



## Motorized Pulley 400M & 400H, Ø 15.91 in. (404 mm)

Our 15.91" diameter Motorized Pulley range offers three different performance levels for BULK applications:

- M for Medium duty
- H for Heavy duty

It is important to note the product differences and choose the appropriate pulley based on estimated belt tension (radial load.) See page 82. The actual radial load must be less than the maximum allowable radial load shown in this catalog.

Be aware of increased belt tensions required to drive multi-ply thick heavy belts and/or larger belt widths.

If the 15.91" diameter model is not strong enough to resist estimated belt tension, then select 19.72" diameter model.

### M for Medium duty

400M is designed for tough and irregular operating conditions. 400M is typically used in heavy mobile crushing & screening applications as well as in crushed stone, ore, cement, steel, and fertilizer handling.

### H for Heavy duty

A solid 3-stage gearbox enables the 400H to provide low speed at high torque and handle irregular loadings in harsh operating conditions.

### STANDARD SPECIFICATION of Motorized Pulley

- Crowned mild steel 15.91" diameter steel shell painted yellow at a minimum thickness of 2.4 mils
- Bolted powder coated cast iron bearing housings and covers, all painted yellow at a minimum thickness of 2.4 mils
- Mild steel shafts treated w/anti-rust wax
- Shaft sealing system - degree of protection IP66/67 (EN60034-5.) See pg 37.
- Cast iron terminal box for painted yellow at min.thickness of 2.4 mils
- 3-phase induction motors with thermal protector
- Voltage: All common voltages available. Please specify.
- Motor winding insulation Class F
- Dynamically balanced rotor
- Two oil plugs each fitted with a magnet to filter the oil
- Oil change recommended every 10,000 operational hours
- Minimum RL. Refer to page 41
- Maximum RL - Please inquire
- Non standard RL's available
- To be used in horizontal positions ±5 degree only

### Please note:

- **Noise-sensitive Areas:** High speed 2-pole motors can cause higher noise levels and are not recommended for noise-sensitive areas
- **Technical Precautions for Design, Installation, and Maintenance:** pages 80-90
- **Environmental Considerations:** pages 78-79
- **Optional Extras:** page 39
- **Electrical Connection Diagrams:** pages 94-101

### STAINLESS STEEL options

#### TS9N

- Stainless steel shell - AISI 304 range
- Stainless steel shafts - AISI 303/4 range
- Stainless steel covered bearing housings AISI 316 range

- Regreasable bearing covers with labyrinth grooves and labyrinth seals with grease nipples in stainless steel AISI 304 range
- Stainless steel oil plugs - AISI 304 range - one out of two with magnet
- Stainless steel exterior bolts - AISI 304 range
- Shaft sealing system - degree of protection IP66/67 (EN60034-5) See pg 37

#### TS10N

- As TS9, but without regreasable labyrinth seals

### SEMI-RUST-FREE options

#### TS 11N

- Polyurethane painted mild steel shell - min. thickness of 4.7 mils
- Stainless steel shafts - AISI 303/4 range
- Stainless steel covered cast iron bearing housing - AISI 316 range
- Regreasable bearing covers with labyrinth grooves and grease nipples in stainless steel - AISI 304 range
- Stainless steel oil plugs - AISI 304 range - one out of two with magnet
- Stainless steel exterior bolts - AISI 304 range
- Shaft sealing system - degree of protection IP66/67 (EN60034-5)
- Powder coated terminal box for 400L
- Polyurethane painted terminal box - min. thickness of 4.7 mils for 400M & 400H

#### TS12N

- As TS11N, but without regreasable seals.
- Covers - standard

### Other Stainless Options:

- FDA & USDA food grade recognized oil and grease are not included in TS9N - TS12N, but available on request
- Complete Motorized Pulleys in acid resistant stainless steel - AISI 316 range - available on request.
- Special mounting brackets available

