# UniTrax Motor-Ready Linear Axis

## Technical Data Sheet




**Key Features & Applications**
Page 2

**Gearhead and Motor Output Dimensions**
Page 3

**Sizing Verification**
Page 4

**Applied Load**
Page 7

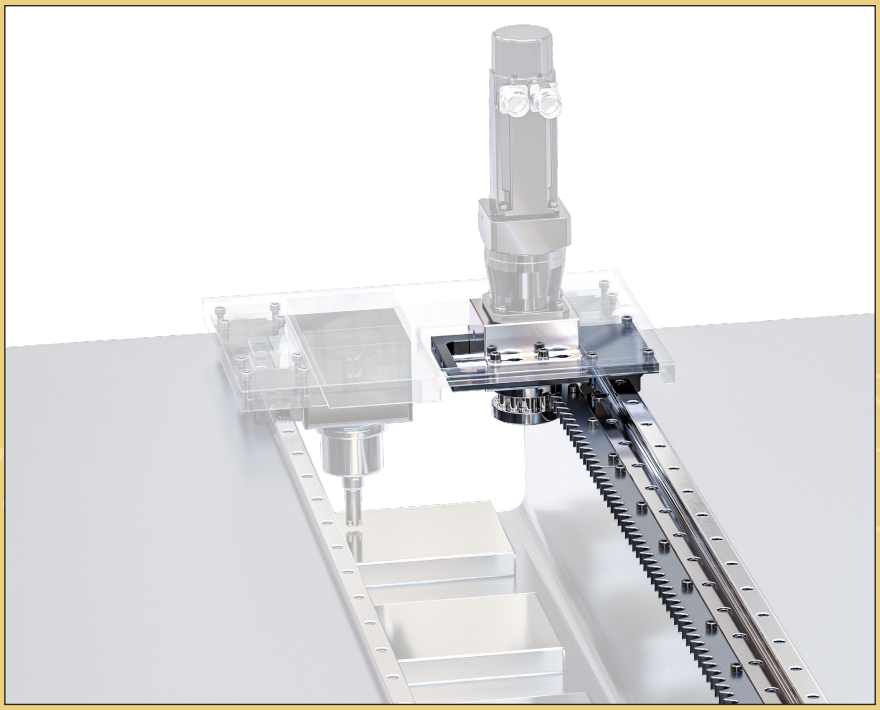
**Nomenclature**
Page 8

**Specifications & Calculations**
Page 9

# Reliability, Accuracy, and Zero-Backlash

When an application demands repeatable positioning accuracy, UniTrax provides machine builders and system integrators with a streamlined linear motion solution backed by Nexen engineering and product quality.

## Top-Mount Configuration



## Applications

- Cartesian robots
- Dirty and corrosive environments
- Custom drilling equipment
- Angular cutting machines
- Food processing
- Gantry routers
- Nondestructive testing equipment
- Measurement systems
- Multihead system on a common axis
- Plasma and laser cutting
- Vacuum environments
- Welding equipment
- Woodworking

The Top-Mount Configuration is ideal for mounting on a flat surface, allowing for versatility in machine design. The gearhead and motor are mounted on top of the drive station allowing for easier access for maintenance. Standard actuator lengths: 1 and 1.5 meter. Please contact Nexen if a different length is required for your application.

| Table 1 | Accuracy (± µm) | Repeatability (± µm) | Max. Speed (m/s) | Thrust Capacity (N) | | | Backlash (µm) | Max Travel Length (mm) |
|---|---|---|---|---|---|---|---|---|
| | | | | Acceleration | Average ** | Static | | |
| **RPS16** | 100 (Single Bearing), 80 (Fully Supported*) | 20 | 4 | 1500 | 1000 | 2000 | 0 | 874 or 1319.5 |

