

ROSTA Motorbases

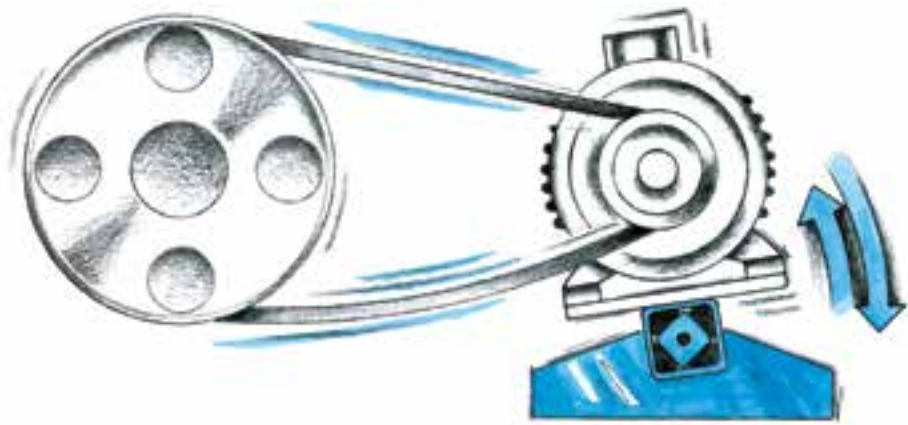
Self-tensioning Motor Mounts for all Friction Belt Drives
slippage-free – belt protecting – maintenance-free



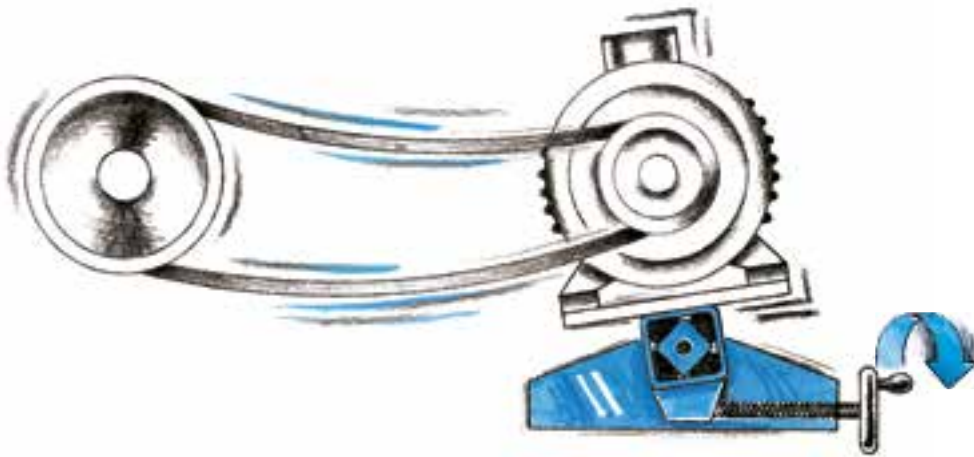
Customer Benefits of the ROSTA



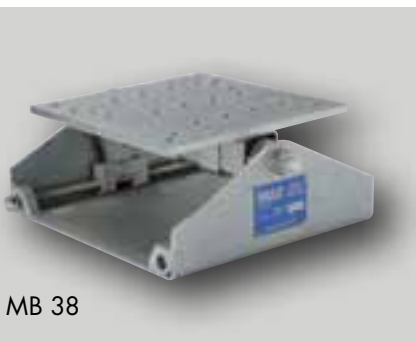
MB 27



Offers short-term slippage by the start-up of large inertias, avoiding excessive tension on belt-carpass!

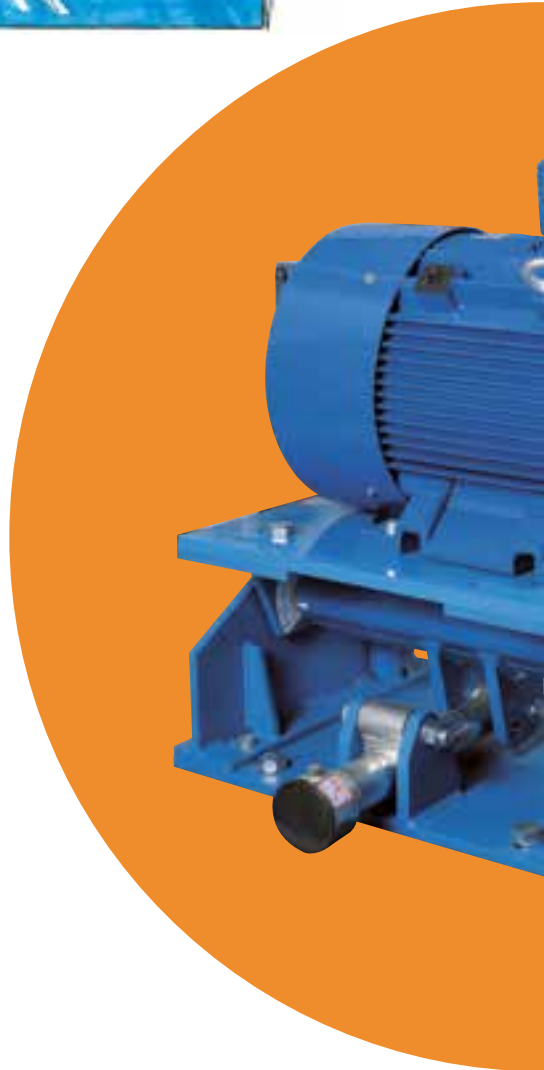
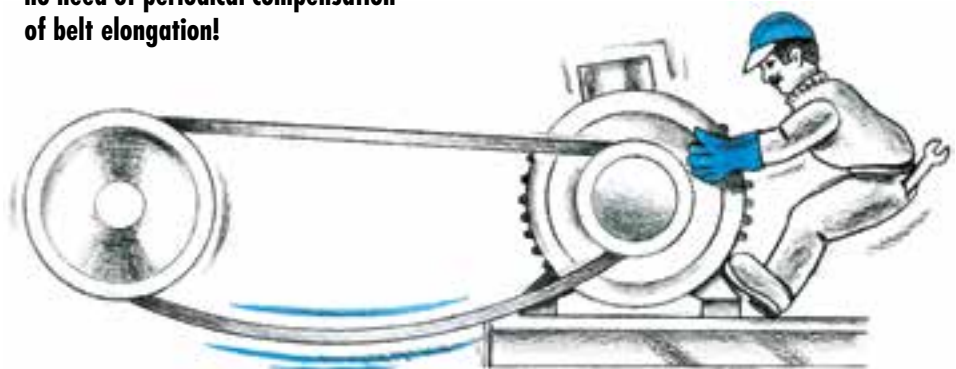


Offers fast belt changing, no need of complex readjustment of the pulleys!