**Please specify required TS-number when ordering Stainless Steel options.**



## OPTIONAL EXTRAS

### Motorized Pulley 400M & 400H

| Specification   |  | Availability |
|---|--|--------------|
| Total stainless steel option AISI 304 range   | TS9N with regreasable labyrinth seals  | x            |
| Total stainless steel option AISI 304 range   | TS10N with standard seals              | x            |
| Semi-rust free option   | TS11N with regreasable labyrinth seals | x            |
| Semi-rust free option   | TS12N with standard seals              | x            |
| Regreasable labyrinth seals   |  | x            |
| Food grade oil & grease - FDA & USDA recognized   |  | x            |
| Dust explosion proof Motorized Pulleys - ATEX 95 - Zone 22 - for applications handling of dusty grain etc. According to European Directive 94/9/EC. |  | x            |
| Total acid resistant stainless steel option - AISI 316 range  |  | x            |
| Black rubber lagging - Standard specifications (See pages 82-83.)   |  |              |
| 5/16" full diamond lagging - Hardness 60 ±5 Shore A ≤ 15 HP   |  | o            |
| 5/16" partial diamond lagging - Hardness 60 ±5 Shore A 20 HP  |  | o            |
| White smooth rubber lagging (FDA listed) - Oil, fat & grease resistant  |  | o            |
| Special lagging (e.g. hot vulcanized)   |  | o            |
| Electromagnetic brake   | Min RL increases by 3.94"              | x            |
| Mechanical backstop   | Min. RL = 29.53" for 400M              | x            |
|   | Min. RL = 31.50" for 400H              | x            |
| Modified for vertical mounting  |  | o            |
| Modified for mounting between 5° and 90°  |  | o            |
| Insulation class F with standard oil: (Allowable ambient temperature -13°F/+104°F)  |  | Std.         |
| Insulation class H with synthetic oil: (Allowable ambient temperature -13°F/+120°F)   |  | x            |
| Special motors for applications with no belt contact  |  | o            |
| Low noise drives for noise sensitive areas  |  | x            |
| Parallel shell (i.e. no crown)  |  | x            |
| Thermal protector   |  | Std.         |
| IP66/67 Standard yellow powder coated cast iron terminal box  |  | Std.         |
| Voltage: Single voltage (460) stator (Y winding) wired for 460v/3ph/60 Hz at terminal box   |  | Std          |
| Single voltage (230) stator (YY winding) wired for 230v/3ph/60 Hz at terminal box   |  | x            |
| 2 speed motors  |  | x            |
| Special voltage motors  |  | x            |
| Special zinc-rich epoxy paint   |  | x            |
| CSA approved motors   |  | x            |

