

Product information

Drummotors

**TM 273-40**



*Van der Graaf*  
Power Transmission Equipment

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





**The TM 273's  
playground**

# TM 273-40



## 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
8	Dimensions Taildrums
9	Dimensions bracket
10	Cable exit
11	Cross sectional / parts description
14	Options
17	Product range
18	Notes
20	Contact us



## Selection table

TYPE TM 273.40	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=600
		Beltpull N													
275	5,50	5,00	4,40	3,60	3,20							500	550	11,0	102
275 Z		1045	1190	1450	1635										
275 ZV		2,50	2,00	1,80	1,70	1,40	1,30	1,20							
		2090	2375	2615	2905	3075	3730	4020	4355						
255	4,00	5,00	4,40	3,60	3,20							500	550	8,0	97
255 Z		760	865	1055	1190										
255 ZV		2,50	2,00	1,80	1,70	1,40	1,30	1,20							
		1520	1725	1900	2110	2235									
		2715	2925	3165											
440	3,00	3,70	3,00	2,50	2,20	1,80	1,60					500	550	6,6	97
440 Z		770	950	1140	1295	1585	1780								
440 ZV		1,25	1,00	0,90	0,85										
		2280	2590	2850	3165	3355									
430	2,20	3,70	3,00	2,60	2,10	1,80	1,60	1,25	1,10			500	500	4,7	97
430 Z		565	695	805	995	1160	1305	1670	1900						
430 ZV		1,00	0,90												
		2090	2320												
		2460	2785	2985	3215	3485									
420	1,50	3,70	3,00	2,60	2,10	1,80	1,60	1,25	1,10	1,00	0,85	500	500	3,6	92
420 Z		385	475	550	680	790	890	1140	1295	1425	1675				
420 ZV		0,75	0,70	0,65											
		1900	2035	2190											
		2375	2590	2850											
620 ZV	1,50	0,45	0,40	0,35								500	550	3,7	97
		3165	3565	4070											
415	1,10	3,70	3,00	2,60	2,10	1,80	1,60	1,25	1,10	1,00	0,85	500	500	2,9	87
415 Z		280	350	400	500	580	655	835	950	1045	1230				
		0,75	0,65	0,60	0,55	0,50									
		1395	1610	1740	1900	2090									
615 Z	1,10	0,45										500	500	2,9	92
615 ZV		2320	0,40	0,35	0,33										
		2615	2985	3165											
610	0,75	1,70	1,40	1,15	1,05	0,85	0,75	0,65	0,55	0,50		500	500	2,5	92
610 Z		420	510	620	680	840	950	1095	1295	1425					
		1585	1780	2035	2160										
810 ZV	0,75	0,30	0,27	0,25								500	500	2,7	92
		2375	2640	2850											
675	0,55	1,70	1,40	1,15	1,05	0,85	0,75	0,65	0,55	0,50		500	500	1,9	87
675 Z		305	375	455	500	615	695	805	950	1045					
		1160	1305	1495	1585										
875 Z	0,55	0,30	0,27	0,25								500	500	2,2	92
		1740	1935	2090											
1275 ZV	0,55	0,23	0,20	0,17								500	550	2,6	97
		2270	2615	3075											
805	0,37	1,30	1,10	0,90	0,80	0,65	0,55	0,50	0,45	0,40		500	500	1,8	87
805 Z		270	320	390	440	540	640	705	780	880					
		1005	1100	1170	1300	1405									
1205	0,37	0,70										500	500	2,0	92
1205 Z		500	0,23	0,20	0,17										
		1530	1760	2070											

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 100 mm

The total weight of a Drummotor grows approx. 6 kg per 100 mm

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

## Selection table Dahlander motors

TYPE TM 273.40	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=600
		Beltpull N									
430/240	2,20/3,00	<b>2,60/5,20</b>	<b>2,10/4,20</b>	<b>1,80/3,60</b>	<b>1,60/3,20</b>	<b>1,25/2,50</b>	<b>1,10/2,20</b>	500	550	5,0/6,9	97
430/240 Z		805/550	995/680	1160/790	1305/890	1670/1140	1900/1295				
430/240 ZV		<b>0,90/1,80</b>	<b>0,75/1,50</b>	<b>0,70/1,40</b>	<b>0,65/1,30</b>	<b>0,60/1,20</b>					
		2320/1585	2785/1900	2985/2035	3215/2190	3485/2375					
418/230	1,30/2,20	<b>2,60/5,20</b>	<b>2,10/4,20</b>	<b>1,80/3,60</b>	<b>1,60/3,20</b>	<b>1,25/2,50</b>	<b>1,10/2,20</b>	500	500	3,1/4,6	97
418/230 Z		475/400	590/500	685/580	770/655	990/835	1125/950				
418/230 ZV		<b>0,75/1,50</b>	<b>0,70/1,40</b>	<b>0,65/1,30</b>	<b>0,60/1,20</b>						
		1645/1395	1900/1610	2060/1740							
816/430 ZV	1,20/2,20	<b>0,45/0,90</b>	<b>0,40/0,80</b>	<b>0,35/0,70</b>	<b>0,33/0,66</b>	<b>0,30/0,60</b>		500	550	3,8/4,3	97
		2535/2320	2850/2615	3255/2985	3455/3165	3800/3485					
810/420	0,75/1,50	<b>1,85/3,70</b>	<b>1,50/3,00</b>	<b>1,30/2,60</b>	<b>1,05/2,10</b>	<b>0,90/1,80</b>	<b>0,80/1,60</b>	500	550	3,3/4,6	97
810/420 Z		385	475	550	680	790	890				
810/420 ZV		<b>0,50/1,00</b>	<b>0,45/0,90</b>	<b>0,33/0,66</b>							
		1425	1585	2160							
		<b>0,40/0,80</b>	<b>0,35/0,70</b>	<b>0,27/0,54</b>	<b>0,25/0,50</b>						
		1780	2035	2375							
875/415	0,55/1,10	<b>1,30/2,60</b>	<b>1,05/2,10</b>	<b>0,90/1,80</b>	<b>0,80/1,60</b>	<b>0,65/1,30</b>	<b>0,55/1,10</b>	500	500	2,4/2,5	92
875/415 Z		400	500	580	655	805	950				
		<b>0,40/0,80</b>	<b>0,35/0,70</b>	<b>0,30/0,60</b>	<b>0,27/0,54</b>	<b>0,25/0,50</b>					
		1305	1585	1740	1935	2090					
805/410	0,37/0,75	<b>1,30/2,60</b>	<b>1,05/2,10</b>	<b>0,90/1,80</b>	<b>0,80/1,60</b>	<b>0,65/1,30</b>	<b>0,55/1,10</b>	500	500	1,8/1,5	92
805/410 Z		275	340	395	445	550	650				
		<b>0,40/0,80</b>	<b>0,35/0,70</b>	<b>0,30/0,60</b>	<b>0,27/0,54</b>	<b>0,25/0,50</b>					
		890	1020	1080	1190	1320	1425				

