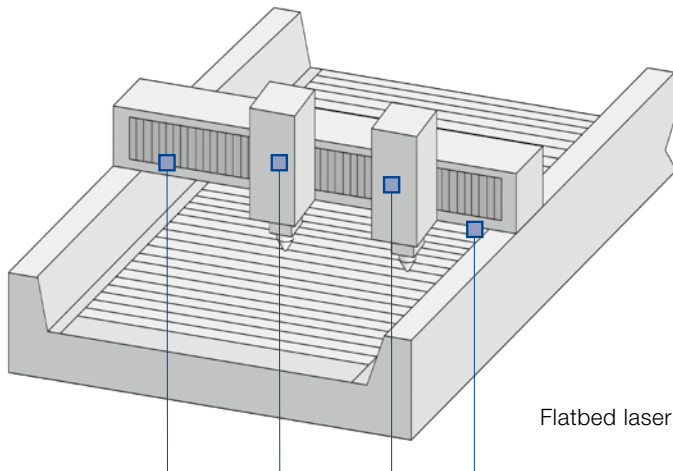


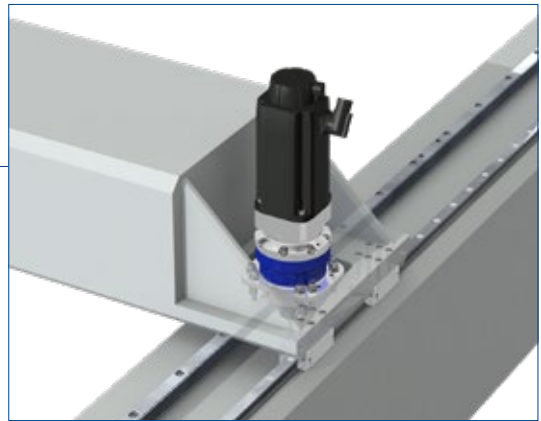
Premium Linear Systems  
from WITTENSTEIN alpha –  
Perfection in the application

Premium Linear Systems – the perfect solution for linear feed drives in machine tools and highly dynamic automation solutions

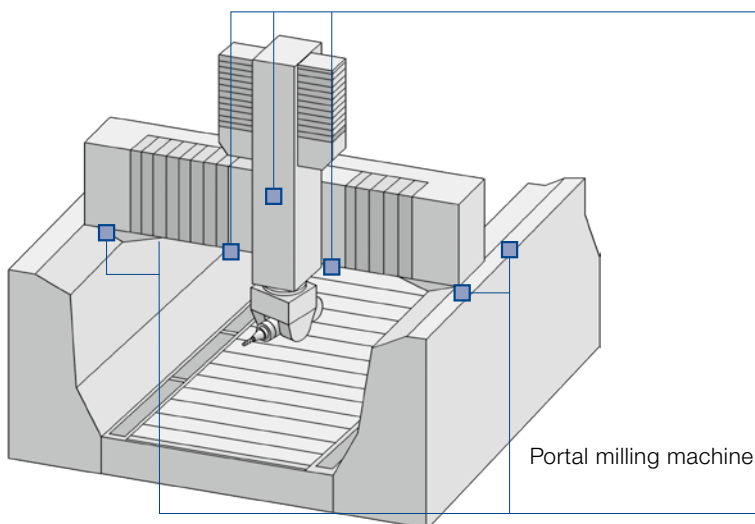
The Premium Linear System with **XP+** and associated right-angle and servo actuator versions is used predominantly as a single drive within a range of up to 10,700 N/drive.



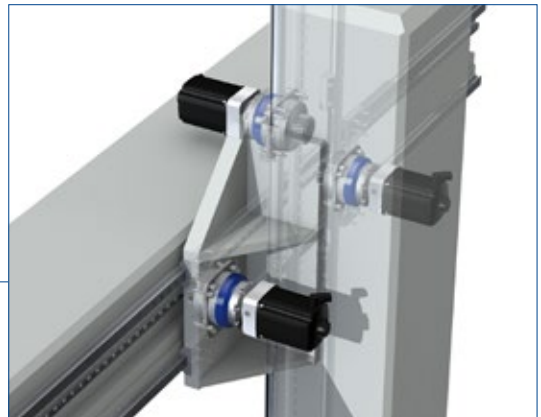
Flatbed laser



The Premium Linear System with **RP+** and associated right-angle and servo actuator versions is mostly used in an electrically braced master/slave configuration in machine tools, allowing feed forces of up to 113,000 N/drive.



Portal milling machine



# New dimensions in performance

With the Premium Linear System, the performance of the rack and pinion system reaches a new dimension. While others are still busy adapting existing solutions, WITTENSTEIN alpha has stayed several steps ahead with the improved new linear systems. The innovative Premium Linear Systems are used in applications where the individual requirements far exceed what has previously been possible. Compared to the industry standard, the values have been improved by 150 % on average.

## Your benefits in comparison to the industry standard

- 150 % Greater feed force**
- 100 % Higher power density**
- 50 % Greater system reliability**
- 50 % Less mounting effort**
- 15 % Greater positioning accuracy**

|                      | Premium Linear System | Max. feed force<br>[N] | Max. feed speed<br>[m/min] |
|----------------------|-----------------------|------------------------|----------------------------|
| with XP <sup>+</sup> | PLS 5                 | 5450                   | 333                        |
|                      | PLS 8                 | 8350                   | 244                        |
|                      | PLS 11                | 10700                  | 333                        |
| with RP <sup>+</sup> | PLS 10                | 9750                   | 133                        |
|                      | PLS 13                | 12900                  | 200                        |
|                      | PLS 20                | 20300                  | 250                        |
|                      | PLS 22                | 22300                  | 104                        |
|                      | PLS 36                | 36100                  | 112                        |
|                      | PLS 47                | 47000                  | 135                        |
|                      | PLS 75                | 75000                  | 91                         |
|                      | PLS 112               | 112000                 | 111                        |

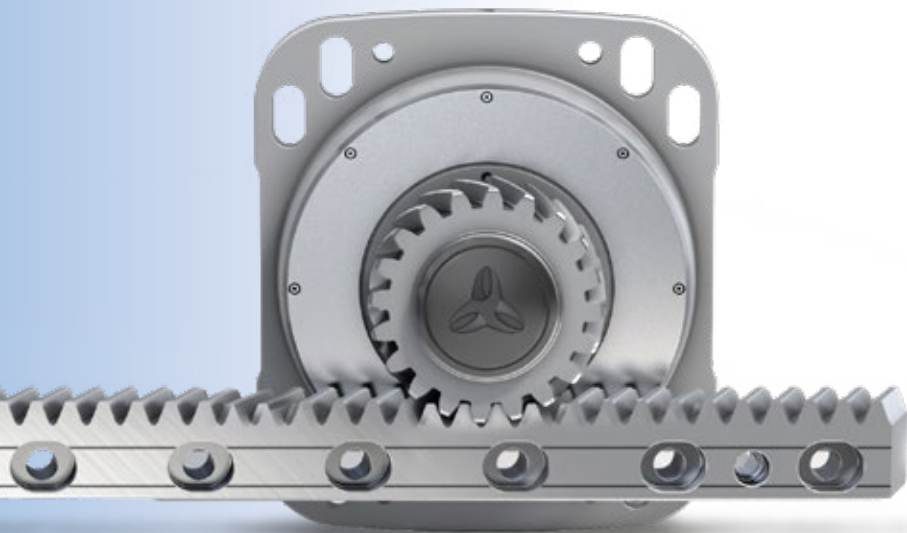
Feed force and feed speed dependent on ratio