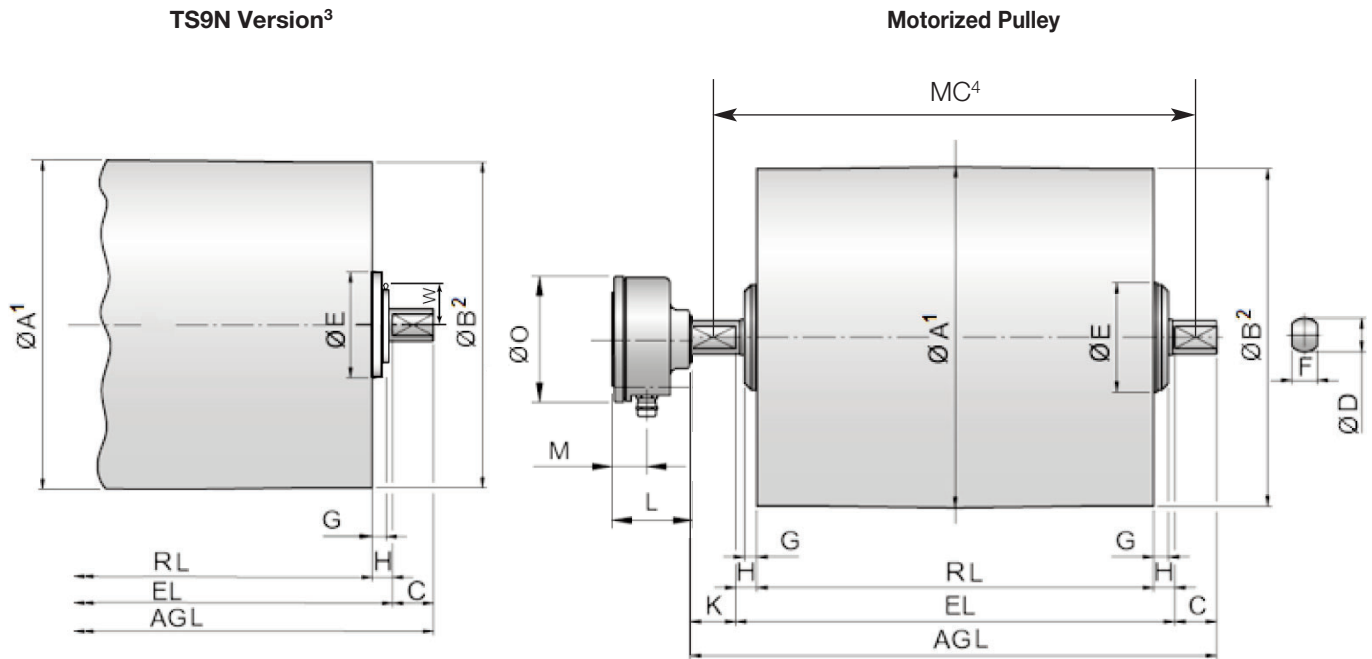
x = Optional extras

o = An option with certain limitations. Please refer to Technical precautions pages 80-90.

Std. = Fitted as standard

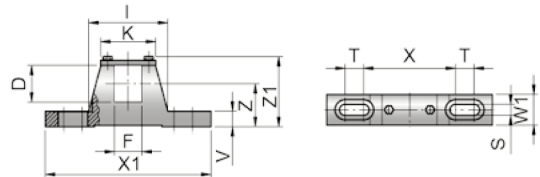


# Motorized Pulley 400M & 400H, Ø 15.91 in. (404 mm)



| Model                 | Dimensions |       |      |      |      |      |      |      |      |      |      |      |      |  |
|-----------------------|------------|-------|------|------|------|------|------|------|------|------|------|------|------|--|
|                       | A in       | B in  | C in | D in | E in | F in | G in | H in | K in | L in | M in | O in | W in |  |
| 400M & 400H           | 15.91      | 15.75 | 1.97 | 2.36 | 7.64 | 1.77 | 0.91 | 0.98 | 1.97 | 3.94 | 1.44 | 6.14 | -    |  |
| 400M TS9N & 400H TS9N | 15.91      | 15.75 | 1.97 | 2.36 | 7.64 | 1.77 | ??   | 0.98 | 1.97 | 3.94 | 1.44 | 6.14 | 71.5 |  |

- 1 A dimension is outer diameter of unlagged pulley shell at pulley centerline.
- 2 B dimension is outer diameter of unlagged pulley shell at each end of shell.
- 3 Pulley shown is TS9N version with regreasable seals.
- 4 Mounting centers = MC = RL + W1



| Motorized Pulleys | Material                            | Bracket Size | Part Number    | Dimensions |      |      |      |      |      |      |       |      |       |      |       | Weight lbs |
|-------------------|-------------------------------------|--------------|----------------|------------|------|------|------|------|------|------|-------|------|-------|------|-------|------------|
|                   |                                     |              |                | D in       | F in | I in | K in | S in | T in | V in | W1 in | X in | X1 in | Z in | Z1 in |            |
| 400M & 400H       | Steel painted<br>Steel<br>Ni plated | KL60         | 6YA09<br>6YA0D | 2.36       | 1.77 | 5.12 | 3.54 | 0.71 | 1.18 | 0.98 | 1.97  | 5.91 | 10.63 | 2.76 | 4.53  | 10.58      |