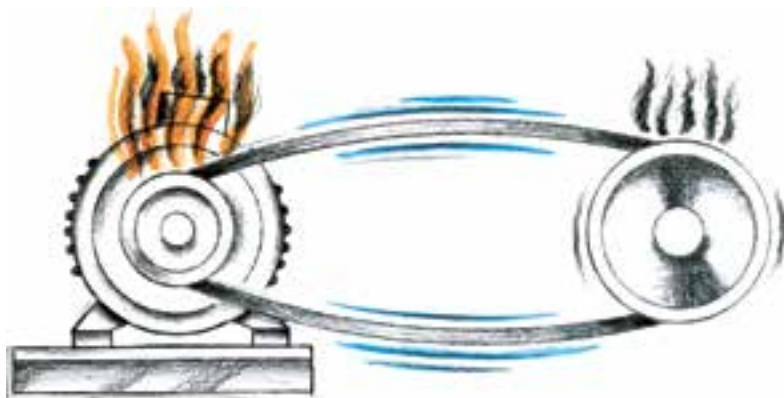


MB 38

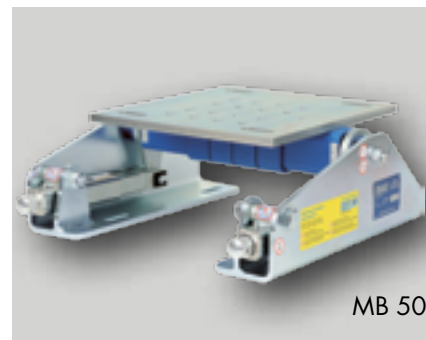
Fully maintenance-free tensioning system, no need of periodical compensation of belt elongation!



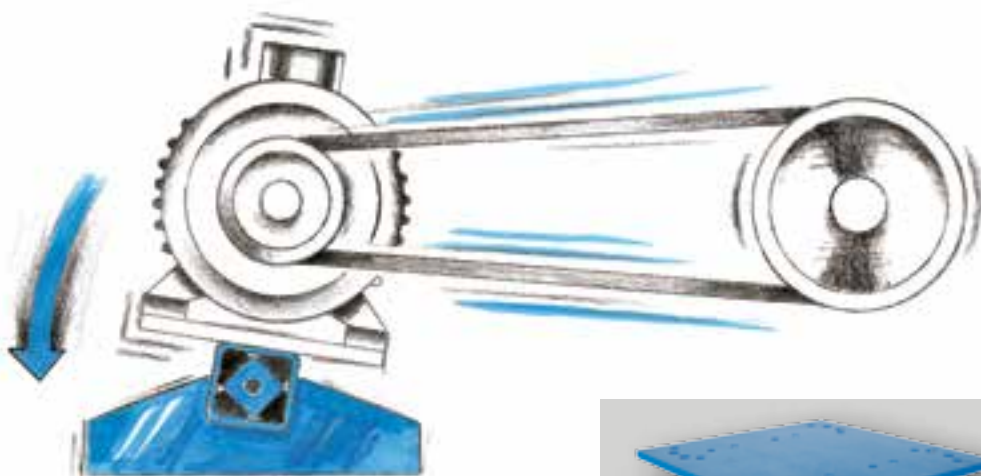
Motorbases in Friction Belt Drives



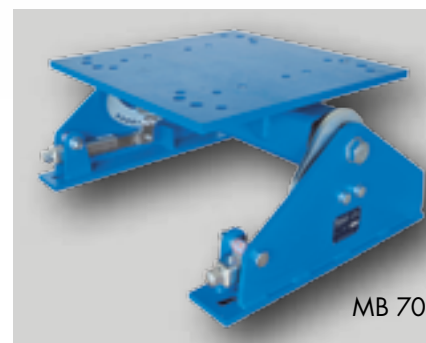
Prevents from slack accruement, avoids heat generating slippage of the belts and averts from premature belt failure!



MB 50

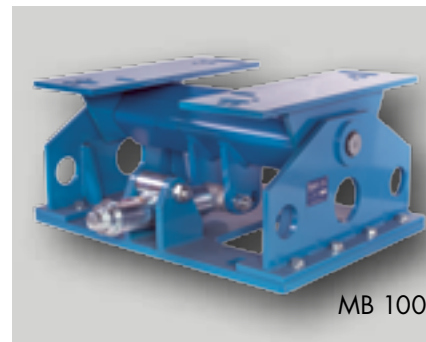
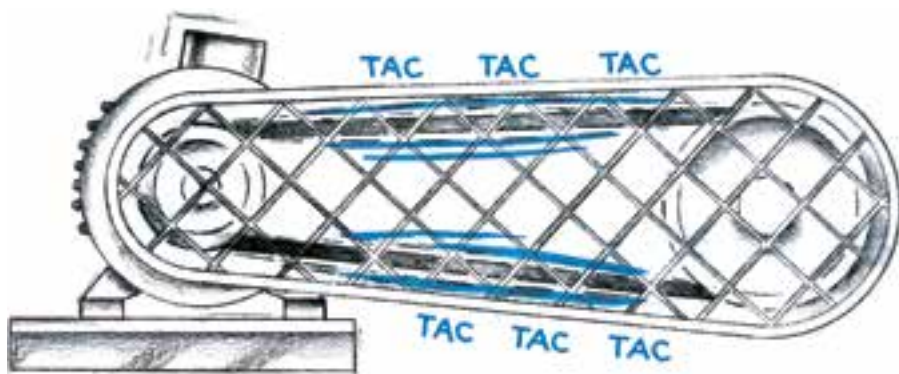


Offers ideal belt tension, constant transmission of nominal torque, less energy consumption, can lead to threefold belt lifetime!



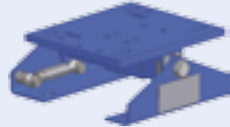

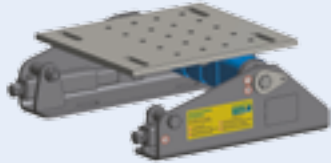
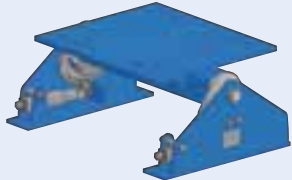
MB 70

Noiseless power transmission, all time ideally tightened belt sets!