XP<sup>+</sup>



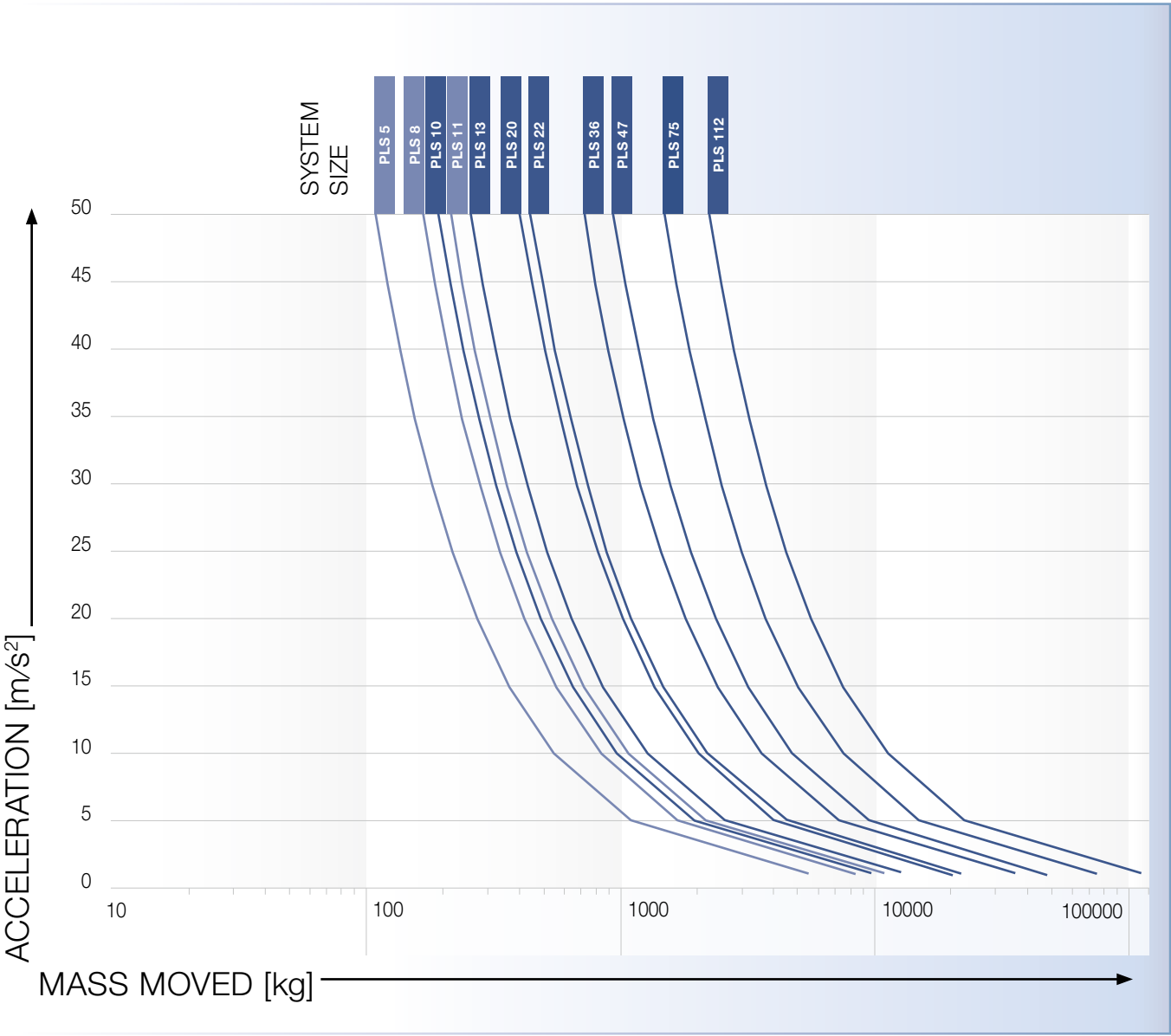
RP<sup>+</sup>



# Quick system selection

XP+

RP+





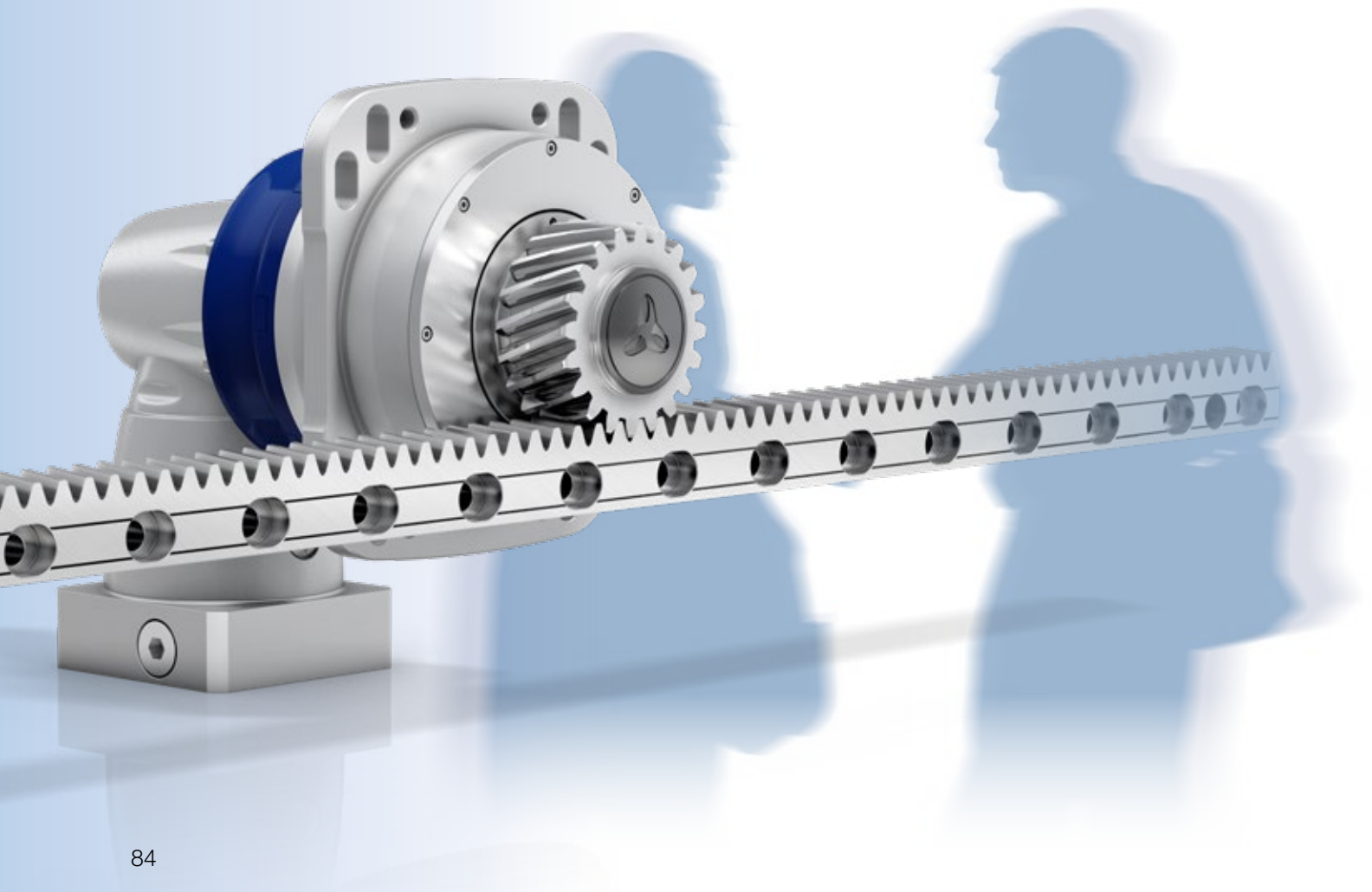
## Premium Linear Systems overview

Our preferred linear systems are always comprised of the perfect combination of gearbox, pinion, rack and lubrication system. The systems are optimized to achieve the required feed force, feed speed, rigidity and degree of utilization of the individual components. Depending on your individual requirements, you have the option to further configure products via the ordering code. For a detailed dimensioning and configuration of the products we recommend to use cymex® 5.

| System  | Gearbox              | Pinion               | Rack*                |
|---------|----------------------|----------------------|----------------------|
| PLS 5   | XP <sup>+</sup> 020R | RMW 200-444-20L1-033 | ZST 200-333-1000-R1  |
| PLS 8   | XP <sup>+</sup> 030R | RMW 200-444-20L1-037 | ZST 200-334-1000-R1  |
| PLS 11  | XP <sup>+</sup> 040R | RMW 300-444-20L1-055 | ZST 300-333-1000-R1  |
| PLS 10  | RP <sup>+</sup> 030S | RMW 200-444-20L1-037 | ZST 200-334-1000-R11 |
| PLS 13  | RP <sup>+</sup> 030S | RMW 300-444-20L1-055 | ZST 300-334-1000-R11 |
| PLS 20  | RP <sup>+</sup> 040S | RMW 300-444-20L1-055 | ZST 300-334-1000-R11 |
| PLS 22  | RP <sup>+</sup> 040S | RMW 400-444-20L1-073 | ZST 400-334-1000-R11 |
| PLS 36  | RP <sup>+</sup> 050S | RMW 400-444-24L1-089 | ZST 400-334-1000-R11 |
| PLS 47  | RP <sup>+</sup> 050S | RMW 500-444-23L1-106 | ZST 500-334-1000-R11 |
| PLS 75  | RP <sup>+</sup> 060S | RMW 600-444-23L1-128 | ZST 600-334-1000-R11 |
| PLS 112 | RP <sup>+</sup> 080S | RMW 800-444-21L1-156 | ZST 800-334-960-R11  |

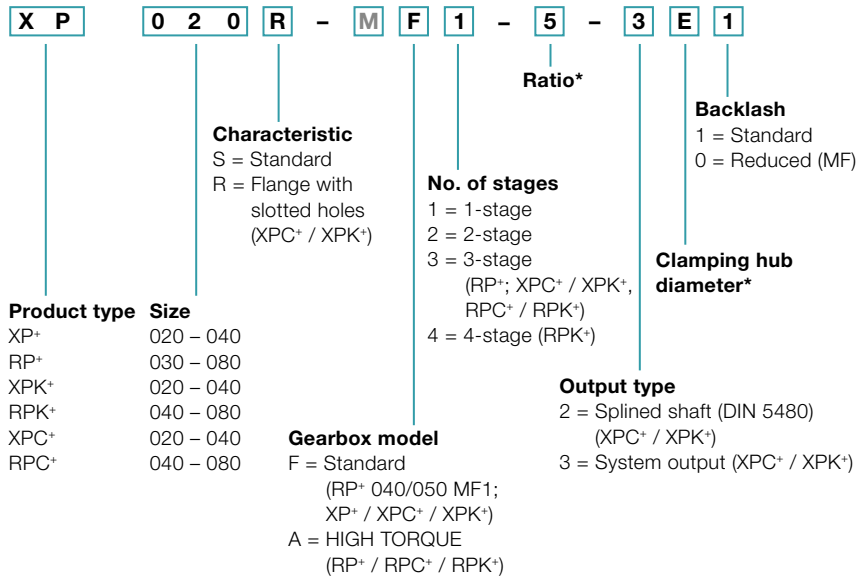
\* Other length options available

Assembly accessories can be found starting at page 133 and information on the lubrication system starting at page 118

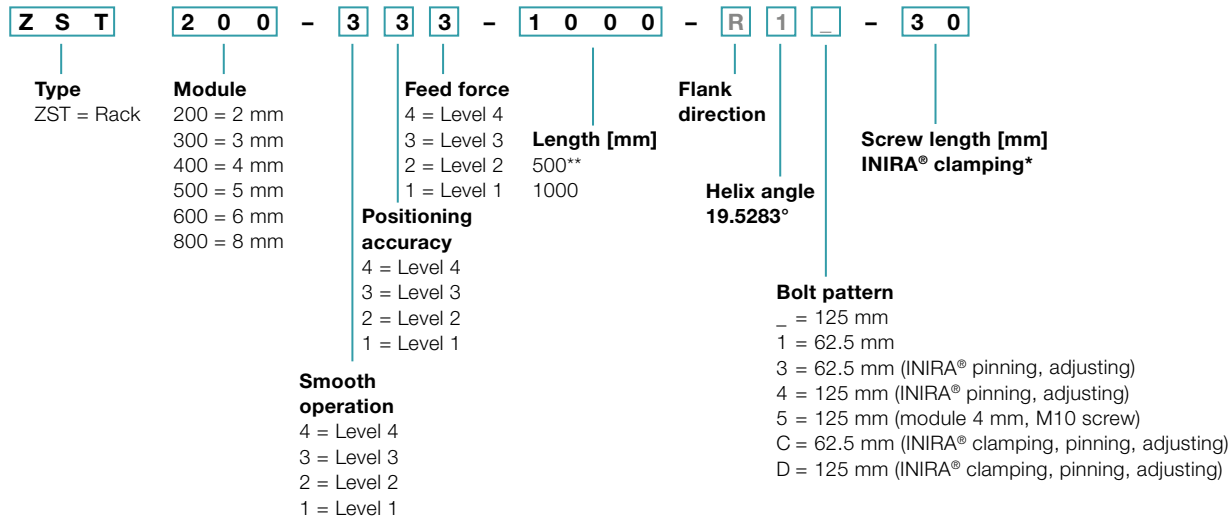


# Ordering code

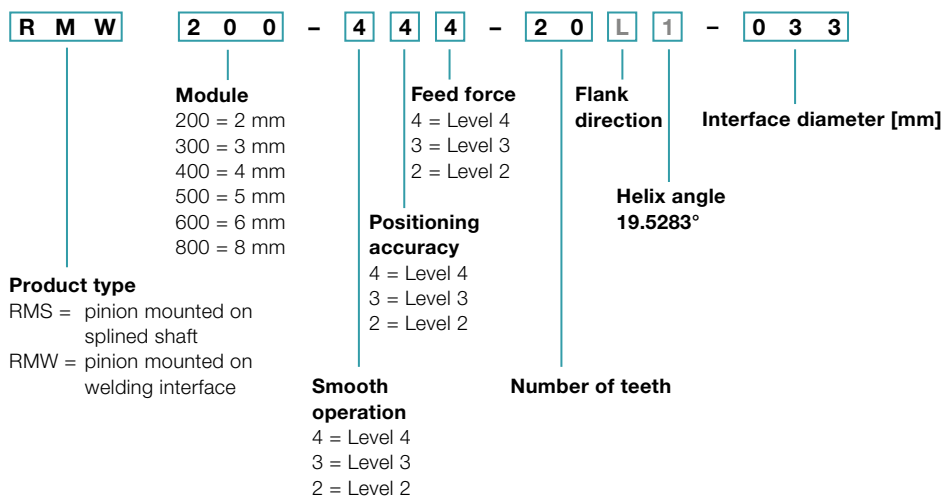
## Gearbox\*



## Rack



## Pinion



Components with a gray font cannot be selected

\* Further information about the gearboxes can be obtained from the respective catalogs, online at [www.wittenstein-alpha.com](http://www.wittenstein-alpha.com) or on request

\*\* Full motor designation only required to determine gearbox mounting parts

\* Please refer to page 134 for an overview of available screw lengths

\* Module 4, 493 mm

# Premium Linear System PLS 5 with XP+

Planetary gearbox XP+ 020R MF with rack module 2 and pinion RMW module 2

| System                           | Max. feed force <sup>1)</sup> $F_{2T}$            |                     | 5450 N                                      |   |
|----------------------------------|---|---------------------|---|---|
|                                  | Max. feed speed <sup>2)</sup> $v_{\max}$          |                     | 333 m/min                                   | 71 m/min  |
| Gearbox                          | No. of stages                                     |                     | 1   | 2   |
|                                  | Ratios $i$  |                     | 3 / 4 / 5 / 7 / 8 / 10                      | 16 / 20 / 25 / 28 / 32 / 35 / 40 / 50 / 64 / 70 / 100 |
|                                  | Clamping hub diameter                             |                     | 14 / 24 mm                                  | 11 / 19 mm  |
|                                  | Designation                                       |                     | XP 020R-MF1-__-3__                          | XP 020R-MF2-__-3__                                    |
| Pinion                           | Module $m$  |                     | 2 mm  |   |
|                                  | Number of teeth $z$                               |                     | 20  |   |
|                                  | Pitch circle diameter $d$                         |                     | 42.441 mm                                   |   |
|                                  | Profile correction factor $x$                     |                     | 0.4   |   |
|                                  | Helix angle $\beta$                               |                     | -19.5283° (left-handed)                     |   |
|                                  | Designation                                       |                     | RMW 200-444-20L1-033                        |   |
| Rack                             | Module $m$  |                     | 2 mm  |   |
|                                  | Length L (options)                                |                     | 1000 mm (500 mm)                            |   |
|                                  | Helix angle $\beta$                               |                     | 19.5283° (right-handed)                     |   |
|                                  | Designation                                       |                     | ZST 200-333-1000-R1; optionally with INIRA® |   |
| Lubrication system <sup>3)</sup> | Set consisting of lubrication pinion and axis for | Rack                | LMT 200-PU -18L1-024-1                      |   |
|                                  |   | Pinion              | LMT 200-PU -18R1-024-1                      |   |
|                                  | Lubricator  | 125 cm <sup>3</sup> | LUC+125-0511-02                             |   |
|                                  |   | 400 cm <sup>3</sup> | LUC+400-0511-02                             |   |
|                                  | Lubricant   |                     | WITTENSTEIN alpha G11                       |   |

<sup>1)</sup> Maximum feed force depending on ratio and number of stages

<sup>2)</sup> Calculation with lowest ratio and maximum input speed

<sup>3)</sup> Impulse-controlled basic version with one output and 2 m hose. See page 118 for further information on the lubrication system.