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 100 mm

The total weight of a Drummotor grows approx. 6 kg per 100 mm

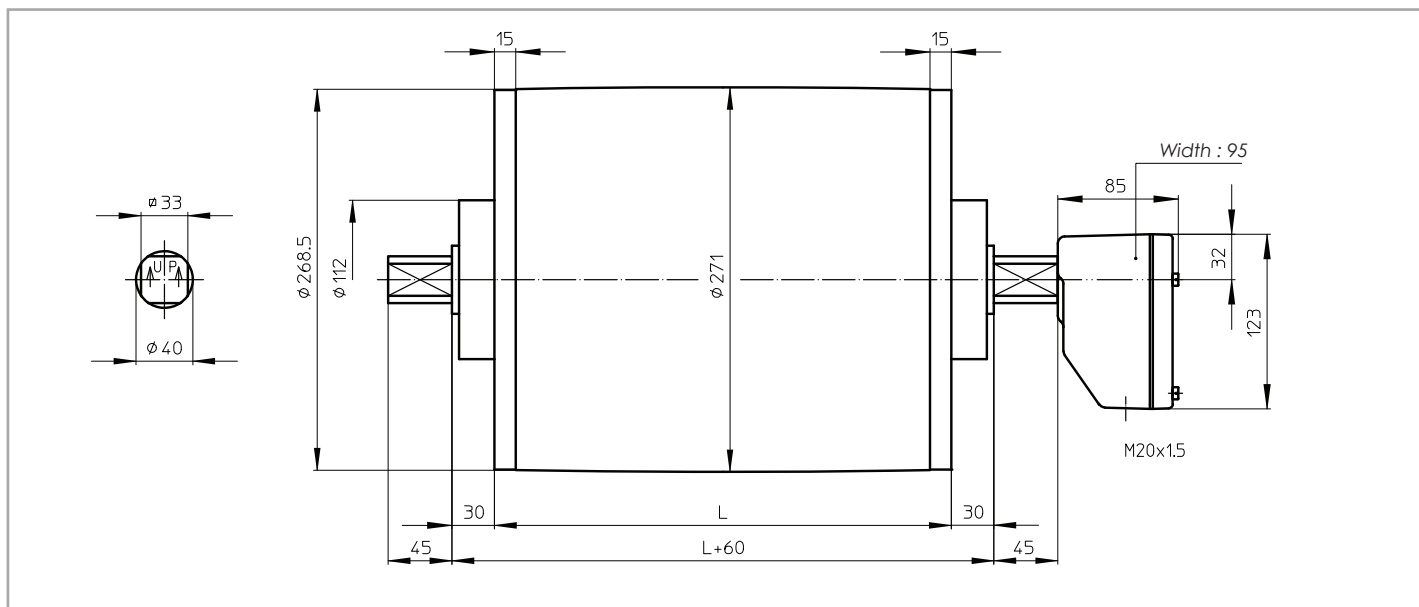
Available torque: (Beltpull N x drum diameter m) / 2 Nm