## Motorized Pulley 400M & 400H, Ø 15.91 in. (404 mm) 60 Hz

| Motor    |              | No. Gear Stages | Model | Nominal belt speed <sup>1</sup> at Full Load 60 Hz fpm | Actual belt speed <sup>1</sup> at Full Load 60 Hz fpm | Belt Pull <sup>2</sup> lbs                             | Max. Radial Load <sup>3</sup> T1 + T2 lbs | Min. RL in | RL Dimension inches (RL>78.74" available on request) |       |       |       |       |       |       |       |                            |            | Type of Bracket            |            |                            |            |                            |            |                            |            |                            |            |
|----------|--------------|-----------------|-------|--|---|--|---|------------|--|-------|-------|-------|-------|-------|-------|-------|----------------------------|------------|----------------------------|------------|----------------------------|------------|----------------------------|------------|----------------------------|------------|----------------------------|------------|
| Power HP | No. of Poles |                 |       |  |   |  |   |            | Weight in lbs <sup>5</sup>                           |       |       |       |       |       |       |       |                            |            |                            |            |                            |            |                            |            |                            |            |                            |            |
|          |              |                 |       |  |   |  |   |            | 25.59  | 27.56 | 29.53 | 31.50 | 33.46 | 35.43 | 37.40 | 39.37 | longer than 39.37          |            |                            |            |                            |            |                            |            |                            |            |                            |            |
| 3        | 8            | 3               | 400H  | 38<br>48<br>60   | 44<br>54<br>64  | 2121<br>1725<br>1442                                   | 11,250                                    | 27.56      | -  | 547   | 563   | 577   | 591   | 605   | 619   | 634   | See Foot-note <sup>4</sup> | KL60 6YA09 |                            |            |                            |            |                            |            |                            |            |                            |            |
|          |              | 2               | 400M  | 76<br>96<br>120<br>150<br>192<br>240<br>300<br>384     | 82<br>101<br>121<br>152<br>197<br>248<br>307<br>390   | 1131<br>920<br>770<br>610<br>468<br>371<br>302<br>238  | 9,100                                     | 25.59      | 456  | 470   | 485   | 500   | 514   | 528   | 542   | 557   |                            |            |                            |            |                            |            |                            |            |                            |            |                            |            |
| 5.5      | 8            | 3               | 400H  | 48<br>60<br>76   | 54<br>64<br>81  | 3137<br>2623<br>2079                                   | 11,250                                    | 27.56      | -  | 567   | 582   | 597   | 611   | 625   | 639   | 654   |                            |            | See Foot-note <sup>4</sup> | KL60 6YA09 |                            |            |                            |            |                            |            |                            |            |
|          |              | 2               | 400M  | 96<br>120<br>150<br>192<br>240<br>300<br>384           | 101<br>121<br>152<br>197<br>248<br>307<br>390         | 1673<br>1399<br>1108<br>851<br>675<br>548<br>432       | 9,100                                     | 25.59      | 476  | 490   | 505   | 519   | 534   | 548   | 562   | 576   |                            |            |                            |            |                            |            |                            |            |                            |            |                            |            |
| 7.5      | 4            | 3               | 400H  | 76<br>96<br>120  | 87<br>107<br>128                                      | 2651<br>2156<br>1803                                   | 11,250                                    | 27.56      | -  | 547   | 563   | 577   | 591   | 605   | 619   | 634   |                            |            |                            |            | See Foot-note <sup>4</sup> | KL60 6YA09 |                            |            |                            |            |                            |            |
|          |              | 2               | 400M  | 150<br>192<br>240<br>300<br>384<br>480<br>600<br>768   | 163<br>201<br>240<br>303<br>395<br>498<br>613<br>778  | 1413<br>1150<br>962<br>762<br>585<br>465<br>377<br>297 | 9,100                                     | 25.59      | 456  | 470   | 485   | 500   | 514   | 528   | 542   | 557   |                            |            |                            |            |                            |            |                            |            |                            |            |                            |            |
| 10       | 6            | 3               | 400H  | 96<br>120<br>150                                       | 108<br>140<br>177                                     | 2923<br>2244<br>1782                                   | 11,250                                    | 29.53      | -  | -     | 602   | 616   | 631   | 645   | 659   | 673   |                            |            |                            |            |                            |            | See Foot-note <sup>4</sup> | KL60 6YA09 |                            |            |                            |            |
|          | 4            | 2               | 400M  | 192<br>240<br>300<br>384<br>480<br>600<br>768          | 201<br>240<br>303<br>395<br>498<br>613<br>778         | 1568<br>1311<br>1039<br>798<br>633<br>515<br>405       | 9,100                                     | 25.59      | 469  | 483   | 499   | 513   | 527   | 541   | 556   | 570   |                            |            |                            |            |                            |            |                            |            |                            |            |                            |            |
| 15       | 4            | 3               | 400H  | 150<br>192<br>240                                      | 162<br>211<br>265                                     | 2859<br>2194<br>1742                                   | 11,250                                    | 29.53      | -  | -     | 602   | 616   | 631   | 645   | 659   | 673   |                            |            |                            |            |                            |            |                            |            | See Foot-note <sup>4</sup> | KL60 6YA09 |                            |            |
|          |              | 2               | 400M  | 300<br>384<br>480<br>600<br>768                        | 303<br>395<br>498<br>613<br>778                       | 1525<br>1170<br>929<br>754<br>594                      | 9,100                                     | 27.56      | -  | 510   | 525   | 539   | 554   | 568   | 582   | 596   |                            |            |                            |            |                            |            |                            |            |                            |            |                            |            |
| 20       | 2            | 3               | 400H  | 192<br>240<br>300                                      | 214<br>257<br>323                                     | 2940<br>2459<br>1949                                   | 11,250                                    | 29.53      | -  | -     | 602   | 616   | 631   | 645   | 659   | 673   |                            |            |                            |            |                            |            |                            |            |                            |            | See Foot-note <sup>4</sup> | KL60 6YA09 |
|          |              | 2               | 400M  | 384<br>480<br>600<br>768                               | 402<br>481<br>607<br>791                              | 1568<br>1311<br>1039<br>798                            | 9,100                                     | 27.56      | -  | 510   | 525   | 539   | 554   | 568   | 582   | 596   |                            |            |                            |            |                            |            |                            |            |                            |            |                            |            |