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

## Alternative system solutions

| Pinion               |             |            | Axis distance | XP+ 020R        | PHG 2R          | XPC+ 020R       | XPK+ 020R       | Rack*  |
|----------------------|-------------|------------|---------------|-----------------|-----------------|-----------------|-----------------|--|
| Designation          | $d$<br>[mm] | $x$<br>[ ] | $A$<br>[mm]   | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | Designation                                    |
| RMW 200-444-20L1-033 | 42.441      | 0.4        | 44.021        | 5450            | 5450            | 5450            | 5450            | ZST 200-333-1000-R1;<br>optionally with INIRA® |
| RMS 200-323-18L1-022 | 38.197      | 0.4        | 41.899        | 5400            | 5400            | 5400            | 5400            | ZST 200-333-1000-R1;<br>optionally with INIRA® |
| RMS 200-323-20L1-022 | 42.441      | 0.4        | 44.021        | 5300            | 5300            | 5300            | 5300            | ZST 200-333-1000-R1;<br>optionally with INIRA® |
| RMS 200-323-22L1-022 | 46.686      | 0.4        | 46.143        | 5100            | 5100            | 5100            | 5100            | ZST 200-333-1000-R1;<br>optionally with INIRA® |

$d$  = Pitch circle diameter

$x$  = Addendum modification coefficient

$A$  = Distance between pinion axle and rear surface of rack

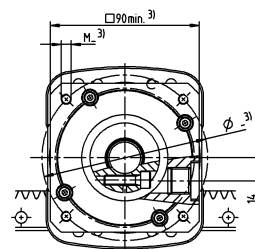
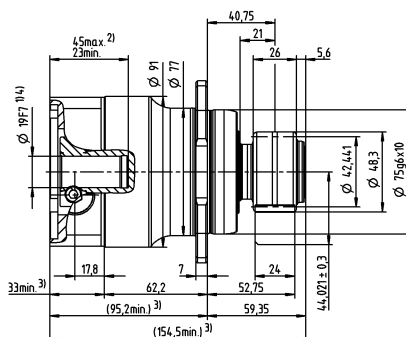
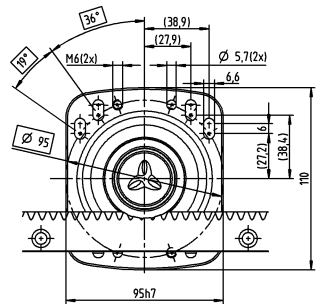
$F_{2T}$  = Maximum feed force depending on ratio and number of stages

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

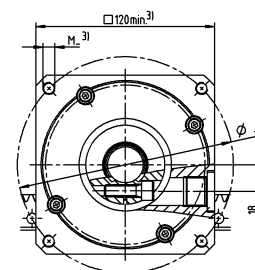
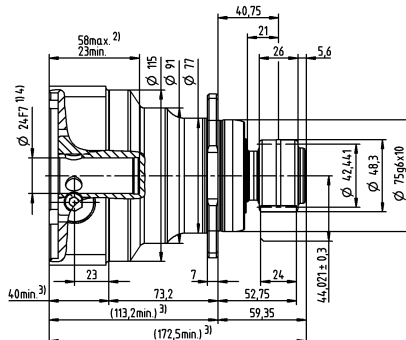
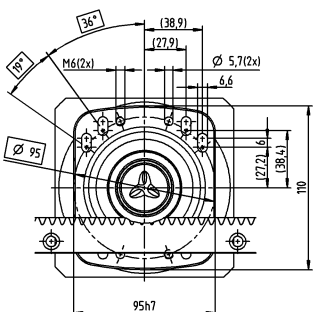
\* Other length options available

# 1-stage

greater than  
14 (C) up to  
19 <sup>4)</sup> (E) clamping  
hub diameters

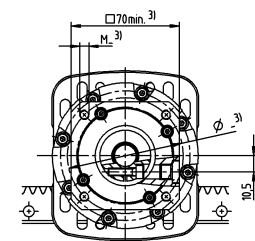
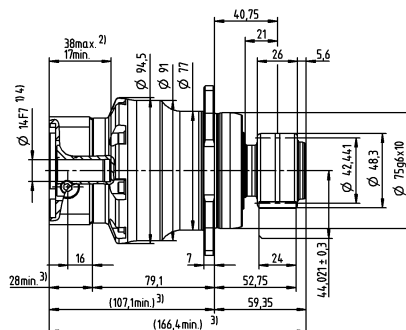
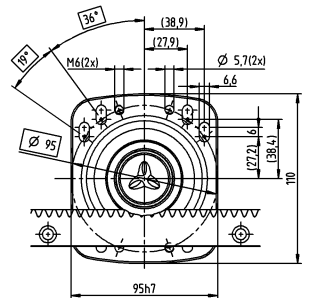


up to 24 <sup>4)</sup> (G)  
clamping hub  
diameters

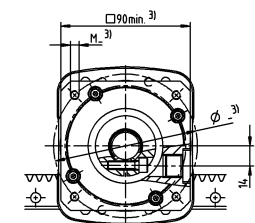
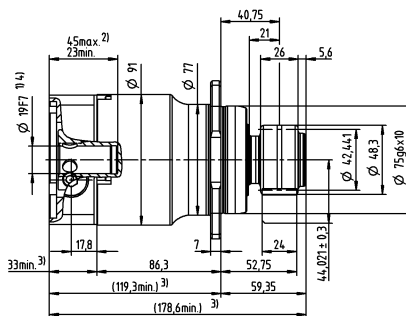
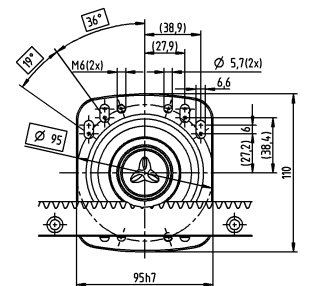


# 2-stage

greater than  
11 (B) up to  
14 <sup>4)</sup> (C) clamping  
hub diameters



up to 19 <sup>4)</sup> (E)  
clamping hub  
diameters



Non-tolerated dimensions are nominal dimensions  
Detailed rack dimensions starting on page 161

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm



# Premium Linear System PLS 8 with XP+

Planetary gearbox XP+ 030R MF with rack module 2 and pinion RMW module 2

|   |   |  |   |
|---|---|--|---|
| <b>System</b>                           | Max. feed force <sup>1)</sup> $F_{2T}$            | 8350 N                                       |   |
|   | Max. feed speed <sup>2)</sup> $v_{\max}$          | 244 m/min                                    | 54 m/min  |
| <b>Gearbox</b>                          | No. of stages                                     | 1  | 2   |
|   | Ratios $i$  | 3 / 4 / 5 / 7 / 8 / 10                       | 16 / 20 / 25 / 28 / 32 / 35 / 40 / 50 / 64 / 70 / 100 |
|   | Clamping hub diameter                             | 19 / 24 / 28 / 38 mm                         | 14 / 19 / 24 / 28 mm                                  |
|   | Designation                                       | XP 030R-MF1-_-3-_-                           | XP 030R-MF2-_-3-_-                                    |
| <b>Pinion</b>                           | Module $m$  | 2 mm   |   |
|   | Number of teeth $z$                               | 20   |   |
|   | Pitch circle diameter $d$                         | 42.441 mm                                    |   |
|   | Profile correction factor $x$                     | 0.4  |   |
|   | Helix angle $\beta$                               | -19.5283° (left-handed)                      |   |
|   | Designation                                       | RMW 200-444-20L1-037                         |   |
| <b>Rack</b>                             | Module $m$  | 2 mm   |   |
|   | Length L (options)                                | 1000 mm (500 mm)                             |   |
|   | Helix angle $\beta$                               | 19.5283° (right-handed)                      |   |
|   | Designation                                       | ZST 200-334-1000-R11; optionally with INIRA® |   |
| <b>Lubrication system</b> <sup>3)</sup> | Set consisting of lubrication pinion and axis for | Rack   | LMT 200-PU -18L1-024-1                                |
|   |   | Pinion                                       | LMT 200-PU -18R1-024-1                                |
|   | Lubricator  | 125 cm³                                      | LUC+125-0511-02                                       |
|   |   | 400 cm³                                      | LUC+400-0511-02                                       |
|   | Lubricant   | WITTENSTEIN alpha G11                        |   |

<sup>1)</sup> Maximum feed force depending on ratio and number of stages

<sup>2)</sup> Calculation with lowest ratio and maximum input speed

<sup>3)</sup> Impulse-controlled basic version with one output and 2 m hose. See page 118 for further information on the lubrication system.

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

## Alternative system solutions

| Pinion               |             |            | Axis distance | XP+ 030R        | PHG 3R          | XPC+ 030R       | XPK+ 030R       | Rack*   |
|----------------------|-------------|------------|---------------|-----------------|-----------------|-----------------|-----------------|---|
| Designation          | $d$<br>[mm] | $x$<br>[ ] | $A$<br>[mm]   | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | Designation                                     |
| RMW 200-444-20L1-037 | 42.441      | 0.4        | 44.021        | 8350            | 8350            | 8350            | 8350            | ZST 200-334-1000-R11;<br>optionally with INIRA® |
| RMW 200-444-40L1-037 | 84.883      | 0          | 65.041        | 6080            | 6080            | 6080            | 6080            | ZST 200-332-1000-R1;<br>optionally with INIRA®  |
| RMW 300-444-20L1-037 | 63.662      | 0.4        | 59.031        | 7200            | 7200            | 7200            | 7200            | ZST 300-332-1000-R1;<br>optionally with INIRA®  |
| RMS 200-323-23L1-032 | 48.808      | 0.4        | 47.204        | 8350            | 8350            | 8350            | 8350            | ZST 200-334-1000-R11;<br>optionally with INIRA® |
| RMS 200-323-25L1-032 | 53.052      | 0.4        | 49.326        | 8350            | 8350            | 8350            | 8350            | ZST 200-334-1000-R11;<br>optionally with INIRA® |
| RMS 200-323-27L1-032 | 57.296      | 0.3        | 51.248        | 8350            | 8350            | 8350            | 8350            | ZST 200-334-1000-R11;<br>optionally with INIRA® |

$d$  = Pitch circle diameter

$x$  = Addendum modification coefficient

$A$  = Distance between pinion axle and rear surface of rack

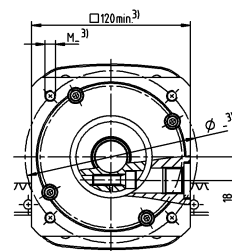
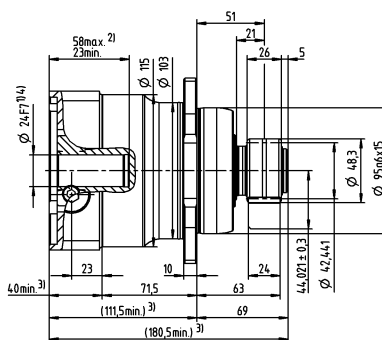
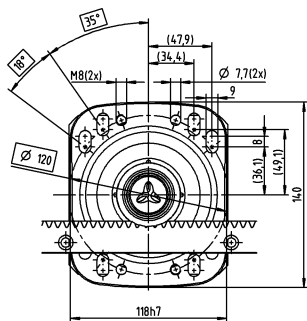
$F_{2T}$  = Maximum feed force depending on ratio and number of stages

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

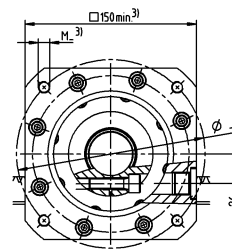
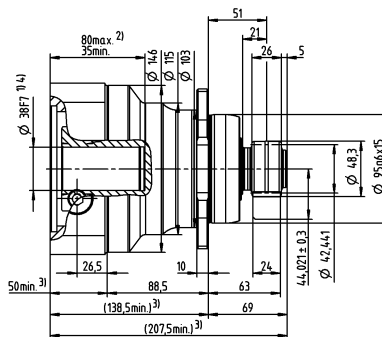
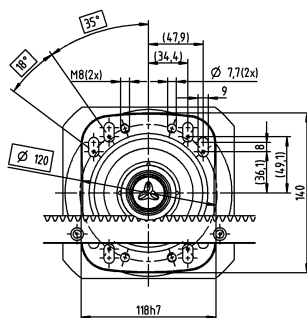
\* Other length options available

# 1-stage

greater than 19 (E)  
up to 24/28 <sup>4)</sup> (G/H)  
clamping hub  
diameters

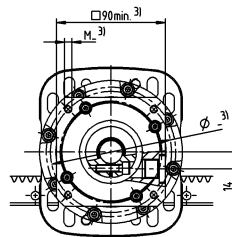
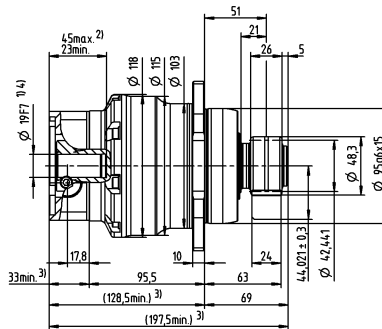
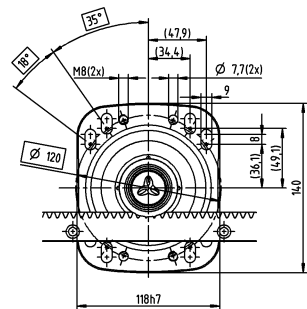


up to 38 <sup>4)</sup> (K)  
clamping hub  
diameters

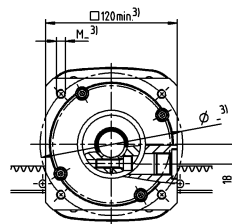
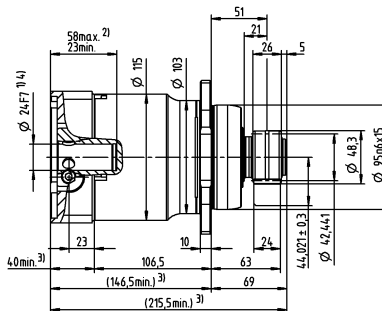
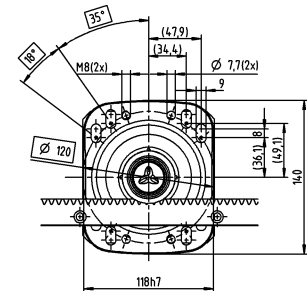


# 2-stage

greater than 14 (C)  
up to 19 <sup>4)</sup> (E)  
clamping hub  
diameters



up to 28 <sup>4)</sup> (G)  
clamping hub  
diameters



Non-tolerated dimensions are nominal dimensions  
Detailed rack dimensions starting on page 161

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

Motor shaft diameter [mm]