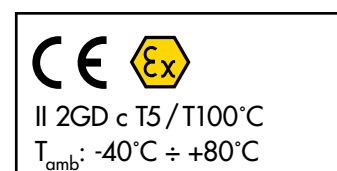
MB 100

Selection table of ROSTA Motorbases according to the motor frame sizes

IEC			NEMA			Type of Motorbase	Details	Standard Design
Motor Frame Size	P [kW] 1000 min ⁻¹ 6-pole motor	P [kW] 1500 min ⁻¹ 4-pole motor	Motor Frame Size	P [HP] 1200 min ⁻¹ 6-pole motor	P [HP] 1800 min ⁻¹ 4-pole motor			
90S 90L	0.75 1.1	1.1 1.5	143T 145T	0.75 1	1 1.5 / 2	MB 27 × 120	Pages 5.6– 5.7	MB 27 
100L	1.5	2.2 / 3	182T	1.5	3			
112M	2.2	4	184T	2	5			
132S 132M	3 4 / 5.5	5.5 7.5	213T 215T	3 5	7.5 10	MB 38 × 300	Pages 5.6– 5.7	MB 38 
160M 160L	7.5 11	11 15	254T 256T	7.5 10	15 20			
160M 160L	7.5 11	11 15	254T 256T	7.5 10	15 20	MB 50 × 270-1	Pages 5.8– 5.9	MB 50 
180M 180L	– 15	18.5 22	284T 286T	15 20	25 30	MB 50 × 270-2		
200L	18.5 / 22	30	324T 326T	25 30	40 50	MB 50 × 400		
225S 225M	– 30	37 45	364T 365T	40 50	60 75	MB 50 × 500		
250M	37	55	404T	60	100	MB 70 × 400	Pages 5.10– 5.11	MB 70 
280S 280M	45 55	75 90	405T 444T	75 100	100 / 125 125 / 150	MB 70 × 550		
315S	75	110	445T	125 / 150	150 / 200	MB 70 × 650		
315M 315L	90 / 110 110–160	132–160 160–200	447T 449T	150–200 200–300	200–250 250–300	MB 70 × 800		
315M 315L	90 / 110 110–160	132–160 160–200	447T 449T	150–200 200–300	200–250 250–300	MB 100 × 750	Pages 5.12– 5.13	MB 100 
355S 355M 355L	132–160 200–250 200–250	200–250 250 250	586/7	250–350	300–350			
various	up to 275	up to 400	various	up to 370	up to 540			
various	up to 350	up to 550	various	up to 650	up to 750	MB 100 × 1500		

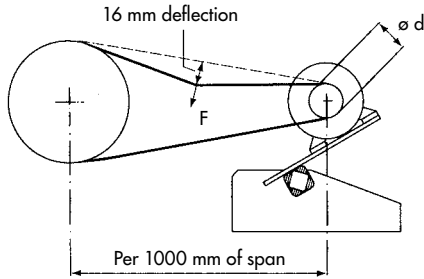
Customized designs of motorbases on pages 5.14–5.15.
For not mentioned motor frame sizes, please contact **ROSTA**.

ATEX certified designs for category 2 (zone 1/21) on pages 5.6, 5.8, 5.10 and 5.12:



Test forces for ideal belt tensioning

The ROSTA Motorbase is offering with its mechanical pretensioning device the ideal calibration of the relevant belt tension, based on the test force recommendations of the belt suppliers. These recommended test forces for the most common V-belt sizes are mentioned in the test force table on the right.



Exception

For screen applications the belt only tighten enough that they do not slip during start-up and operation.

Test force table by initial V-belt installation

(standard values for the most common types of V-belts)

V-belt type	Width [mm]	Height [mm]	Diam. of smaller pulley [mm]	Initial operation test-force F_i^* [N]	Operational test-force F_o^* [N]
XPZ, SPZ	10	8	56-71	20	16
			75-90	22	18
			95-125	25	20
			≥ 125	28	22
XPA, SPA	13	10	80-100	28	22
			106-140	38	30
			150-200	45	36
			≥ 200	50	40
XPB, SPB	16	13	112-160	50	40
			170-224	62	50
			236-355	77	62
			≥ 355	81	65
XPC, SPC	22	18	224-250	87	70
			265-355	115	92
			≥ 375	144	115
Z	10	6	56-100	5-7.5	
A	13	8	80-140	10-15	
B	17	10	125-200	20-30	
C	22	12	200-400	40-60	
D	32	19	355-600	70-105	

* Test force for V-belts. By ideal belt tensioning a deflection of 16 mm per 1000 mm pulley center distance shall occur. (By shorter or longer span, the value 16 mm has to be interpolated.)

Usual positioning of the ROSTA Motorbase

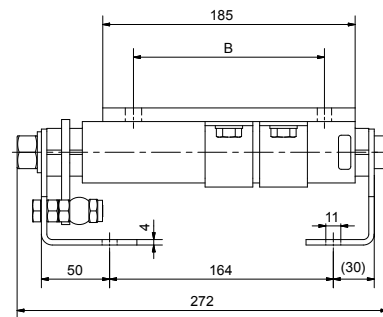
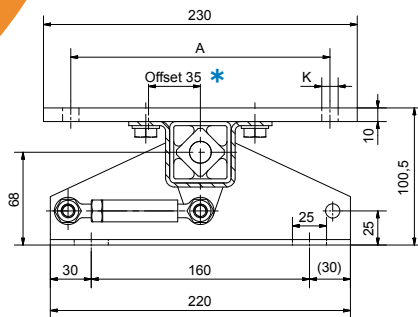
These recommendations are based on practical experience, a test run will show the ideal adjustment.

Screen drive applications		
„Overhead“ Configuration 	„Along-Side“ Configuration Motor ca. +15° to +45° Motor ca. -15° to -45° 	„Foot-Mounting“ Configuration, Feeder Extended „off-set“ and larger Motorbase size recommended.
Pump drive applications		
„Overhead“ Configuration Motor plate „off-set“, towards the pretensioning device. 	„Along-Side“ Configuration 	Crusher applications Variable Loads Motor plate „off-set“, towards the pretensioning device.