- 1 Use "nominal belt speed" to specify pulley. "Actual belt speed" is presented (for pulley lagged with 5/16" thick rubber) to assist with process design calculations. See Technical Precautions page 81. Note that "actual belt speed" decreases when lagging is not used due to decreased pulley diameter.
- 2 Belt pull value allows for gearbox loss.
- 3 Pulley must not be subjected to radial load exceeding "Maximum radial load" defined above. See "Belt Tension" section in Technical Precautions, page 82.
- 4 Additional Motorized Pulley weight, specified per Roller Length:  $39.37 \leq RL \leq 78.74$  Wt = 7.3 lbs/in.
- 5 All weights shown above are for pulleys "fully lagged" with 5/16" thick rubber. For "partially lagged" pulleys add 5% to 10% to the weights shown above. See pages 45, 82, and 83 for "partial lagging." To calculate unlagged pulley weight subtract 0.6 lbs/in of Roller Length from above.

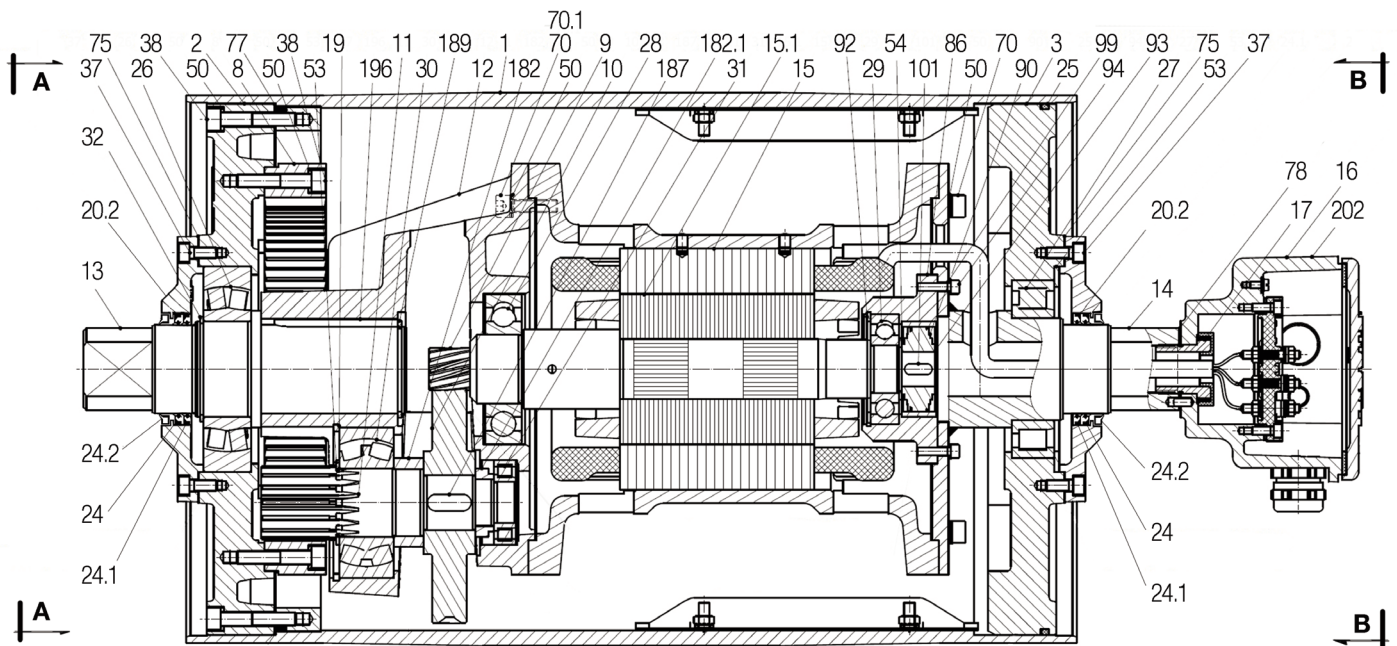
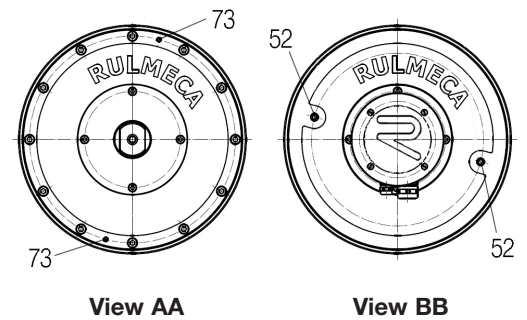
Rulmeca offers return, snub, and idler pulleys with dimensions to match our Motorized Pulleys on request.