*For more thrust capacity, contact Nexen.*

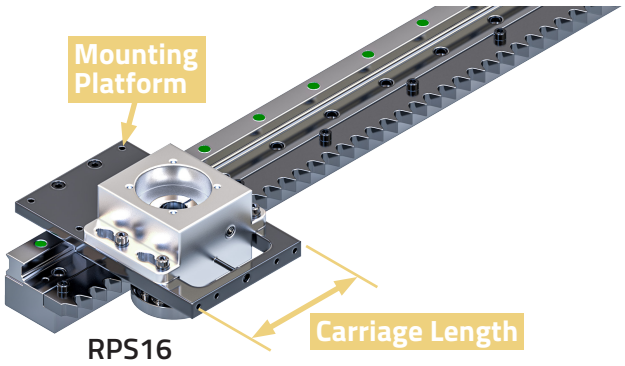
*For other lengths, contact Nexen.*

| Table 2 | Pinion Pitch Circle Diameter (mm) | Distance per Revolution (mm) | No-Load Torque (Nm) | Moving Mass (kg) | Lubrication Free Operation | Temperature Range | Noise Level |
|---|---|---|---|---|---|---|---|
| **RPS16** | 50.9 | 160 | 0.5 | 3.5 | Yes up to 1m/s | -5 to 40°C | up to 75 dB (Speed Dependent) |

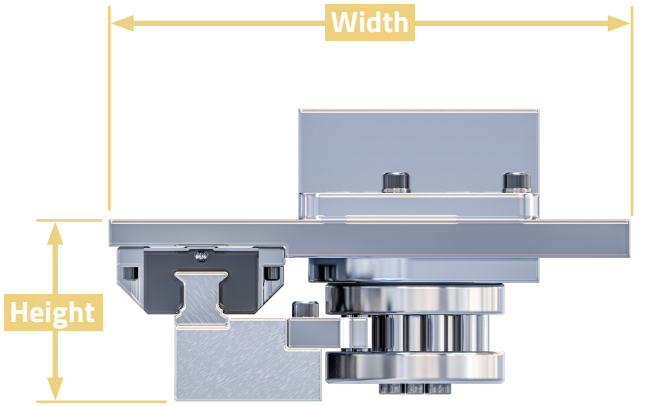
** Fully Supported requires an additional rail to be added parallel to the UniTrax with two bearing blocks on it and an additional bearing block added to the UniTrax. The UniTrax comes with a single bearing. Please see installation manual for more details.*

*** 'Average Thrust Capacity (N)' is the continuous thrust the system can generate without reducing its maximum design life.*

# Drive Carriage Dimensions




RPS16

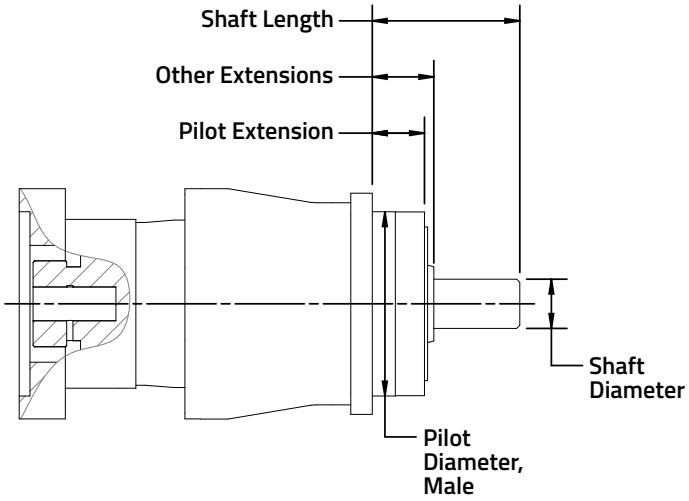


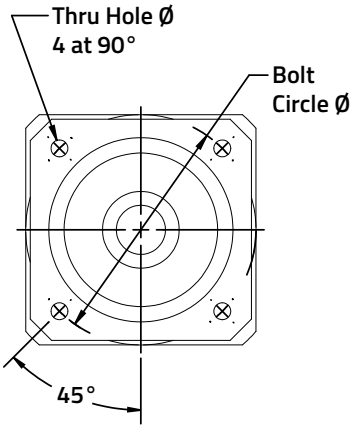

Side view

| Table 3 | Overall Height (without Gearhead) | Overall Width | Drive Carriage Length | Mounting Platform Bolt Pattern |
|---|---|---|---|---|
| **RPS16** | 110 mm | 195 mm | 120 mm | M6, 53 X 100 mm |

## Customer Gearhead or Motor Output Dimensions

The following section outlines typical dimensions for common customer gearhead outputs. Please contact Nexen if your gearbox has dimensions outside of these ranges. Always verify product information with the user manual and sales drawing. Please visit www.nexengroup.com for user manuals, product dimensions, and specifications.