## Dimensions Drummotors

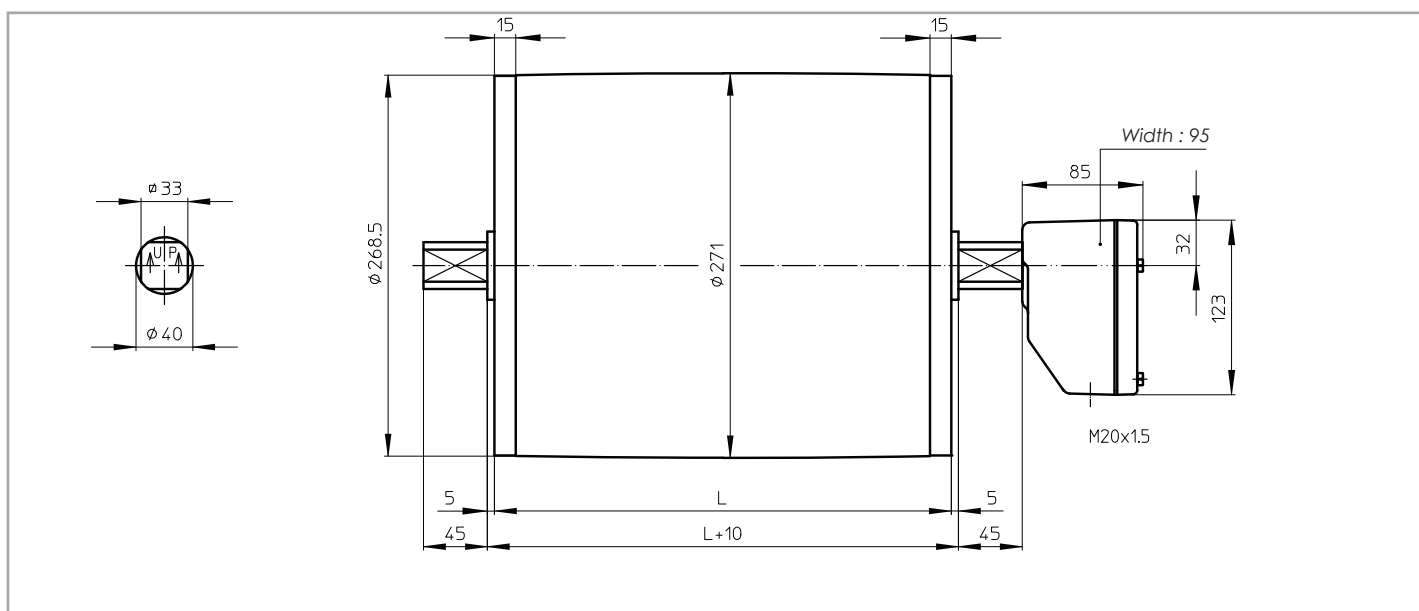
### TM 273A40

TM 273A40, mild steel Drummotor with cast iron junctionbox



### TM 273B40

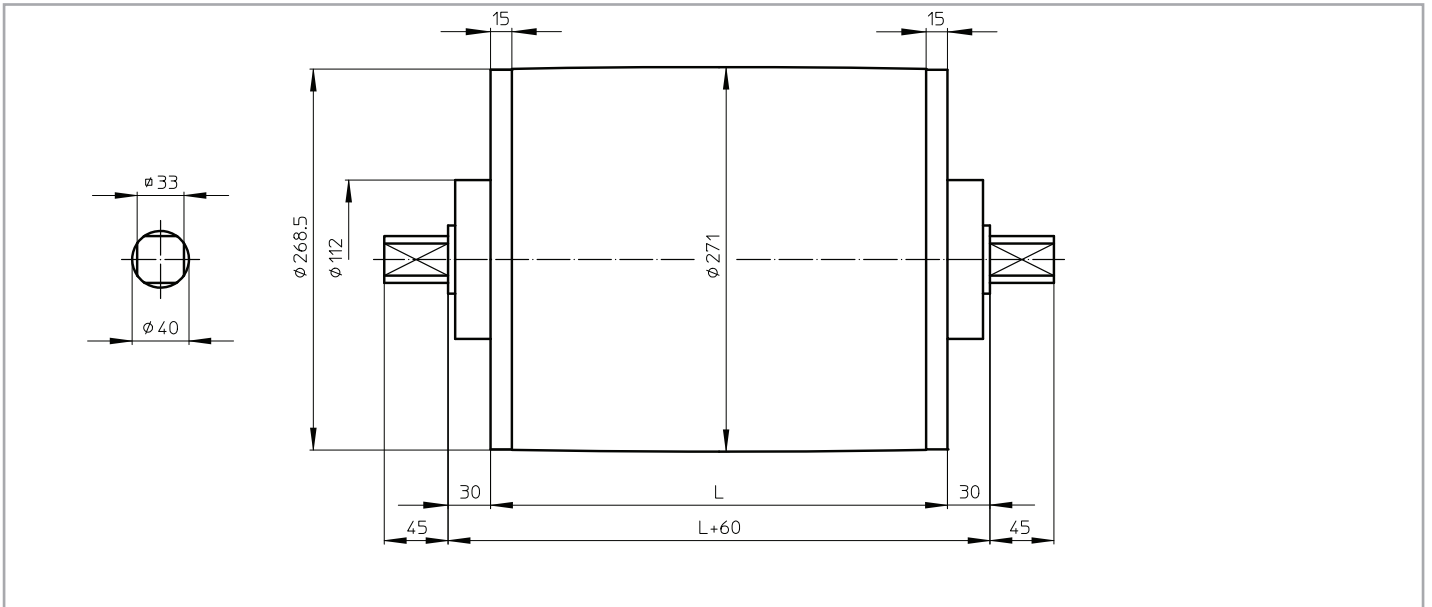
TM 273B40, mild steel Drummotor with cast iron junctionbox