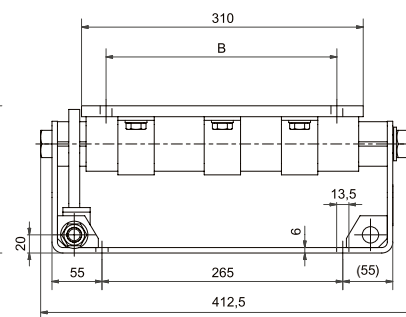
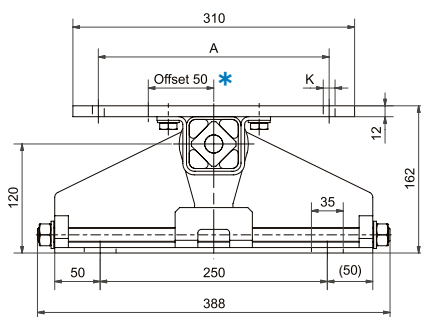
Motorbases Type MB 27 Type MB 38



MB 27 × 120



MB 38 × 300



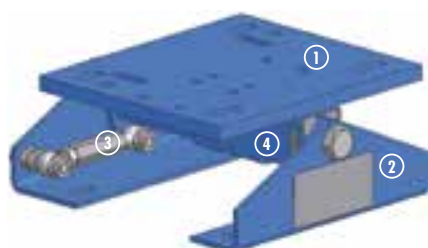
Art. No.	Type	IEC			NEMA			Weight [kg]		
		Motor Frame Size	A	B	K	Motor Frame Size	A		B	K
02200201	MB27 × 120	90S	140	100	10.5	143T	140	102	10.5	8
		90L	140	125	10.5	145T	140	127	10.5	
		100L	160	140	10.5	182T	190	114	10.5	
		112M	190	140	10.5	184T	190	140	10.5	
02000301	MB38 × 300	132S	216	140	M10	213T	216	140	M10	26
		132M	216	178	M10	215T	216	178	M10	
		160M	254	210	13	254T	254	210	13	
		160L	254	254	13	256T	254	254	13	

Details regarding special designs, see pages 5.14–5.15.

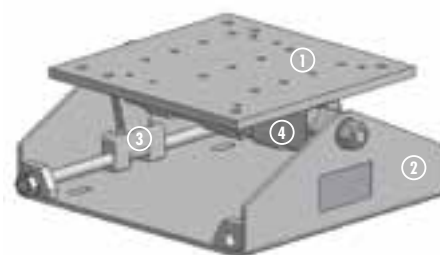
Design **ATEX** with specific Art. No., example MB27 × 120: 02300201. Details ATEX on page 5.4.

* Is the resulting tension-travel of the motorbase not effectual, we recommend to position the motor plate in "off-set" configuration, offering enlarged compensation travel.

- 1 Motor plate
- 2 Side supports
- 3 Pretensioning device
- 4 Rubber suspension element with brackets
(MB 27: 2 brackets / MB 38: 3 brackets)



MB 27 × 120
Steel parts blue painted



MB 38 × 300
Steel parts galvanized

Mounting instructions for MB 27 and MB 38

1 Determine of the ideal motorbase position

- ideal position of the MB, longest tensioning travel
- sufficient tensioning travel
- contact

ROSTA

MB 27

MB 38

2 Support fixations

MB 27:
4 slotted holes 11 x 25 mm

MB 38:
4 slotted holes 13.5 x 35 mm

3 Alignment of pulleys and motor fixation

4 bolts according to relevant motor size

4 Loosen of the shaft bolt (element axis)

MB 27: 24 mm wrench (M16) and
MB 38: 30 mm wrench (M20)

5 Insert and tension the belts, control belt test force

Tensioning of the belts according to belt suppliers recommended test force (table on page 5.5).

MB 27: by means of threaded bushing with 16 mm wrench (M10)

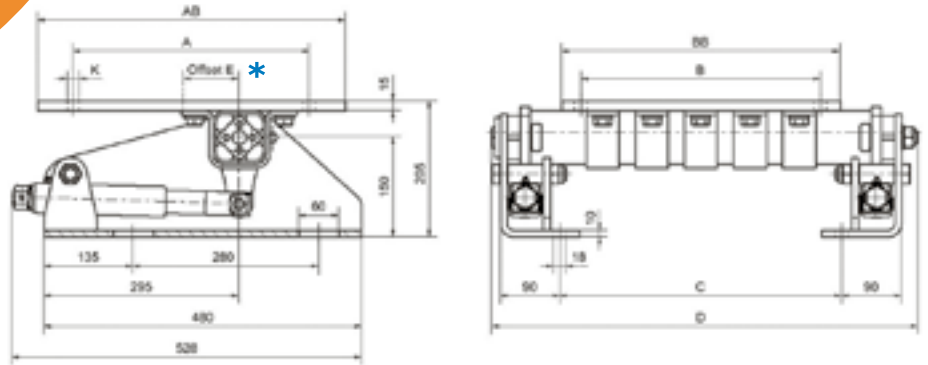
MB 38: by means of threaded shaft with 24 mm wrench (M16 x 1.5)

6 Tighten of the shaft bolt (element axis), start of operation

MB 27: 24 mm wrench (M16), locking torque 210 Nm and
MB 38: 30 mm wrench (M20), locking torque 410 Nm

Retension:
Generally retensioning is not necessary, however, we recommend to inspect the belt tension after a few days of operation.

Motorbases Type MB 50



Art. No.	Type	IEC			NEMA			AB	BB	C	D	E	Weight (kg)		
		Motor Frame Size	A	B	K	Motor Frame Size	A							B	K
new 02 200 526	MB 50×270-1	160M 160L	254 254	210 254	14 14	254T 256T	254 254	210 254	14 14	320	315	245	463	25	44
new 02 200 527	MB 50×270-2	180M 180L	279 279	241 279	14 14	284T 286T	279 279	241 279	14 14	350	335	245	463	72	46
new 02 200 528	MB 50×400	200L	318	305	18	324T 326T	318 318	267 305	18 18	405	390	345	563	55	58
new 02 200 529	MB 50×500	225S 225M	356 356	286 311	18 18	364T 365T	356 356	286 311	18 18	465	420	425	643	72	64

Details regarding special designs, see pages 5.14–5.15.

Design **ATEX** with specific Art. No., example MB50×270-1: 02**3**00526. Details ATEX on page 5.4.

* All ROSTA Motorbases MB 50 will be supplied with motor plate installed in **“off-set”** configuration. According to the final positioning of the base, the operating angle of the belts and the required tensioning travel, the motor plate can be altered in **“centered”** position on top of the element axis. Relevant threaded fixation holes are existent in plate.

For possibly required higher inclination of the motorplate, the rotary plate(s) can be removed and remounted 45° rotated.



- 1 Motor plate galvanized
- 2 Side supports galvanized
- 3 Pretensioning device galvanized (MB 50×270-1 and MB 50×270-2: 1 device / MB 50×400 and MB 50×500: 2 devices)
- 4 Rubber suspension element with cardanic bushings and brackets blue painted (depending on size = 3–5 brackets)
- 5 Centre bolt retaining collar. If required, the main centre bolt and retaining collar can be switched to the opposite side. First block the underside of the rubber suspension element (4). Remove the centre bolt and retaining collar. Re-install the centre bolt and retaining collar from the opposite side. Remove the blocking. The motorbase is now ready to install.



www.rosta.com

Mounting instructions for MB 50

1 Determine of the ideal motorbase position

Operation area "above"
Motor plate standing ~ 30° inclined

Operation area "below"
Motor plate standing ~ horizontal

■ ideal position of the MB, longest tensioning travel
■ sufficient tensioning travel
■ contact **ROSTA**

① Do not use compressed-air power tools for tensioning!