| | | RPS 16 |
|---|---|---|
| Customer Output Dimensions | Shaft Diameter | 12-22 |
| | Shaft Length | 20-70 |
| | Pilot Diameter Male | 35-70 |
| | Pilot Extension | 1-20 |
| | Other Extensions | 20 Max |
| | Bolt Circle Diameter | 50-85 |
| | Thru Hole Ø 4 at 90° | up to 7 (M3-M6 screws) |

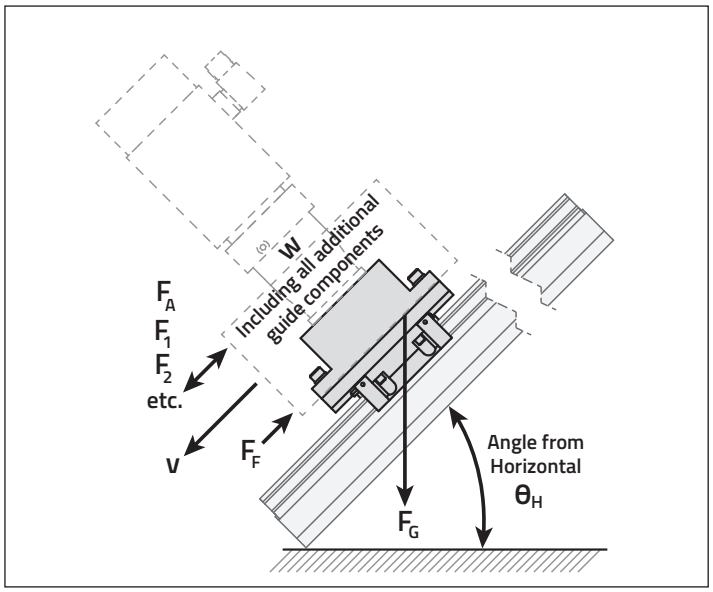
All dimensions shown in millimeters unless otherwise specified.
Inch-series (NEMA) gearhead or direct drive motor dimensions are also available.

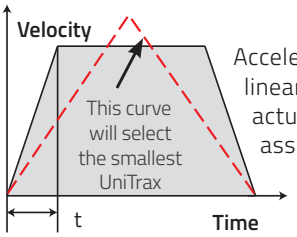
# UniTrax Sizing Verification

Take advantage of the following guide designed to ensure that UniTrax meets the needs of your application. If you don't find what you need, contact Nexen Group.

**Figure 1**

Refer to this drawing when recording values for Force, Weight & Angle from Horizontal.




Acceleration based on time is linear and may not reflect the actual curve. All calculations assume constant acceleration.

Weight to be driven should include any additional drive and guide components and structures being moved and should reflect the maximum weight the drive carriage must bear at any given time.

**Step 1: Gather Application Data**

Before you begin calculations, there are nine key measurements that you will need from your application. Collect the data and record it in the chart below. With this data available you can proceed on to the calculations on the following page.

| Measurements Required for RPS Selection | Customer Data (record your values below) | Sample Data |
|---|---|---|
| **Angle from Horizontal ( $_H$) Refer to Figure 1.** | ° | 60° |
| **Maximum Velocity ($V_{max}$)** | m/s | 1.5 m/s |
| **Travel Distance (L) (single direction move)** | m | 1.3 m |
| **Cycles Per Day ($N_{day}$) (assumes single direction move)** | | 1000 |
| **Acceleration Time ($t_A$) or Known Acceleration** | seconds<br>$m/s^2$ | 0.5 s |
| **Weight to be Driven (W)** | kgf | 96.5 kgf |
| **Moving Mass ($M_m$) Refer to Table 1** | kgf | 3.5 kgf |
| **Other Forces ($F_1$), ($F_2$) etc.** | N | 0 N |
| **Shock Factor (K) Circle the value that best reflects the smoothness of your application.** | Shockless Operation 1.0<br>Normal Operation 1.2<br>Operation with Impact 1.5<br>Operation with High Impact 2.5 | 1.2 |

**Other Key Application Information**

**Application Description:**

**Environmental Conditions:** ☐ Typical Industrial ☐ High Humidity ☐ High Temperature ☐ High Dust

**Positional Accuracy Requirements:**

## Step 2: Calculating Thrust Requirements

UniTrax selection is based on the load capacity required by your application. Using the information gathered on the preceding page, perform the following calculations to determine the Total Force of the Load. Use the space provided to record your calculations. (The sample calculations assume a single pinion driving an axis. Use the Sample Data from the chart on the preceding page.)

