,9 0	1,10/2,2 1295/950 0 3565/261 0,40/0,8 5 0	0,90/1,80 1585/1160	0,85/1,70 1675/1230	0,75/1,50 1900/1395	500	550	5,8/4,7	168

Available standard facewidth's: 500 - 550 - 600 - 650 - 700 - 750 - 800 - 850 - 900 - 950 - 1000 - 1050 - 1100 - 1150 mm When an electro-mechanical brake is fitted, the minimum facewidth is increased by 150 mm
When a backstop is fitted in a 2-pole drum motor, the minimum facewidth is increased by 50 mm
The total weight of a Drummotor grows approx. 7 kg per 100 mm
Available torque: (Beltpull N x drum diameter m) / 2 Nm

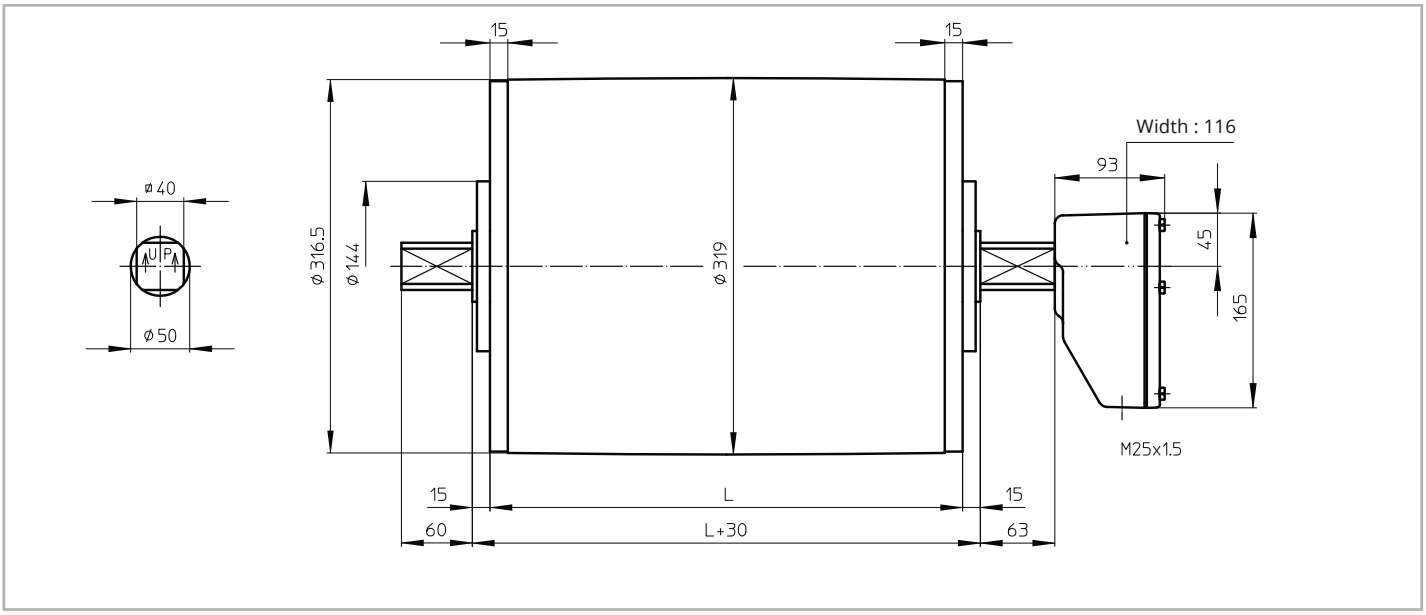
TM 315A50

TM 315A50, mild steel Drummotor with cast iron junctionbox



TM 315B50

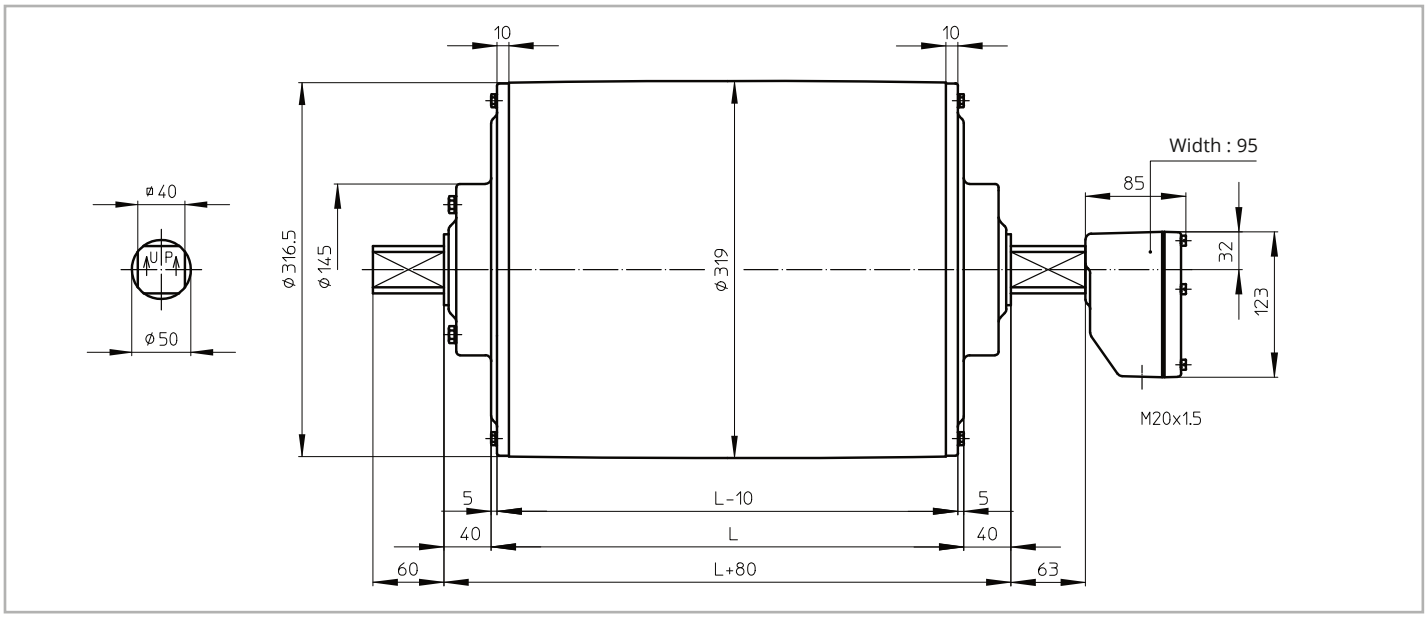
TM 315B50, mild steel Drummotor with cast iron junctionbox



Dimensions Drummotors stainless steel

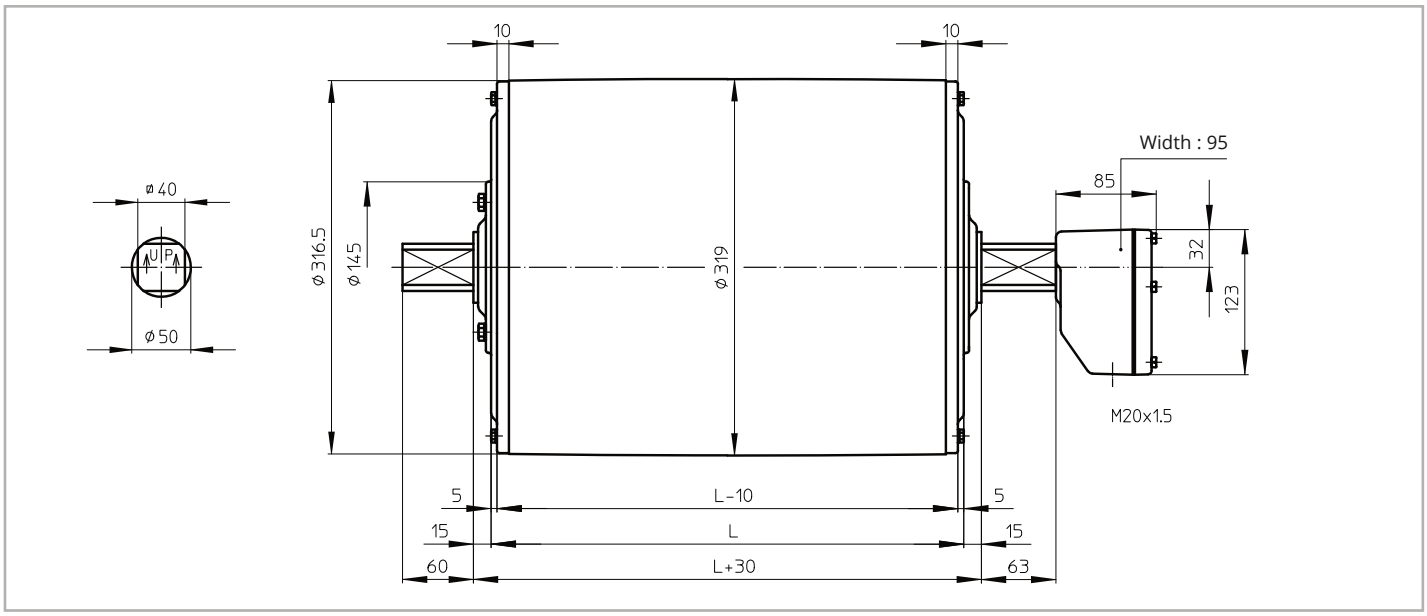
TM 315A50 CR

TM 315A50 CR, stainless steel Drummotor with polyamide junctionbox and CR sealing