# Dimensions Taildrums

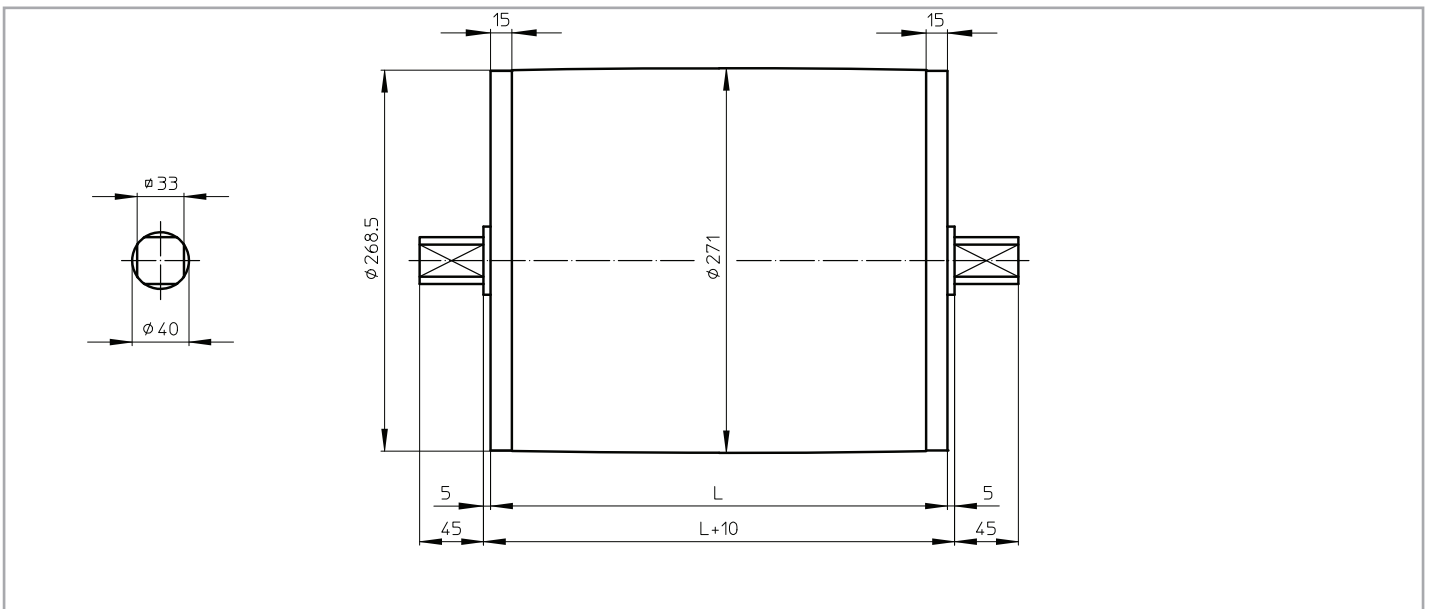
## KT 273A40

KT 273A40, mild steel Taildrum



## KT 273B40

KT 273B40, mild steel Taildrum





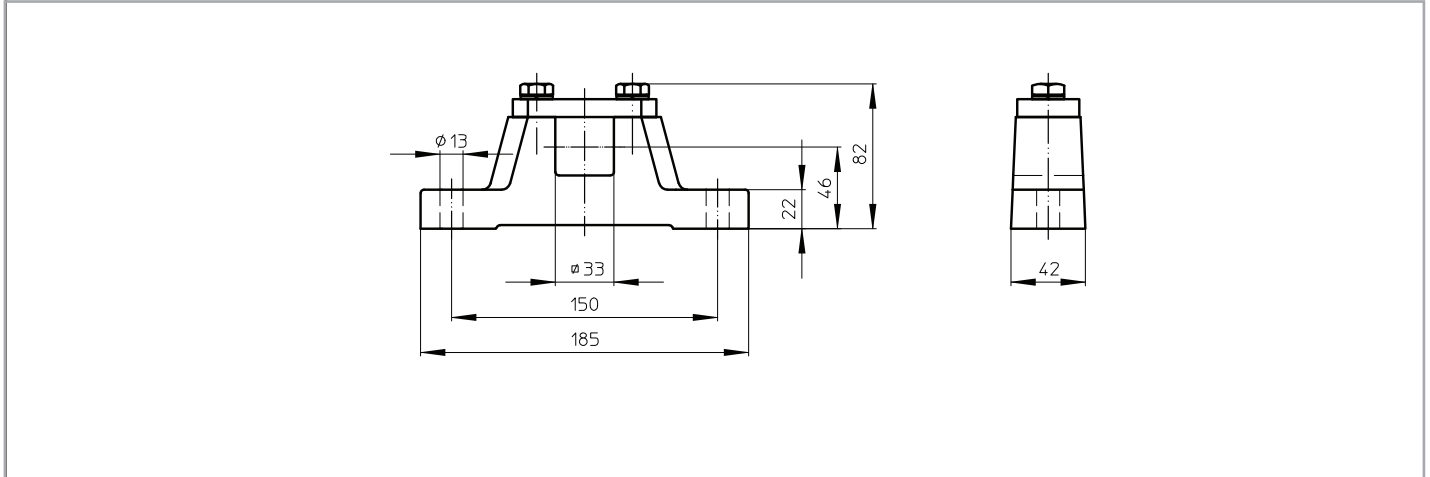


# Dimensions bracket

## AB 40

AB 40, cast iron or stainless steel bracket

Weight: 4,2 kg per pair



# Cable exit

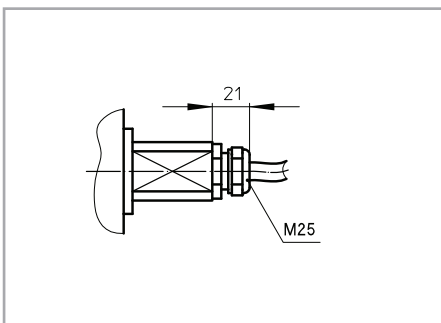
Standard design of a TM 127-25 is with a cast iron junctionbox. For stainless steel design, this can be either a polyamide or stainless steel junctionbox.