**Load Mass: $M = W + M_m$**

Use the total Weight to be Driven, including the UniTrax moving mass, as your Load Mass value.

$M =$ _____ kg

| Load Mass |
|---|
| kg |

**Sample: $M = 96.5\ kgf + 3.5\ kgf = 100\ kg$**

**Load Acceleration: $A = V_{max} \div t_A$**

A known acceleration from a servo drive provider is preferred if available.

$A =$ _____ m/s ÷ _____ s $A =$ _____ $m/s^2$

| Load Acceleration |
|---|
| $m/s^2$ |

**Sample: $A = 0.5\ m/s \div 0.5\ s = 1.0\ m/s^2$**

**Force Due to Load Acceleration: $F_A = M \bullet A$**

$F_A =$ _____ kg • _____ $m/s^2$ $F_A =$ _____ N

| Force Due to Load Acceleration |
|---|
| N |

**Sample: $F_A = 100\ kg \bullet 1.0\ m/s^2 = 100.0\ N$**

**Force Due to Gravity: $F_G = M \bullet g \bullet \sin(\theta_H)$**

$F_G =$ _____ kg • 9.81 $m/s^2$ • sin ( _____ °) $F_G =$ _____ N

| Force Due to Gravity |
|---|
| N |

**Sample: $F_G = 100\ kg \bullet 9.81\ m/s^2 \bullet \sin(60°) = 849.6\ N$**

**Force Due to Friction: $F_F = M \bullet \mu \bullet g \bullet \cos(\theta_H)$**

$F_F =$ _____ kg • .005 • 9.81 $m/s^2$ • cos( _____ °) $F_F =$ _____ $m/s^2$

| Force Due to Friction |
|---|
| $m/s^2$ |

**Sample: $F_F = 100\ kg \bullet 0.005 \bullet 9.81\ m/s^2 \bullet \cos(60°) = 2.5\ N$**

**Sum of Forces:**
**$F_S = F_A + F_G + F_F + F_1 + F_2 + ...etc$**

$F_S =$ _____ N + _____ N + _____ N + _____ N + _____ N $F_S =$ _____ N

| Sum of Forces |
|---|
| N |

**Sample: $F_S = 100.0\ N + 849.6\ N + 2.5\ N = 952.1\ N$**

**Total Force with Shock Factor:**
**$F_T = F_S \bullet K$**

$F_T =$ _____ N • _____ $F_T =$ _____ N

| Total Force with Shock Factor |
|---|
| N |

**Sample: $F_T = 952.1\ N \bullet 1.2 = 1142.5\ N$**

## Step 3: Verifying Thrust Load

Locate the thrust rating in Table 1 and ensure that is sufficient to handle the Total Force with Shock Factor above for your application.