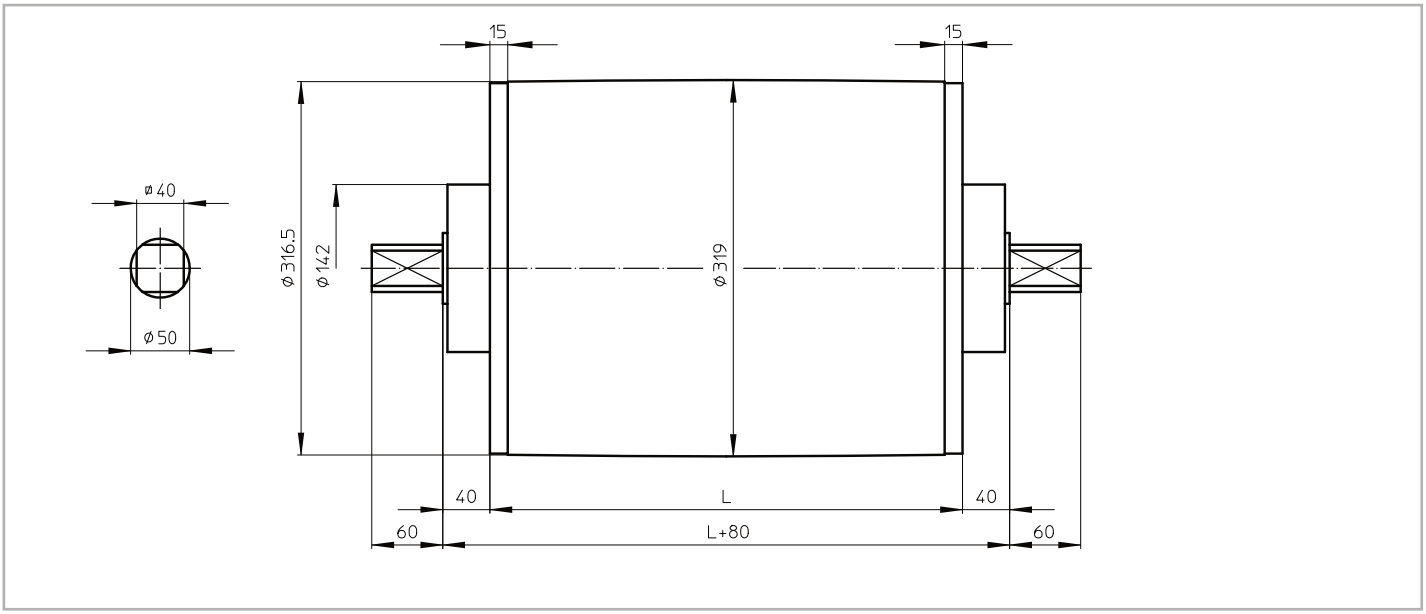
TM 315B50 CR

TM 315B50 CR, stainless steel Drummotor with polyamide junctionbox and CR sealing