# Motorized Pulley 400M, Ø 15.91 in. (404 mm)

## Spare parts list and sectional drawings

| Pos. | Description                 | Pos. | Description                    | Pos.  | Description                       |
|------|-----------------------------|------|--------------------------------|-------|-----------------------------------|
| 1    | Shell                       | 31   | Bearing                        | 101   | Key (only with backstop or brake) |
| 2    | End housing with geared rim | 32   | Retaining ring                 | 104   | Distance ring                     |
| 3    | End housing                 | 37   | Hexagon socket screw           | 120   | Cover with labyrinth groove       |
| 8    | Geared rim                  | 38   | Hexagon socket screw           | 122   | O-ring                            |
| 9    | Rotor pinion                | 50   | Lock washer                    | 123   | Grease nipple                     |
| 10   | Input wheel                 | 52   | Magnetic oil plug              | 182   | Distance bushing                  |
| 11   | Output pinion               | 53   | Distance washer                | 182.1 | Distance bushing                  |
| 12   | Gearbox                     | 54   | Distance washer                | 187   | Key                               |
| 13   | Rear shaft                  | 70   | Socket head screw              | 189   | Retaining ring                    |
| 14   | Front shaft                 | 70.1 | Hexagon screw                  | 196   | Key                               |
| 15   | Stator complete             | 72   | Clamping pin (SS version only) | 197   | Retaining ring                    |
| 15.1 | Rotor                       | 73   | Set screw                      | 202   | Motor data plate                  |
| 16   | Terminal box complete       | 74   | Cap (SS version only)          |       |                                   |
| 17   | Adapter                     | 74.1 | O-ring (SS version only)       |       |                                   |
| 20.1 | Cover front & rear side     | 75   | Gasket                         |       |                                   |
| 20.2 | Cover front & Rear side     | 77   | Gasket                         |       |                                   |
| 24   | Shaft oil seal - outer      | 78   | Gasket                         |       |                                   |
| 24.1 | Shaft oil seal - inner      | 85   | Bearing flange                 |       |                                   |
| 24.2 | Deflection seal             | 86   | Bearing flange                 |       |                                   |
| 25   | O-ring                      | 90   | Backstop (optional)            |       |                                   |
| 26   | Bearing                     | 91   | Electromagnetic brake          |       |                                   |
| 27   | Bearing                     | 92   | Retaining ring                 |       |                                   |
| 28   | Bearing                     | 93   | Retaining ring                 |       |                                   |
| 29   | Bearing                     | 94   | Hexagon socket screw           |       |                                   |
| 30   | Bearing                     | 99   | Lock washer                    |       |                                   |