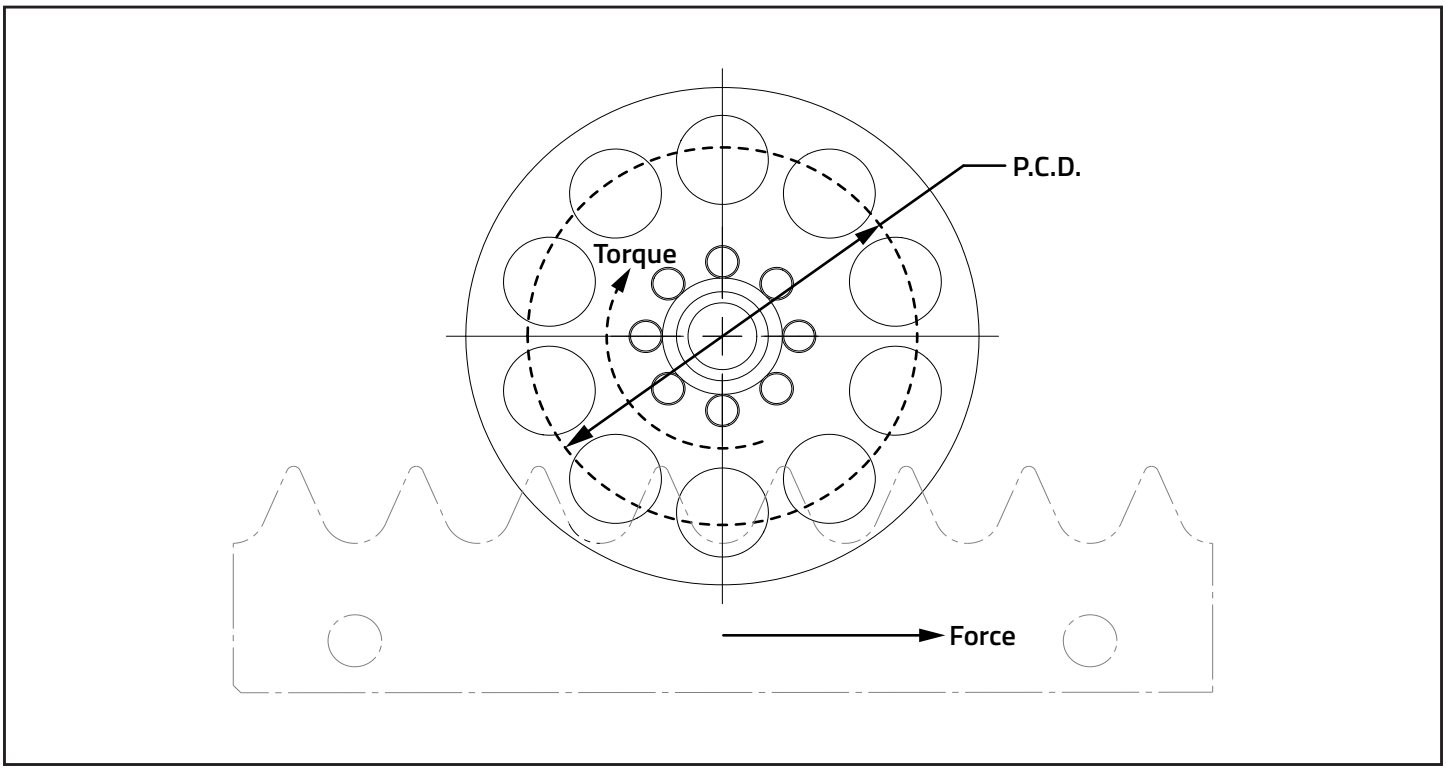
| UniTrax Size |
|---|
| |

## Step 4: Evaluate Life and Verify Your System Specifications

With the thrust load verified, evaluate expected life in the System Life section and verify that the UniTrax meets all of your application requirements.

| UniTrax Product Number |
|---|
| |

## Input Torque to Output Thrust Force Relationship




To calculate the required input torque for a given thrust requirement, use the equation below.

**Required Input Torque:**

$$T = F \bullet \frac{P.C.D}{2000}$$

$$T = \frac{\text{N} \bullet \text{mm}}{2000}$$

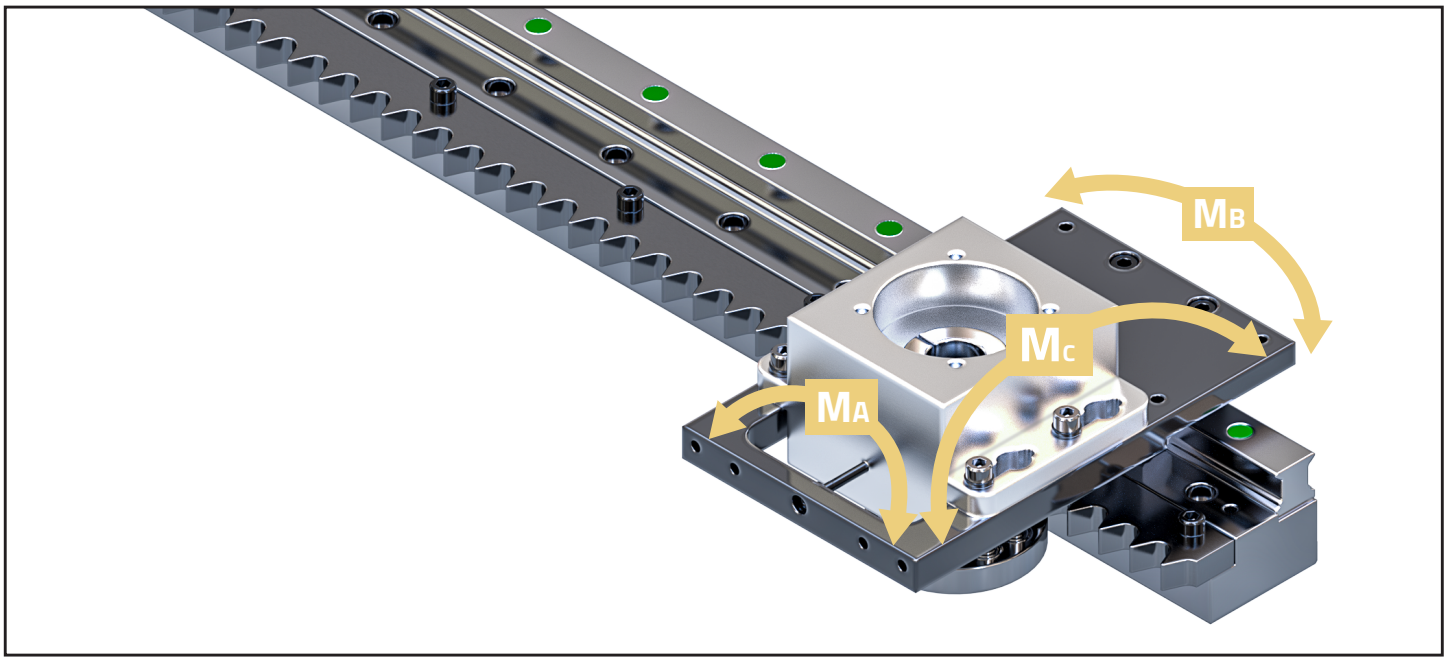
| Required Input Torque | |
|---|---|
| T = | Nm |