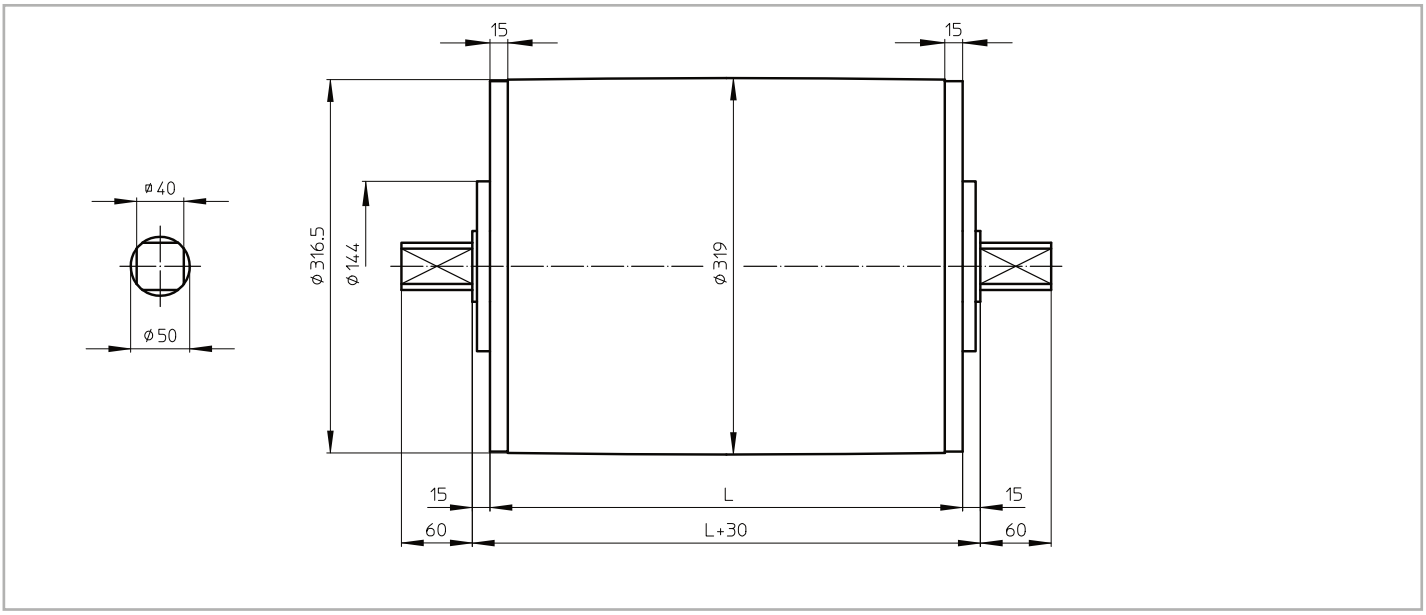
KT 315A50

KT 315A50, mild steel Taildrum



KT 315B50

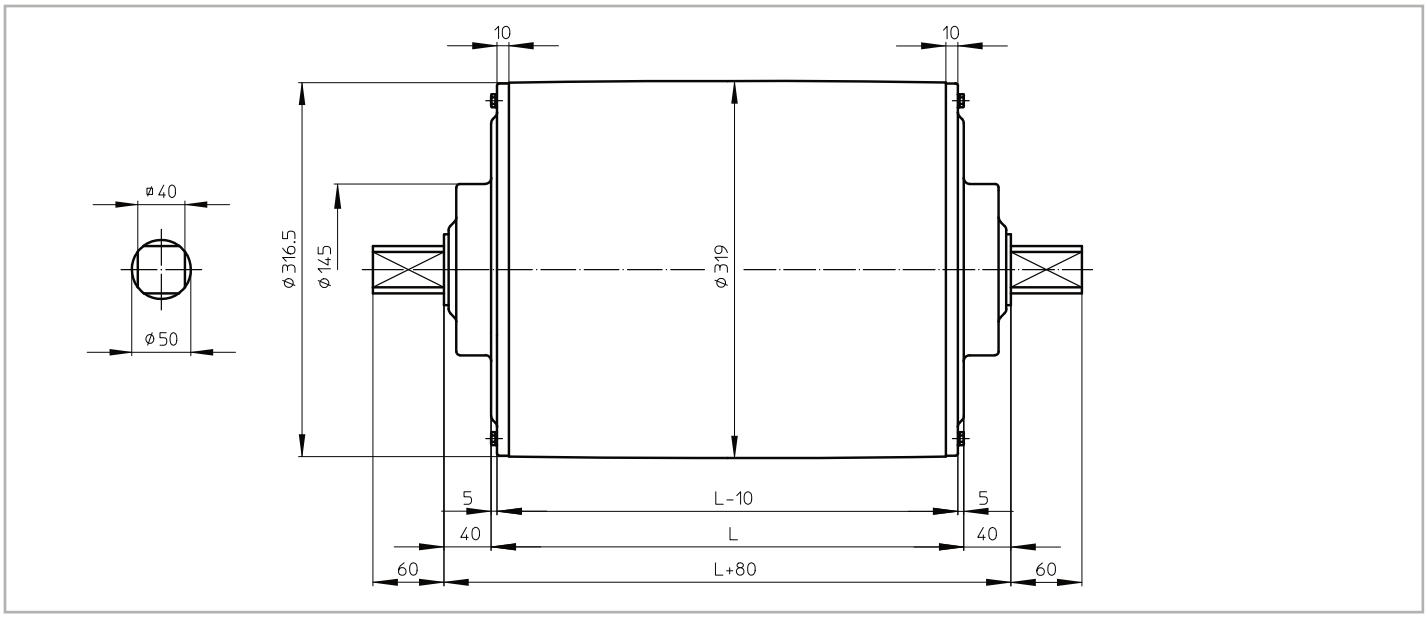
KT 315B50, mild steel Taildrum



Dimensions Taildrums stainless steel

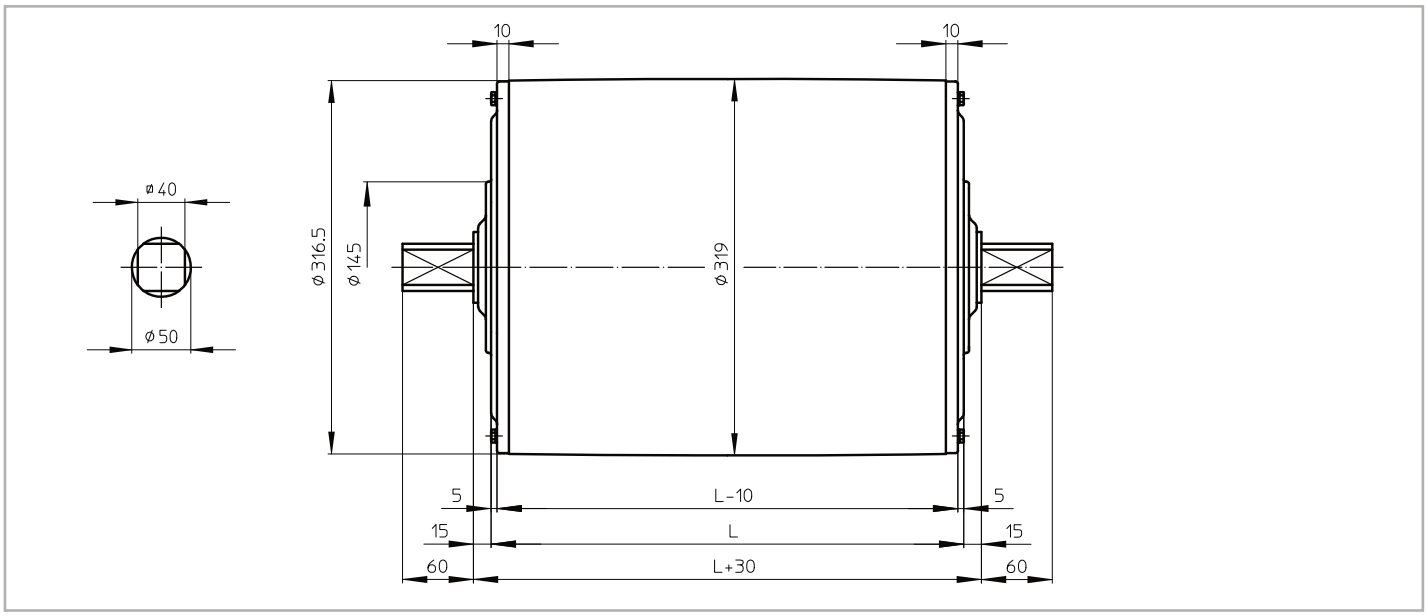
KT 315A50 CR

KT 315A50 CR, stainless steel Taildrum with CR sealing



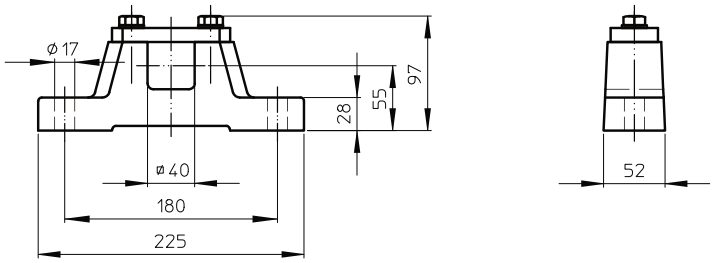
KT 315B50 CR

KT 315B50 CR, stainless steel Taildrum with CR sealing



AB 50

AB 50, cast iron or stainless steel bracket
Weight: 7,2 kg per pair



Cable exit

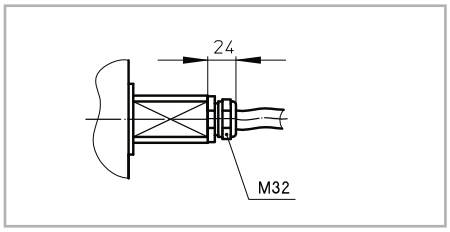
Standard design of a TM 315-50 is with a cast iron junctionbox. For stainless steel design, this can be either a cast iron PU coated cast iron or stainless steel junctionbox.

On request a drum motor 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.