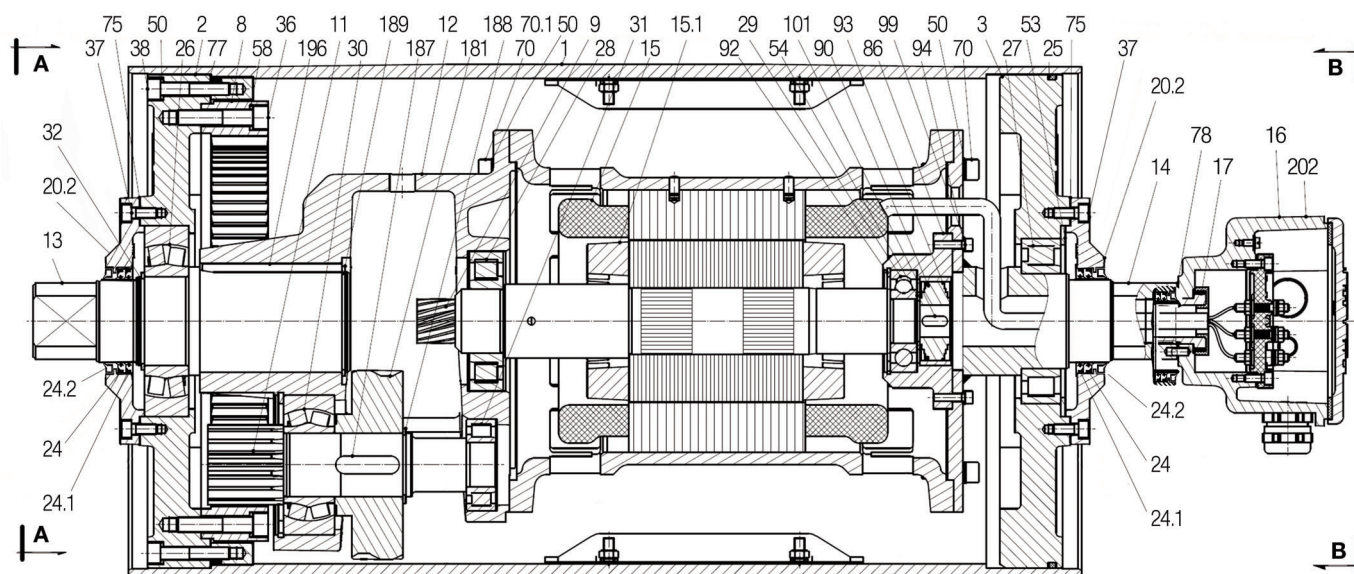
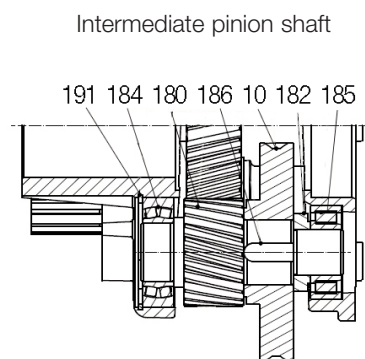




# Motorized Pulley 400H, Ø 15.91 in. (404 mm)

## Spare parts list and sectional drawings

| Pos. | Description                 | Pos. | Description                       | Pos. | Description                 |
|------|-----------------------------|------|-----------------------------------|------|-----------------------------|
| 1    | Shell                       | 36   | Hexagon socket screw              | 120  | Cover with labyrinth groove |
| 2    | End housing with geared rim | 37   | Hexagon socket screw              | 122  | O-ring                      |
| 3    | End housing                 | 38   | Hexagon socket screw              | 123  | Grease nipple               |
| 8    | Geared rim                  | 50   | Lock washer                       | 180  | Intermediate pinion shaft   |
| 9    | Rotor pinion                | 52   | Magnetic oil plug (see page 42)   | 181  | Intermediate pinion         |
| 10   | Input wheel                 | 53   | Distance washer                   | 182  | Distance bushing            |
| 11   | Output pinion               | 54   | Distance washer                   | 184  | Bearing                     |
| 12   | Gearbox                     | 58   | Lock washer                       | 185  | Bearing                     |
| 13   | Rear shaft                  | 70   | Socket head screw                 | 186  | Key                         |
| 14   | Front shaft                 | 70.1 | Hexagon screw                     | 187  | Key                         |
| 15   | Stator complete             | 72   | Clamping pin (SS version only)    | 188  | Retaining ring              |
| 15.1 | Rotor                       | 73   | Set screw (see page 42)           | 189  | Retaining ring              |
| 16   | Terminal box complete       | 74   | Cap (SS version only)             | 191  | Retaining ring              |
| 17   | Adapter                     | 74.1 | O-ring (SS version only)          | 196  | Key                         |
| 20.1 | Cover front & rear side     | 75   | Gasket                            | 202  | Motor data plate            |
| 20.2 | Cover front & rear side     | 77   | Gasket                            |      |                             |
| 24   | Shaft oil seal - outer      | 78   | Gasket                            |      |                             |
| 24.1 | Shaft oil seal - inner      | 85   | Bearing flange                    |      |                             |
| 24.2 | Deflection seal             | 86   | Intermediate flange               |      |                             |
| 25   | O-ring                      | 90   | Backstop (optional)               |      |                             |
| 26   | Bearing                     | 91   | Electromagnetic brake             |      |                             |
| 27   | Bearing                     | 92   | Retaining ring                    |      |                             |
| 28   | Bearing                     | 93   | Retaining ring                    |      |                             |
| 29   | Bearing                     | 94   | Hexagon socket screw              |      |                             |
| 30   | Bearing                     | 99   | Lock washer                       |      |                             |
| 31   | Bearing                     | 101  | Key (only with backstop or brake) |      |                             |
| 32   | Retaining ring              | 104  | Distance ring                     |      |                             |