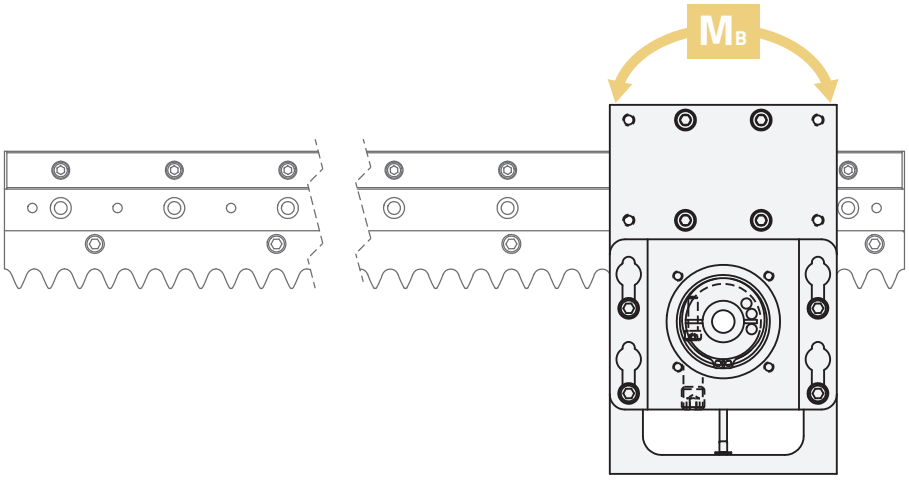
**Sample: T = 1000 N • (50.9 mm ÷ 2000) = 25.45 Nm**

Where: T = Input torque
F = Output thrust force
P.C.D = Pinion pitch circle diameter (see Table 1)

Please note that no-load torque from **Table 1** must be added to the application torque to get the total torque.

# Applied Load




Moment in the yawing direction

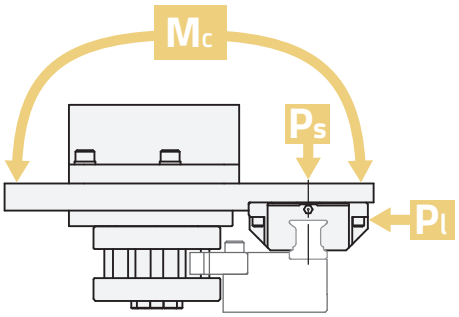
### Calculation for Bidirectional Equivalent Loads

UniTrax utilizes a profile rail to support the applied load. The profile rail can accept loads in several directions simultaneously. The equivalent load (Pe) can be calculated using the equation below. This equivalent load can be used to ensure the applied load is within the rating of the profile rail bearing.

