

Product information

Drummotors

TM 500A60



Van der Graaf
Power Transmission Equipment

www.vandergraafpte.nl





The TM 500's playground



TM 500A60

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 500A60 | 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=850 | |
|------------------------|-------------|--|--|------------------------------|--------------|--------------|--------------|-----------------------------|-----------------------------|---|-----------------------|-----|
| | | Beltpull N | | | | | | | | | | |
| 230 Z 230 ZV | 22,0 | 4,40 4750 3,20 6530 | 3,80 5500 2,70 7740 | | | | | 700 | 750 | 39,0 | 393 | |
| 225 Z 225 ZV | 18,5 | 4,40 3990 2,70 6505 | 3,80 4625 | 3,20 5490 | | | | 700 | 750 | 32,5 | 393 | |
| 220 Z 220 ZV | 15,0 | 2,70 5275 2,00 7125 | 2,30 6195 1,60 8905 | | | | | 650 | 700 | 26,0 | 383 | |
| 415 415 Z 415 ZV | 11,0 | 4,70 2225 2,20 4750 1,60 6530 | 3,40 3075 1,90 5500 1,30 8040 | 2,70 3870 | | | | 650 | 700 | 21,0 | 383 | |
| 410 410 Z 410 ZV | 7,5 | 4,70 1515 1,40 5090 1,00 7125 | 3,40 2095 1,20 5940 0,80 8905 | 2,90 2455 | 2,10 3395 | 1,60 4455 | | 600 | 650 | 14,5 | 368 | |
| 475 475 Z | 5,5 | 4,70 1110 1,00 5225 | 3,40 1535 0,80 6530 | 3,20 1635 | 2,90 1800 | 2,10 2490 | 1,60 3265 | 1,20 4355 | 600 | 650 | 12,0 | 363 |
| 455 455 Z | 4,0 | 4,70 810 1,00 3800 | 3,40 1120 0,80 4750 | 3,20 1190 | 2,90 1310 | 2,10 1810 | 1,60 2375 | 1,20 3165 | 600 | 650 | 9,5 | 358 |
| 655 655 Z 655 ZV | 4,0 | 1,90 2000 0,75 5065 0,55 6910 | 1,40 2715 0,65 5845 | | | | | 600 | 650 | 9,2 | 363 | |
| 640 640 Z | 3,0 | 2,10 1355 0,75 3800 | 1,90 1500 0,65 4385 | 1,40 2035 0,55 5180 | 1,10 2590 | 0,80 3565 | | 600 | 650 | 7,0 | 358 | |
| 840 840 ZV | 3,0 | 1,60 1780 0,40 7125 | | | | | | 600 | 650 | 8,7 | 363 | |
| 830 830 Z | 2,2 | 1,60 1305 0,50 4180 | 1,40 1495 0,40 5225 | 1,00 2090 | 0,80 2615 | 0,60 3485 | | 600 | 650 | 8,0 | 358 | |
| 1230 1230 ZV | 2,2 | 0,70 2985 0,33 6335 | 0,25 8360 | | | | | 600 | 650 | 8,2 | 368 | |
| 1220 1220 Z | 1,5 | 1,10 1295 0,38 3750 | 0,95 1500 0,33 4320 | 0,70 2035 0,25 5700 | 0,55 2590 | 0,40 3565 | | 600 | 650 | 5,1 | 363 | |

Available standard facewidth's: 600 - 650 - 700 - 750 - 800 - 850 - 900 - 950 - 1000 - 1050 - 1100 - 1150 - 1400 - 1600 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 Drummotor, the minimum facewidth is increased by 50 mm

The total weight of a Drummotor grows approx. 19 kg. per 100 mm

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

Selection table Dahlander motors

| TYPE TM 500A60 | 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=650 |
|----------------------|-------------|------------------------|-----------|-----------|-----------|-----------------------------|-----------------------------|---|-----------------------|
| | | Beltpull N | | | | | | | |
| 410/220 | 7,5/15,0 | 2,70/5,40 | | | | 650 | 700 | 14,2/28,5 | 363 |
| 410/220 Z | | 2,20/4,40 | 1,90/3,80 | 1,60/3,20 | 1,30/2,60 | | | | |
| | | 2640 | 3240 | 3750 | 4455 | 5480 | | | |

Available standard facewidth's: 650 - 700 - 750 - 800 - 850 - 900 - 950 - 1000 - 1050 - 1100 - 1150 - 1400 - 1600 mm

For facewidth's above 1000 mm contact the engineering department for calculation of reinforced shaft