Premium Linear  
Systems

# Premium Linear System PLS 11 with XP+

Planetary gearbox XP+ 040R MF with rack module 3 and pinion RMW module 3

|   |   |   |   |
|---|---|---|---|
| <b>System</b>                           | Max. feed force <sup>1)</sup> $F_{2T}$            | 10700 N                                     |   |
|   | Max. feed speed <sup>2)</sup> $v_{max}$           | 333 m/min                                   | 75 m/min  |
| <b>Gearbox</b>                          | No. of stages                                     | 1   | 2   |
|   | Ratios $i$  | 3 / 4 / 5 / 7 / 8 / 10                      | 16 / 20 / 25 / 28 / 32 / 35 / 40 / 50 / 64 / 70 / 100 |
|   | Clamping hub diameter                             | 24 / 32 / 38 / 48 mm                        | 19 / 24 / 38 mm                                       |
|   | Designation                                       | XP 040R-MF1-_-_-3-_-                        | XP 040R-MF2-_-_-3-_-                                  |
| <b>Pinion</b>                           | Module $m$  | 3 mm  |   |
|   | Number of teeth $z$                               | 20  |   |
|   | Pitch circle diameter $d$                         | 63.662 mm                                   |   |
|   | Profile correction factor $x$                     | 0.4   |   |
|   | Helix angle $\beta$                               | -19.5283° (left-handed)                     |   |
|   | Designation                                       | RMW 300-444-20L1-055                        |   |
| <b>Rack</b>                             | Module $m$  | 3 mm  |   |
|   | Length L (options)                                | 1000 mm (500 mm)                            |   |
|   | Helix angle $\beta$                               | 19.5283° (right-handed)                     |   |
|   | Designation                                       | ZST 300-333-1000-R1; optionally with INIRA® |   |
| <b>Lubrication system</b> <sup>3)</sup> | Set consisting of lubrication pinion and axis for | Rack  | LMT 300-PU -18L1-030-1                                |
|   |   | Pinion                                      | LMT 300-PU -18R1-030-1                                |
|   | Lubricator  | 125 cm³                                     | LUC+125-0511-02                                       |
|   |   | 400 cm³                                     | LUC+400-0511-02                                       |
|   | Lubricant   | WITTENSTEIN alpha G11                       |   |

<sup>1)</sup> Maximum feed force depending on ratio and number of stages

<sup>2)</sup> Calculation with lowest ratio and maximum input speed

<sup>3)</sup> Impulse-controlled basic version with one output and 2 m hose. See page 118 for further information on the lubrication system.

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

## Alternative system solutions

| Pinion               |             |            | Axis distance | XP+ 040R        | XPK+ 040R       | XPC+ 040R       | Rack*  |
|----------------------|-------------|------------|---------------|-----------------|-----------------|-----------------|--|
| Designation          | $d$<br>[mm] | $x$<br>[ ] | $A$<br>[mm]   | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | Designation                                  |
| RMW 200-444-40L1-055 | 84.883      | 0          | 64.441        | 10700           | 10700           | 10700           | ZST 200-334-1000-R11; optionally with INIRA® |
| RMW 300-444-20L1-055 | 63.662      | 0.4        | 59.031        | 10700           | 10700           | 10700           | ZST 300-333-1000-R1; optionally with INIRA®  |
| RMW 300-444-34L1-055 | 108.226     | 0          | 80.113        | 10700           | 10700           | 10700           | ZST 300-333-1000-R1; optionally with INIRA®  |
| RMS 300-323-20L1-040 | 63.662      | 0.4        | 59.031        | 10700           | 10700           | 10700           | ZST 300-332-1000-R1; optionally with INIRA®  |
| RMS 300-323-22L1-040 | 70.028      | 0.4        | 62.214        | 10700           | 10700           | 10700           | ZST 300-332-1000-R1; optionally with INIRA®  |
| RMS 300-323-24L1-040 | 76.394      | 0.4        | 65.397        | 10700           | 10700           | 10700           | ZST 300-332-1000-R1; optionally with INIRA®  |

$d$  = Pitch circle diameter

$x$  = Addendum modification coefficient

$A$  = Distance between pinion axle and rear surface of rack

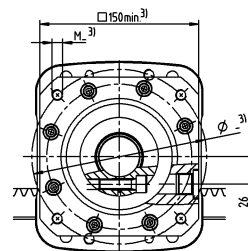
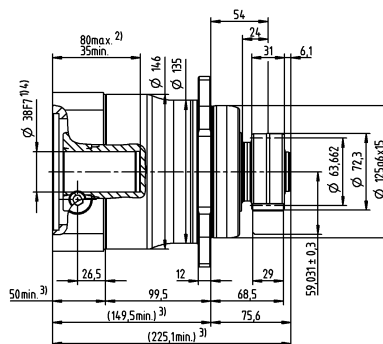
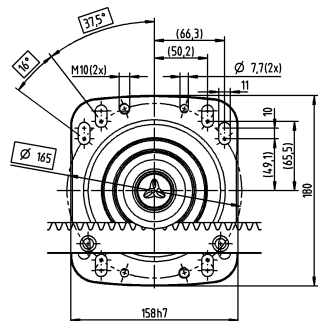
$F_{2T}$  = Maximum feed force depending on ratio and number of stages

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

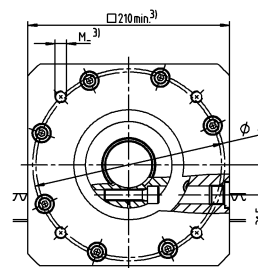
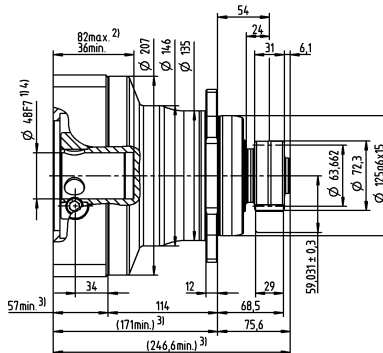
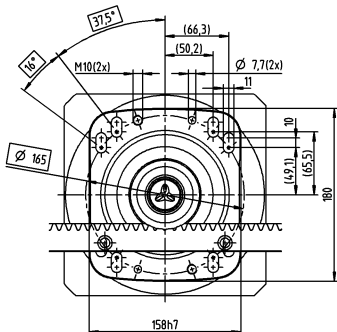
\* Other length options available

# 1-stage

greater than 24 (G)  
up to 32/38 <sup>4)</sup> (I/K)  
clamping hub  
diameters

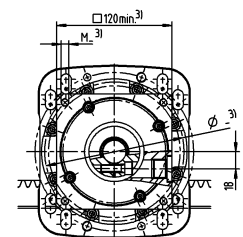
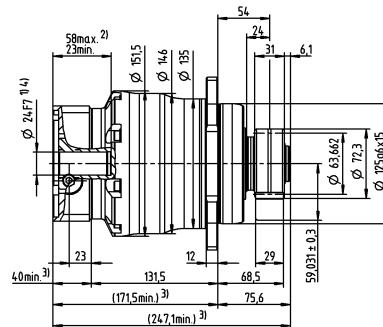
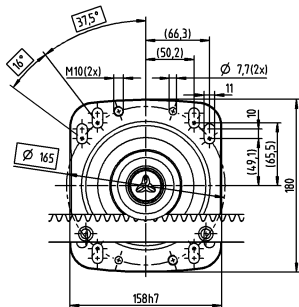


up to 48 <sup>4)</sup> (M)  
clamping hub  
diameters

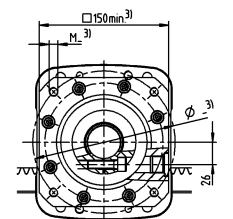
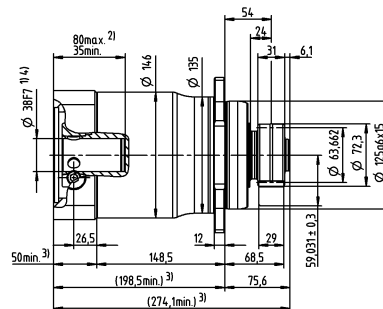
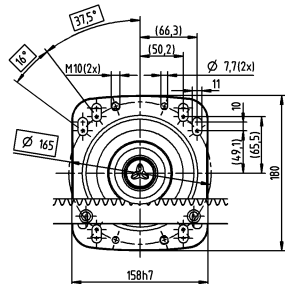


# 2-stage

greater than 19 (E)  
up to 24 <sup>4)</sup> (G)  
clamping hub  
diameters



up to 38 <sup>4)</sup> (K)  
clamping hub  
diameters



Non-tolerated dimensions are nominal dimensions  
Detailed rack dimensions starting on page 161

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

Motor shaft diameter [mm]

Premium Linear  
Systems

# Premium Linear System PLS 10 with RP+

Planetary gearbox RP+ 030 MA with rack module 2 and pinion RMW module 2

|   |   |                     |  |
|---|---|---------------------|--|
| <b>System</b>                           | Max. feed force <sup>1)</sup> $F_{2T}$            |                     | 9750 N                                       |
|   | Max. feed speed <sup>2)</sup> $v_{\max}$          |                     | 133 m/min                                    |
| <b>Gearbox</b>                          | No. of stages <sup>4)</sup>                       |                     | 1  |
|   | Ratios $i$ <sup>5)</sup>                          |                     | 5.5  |
|   | Clamping hub diameter                             |                     | 19 / 24 / 38 mm                              |
|   | Designation                                       |                     | RP 030S-MA1-__-3__                           |
| <b>Pinion</b>                           | Module $m$  |                     | 2 mm   |
|   | Number of teeth $z$                               |                     | 20   |
|   | Pitch circle diameter $d$                         |                     | 42.441 mm                                    |
|   | Profile correction factor $x$                     |                     | 0.4  |
|   | Helix angle $\beta$                               |                     | -19.5283° (left-handed)                      |
|   | Designation                                       |                     | RMW 200-444-20L1-037                         |
| <b>Rack</b>                             | Module $m$  |                     | 2 mm   |
|   | Length L (options)                                |                     | 1000 mm (500 mm)                             |
|   | Helix angle $\beta$                               |                     | 19.5283° (right-handed)                      |
|   | Designation                                       |                     | ZST 200-334-1000-R11; optionally with INIRA® |
| <b>Lubrication system</b> <sup>3)</sup> | Set consisting of lubrication pinion and axis for | Rack                | LMT 200-PU -18L1-024-1                       |
|   |   | Pinion              | LMT 200-PU -18L1-024-1                       |
|   | Lubricator  | 125 cm <sup>3</sup> | LUC+125-0511-02                              |
|   |   | 400 cm <sup>3</sup> | LUC+400-0511-02                              |
|   | Lubricant   |                     | WITTENSTEIN alpha G11                        |

<sup>1)</sup> Maximum feed force depending on ratio and number of stages

<sup>2)</sup> Calculation with lowest ratio and maximum input speed

<sup>3)</sup> Impulse-controlled basic version with one output and 2 m hose. See page 118 for further information on the lubrication system.

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>4)</sup> Also available with multiple stages.

<sup>5)</sup> Additional 1-stage ratios 4 / 5 / 7 / 10 available for RP+ 030 MF

## Alternative system solutions

| Pinion               |             |            | Axis distance | RP+ 030S        | Rack*   |
|----------------------|-------------|------------|---------------|-----------------|---|
| Designation          | $d$<br>[mm] | $x$<br>[ ] | $A$<br>[mm]   | $F_{2T}$<br>[N] | Designation                                     |
| RMW 200-444-40L1-055 | 84.883      | 0          | 64.441        | 11300           | ZST 200-334-1000-R11;<br>optionally with INIRA® |
| RMW 300-444-20L1-055 | 63.662      | 0.4        | 59.031        | 12900           | ZST 300-333-1000-R1;<br>optionally with INIRA®  |
| RMW 300-444-34L1-055 | 108.226     | 0          | 80.113        | 9800            | ZST 300-332-1000-R1;<br>optionally with INIRA®  |
| RMW 400-444-20L1-055 | 84.882      | 0.2        | 78.241        | 12500           | ZST 400-332-1000-R1;<br>optionally with INIRA®  |

$d$  = Pitch circle diameter

$x$  = Addendum modification coefficient

$A$  = Distance between pinion axle and rear surface of rack

$F_{2T}$  = Maximum feed force depending on ratio and number of stages

RPM+ available in customized version

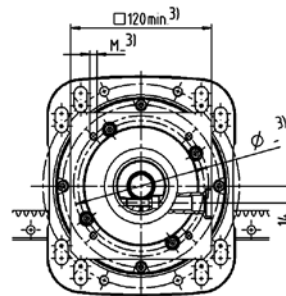
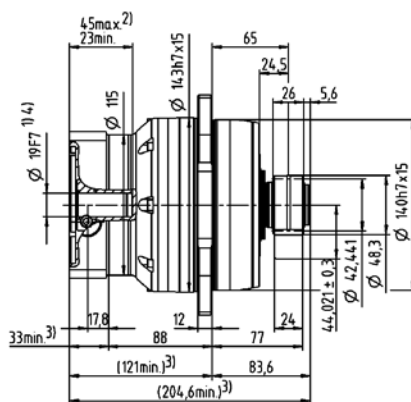
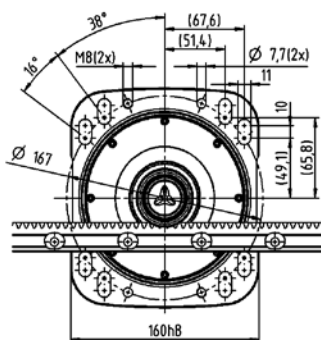
Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