$$P_e = P_s + P_l$$




Moment in the pitching direction



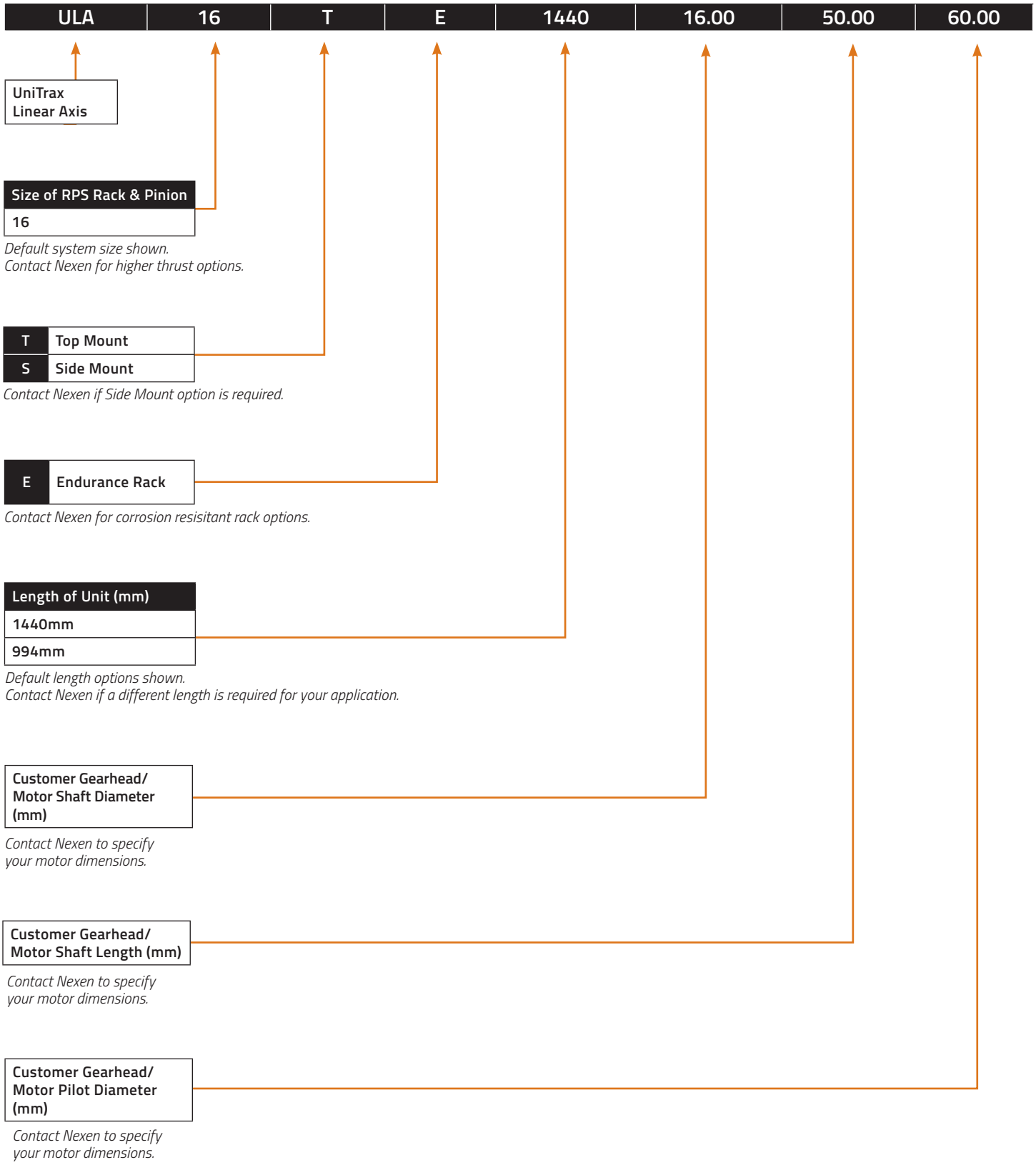

Moment in the rolling direction

| Table 3 | Profile Rail Size | Dynamic - C (N) | Static - CO (N) | $M_A$ - Pitch (Nm) | $M_B$ - Yaw (Nm) | $M_C$ - Roll (Nm) |
|---|---|---|---|---|---|---|
| **RPS16** | 20 | 23,700 | 30,510 | 280 | 280 | 370 |

*Contact Nexen if your application requires additional load capacity.*

# UniTrax: Product Nomenclature

The diagram below represents the model number for a UniTrax Motor-Ready Linear Axis.