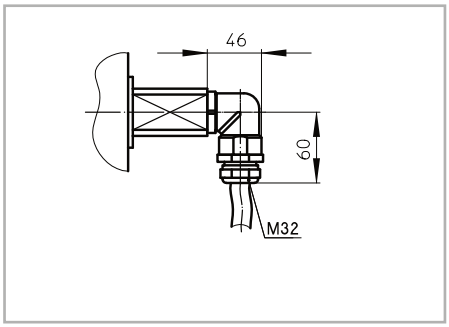
Option 1

Straight cable exit with cable gland

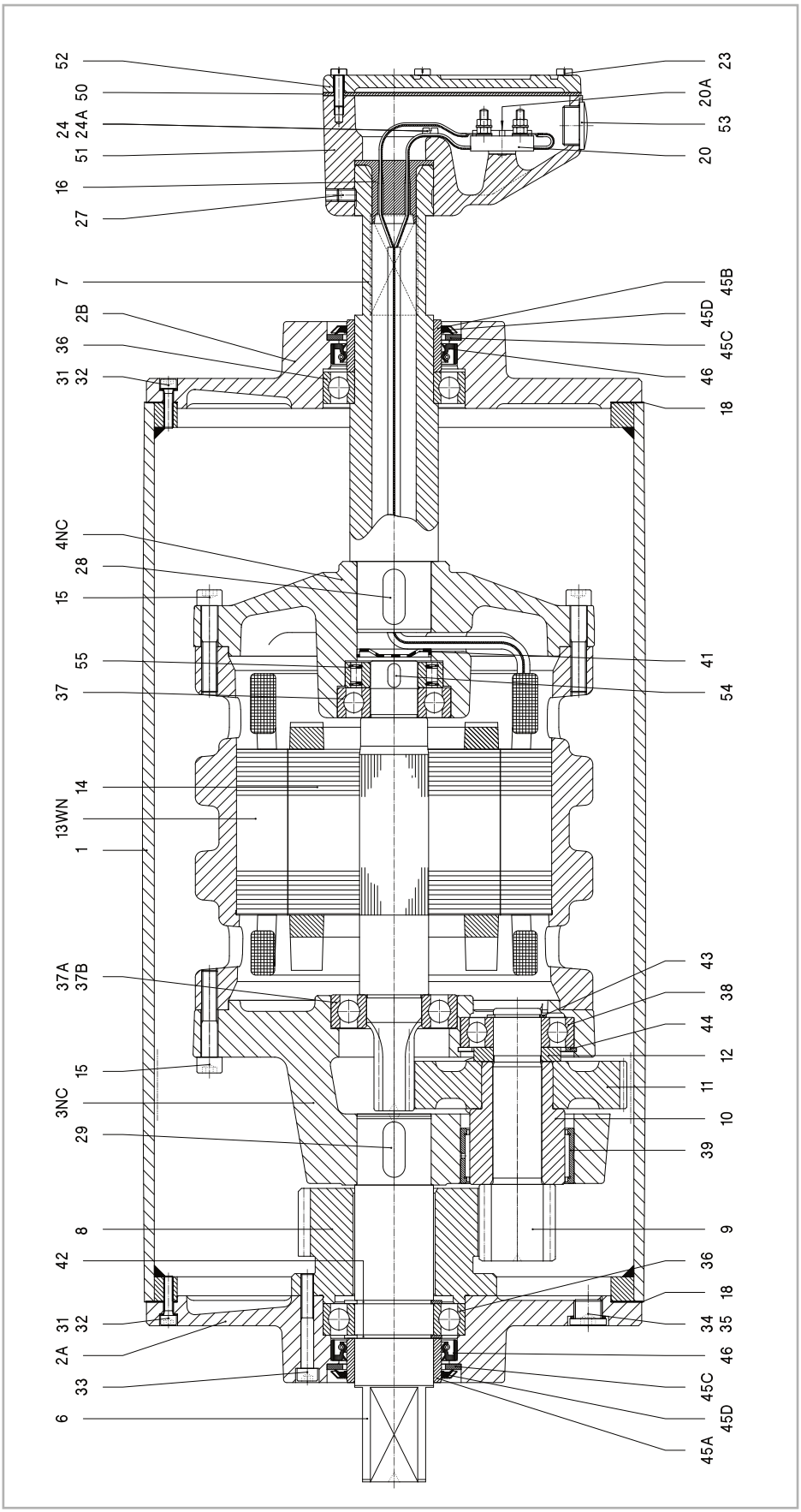


Option 3

Elbow cable exit with cable gland
(minimum facewidth increases with 50 mm)



TM 315A50

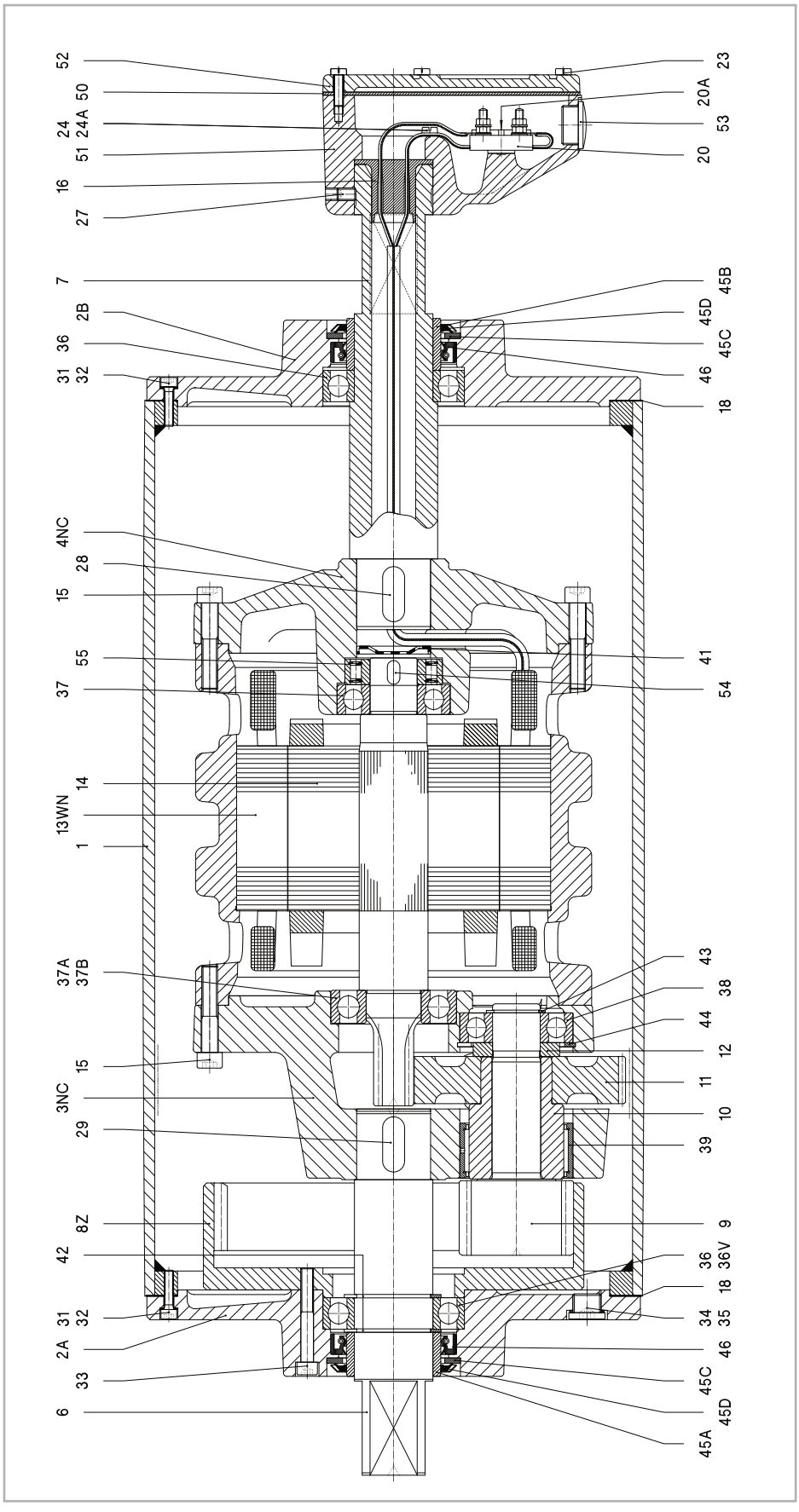


Remark: Drummotor also available in B-design (TM315B50)