\* Other length options available

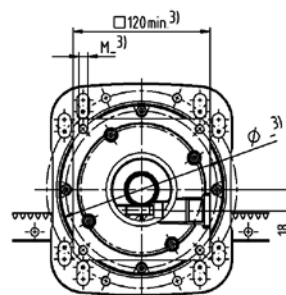
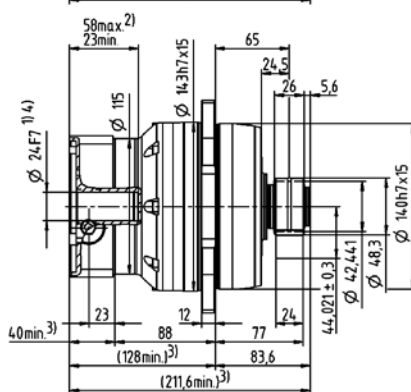
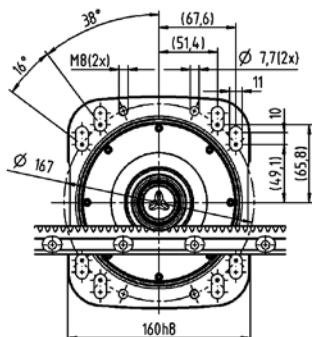


# 1-stage

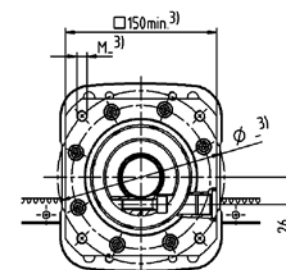
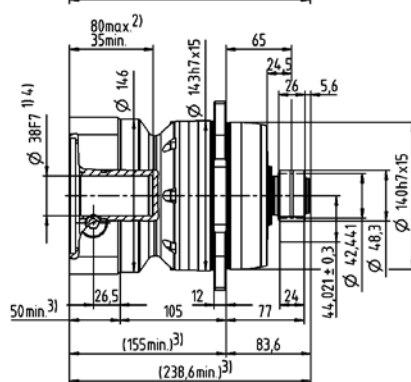
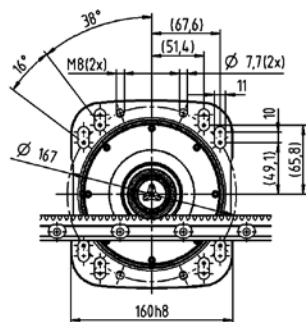
up to 19<sup>4)</sup> (E)  
clamping hub  
diameters



up to 24<sup>4)</sup> (G)  
clamping hub  
diameters



up to 38<sup>4)</sup> (K)  
clamping hub  
diameters



Non-tolerated dimensions are nominal dimensions  
Detailed rack dimensions starting on page 161

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

Motor shaft diameter [mm]

# Premium Linear System PLS 13 with RP+

Planetary gearbox RP+ 030 MA with rack module 3 and pinion RMW module 3

|   |   |                     |  |
|---|---|---------------------|--|
| <b>System</b>                           | Max. feed force <sup>1)</sup> $F_{2T}$            |                     | 12900 N                                      |
|   | Max. feed speed <sup>2)</sup> $v_{\max}$          |                     | 200 m/min                                    |
| <b>Gearbox</b>                          | No. of stages <sup>4)</sup>                       |                     | 1  |
|   | Ratios $i$ <sup>5)</sup>                          |                     | 5.5  |
|   | Clamping hub diameter                             |                     | 19 / 24 / 38 mm                              |
|   | Designation                                       |                     | RP 030S-MA1-__-3-__                          |
| <b>Pinion</b>                           | Module $m$  |                     | 3 mm   |
|   | Number of teeth $z$                               |                     | 20   |
|   | Pitch circle diameter $d$                         |                     | 63.662 mm                                    |
|   | Profile correction factor $x$                     |                     | 0.4  |
|   | Helix angle $\beta$                               |                     | -19.5283° (left-handed)                      |
|   | Designation                                       |                     | RMW 300-444-20L1-055                         |
| <b>Rack</b>                             | Module $m$  |                     | 3 mm   |
|   | Length L (options)                                |                     | 1000 mm (500 mm)                             |
|   | Helix angle $\beta$                               |                     | 19.5283° (right-handed)                      |
|   | Designation                                       |                     | ZST 300-334-1000-R11; optionally with INIRA® |
| <b>Lubrication system</b> <sup>3)</sup> | Set consisting of lubrication pinion and axis for | Rack                | LMT 300-PU -18L1-030-1                       |
|   |   | Pinion              | LMT 300-PU -18R1-030-1                       |
|   | Lubricator  | 125 cm <sup>3</sup> | LUC+125-0511-02                              |
|   |   | 400 cm <sup>3</sup> | LUC+400-0511-02                              |
|   | Lubricant   |                     | WITTENSTEIN alpha G11                        |

<sup>1)</sup> Maximum feed force depending on ratio and number of stages

<sup>2)</sup> Calculation with lowest ratio and maximum input speed

<sup>3)</sup> Impulse-controlled basic version with one output and 2 m hose. See page 118 for further information on the lubrication system.

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>4)</sup> Also available with multiple stages.

<sup>5)</sup> Additional 1-stage ratios 4 / 5 / 7 / 10 available for RP+ 030 MF

## Alternative system solutions

| Pinion               |             |            | Axis distance | RP+ 030S        | Rack*   |
|----------------------|-------------|------------|---------------|-----------------|---|
| Designation          | $d$<br>[mm] | $x$<br>[ ] | $A$<br>[mm]   | $F_{2T}$<br>[N] | Designation                                     |
| RMW 200-444-20L1-037 | 42.441      | 0.4        | 44.021        | 9750            | ZST 200-334-1000-R11;<br>optionally with INIRA® |
| RMW 200-444-40L1-055 | 84.883      | 0          | 64.441        | 11300           | ZST 200-334-1000-R11;<br>optionally with INIRA® |
| RMW 300-444-34L1-055 | 108.226     | 0          | 80.113        | 9800            | ZST 300-332-1000-R1;<br>optionally with INIRA®  |
| RMW 400-444-20L1-055 | 84.882      | 0.2        | 78.241        | 12500           | ZST 400-332-1000-R1;<br>optionally with INIRA®  |

$d$  = Pitch circle diameter

$x$  = Addendum modification coefficient

$A$  = Distance between pinion axle and rear surface of rack

$F_{2T}$  = Maximum feed force depending on ratio and number of stages

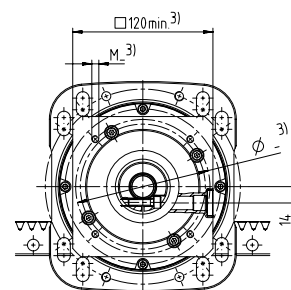
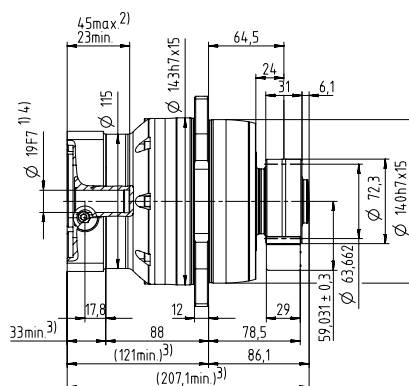
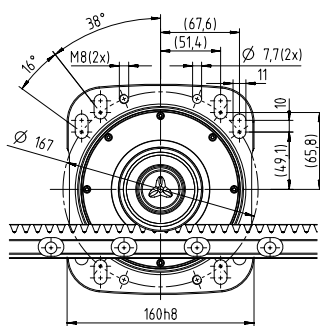
RPM+ available in customized version

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

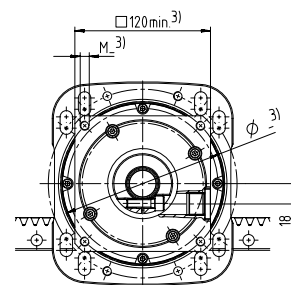
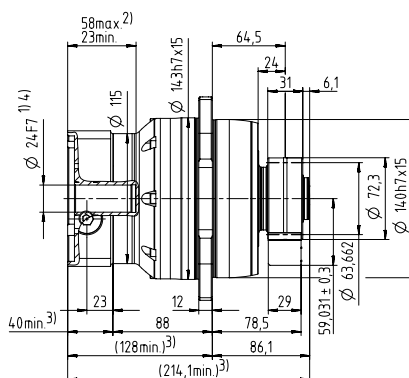
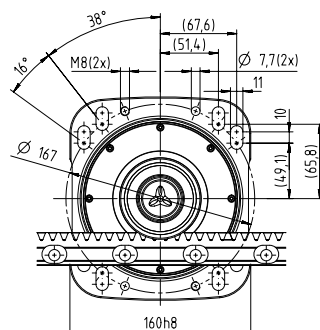
\* Other length options available

# 1-stage

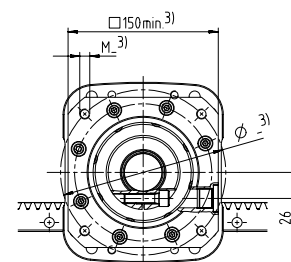
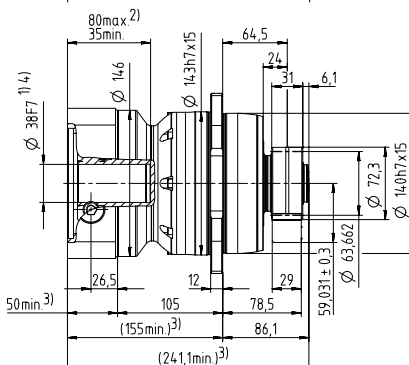
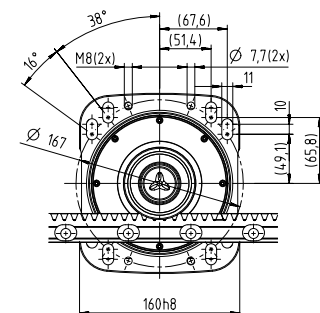
up to 19<sup>4)</sup> (E)  
clamping hub  
diameters



up to 24<sup>4)</sup> (G)  
clamping hub  
diameters



up to 38<sup>4)</sup> (K)  
clamping hub  
diameters



Non-tolerated dimensions are nominal dimensions  
Detailed rack dimensions starting on page 161

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

# Premium Linear System PLS 20 with RP+

Planetary gearbox RP+ 040 MF with rack module 3 and pinion RMW module 3

|   |   |         |  |
|---|---|---------|--|
| <b>System</b>                           | Max. feed force <sup>1)</sup> $F_{2T}$            |         | 20300 N                                      |
|   | Max. feed speed <sup>2)</sup> $v_{\max}$          |         | 250 m/min                                    |
| <b>Gearbox</b>                          | No. of stages                                     |         | 1  |
|   | Ratios $i$  |         | 4 / 5 / 7 / 10                               |
|   | Clamping hub diameter                             |         | 24 / 38 / 48 mm                              |
|   | Designation                                       |         | RP 040S-MF1-_-_-3_-_-                        |
| <b>Pinion</b>                           | Module $m$  |         | 3 mm   |
|   | Number of teeth $z$                               |         | 20   |
|   | Pitch circle diameter $d$                         |         | 63.662 mm                                    |
|   | Profile correction factor $x$                     |         | 0.4  |
|   | Helix angle $\beta$                               |         | -19.5283° (left-handed)                      |
|   | Designation                                       |         | RMW 300-444-20L1-055                         |
| <b>Rack</b>                             | Module $m$  |         | 3 mm   |
|   | Length L (options)                                |         | 1000 mm (500 mm)                             |
|   | Helix angle $\beta$                               |         | 19.5283° (right-handed)                      |
|   | Designation                                       |         | ZST 300-334-1000-R11; optionally with INIRA® |
| <b>Lubrication system</b> <sup>3)</sup> | Set consisting of lubrication pinion and axis for | Rack    | LMT 300-PU -18L1-030-1                       |
|   |   | Pinion  | LMT 300-PU -18R1-030-1                       |
|   | Lubricator  | 125 cm³ | LUC+125-0511-02                              |
|   |   | 400 cm³ | LUC+400-0511-02                              |
|   | Lubricant   |         | WITTENSTEIN alpha G11                        |

<sup>1)</sup> Maximum feed force depending on ratio and number of stages

<sup>2)</sup> Calculation with lowest ratio and maximum input speed

<sup>3)</sup> Impulse-controlled basic version with one output and 2 m hose. See page 118 for further information on the lubrication system.  
Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

## Alternative system solutions

| Pinion               |             |            | Axis distance | RP+ 040S        | RPM+ 040S       | RPC+ 040S       | RPK+ 040S       | Rack*   |
|----------------------|-------------|------------|---------------|-----------------|-----------------|-----------------|-----------------|---|
| Designation          | $d$<br>[mm] | $x$<br>[ ] | $A$<br>[mm]   | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | Designation                                     |
| RMW 300-444-20L1-055 | 63.662      | 0.4        | 59.031        | 20300           | 20300           | 20300           | 20300           | ZST 300-334-1000-R11;<br>optionally with INIRA® |
| RMW 300-444-34L1-073 | 108.226     | 0          | 80.113        | 12900           | 12900           | 12900           | 12900           | ZST 300-334-1000-R11;<br>optionally with INIRA® |
| RMW 400-444-20L1-073 | 84.882      | 0.2        | 78.241        | 16400           | 16400           | 16400           | 16400           | ZST 400-333-1000-R1;<br>optionally with INIRA®  |