WARNING
Do not remove turnbuckle when device is pre-tensioned!

②

2 Support fixations
4 slotted holes 18 x 60 mm

3 Alignment of pulleys and motor fixation
4 bolts according to relevant motor size

4 Loosen of the shaft bolt (element axis)
30 mm wrench (M20)

5 Insert and tension the belts, control belt test force
Tensioning of the belts according to belt suppliers recommended test force. Adjust tension with a 30 mm wrench (M20), uniformly if 2 pretensioning devices are supplied. The belt tension can easily be monitored according to the reference mark on the angle scale.

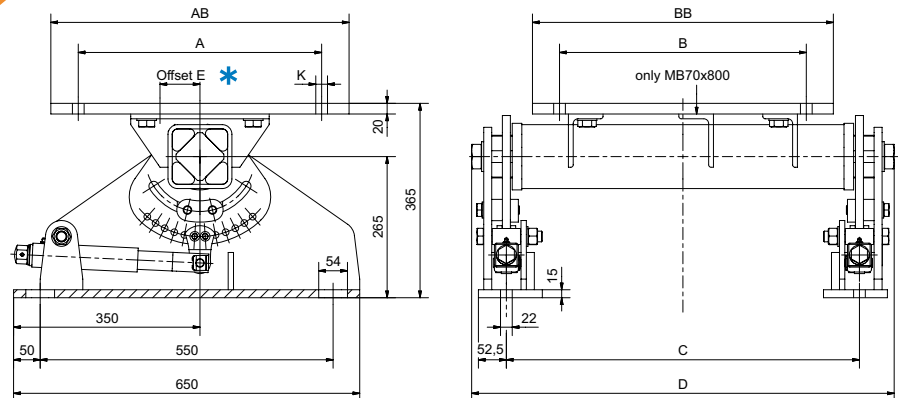
Operation area "below" **Operation area "above"**

6 Tighten of the shaft bolt, start of operation
30 mm wrench (M20)
Locking torque 410 Nm

Retention:
Generally retensioning is not necessary, however, we recommend to inspect the belt tension after a few days of operation according to the sticker on the side supports.



Motorbases Type MB 70



Art. No.	Type	IEC			NEMA			AB	BB	C	D	E	Weight [kg]		
		Motor Frame Size	A	B	K	Motor Frame Size	A							B	K
02 200 710	MB 70 × 400	250M	406	349	22	404T	406	311	22	510	410	513	643	50	142
02 200 711	MB 70 × 550	280S	457	368	22	405T	406	349	22	560	565	663	793	50	169
		280M	457	419	22	444T	457	368	22						
02 200 712	MB 70 × 650	315S	508	406	26	445T	457	419	22	630	660	763	893	70	191
02 200 713	MB 70 × 800	315M	508	457	28	447T	457	508	22	630	805	913	1043	70	216
		315L	508	508	28	449T	457	635	22						

Details regarding special designs, see pages 5.14–5.15.

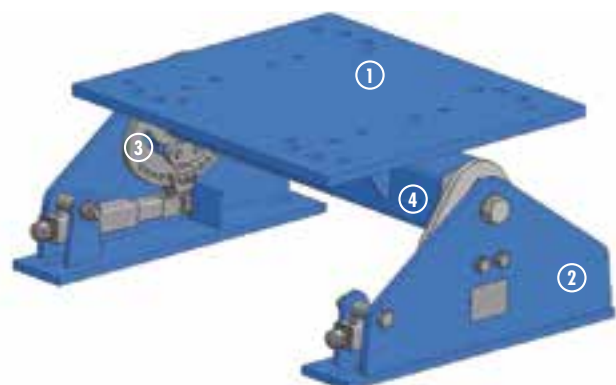
Design **ATEX** with specific Art. No., example MB70 × 400: 02300710. Details ATEX on page 5.4.

We will be glad to calculate your specific system, please ask for our relevant questionnaire.

* All ROSTA Motorbases MB 70 will be supplied with motor plate installed in **“centered”** configuration on top of the element axis. According to the final positioning of the base, the operating angle of the belts and the required tensioning travel, the motor plate can be altered in **“off-set”** position. Relevant threaded fixation holes are existent in plate.

For possibly required additional tensioning travel of the motor plate, the fork head of the pretensioning device can be set in one of the eleven hole positions of the friction plate (3).

- 1 Motor plate
- 2 Side supports
- 3 Pretensioning devices = 2 devices
- 4 Rubber suspension element with cardanic bushings

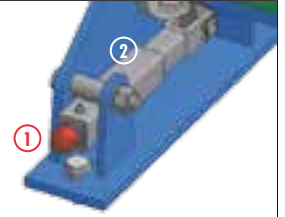
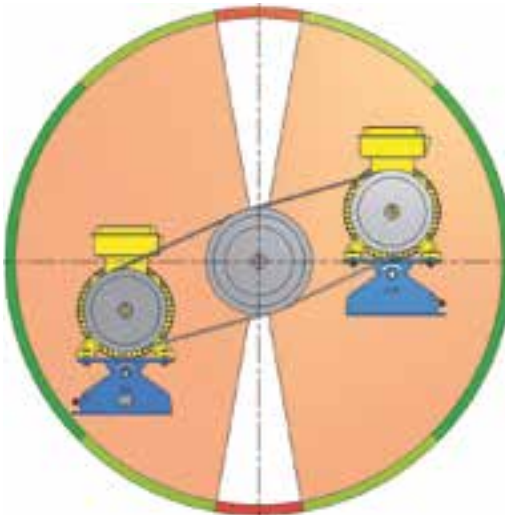


www.rosta.com

Mounting instructions for MB 70

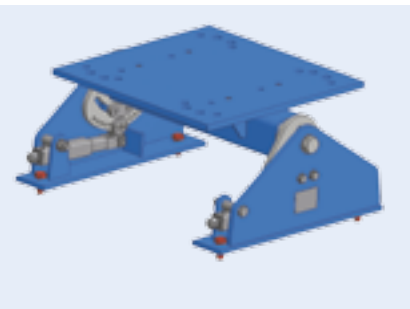
1 Determine of the ideal motorbase position