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.

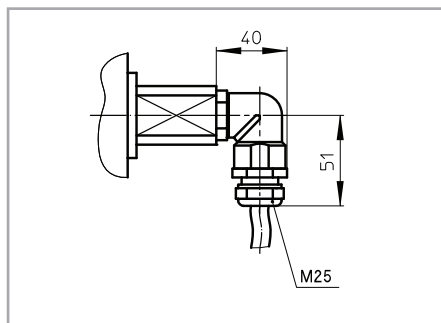
## Option 1

Straight cable exit with cable gland



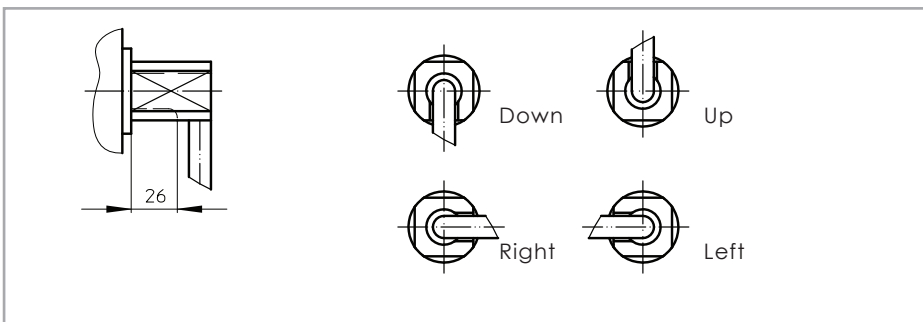
## Option 3

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



## Option 4

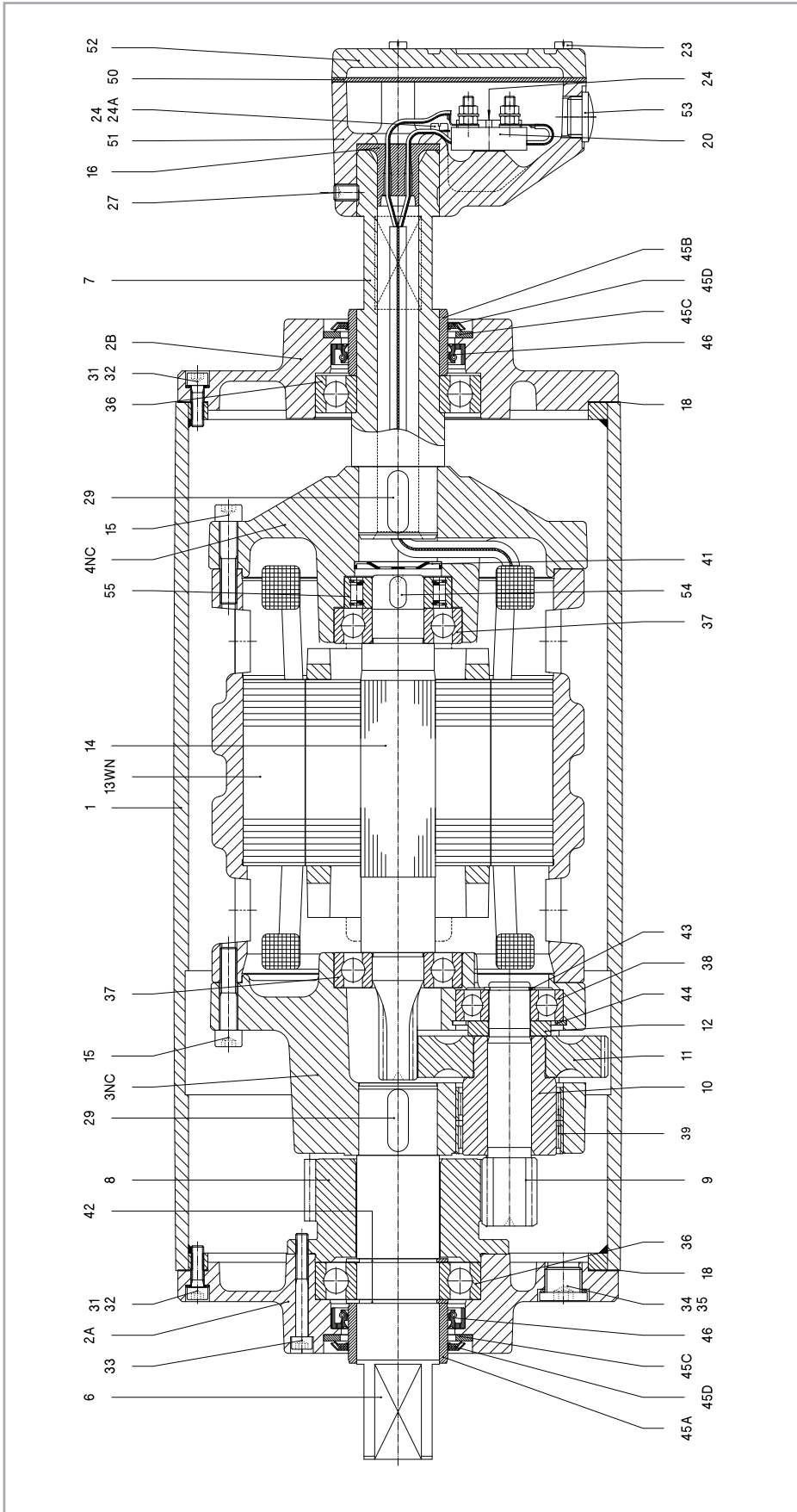
Open cable exit (minimum facewidth increases with 50 mm)