Legenda

1 Shell
2A Endflange
2B Endflange
3NC Gearhousing
4NC Motorflange
6 Shaftend
7 Hollow shaft
8 External gear
9/10 Pinion with bush 11
Gear
12 Distance ring
13WN Stator29 Key
14 Rotor31 Int. hex screw 15 Int. hex screw32 Washer
16 Cable passage33 Int. hex screw 18 Gasket34 Fillerplug
20 Terminalboard35 Washer
20A Cyl. head screw36 Ballbearing
23 Cyl. head screw37 Ballbearing
24 Cyl. head screw37A Ballbearing
24A Toothed lock washer37B Ballbearing
27 Setscrew38 Ballbearing
39 Needlebearing
Disc
41
42 Circlip
43 Circlip
44 Circlip
45A Bearing race
45B Bearing race
45C Shim plated
45D Gammaring
46 Oilseal
50 Seal
51 Junctionbox
52 Junctionbox cover
53 Stopping plug
54 Key
55 Backstop
57 Dataplate

TM 315A50 Z

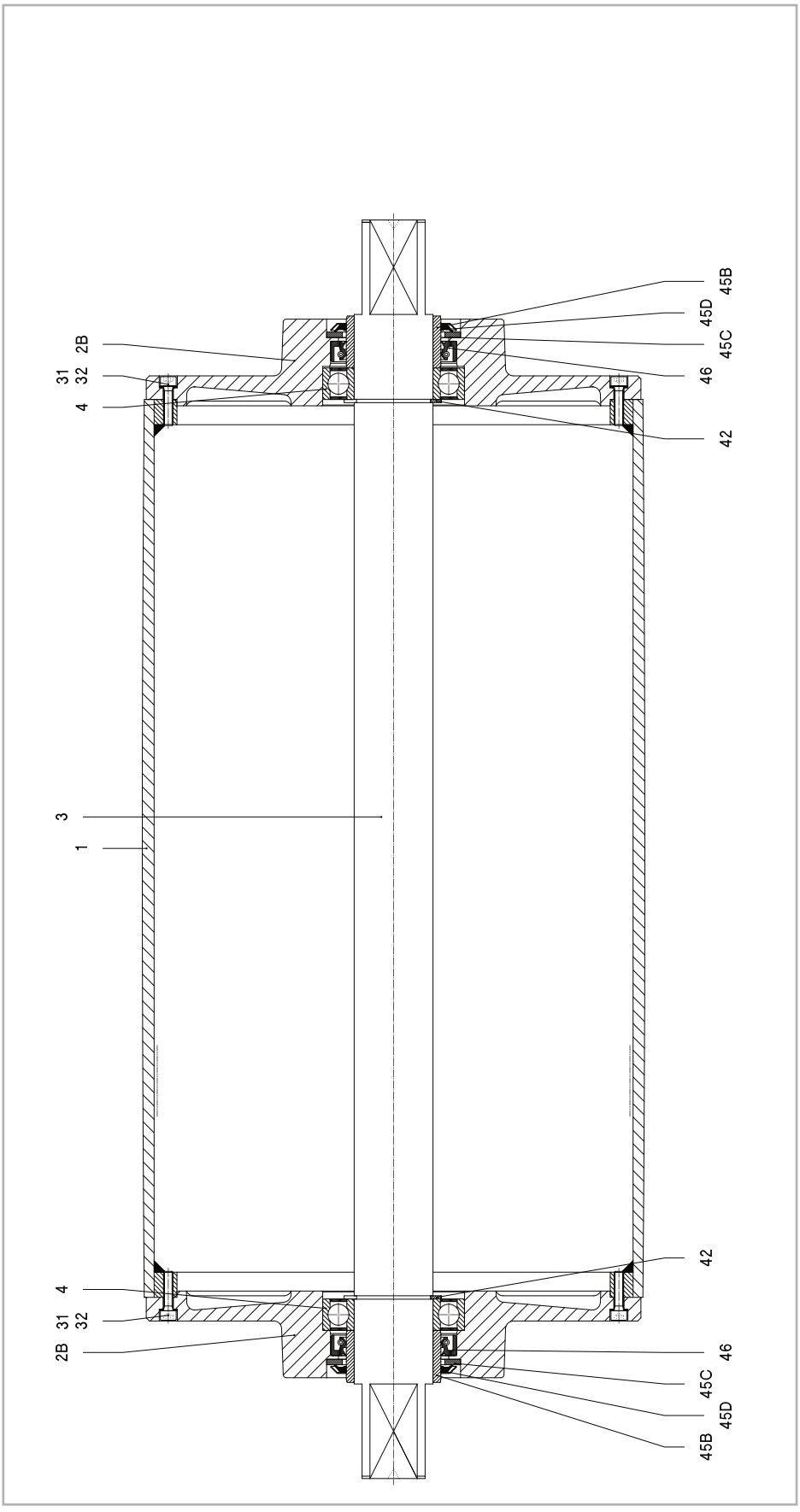


Remark: Drummotor also available in B-design (TM315B50 Z)