- ideal position of the MB, longest tensioning travel
- sufficient tensioning travel
- contact **ROSTA**



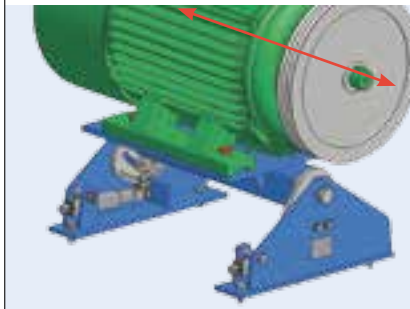
2 Support fixations

4 slotted holes 22x54 mm



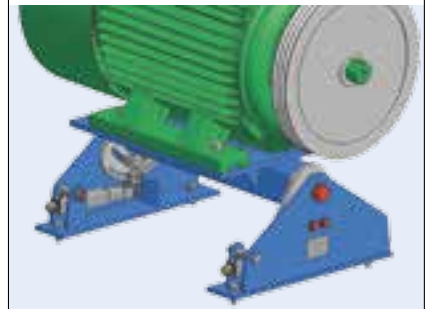
3 Alignment of pulleys and motor fixation

4 bolts according to relevant motor size



4 Loosen of the center bolts (element axis) and of the bolts on friction plates

46 mm wrench (M30) and 24 mm wrench (M16)

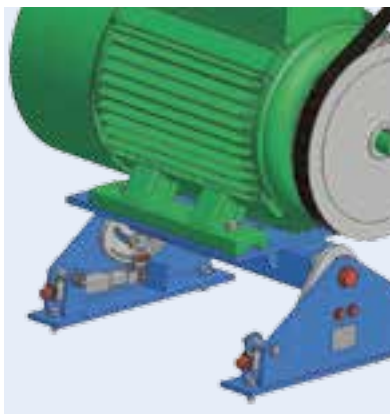


5 Insert and tension the belts, control belt test force

Tensioning of the belts according to belt suppliers recommended test force (table on page 5.5). Adjust uniformly the 2 pretensioning devices with a 30 mm wrench (M20). Its operation area is limited by the vertical plates on the supports.

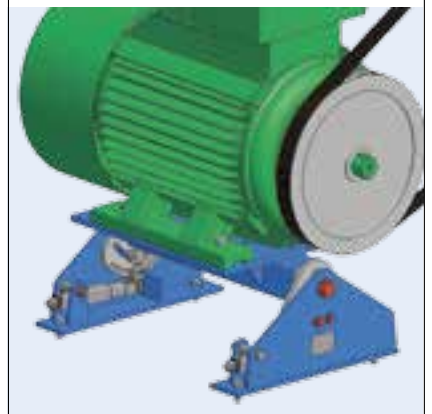
The adjustment yokes must be relocated before they hit the end stops

- 5.1 Tighten center bolts M30 and friction plate bolts M16
- 5.2 Release pretensioning device on one side and remove hex socket bolts M12
- 5.3 Move pretensioning device to line up with desired holes on friction plate
- 5.4 Reinstall hex socket bolts M12 and tighten (86 Nm)
- 5.5 Extend the pretensioning device to remove slack
- 5.6 Go to step 5.2 to 5.5 and proceed with the opposite pretensioning device
- 5.7 After both tensioners are relocated, continue with step 4 to 6



6 Tighten of the center and fixing bolts (friction plates), start of operation

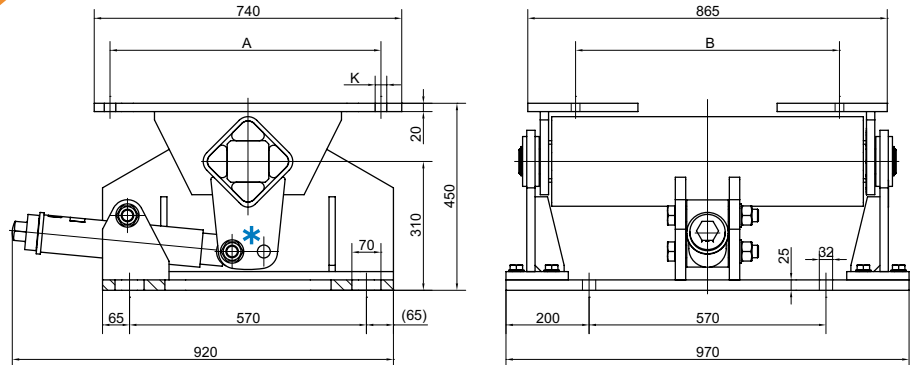
46 mm wrench (M30), locking torque 1400 Nm and 24 mm wrench (M16), locking torque 210 Nm.



Retension:

Generally retensioning is not necessary, however, we recommend to inspect the belt tension after a few days of operation.

Motorbases Type MB 100



Art. No.	Type	IEC			NEMA			Weight [kg]		
		Motor Frame Size	A	B	K	Motor Frame Size	A		B	K
02 200 900	MB 100×750	315M	508	457	28	447T	457	508	21	490
		315L	508	508	28	449T	457	635	21	
		355S	610	500	28					
		355M	610	560	28	586/7	584	560	30	
		355L	610	630	28					

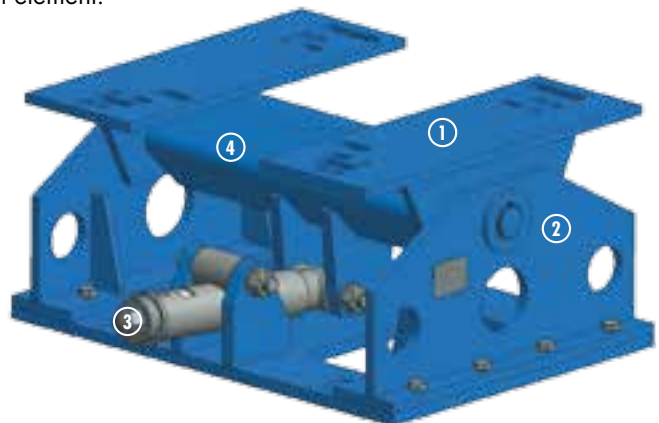
Details regarding special designs, see pages 5.14–5.15.

Design **ATEX** with specific Art. No., example MB100×750: 02**3**00900. Details ATEX on page 5.4.

We will be glad to calculate your specific system, please ask for our relevant questionnaire.

* For possibly required longer tensioning travel of the motor L-supports, the pretensioning device (3) shall be bolted into the front holes of the fork-head on the rubber suspension element.