$d$  = Pitch circle diameter

$x$  = Addendum modification coefficient

$A$  = Distance between pinion axle and rear surface of rack

$F_{2T}$  = Maximum feed force depending on ratio and number of stages

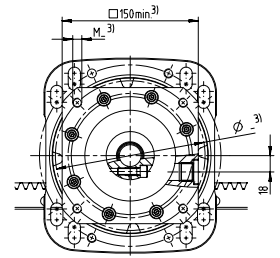
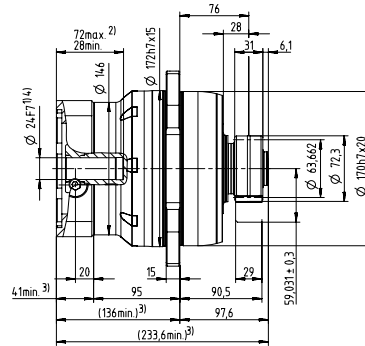
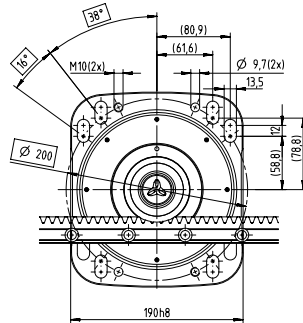
RPM+ available in customized version

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

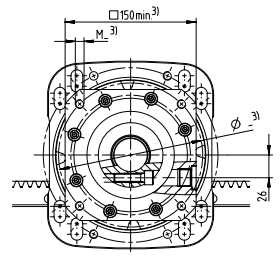
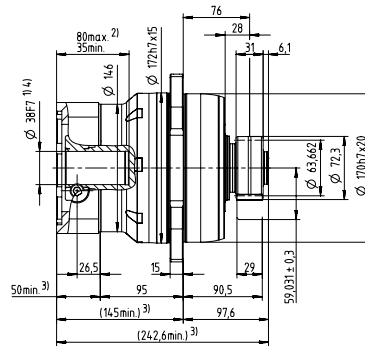
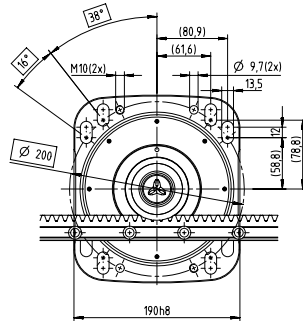
\* Other length options available

# 1-stage

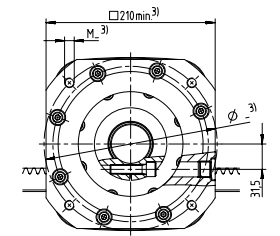
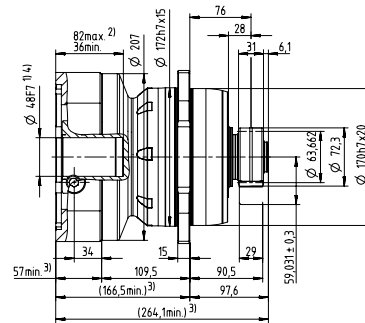
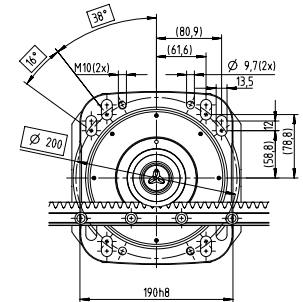
up to 24<sup>4)</sup> (G)  
clamping hub  
diameters



up to 38<sup>4)</sup> (K)  
clamping hub  
diameters



up to 48<sup>4)</sup> (M)  
clamping hub  
diameters



Non-tolerated dimensions are nominal dimensions  
Detailed rack dimensions starting on page 161

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm



# Premium Linear System PLS 22 with RP+

Planetary gearbox RP+ 040 MA with rack module 4 and pinion RMW module 4

|   |   |  |                           |
|---|---|--|---------------------------|
| <b>System</b>                           | Max. feed force <sup>1)</sup> $F_{2T}$            | 22300 N                                      |                           |
|   | Max. feed speed <sup>2)</sup> $v_{\max}$          | 104 m/min                                    | 25 m/min                  |
| <b>Gearbox</b>                          | No. of stages <sup>3)</sup>                       | 2  | 3                         |
|   | Ratios $i$  | 16 / 22 / 27.5 / 38.5 / 55                   | 66 / 88 / 110 / 154 / 220 |
|   | Clamping hub diameter                             | 24 / 38 mm                                   | 24 mm                     |
|   | Designation                                       | RP 040S-MA2-_-_-3_-                          | RP 040S-MA3-_-_-3_-       |
| <b>Pinion</b>                           | Module $m$  | 4 mm   |                           |
|   | Number of teeth $z$                               | 20   |                           |
|   | Pitch circle diameter $d$                         | 84.883 mm                                    |                           |
|   | Profile correction factor $x$                     | 0.2  |                           |
|   | Helix angle $\beta$                               | -19.5283° (left-handed)                      |                           |
|   | Designation                                       | RMW 400-444-20L1-073                         |                           |
| <b>Rack</b>                             | Module $m$  | 4 mm   |                           |
|   | Length L (options)                                | 1000 mm (493 mm)                             |                           |
|   | Helix angle $\beta$                               | 19.5283° (right-handed)                      |                           |
|   | Designation                                       | ZST 400-334-1000-R11; optionally with INIRA® |                           |
| <b>Lubrication system</b> <sup>4)</sup> | Set consisting of lubrication pinion and axis for | Rack   | LMT 400-PU -18L1-040-1    |
|   |   | Pinion                                       | LMT 400-PU -18R1-040-1    |
|   | Lubricator  | 125 cm³                                      | LUC+125-0511-02           |
|   |   | 400 cm³                                      | LUC+400-0511-02           |
|   | Lubricant   |  | WITTENSTEIN alpha G11     |

<sup>1)</sup> Maximum feed force depending on ratio and number of stages

<sup>2)</sup> Calculation with lowest ratio and maximum input speed

<sup>3)</sup> Single-stage also available

<sup>4)</sup> Impulse-controlled basic version with one output and 2 m hose. See page 118 for further information on the lubrication system.

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

## Alternative system solutions

| Pinion               |             |            | Axis distance | RP+ 040S        | RPM+ 040S       | RPC+ 040S       | RPK+ 040S       | Rack*   |
|----------------------|-------------|------------|---------------|-----------------|-----------------|-----------------|-----------------|---|
| Designation          | $d$<br>[mm] | $x$<br>[ ] | $A$<br>[mm]   | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | Designation                                     |
| RMW 300-444-20L1-055 | 63.662      | 0.4        | 59.031        | 20300           | 20300           | 20300           | 20300           | ZST 300-334-1000-R11;<br>optionally with INIRA® |
| RMW 300-444-34L1-073 | 108.226     | 0          | 80.113        | 20300           | 20300           | 20300           | 20300           | ZST 300-334-1000-R11;<br>optionally with INIRA® |
| RMW 400-444-20L1-073 | 84.882      | 0.2        | 78.241        | 22300           | 22300           | 22300           | 22300           | ZST 400-333-1000-R15;<br>optionally with INIRA® |
| RMW 400-444-24L1-073 | 101.859     | 0          | 85.930        | 20300           | 20300           | 20300           | 20300           | ZST 400-332-1000-R15;<br>optionally with INIRA® |

$d$  = Pitch circle diameter

$x$  = Addendum modification coefficient

$A$  = Distance between pinion axle and rear surface of rack

$F_{2T}$  = Maximum feed force depending on ratio and number of stages

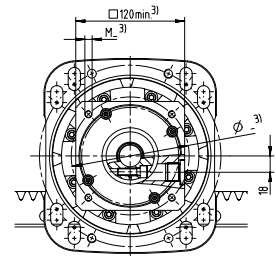
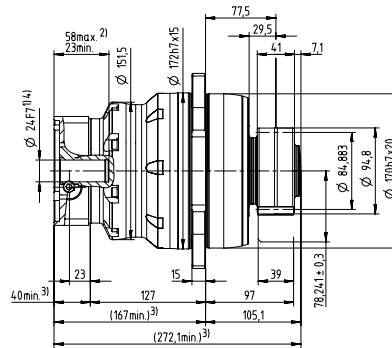
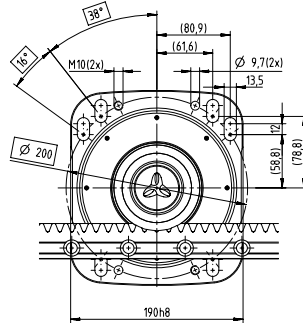
RPM+ available in customized version

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

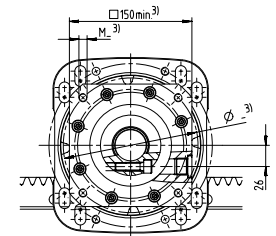
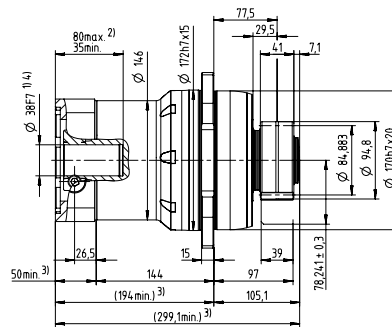
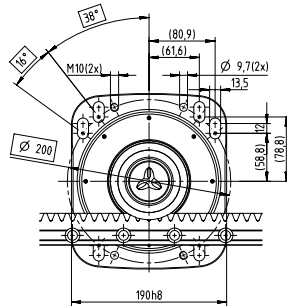
\* Other length options available

## 2-stage

up to 24<sup>4)</sup> (G)  
clamping hub  
diameters

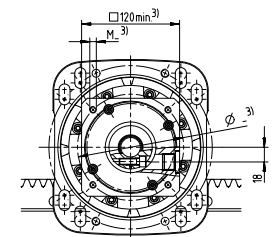
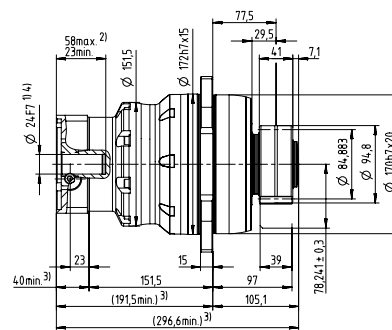
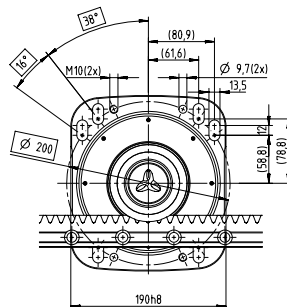


up to 38<sup>4)</sup> (K)  
clamping hub  
diameters



## 3-stage

up to 24<sup>4)</sup> (G)  
clamping hub  
diameters



Motor shaft diameter [mm]

Non-tolerated dimensions are nominal dimensions  
Detailed rack dimensions starting on page 161

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

# Premium Linear System PLS 36 with RP+

Planetary gearbox RP+ 050 MA with rack module 4 and pinion RMW module 4

|   |   |  |                           |
|---|---|--|---------------------------|
| <b>System</b>                           | Max. feed force <sup>1)</sup> $F_{2T}$            | 36100 N                                      |                           |
|   | Max. feed speed <sup>2)</sup> $v_{\max}$          | 112 m/min                                    | 27 m/min                  |
| <b>Gearbox</b>                          | No. of stages <sup>3)</sup>                       | 2  | 3                         |
|   | Ratios $i$  | 16 / 22 / 27.5 / 38.5 / 55                   | 66 / 88 / 110 / 154 / 220 |
|   | Clamping hub diameter                             | 38 / 48 mm                                   | 38 mm                     |
|   | Designation                                       | RP 050S-MA2-_-_-3_-                          | RP 050S-MA3-_-_-3_-       |
| <b>Pinion</b>                           | Module $m$  | 4 mm   |                           |
|   | Number of teeth $z$                               | 24   |                           |
|   | Pitch circle diameter $d$                         | 101.859 mm                                   |                           |
|   | Profile correction factor $x$                     | 0  |                           |
|   | Helix angle $\beta$                               | -19.5283° (left-handed)                      |                           |
|   | Designation                                       | RMW 400-444-24L1-089                         |                           |
| <b>Rack</b>                             | Module $m$  | 4 mm   |                           |
|   | Length L (options)                                | 1000 mm (493 mm)                             |                           |
|   | Helix angle $\beta$                               | 19.5283° (right-handed)                      |                           |
|   | Designation                                       | ZST 400-334-1000-R11; optionally with INIRA® |                           |
| <b>Lubrication system</b> <sup>4)</sup> | Set consisting of lubrication pinion and axis for | Rack   | LMT 400-PU -18L1-040-1    |
|   |   | Pinion                                       | LMT 400-PU -18R1-040-1    |
|   | Lubricator  | 125 cm³                                      | LUC+125-0511-02           |
|   |   | 400 cm³                                      | LUC+400-0511-02           |
|   | Lubricant   |  | WITTENSTEIN alpha G11     |

<sup>1)</sup> Maximum feed force depending on ratio and number of stages

<sup>2)</sup> Calculation with lowest ratio and maximum input speed

<sup>3)</sup> Single-stage also available

<sup>4)</sup> Impulse-controlled basic version with one output and 2 m hose. See page 118 for further information on the lubrication system.