When an electro-mechanical brake is fitted, the minimum facewidth is increased by 150 mm

When a backstop is fitted in a 2-pole Drummotor, the minimum facewidth is increased by 50 mm

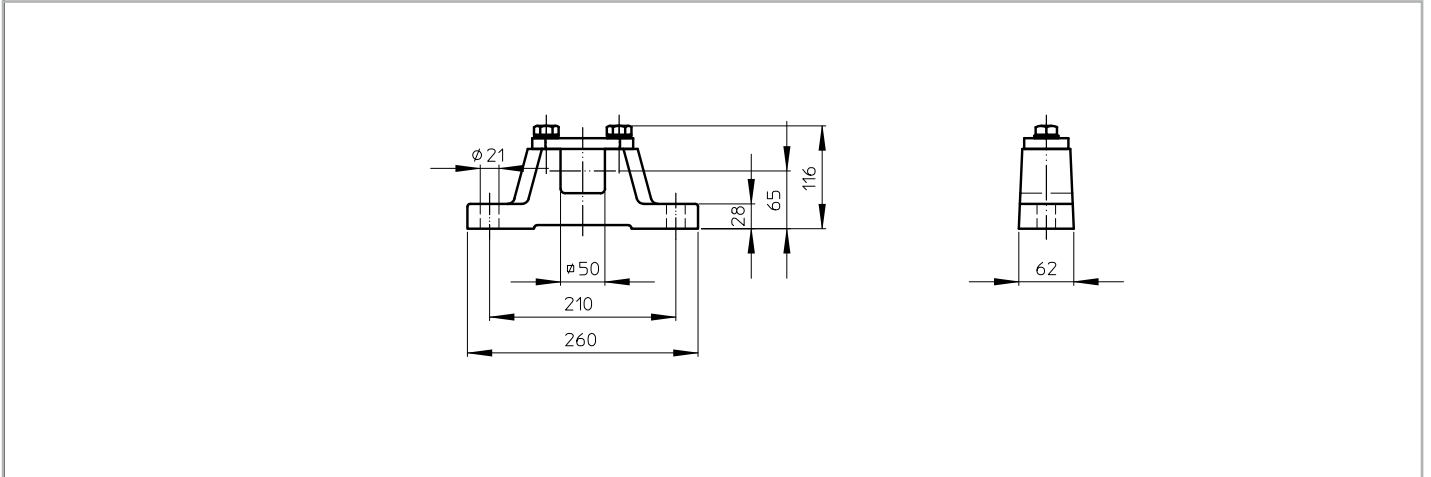
The total weight of a Drummotor grows approx. 19 kg. per 100 mm

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

Dimensions bracket / Cable exit

AB 60

AB 60, cast iron or stainless steel bracket
Weight: 11,5 kg per pair



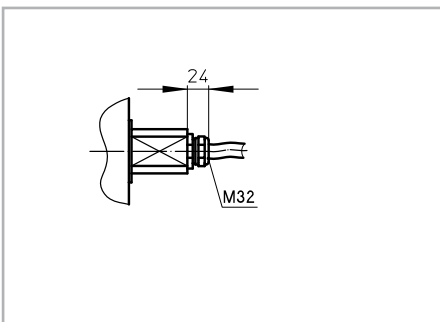
Standard design of a TM 500A60 is with a cast iron junctionbox. For stainless steel design, this can be either a cast iron PU coated or stainless steel junctionbox.

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.

The available cable exit is shown below.