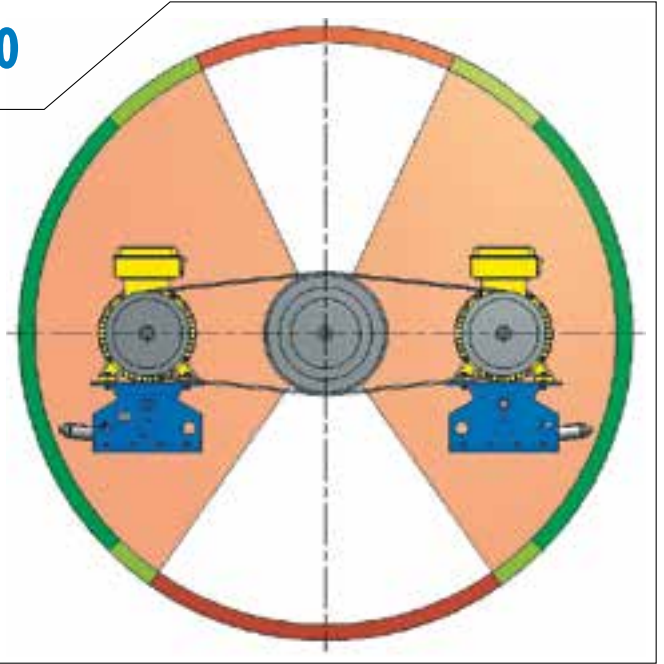
- 1 Motor L-supports
- 2 Side supports
- 3 Pretensioning device
- 4 Rubber suspension element



Mounting instructions for MB 100

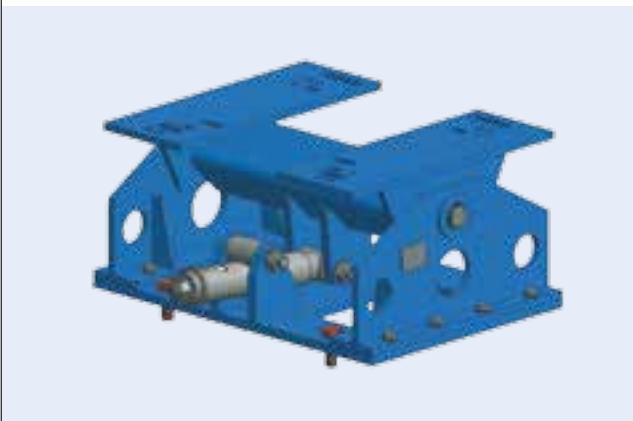
1 Determine of the ideal motorbase position

- ideal position of the MB, longest tensioning travel
- sufficient tensioning travel
- contact **ROSTA**



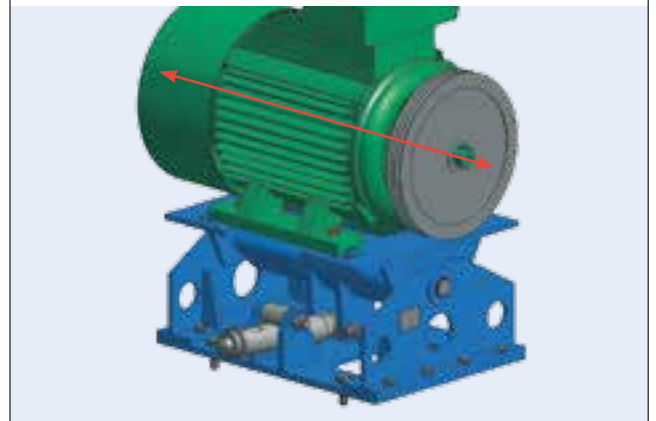
2 Support fixation

4 slotted holes 32x70 mm



3 Alignment of pulleys and motor fixation


4 bolts according to relevant motor size



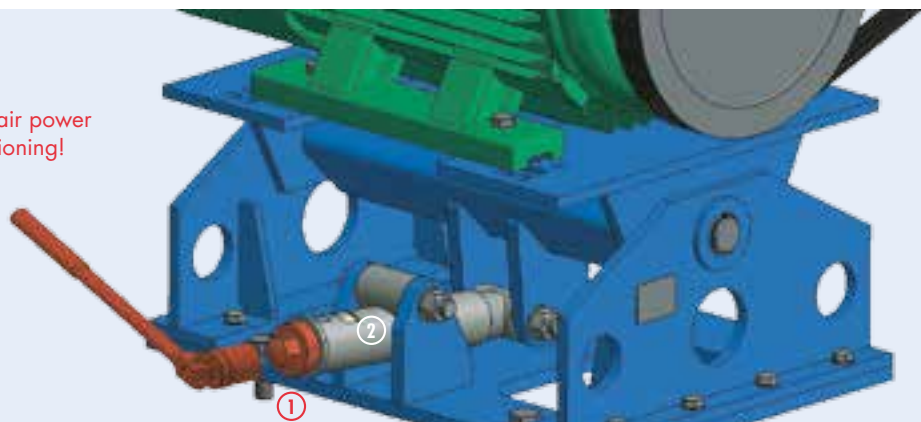
4 Insert and tension the belts, control belt test force

Tensioning of the belts according to belt suppliers recommended test force (table on page 5.5).

Adjust tension with 46 mm hook wrench (M30)

- ①  Do not use compressed-air power tools for tensioning!

- ②  **WARNING**
Do not remove turnbuckle when device is pre-tensioned!



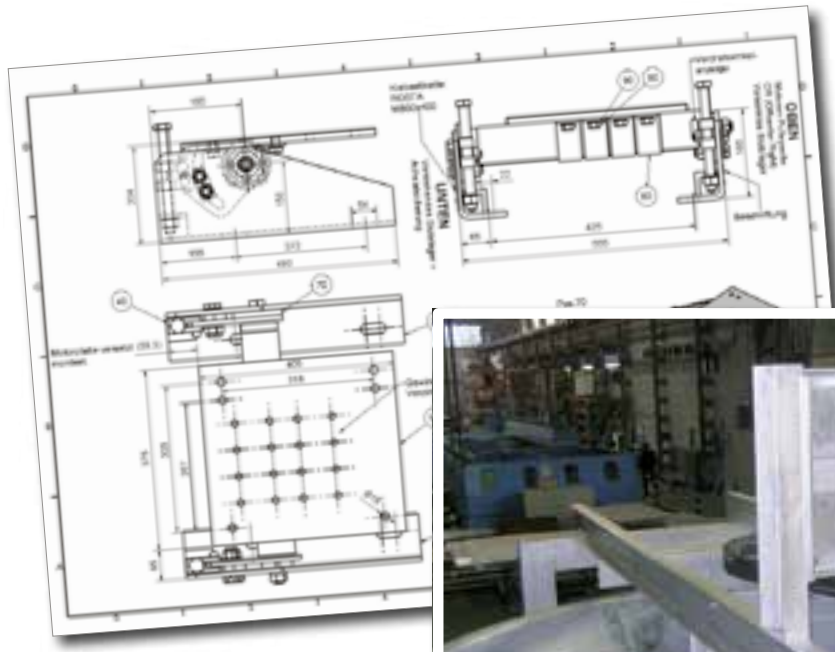
Retension:

Generally retensioning is not necessary, however, we recommend to inspect the belt tension after a few days of operation.