Legenda

1 Shell
2A Endflange
2B Endflange
3NC Gearhousing
4NC Motorflange
6 Shaftend
7 Hollow shaft
8Z Internal gear
9/10 Pinion with bush 11
Gear
12 Distance ring
13WN Stator29 Key
14 Rotor31 Int. hex screw
15 Int. hex screw32 Washer
16 Cable passage33 Int. hex screw
18 Gasket34 Fillerplug
20 Terminalboard35 Washer
20A Cyl. head screw36 Ballbearing
23 Cyl. head screw36V Cyl. roller bearing 24 Cyl. head screw37 Ballbearing
24A Toothed lock washer37A Ballbearing
27 Setscrew37B Ballbearing
38 Ballbearing
39 Needlebearing 41 Disc
42 Circlip
43 Circlip
44 Circlip
45A Bearing race
45B Bearing race
45C Shim plated
45D Gammaring
46 Oilseal
50 Seal
51 Junctionbox
52 Junctionbox cover
53 Stopping plug
54 Key
55 Backstop
57 Dataplate

KT 315A50



Remark: Taildrum also available in B-design (KT315B50)

Legenda

1	Shell	42	Circlip
2B	Endflange	45B	Bearing race 45C
3	Shaft		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	Stainless steel
End caps	steel	Stainless steel
Shell	Cast iron	Stainless steel
Junctionbox	Mild steel	PU coated cast iron or stainless steel
Cable		Shielded or non-shielded
Sealing mild steel	Cast iron 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		•
Electro motor		
Three-phase asynchronous	•	
Power supply (P < 3 kW)	230/400 V - 50 Hz	Other voltages and frequencies on request
Power supply (P ≥ 3 kW)	400/690 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 Drummotor		•
Encoder or sensor bearing in Taildrum		•
Certificates		
CE	•	
UL		•
CSA		•
ATEX zone 22, dust		•

Our products, an overview

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

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

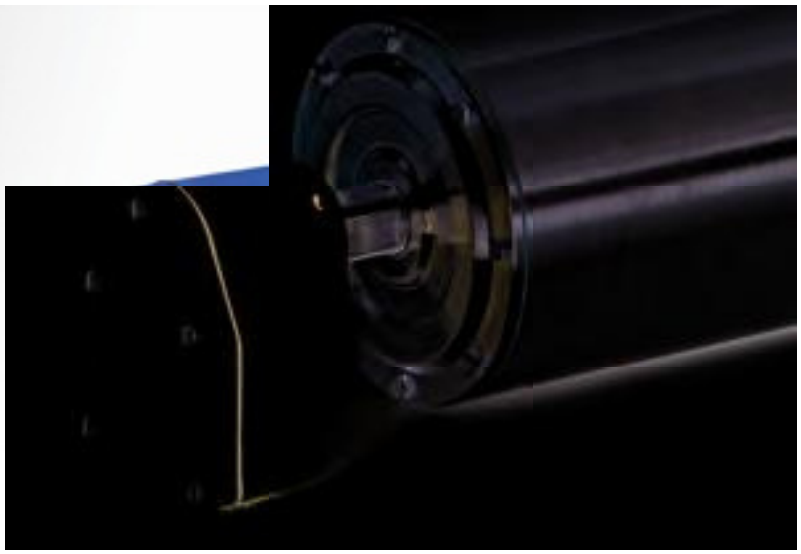


Design benefi ts

- Robust, industrial design
- Fully enclosed
- Oil fi lled
- 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

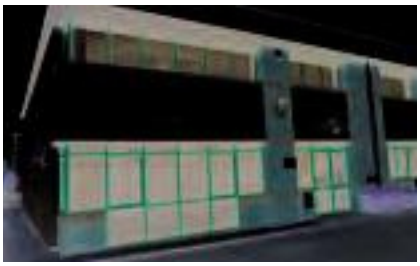
Netherlands
Van der Graaf B.V.
De Weijert 14
P.O. Box 3
8325 ZG Vollenhove
Tel: 00 31 527 241441
Fax: 00 31 527 241488
E-mail: info@vandergraafpte.nl
www.vandergraafpte.nl



Canada
Van der Graaf Inc.
2 Van der Graaf Court
Brampton
Ontario L6T 5R6
Tel: 0 0 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: 0 0 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

ROI
Via 4 Novembre 12/4, 40033, Casalecchio di Reno (BO) ITALIA
Tel:+39.051.592.349 Fax:+39.051.592.352 Email: info@roi-srl.it
www.roi-srl.it