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

## Alternative system solutions

| Pinion               |             |            | Axis distance | RP+ 050S        | RPM+ 050S       | RPC+ 050S       | RPK+ 050S       | Rack*   |
|----------------------|-------------|------------|---------------|-----------------|-----------------|-----------------|-----------------|---|
| Designation          | $d$<br>[mm] | $x$<br>[ ] | $A$<br>[mm]   | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | Designation                                     |
| RMW 400-444-24L1-089 | 101.859     | 0          | 85.930        | 36100           | 36100           | 36100           | 36100           | ZST 400-334-1000-R11;<br>optionally with INIRA® |
| RMW 400-444-30L1-089 | 127.324     | 0          | 98.662        | 31400           | 31400           | 31400           | 31400           | ZST 400-334-1000-R11;<br>optionally with INIRA® |
| RMW 500-444-19L1-089 | 100.798     | 0.4        | 86.399        | 36500           | 36500           | 36500           | 36500           | ZST 500-333-1000-R1;<br>optionally with INIRA®  |
| RMW 500-444-23L1-106 | 122.019     | 0          | 95.009        | 47200           | 47200           | 47200           | 47200           | ZST 500-334-1000-R11;<br>optionally with INIRA® |
| RMW 500-444-30L1-106 | 159.155     | 0          | 113.578       | 39200           | 39200           | 39200           | 39200           | ZST 500-334-1000-R11;<br>optionally with INIRA® |
| RMW 600-444-19L1-106 | 120.958     | 0.4        | 105.879       | 47200           | 47200           | 47200           | 47200           | ZST 600-334-1000-R11;<br>optionally with INIRA® |
| RMW 600-444-23L1-106 | 146.423     | 0          | 116.211       | 41500           | 41500           | 41500           | 41500           | ZST 600-332-1000-R1;<br>optionally with INIRA®  |

$d$  = Pitch circle diameter

$x$  = Addendum modification coefficient

$A$  = Distance between pinion axle and rear surface of rack

$F_{2T}$  = Maximum feed force depending on ratio and number of stages

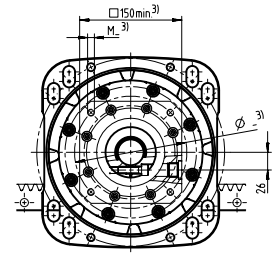
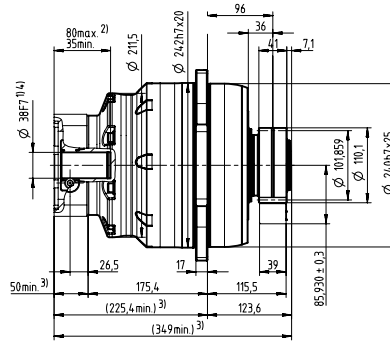
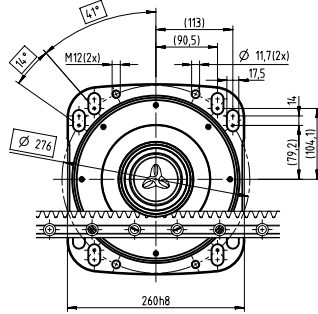
RPM+ available in customized version

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

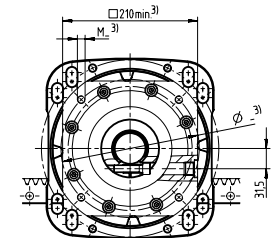
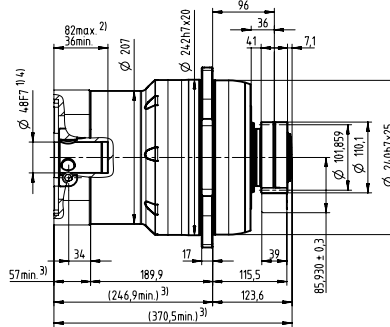
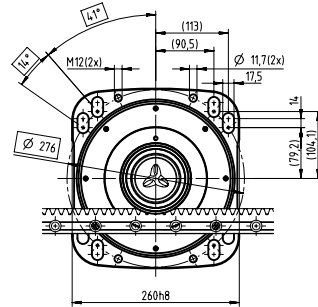
\* Other length options available

## 2-stage

up to 38<sup>4)</sup> (K)  
clamping hub  
diameters

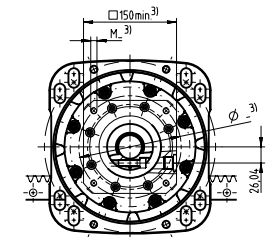
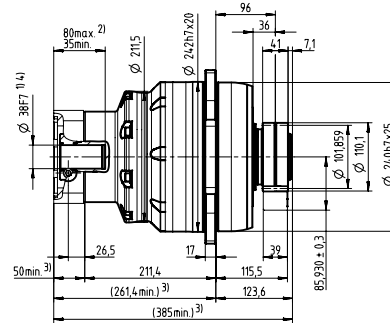
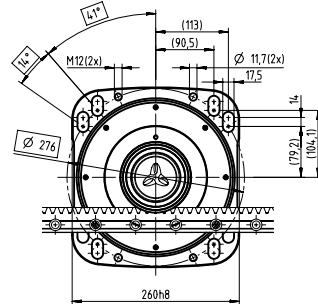


up to 48<sup>4)</sup> (M)  
clamping hub  
diameters



## 3-stage

up to 38<sup>4)</sup> (K)  
clamping hub  
diameters



Motor shaft diameter [mm]

Non-tolerated dimensions are nominal dimensions  
Detailed rack dimensions starting on page 161

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

# Premium Linear System PLS 47 with RP+

Planetary gearbox RP+ 050 MA with rack module 5 and pinion RMW module 5

|   |   |  |                           |
|---|---|--|---------------------------|
| <b>System</b>                           | Max. feed force <sup>1)</sup> $F_{2T}$            | 47000 N                                      |                           |
|   | Max. feed speed <sup>2)</sup> $v_{\max}$          | 135 m/min                                    | 33 m/min                  |
| <b>Gearbox</b>                          | No. of stages <sup>3)</sup>                       | 2  | 3                         |
|   | Ratios $i$  | 22 / 27.5 / 38.5 / 55                        | 66 / 88 / 110 / 154 / 220 |
|   | Clamping hub diameter                             | 38 / 48 mm                                   | 38 mm                     |
|   | Designation                                       | RP 050S-MA2-_-_-3_-                          | RP 050S-MA3-_-_-3_-       |
| <b>Pinion</b>                           | Module $m$  | 5 mm   |                           |
|   | Number of teeth $z$                               | 23   |                           |
|   | Pitch circle diameter $d$                         | 122.019 mm                                   |                           |
|   | Profile correction factor $x$                     | 0  |                           |
|   | Helix angle $\beta$                               | -19.5283° (left-handed)                      |                           |
|   | Designation                                       | RMW 500-444-23L1-106                         |                           |
| <b>Rack</b>                             | Module $m$  | 5 mm   |                           |
|   | Length L (options)                                | 1000 mm (500 mm)                             |                           |
|   | Helix angle $\beta$                               | 19.5283° (right-handed)                      |                           |
|   | Designation                                       | ZST 500-334-1000-R11; optionally with INIRA® |                           |
| <b>Lubrication system</b> <sup>4)</sup> | Set consisting of lubrication pinion and axis for | Rack   | LMT 500-PU -17L1-050-1    |
|   |   | Pinion                                       | LMT 500-PU -17R1-050-1    |
|   | Lubricator  | 125 cm³                                      | LUC+125-0511-02           |
|   |   | 400 cm³                                      | LUC+400-0511-02           |
|   | Lubricant   |  | WITTENSTEIN alpha G11     |

<sup>1)</sup> Maximum feed force depending on ratio and number of stages

<sup>2)</sup> Calculation with lowest ratio and maximum input speed

<sup>3)</sup> Single-stage also available

<sup>4)</sup> Impulse-controlled basic version with one output and 2 m hose. See page 118 for further information on the lubrication system.

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

## Alternative system solutions

| Pinion               |             |            | Axis distance | RP+ 050S        | RPM+ 050S       | RPC+ 050S       | RPK+ 050S       | Rack*  |
|----------------------|-------------|------------|---------------|-----------------|-----------------|-----------------|-----------------|--|
| Designation          | $d$<br>[mm] | $x$<br>[ ] | $A$<br>[mm]   | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | Designation                                  |
| RMW 400-444-24L1-089 | 101.859     | 0          | 85.930        | 36100           | 36100           | 36100           | 36100           | ZST 400-334-1000-R11; optionally with INIRA® |
| RMW 400-444-30L1-089 | 127.324     | 0          | 98.662        | 31400           | 31400           | 31400           | 31400           | ZST 400-334-1000-R11; optionally with INIRA® |
| RMW 500-444-19L1-089 | 100.798     | 0.4        | 86.399        | 36500           | 36500           | 36500           | 36500           | ZST 500-333-1000-R1; optionally with INIRA®  |
| RMW 500-444-23L1-106 | 122.019     | 0          | 95.009        | 47200           | 47200           | 47200           | 47200           | ZST 500-334-1000-R11; optionally with INIRA® |
| RMW 500-444-30L1-106 | 159.155     | 0          | 113.578       | 39200           | 39200           | 39200           | 39200           | ZST 500-334-1000-R11; optionally with INIRA® |
| RMW 600-444-19L1-106 | 120.958     | 0.4        | 105.879       | 47200           | 47200           | 47200           | 47200           | ZST 600-333-1000-R1; optionally with INIRA®  |
| RMW 600-444-23L1-106 | 146.423     | 0          | 116.211       | 41500           | 41500           | 41500           | 41500           | ZST 600-332-1000-R1; optionally with INIRA®  |

$d$  = Pitch circle diameter

$x$  = Addendum modification coefficient

$A$  = Distance between pinion axle and rear surface of rack

$F_{2T}$  = Maximum feed force depending on ratio and number of stages

RPM+ available in customized version

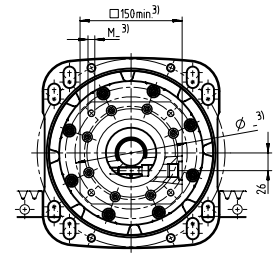
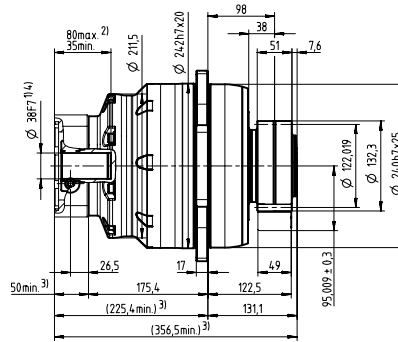
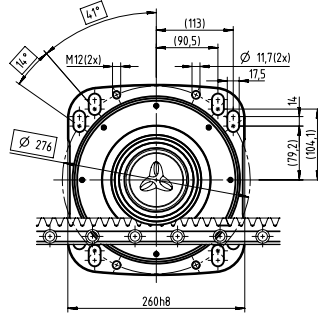
Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

\* Other length options available

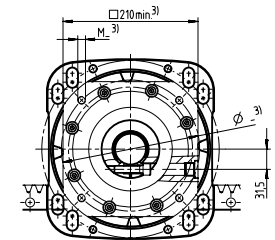
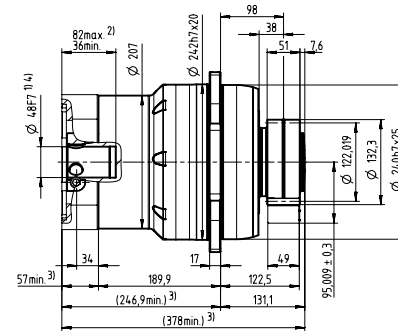
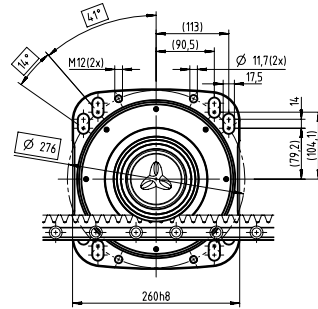


## 2-stage

up to 38<sup>4)</sup> (K)  
clamping hub  
diameters

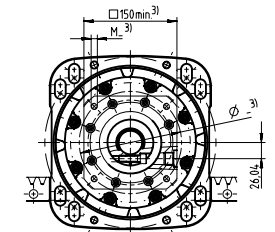
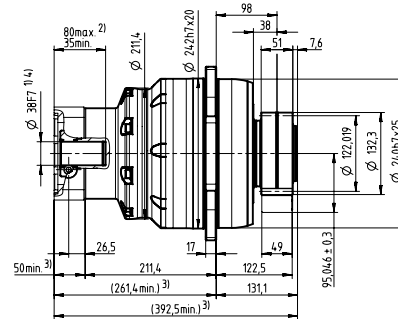
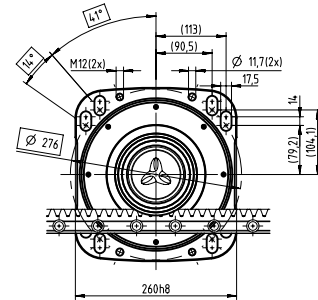


up to 48<sup>4)</sup> (M)  
clamping hub  
diameters



## 3-stage

up to 38<sup>4)</sup> (K)  
clamping hub  
diameters



Motor shaft diameter [mm]

Non-tolerated dimensions are nominal dimensions  
Detailed rack dimensions starting on page 161