TM 273A40

Legenda



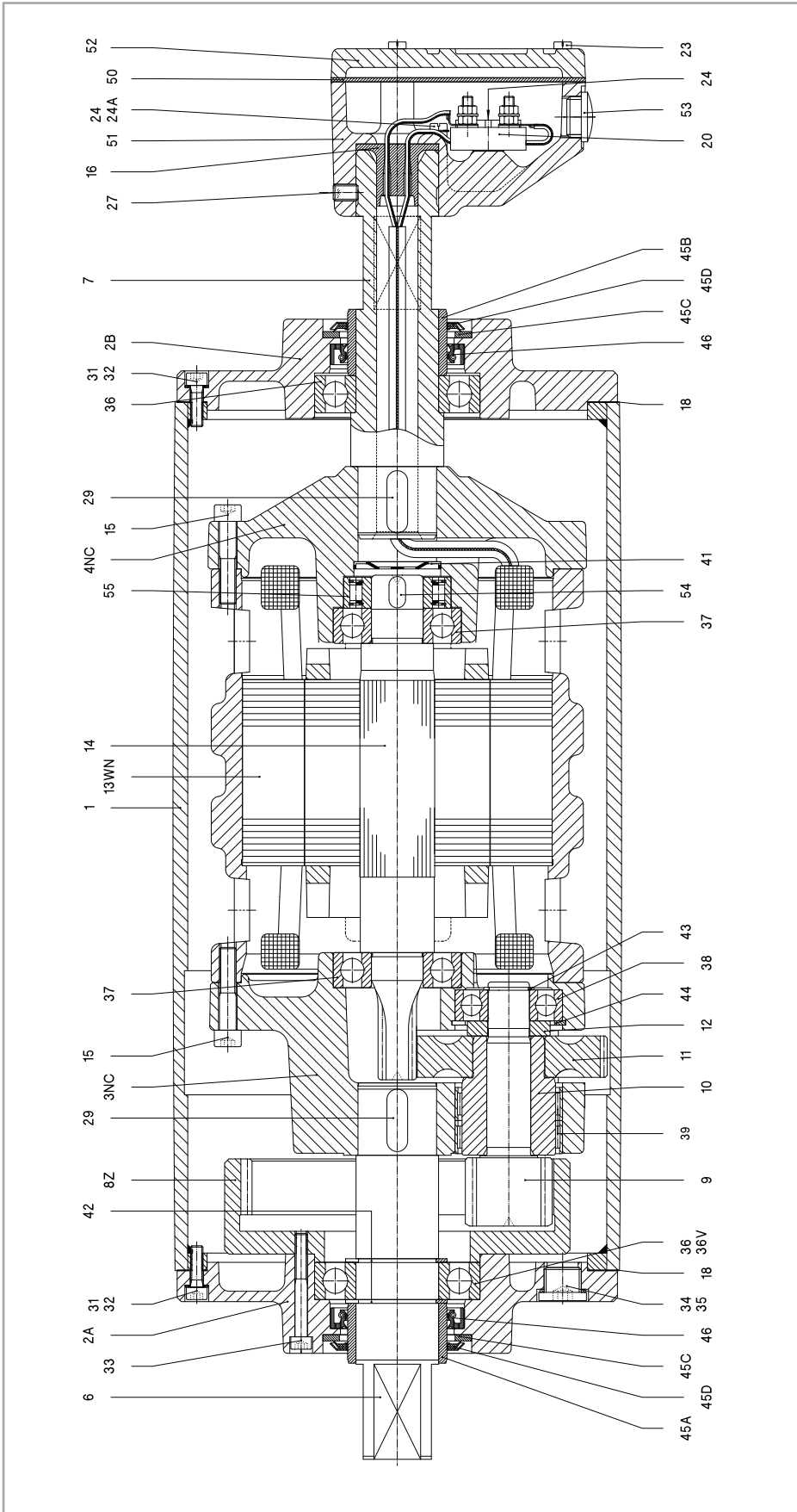
Remark: Drummotor also available in B-design (TM273B40)