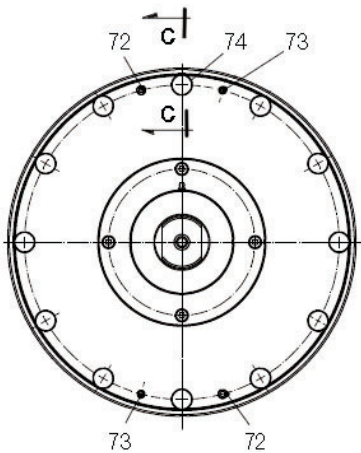
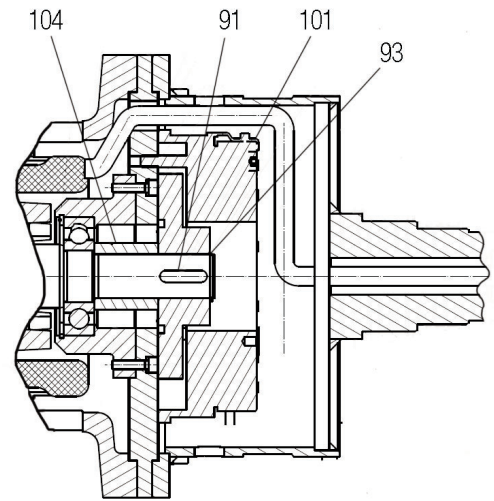
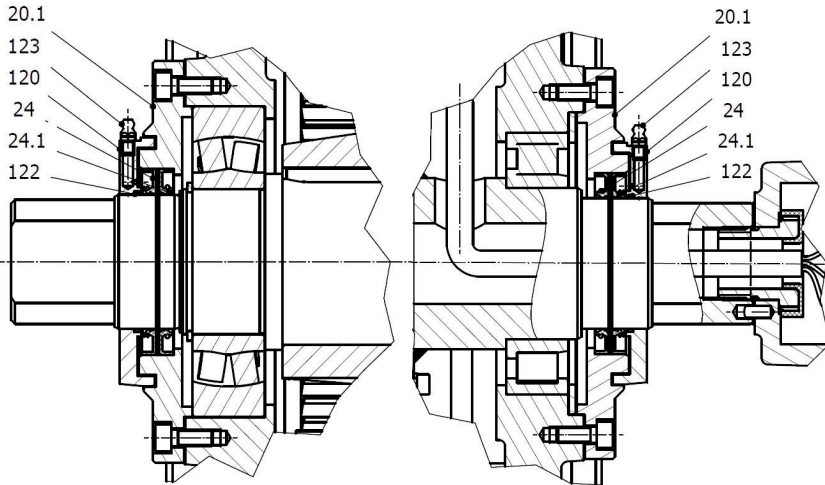


# Motorized Pulley 400M & 400H, Ø 15.91 in. (404 mm)

## Sectional drawings

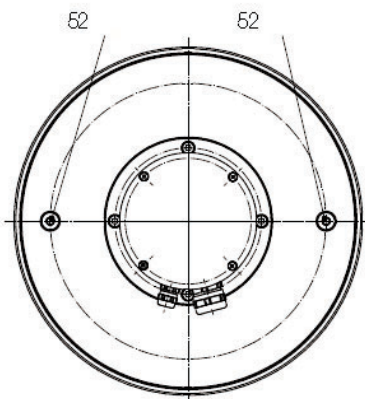
Labyrinth Shaft Seal Option

Electromagnetic Brake Option



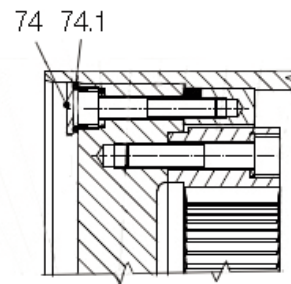
View AA

(Stainless steel version)



View BB

(Stainless steel version)



Section CC