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

# Premium Linear System PLS 75 with RP+

Planetary gearbox RP+ 060 MA with rack module 6 and pinion RMW module 6

|   |   |  |                           |
|---|---|--|---------------------------|
| <b>System</b>                           | Max. feed force <sup>1)</sup> $F_{2T}$            | 75000 N                                      |                           |
|   | Max. feed speed <sup>2)</sup> $v_{\max}$          | 91 m/min                                     | 30 m/min                  |
| <b>Gearbox</b>                          | No. of stages <sup>3)</sup>                       | 2  | 3                         |
|   | Ratios $i$  | 22 / 27.5 / 38.5 / 55                        | 66 / 88 / 110 / 154 / 220 |
|   | Clamping hub diameter                             | 48 mm  | 38 mm                     |
|   | Designation                                       | RP 060S-MA2-_-_-_-3_-_-                      | RP 060S-MA3-_-_-_-3_-_-   |
| <b>Pinion</b>                           | Module $m$  | 6 mm   |                           |
|   | Number of teeth $z$                               | 23   |                           |
|   | Pitch circle diameter $d$                         | 146.423 mm                                   |                           |
|   | Profile correction factor $x$                     | 0  |                           |
|   | Helix angle $\beta$                               | -19.5283° (left-handed)                      |                           |
|   | Designation                                       | RMW 600-444-23L1-128                         |                           |
| <b>Rack</b>                             | Module $m$  | 6 mm   |                           |
|   | Length L (options)                                | 1000 mm (500 mm)                             |                           |
|   | Helix angle $\beta$                               | 19.5283° (right-handed)                      |                           |
|   | Designation                                       | ZST 600-334-1000-R11; optionally with INIRA® |                           |
| <b>Lubrication system</b> <sup>4)</sup> | Set consisting of lubrication pinion and axis for | Rack   | LMT 600-PU -17L1-060-1    |
|   |   | Pinion                                       | LMT 600-PU -17R1-060-1    |
|   | Lubricator  | 125 cm³                                      | LUC+125-0511-02           |
|   |   | 400 cm³                                      | LUC+400-0511-02           |
|   | Lubricant   |  | WITTENSTEIN alpha G11     |

<sup>1)</sup> Maximum feed force depending on ratio and number of stages

<sup>2)</sup> Calculation with lowest ratio and maximum input speed

<sup>3)</sup> Single-stage also available

<sup>4)</sup> Impulse-controlled basic version with one output and 2 m hose. See page 118 for further information on the lubrication system.

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

## Alternative system solutions

| Pinion               |             |            | Axis distance | RP+ 060S        | RPM+ 060S       | RPC+ 060S       | RPK+ 060S       | Rack*   |
|----------------------|-------------|------------|---------------|-----------------|-----------------|-----------------|-----------------|---|
| Designation          | $d$<br>[mm] | $x$<br>[ ] | $A$<br>[mm]   | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | Designation                                     |
| RMW 500-444-23L1-106 | 122.019     | 0          | 95.009        | 47000           | 47000           | 47000           | 47000           | ZST 500-334-1000-R11;<br>optionally with INIRA® |
| RMW 500-444-30L1-106 | 159.155     | 0          | 113.578       | 39400           | 39400           | 39400           | 39400           | ZST 500-334-1000-R11;<br>optionally with INIRA® |
| RMW 600-444-19L1-106 | 120.958     | 0.4        | 105.879       | 47200           | 47200           | 47200           | 47200           | ZST 600-333-1000-R1;<br>optionally with INIRA®  |
| RMW 600-444-23L1-128 | 146.423     | 0          | 116.211       | 75000           | 75000           | 75000           | 75000           | ZST 600-334-1000-R11;<br>optionally with INIRA® |
| RMW 600-444-28L1-128 | 178.254     | 0          | 132.127       | 61500           | 61500           | 61500           | 61500           | ZST 600-334-1000-R11;<br>optionally with INIRA® |

$d$  = Pitch circle diameter

$x$  = Addendum modification coefficient

$A$  = Distance between pinion axle and rear surface of rack

$F_{2T}$  = Maximum feed force depending on ratio and number of stages

RPM+ available in customized version

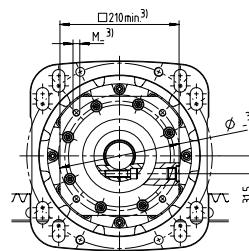
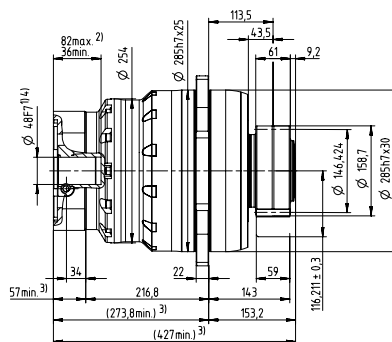
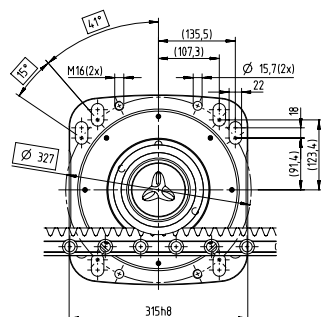
Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

\* Other length options available

Motor shaft diameter [mm]

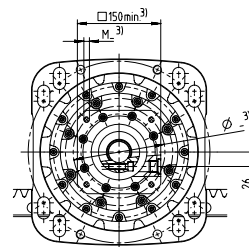
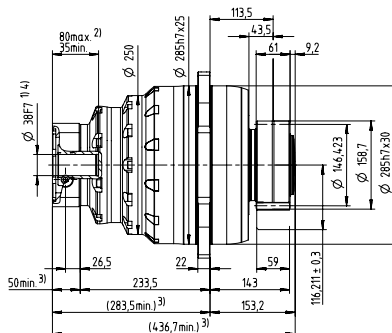
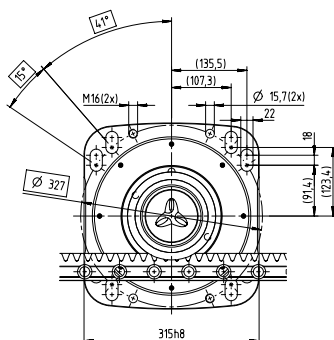
## 2-stage

up to 48<sup>4)</sup> (M)  
clamping hub  
diameters



## 3-stage

up to 38<sup>4)</sup> (K)  
clamping hub  
diameters



Non-tolerated dimensions are nominal dimensions  
Detailed rack dimensions starting on page 161

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

# Premium Linear System PLS 112 with RP+

Planetary gearbox RP+ 080 MA with rack module 8 and pinion RMW module 8

|   |   |  |                           |
|---|---|--|---------------------------|
| <b>System</b>                           | Max. feed force <sup>1)</sup> $F_{2T}$            | 112000 N                                     |                           |
|   | Max. feed speed <sup>2)</sup> $v_{\max}$          | 111 m/min                                    | 37 m/min                  |
| <b>Gearbox</b>                          | No. of stages <sup>3)</sup>                       | 2  | 3                         |
|   | Ratios $i$  | 22 / 27.5 / 38.5 / 55                        | 66 / 88 / 110 / 154 / 220 |
|   | Clamping hub diameter                             | 48 mm  | 38 / 48 mm                |
|   | Designation                                       | RP 080S-MA2-_-_-3_-                          | RP 080S-MA3-_-_-3_-       |
| <b>Pinion</b>                           | Module $m$  | 8 mm   |                           |
|   | Number of teeth $z$                               | 21   |                           |
|   | Pitch circle diameter $d$                         | 178.254 mm                                   |                           |
|   | Profile correction factor $x$                     | 0.2  |                           |
|   | Helix angle $\beta$                               | -19.5283° (left-handed)                      |                           |
|   | Designation                                       | RMW 800-444-21L1-156                         |                           |
| <b>Rack</b>                             | Module $m$  | 8 mm   |                           |
|   | Length L (options)                                | 960 mm                                       |                           |
|   | Helix angle $\beta$                               | 19.5283° (right-handed)                      |                           |
|   | Designation                                       | ZST 800-334- 960-R11; optionally with INIRA® |                           |
| <b>Lubrication system</b> <sup>4)</sup> | Set consisting of lubrication pinion and axis for | Rack   | LMT 800-PU -17L1-080-1    |
|   |   | Pinion                                       | LMT 800-PU -17R1-080-1    |
|   | Lubricator  | 125 cm³                                      | LUC+125-0511-02           |
|   |   | 400 cm³                                      | LUC+400-0511-02           |
|   | Lubricant   |  | WITTENSTEIN alpha G11     |

<sup>1)</sup> Maximum feed force depending on ratio and number of stages

<sup>2)</sup> Calculation with lowest ratio and maximum input speed

<sup>3)</sup> Single-stage also available

<sup>4)</sup> Impulse-controlled basic version with one output and 2 m hose. See page 118 for further information on the lubrication system.

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

## Alternative system solutions

| Pinion               |             |            | Axis distance | RP+ 080S        | RPM+ 080S       | RPC+ 080S       | RPK+ 080S       | Rack*   |
|----------------------|-------------|------------|---------------|-----------------|-----------------|-----------------|-----------------|---|
| Designation          | $d$<br>[mm] | $x$<br>[ ] | $A$<br>[mm]   | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | $F_{2T}$<br>[N] | Designation                                     |
| RMW 600-444-23L1-128 | 146.423     | 0          | 116.211       | 75000           | 75000           | 75000           | 75000           | ZST 600-334-1000-R11;<br>optionally with INIRA® |
| RMW 600-444-28L1-128 | 178.254     | 0          | 132.127       | 64500           | 64500           | 64500           | 64500           | ZST 600-334-1000-R11;<br>optionally with INIRA® |
| RMW 800-444-21L1-156 | 178.254     | 0.2        | 161.727       | 112000          | 112000          | 112000          | 112000          | ZST 800-334- 960-R11;<br>optionally with INIRA® |

$d$  = Pitch circle diameter

$x$  = Addendum modification coefficient

$A$  = Distance between pinion axle and rear surface of rack

$F_{2T}$  = Maximum feed force depending on ratio and number of stages

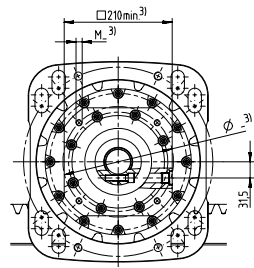
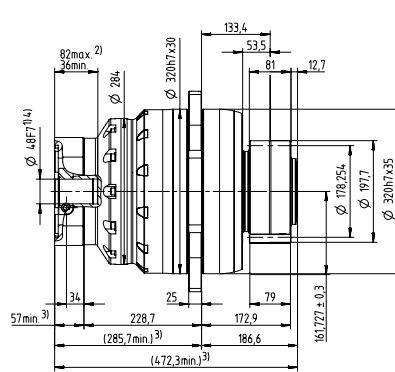
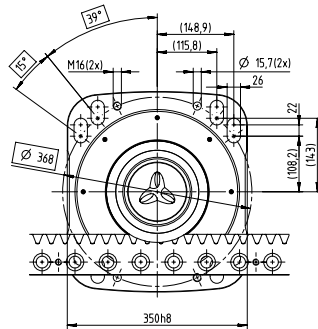
RPM+ available in customized version

Application-specific dimensioning with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

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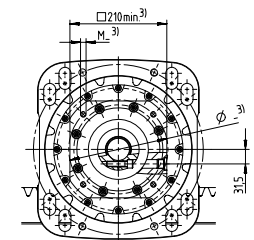
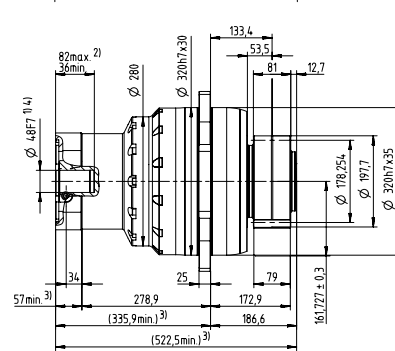
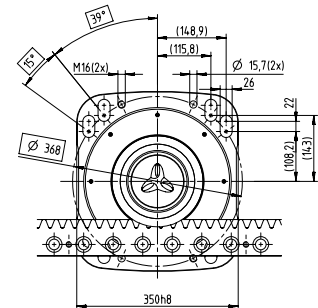
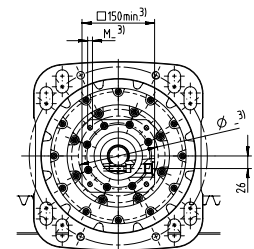
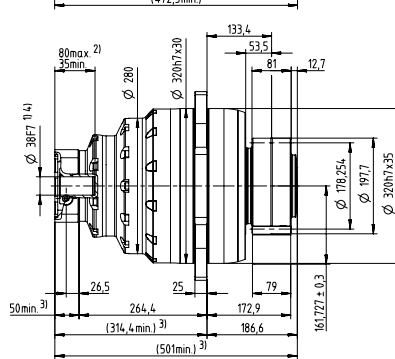
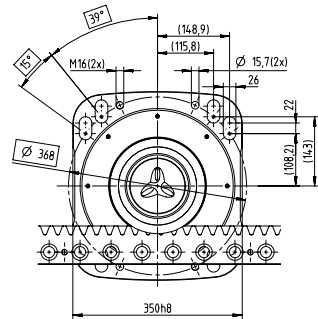
## 2-stage

up to 48<sup>4)</sup> (M)  
clamping hub  
diameters



## 3-stage

up to 38<sup>4)</sup> (K)  
clamping hub  
diameters



Motor shaft diameter [mm]

up to 48<sup>4)</sup> (M)  
clamping hub  
diameters

Non-tolerated dimensions are nominal dimensions  
Detailed rack dimensions starting on page 161

<sup>1)</sup> Check motor shaft fit

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