1	Shell	11	Gear	36	Cyl. head screw	Ballbearing	45B	Bearing race
2A	Endflange	12	Distance ring	37	Toothed lock washer	Ballbearing	46	Oilseal
2B	Endflange	13WN	Stator	38	Setscrew	Ballbearing	50	Seal
3NC	Gearhousing	14	Rotor	39	Key	Needlebearing	51	Junctionbox
4NC	Motorflange	15	Int. hex screw	41	Int. hex screw	Disc	52	Junctionbox cover
6	Shaftend	16	Cable passage	42	Washer	Circlip	53	Stopping plug
7	Hollow shaft	18	Gasket	43	Int. hex screw	Circlip	54	Key
8	External gear	20	Terminalboard	44	Fillerplug	Circlip	55	Backstop
9/10	Pinion with bush	23	Cyl. head screw	45A	Washer	Bearing race	57	Dataplate
		24						
		24A						
		27						
		29						
		31						
		32						
		33						
		34						
		35						
		36						
		37						
		38						
		39						
		40						
		41						
		42						
		43						
		44						
		45						
		45A						
		45B						
		45C						
		45D						
		46						
		47						
		48						
		49						
		50						
		51						
		52						
		53						
		54						
		55						
		56						
		57						

# Cross sectional / parts description

TM 273A40 Z

Legenda

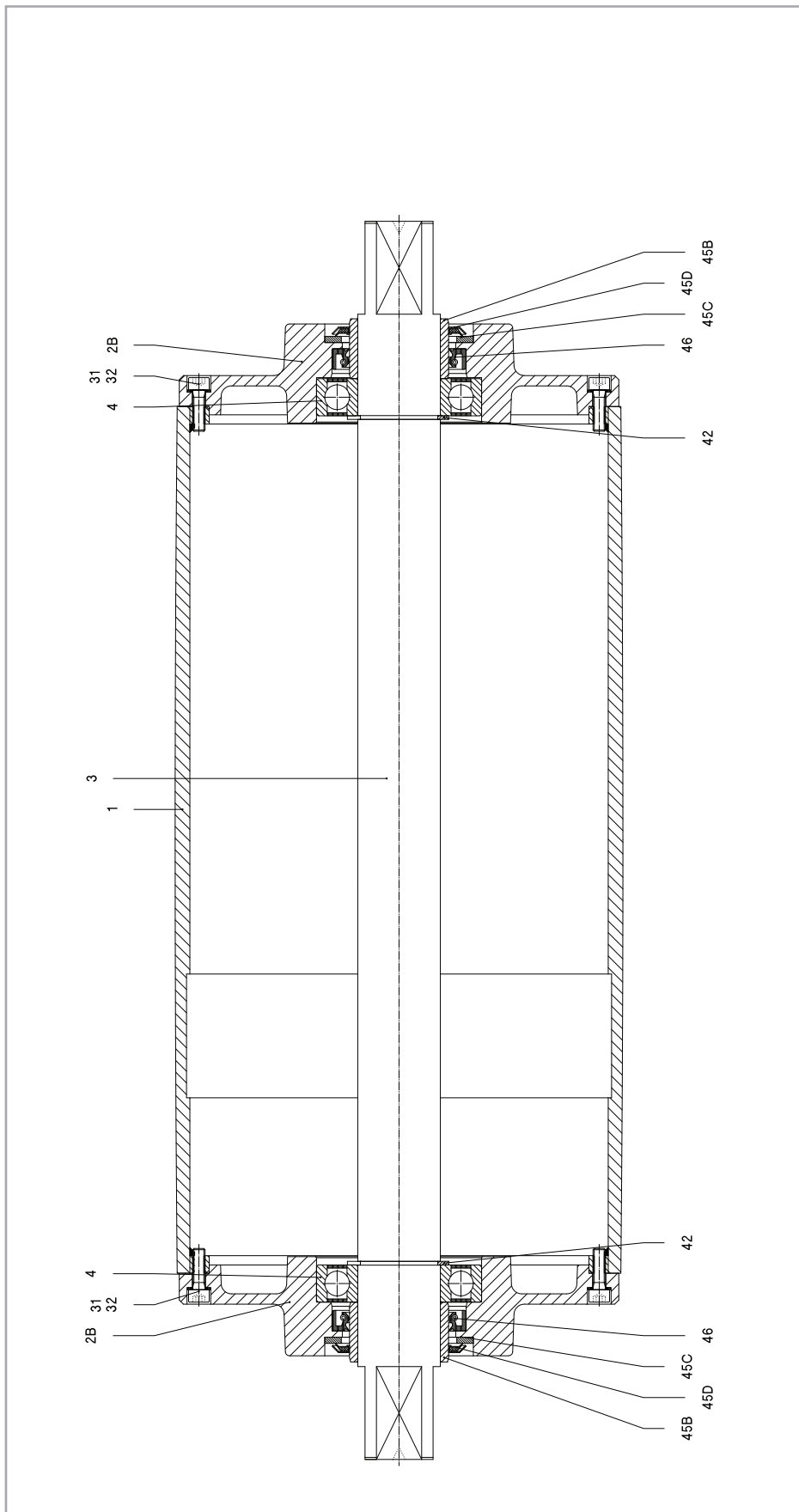


Remark: Drummotor also available in B-design (TM273B40 Z)