Option 1

Straight cable exit with cable gland

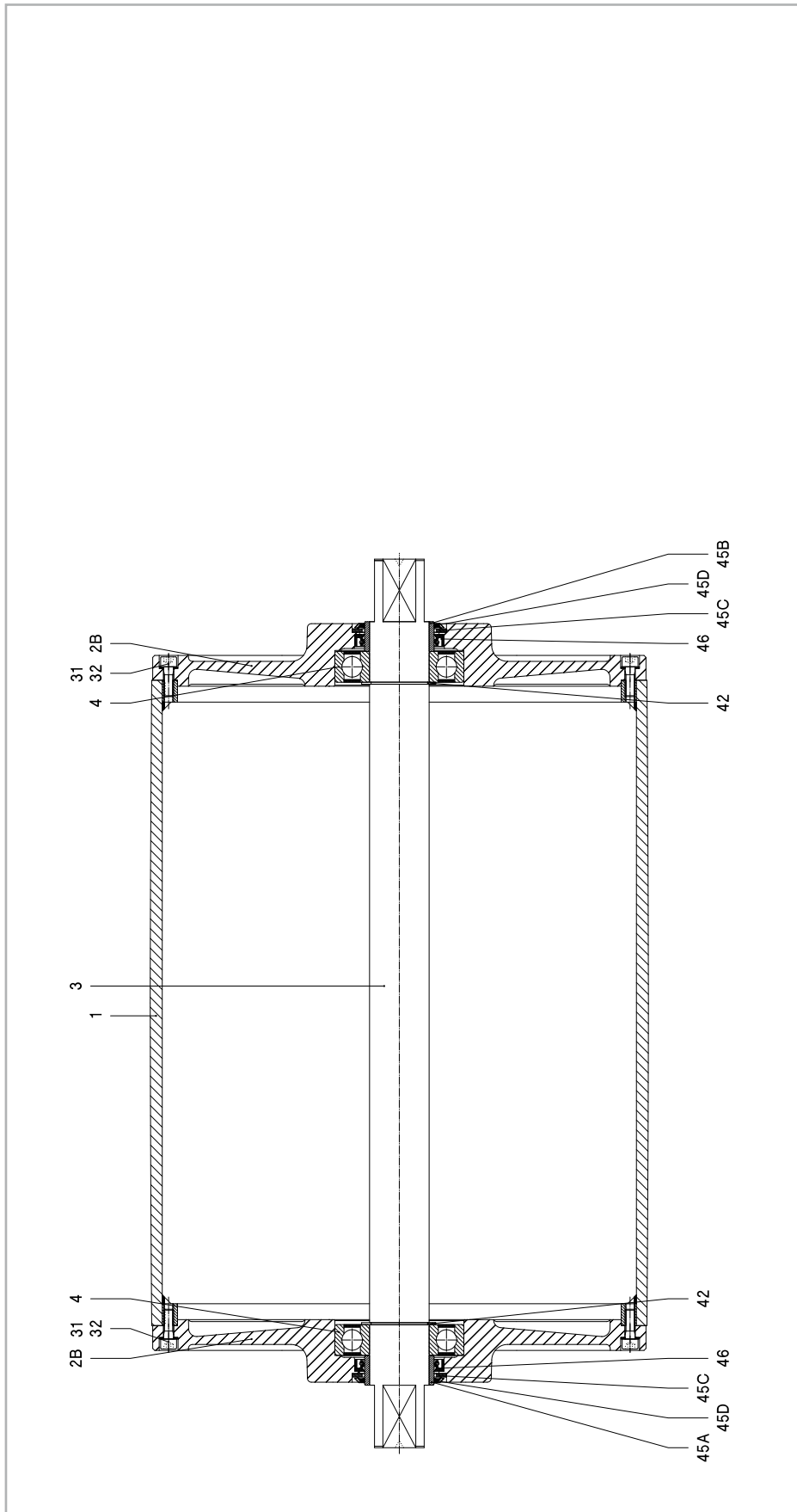




Cross sectional / parts description

KT 500A60

Legenda



- | | | | |
|----|----------------|-----|--------------|
| 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 |
|--|-------------------|---|
| Construction | | |
| Shafts and bolts | Mild steel | Stainless steel |
| Endflanges | Cast iron | Stainless steel |
| Shell | Mild steel | Stainless steel |
| Junctionbox | Cast iron | Cast iron PU coated or stainless steel |
| 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 (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 |
| | | |
| | | |
| Twin drive (double power) | | • |
| 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 | | • |



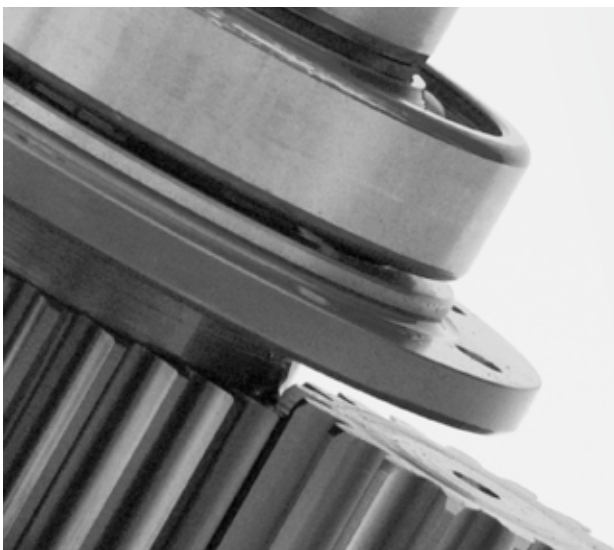
Product range

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

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