ROSTA Motorbases in customized design for special applications

Fan drive in heat exchanger with vertically installed motor on MB 50, special

The MB 50 had been equipped with an additional bronze glide bearing to assure the axial position of the motor on the elastic ROSTA element.



Installation of cooling compressors in buses on MB 45 special, equipped with heat-resistant elastic inserts Rubmix 40

In this specific application, the ROSTA Motorbase is fulfilling two main functions: keeps the belt tightened between Diesel-engine and cooling compressor, does prevent the transmission of compressor vibrations into the bus chassis.

ROSTA

Calculation: Tensioning Motorbase

center of the ROSTA element

D, R	diameter and radius of the driven pulley
d, r	diameter and radius of the drive pulley
n	speed of the drive pulley
P	power of the motor
F	factor of the overturning torque
P1	max. required power during the start process of the pulleys
A	distance of the pulleys
X	horizontal distance of the pulleys
Y	vertical distance of the pulleys
α	half of the belt opening angle

force for pretensioning one belt
 force for the turning process of one belt
 long lever for tensioning the belts
 long lever of the pulled belt
 lever of belts
 spring moment during pretensioning process
 spring moment during running process
 slip out of the power

ROSTA

Questionnaire Motorbases for friction belt-drives

Customer: _____ Date: _____

Machine type: _____

Please consult our catalogue for further information.

Motor and operating data:

1. Motor frame size _____

2. Motor power _____ kW

3. Motor speed _____ min⁻¹

4. Motor weight _____ kg

5. Daily operating time _____ hrs.

6. Run-up control no yes, power of consumption _____ kW

Dimensions and configuration:

7. a drive pulley _____ mm

8. a driven pulley _____ mm

9. Center distance pulleys _____ mm

10. Center positioning or Off-set positioning

11. Special positionings:
 Wall mounting, element horizontal
 Wall mounting, element vertical
 overhead, ceiling installation

12. Please send us the positioning configuration and the direction of rotation (drawing 3D, 2D or sketch)

13. Please send us the data sheet of the belt selection from the belt supplier

14. Further notices (temperature, chemical influences etc.):

Center positioning

Off-set positioning

Our proposal is based on the received information and technical data from you. Other, unknown factors may influence the proper function of our products. In the case our proposal has to be revised.

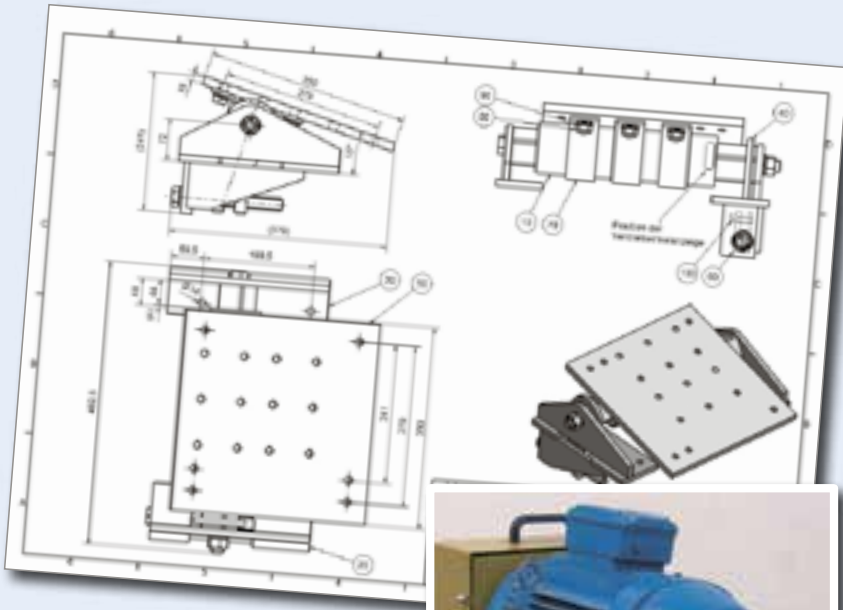
ROSTA AG, CH - 5502 Hunzenschwil

Tel.: +41 (0)62 897 24 21, Fax: +41 (0)62 897 15 10, E-mail: info@rosta.ch, Internet: www.rosta.com



Motorbases





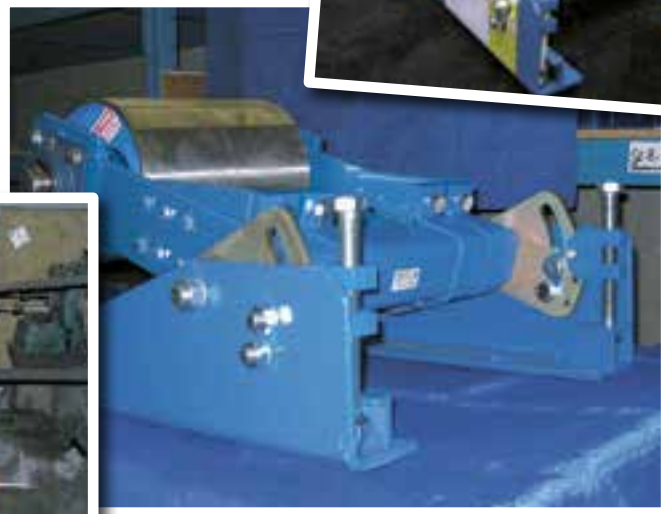
Drive motor of slurry-pump (centrifugal pump) installed on MB 50 × 270 special

The ROSTA Motorbase is assuring the continuous and slippage-free transmission of the required drive torque to maintain the high column of slurry material in mining fluid-transport systems.



Heavy-Duty belt and chain tensioners made out of Motorbase components

The ROSTA Motorbase elements are offering extremely high torques to tension heaviest chains and oversized belt drives.



Unlimited possibilities!

A few examples:



ROSTA 

ROSTA AG
CH-5502 Hunzenschwil
Phone +41 62 889 04 00
Fax +41 62 889 04 99
E-Mail info@rosta.ch
Internet www.rosta.com

Changes regarding contents reserved.
Any reprint, also in extracts, requires our explicit and confirmed approval.