1	Shell	38	Ballbearing	51	Junctionbox
2A	Endflange	39	Needlebearing	52	Junctionbox cover
2B	Endflange	41	Disc	53	Stopping plug
3NC	Gearhousing	42	Circlip	54	Key
4NC	Motorflange	43	Circlip	55	Backstop
6	Shaftend	44	Circlip	57	Dataplate
7	Hollow shaft	45A	Bearing race		
8Z	Internal gear	45B	Bearing race		
9/10	Pinion with bush	46	Olised		
11	Gear	50	Seal		
12	Distance ring	27	Setscrew		
13WN	Stator	29	Key		
14	Rotor	31	Int. hex screw		
15	Int. hex screw	32	Washer		
16	Cable passage	33	Int. hex screw		
18	Gasket	34	Fillerplug		
20	Terminalboard	35	Washer		
23	Cyl. head screw	36	Ballbearing		
24	Cyl. head screw	36V	Cyl. roller bearing		
24A	Toothed lock washer	37	Ballbearing		
27	Distance ring	38	Ballbearing		
29	Stator	39	Needlebearing		
31	Rotor	41	Disc		
32	Int. hex screw	42	Circlip		
33	Cable passage	43	Circlip		
34	Gasket	44	Circlip		
35	Terminalboard	45A	Bearing race		
36	Cyl. head screw	45B	Bearing race		
36V	Cyl. head screw	46	Olised		
37	Toothed lock washer	50	Seal		

KT 273A40

Legenda



Remark: Talidrum also available in B-design (KT273B40)

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.



## Options

### Sealings for mild steel Drummotors

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	Polyamide or stainless steel
Cable		Shielded or non-shielded
Sealing mild steel		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		•
<b>Electro motor</b>		
Three-phase asynchronous	•	
Power supply ( $P \leq 3$ 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)		•
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 Drummotor		•
Encoder or sensor bearing in Taildrum		•
<b>Certificates</b>		
CE	•	
UL		•
CSA		•
ATEX zone 22, dust		•





## 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 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

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



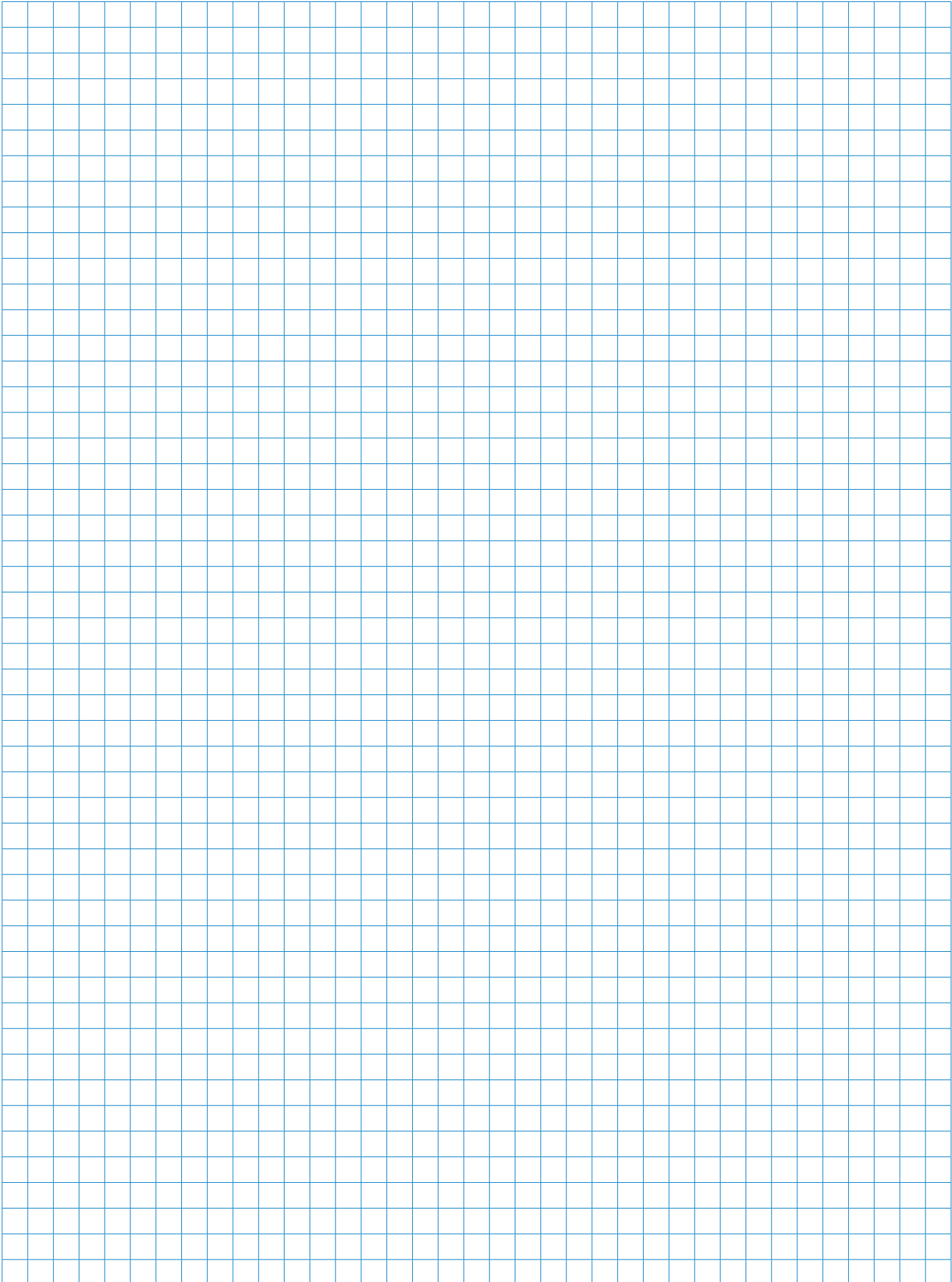
#### Design benefits

- 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

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