# Calculating UniTrax Life

The calculations in the following section will allow you to calculate the expected UniTrax life. This requires calculating the life of the pinion, rack, and linear guideway. Whichever life is shortest is the life of the UniTrax.

## RPS Pinion Life Data & Calculations

**Table 4 - RPS Pinion Life Values**

| | | RPS16 Premium |
|---|---|---|
| Max Torque ($T_{max}$) | Nm | 61.1 |
| Torque at Max Life ($T_{final}$) | Nm | 33.7 |
| Distance Per Revolution ($L_{rev}$) | m | 0.16 |
| Transition Point ($E_T$) | million contacts | 8 |
| Max Life ($N_{max\ contacts}$) | million contacts | 60 |
| Constant (C) | | 115.30 |

**Step 1: Gather Application Data**
Before you begin calculations, there are three key measurements that you will need from your application. Collect the data and record it in space provided below.

| Measurements Required for Pinion Calculations | Customer Data (record your values below) | Sample Data |
|---|---|---|
| Average Torque ($T_{avg}$) | Nm | 35 Nm |
| Distance Per Cycle (L) (single direction move) | m | 1.3 m |
| Average Speed ($V_{avg}$) | m/s | 1 m/s |

**Step 2: Calculate The Total Number of Pinion Contacts ($N_{contacts}$)**
Perform the following calculations using the data collected from your application data in Step 1.

**Pinion Roller Contacts ($N_{contacts}$)**

The total number of roller contacts ($N_{contacts}$) that an RPS Pinion can sustain before needing replacement is based on the average torque of your application. Determine which equivalency or inequality statement below is true for the average torque ($T_{avg}$) of your application. Then complete the corresponding pinion roller contact equation and record your value below.

| If $T_{avg}$ is: | Then $N_{contacts}$: |
|---|---|
| $\leq T_{final}$ | $= N_{max\ contacts}$ |
| $> T_{final}$ and $< T_{max}$ | $= (C \div T_{avg})^{3.333} = \left( 115.3 \div \quad \text{Nm} \right)^{3.333}$ |
| $= T_{max}$ | $= E_T$ |

| Pinion Life in Roller Contacts | |
|---|---|
| $N_{contacts} =$ | million contacts |

**Sample: (Evaluating RPS20 size) $N_{contacts} = (115.3 \div 35\ Nm)^{3.333} = 53$ million contacts**

### Step 3: Convert Roller Contacts To Hours, Meters Or Revolutions

There are two options for converting contacts to other units: exact and estimated. Exact should be used whenever possible. The estimation is available for customers who do not have a well-defined distance per cycle.

#### Exact option: Pinion Life in Hours ($N_{hours}$)

Use Table 4 along with the data you collected above to calculate the total number of service hours your pinion can provide before needing replacement. First calculate $E_1$ to use in the $N_{hours}$ equation.

$E_1 = L \div L_{rev}$ $\quad E_1 = \text{round up} \left( ____ \text{ m} \div 0.16 \text{ m} \right) = ____$

Must round $E_1$ up to the nearest whole integer

**Sample:** $E_1 = 1.3 \text{ m} \div 0.16 \text{ m} = 8.1 \text{ m} \longrightarrow$ Round up to 9.

$N_{hours} = (N_{contacts} \cdot 10^6 \cdot L) \div (3600 \cdot E_1 \cdot V_{avg})$

$N_{hours} = \left( ____ \text{ million contacts} \cdot 10^6 \cdot ____ \text{ m} \right) \div \left( 3600 \cdot ____ \cdot ____ \text{ m/s} \right)$ $\quad N_{hours} =$

| Pinion Life in Hours |
|---|
| hrs |

**Sample:** $N_{hours} = (53 \cdot 10^6 \cdot 1.3 \text{ m}) \div (3600 \cdot 9 \cdot 1 \text{ m/s}) = 2126.5 \text{ hrs}$

### Estimation Options: Pinion Life in Meters and Life in Revolutions

These calculations assume the pinion travels nonstop in one direction throughout its whole life.

**Pinion Life in Meters ($N_{meters}$)**

$N_{meters} = N_{contacts} \cdot L_{rev} \cdot 10^6$ $\quad N_{meters} = ____ \cdot 0.16 \text{ m} \cdot 10^6$ $\quad N_{meters} =$

| Pinion Life in Meters |
|---|
| m |

**Sample:** $N_{meters} = 53 \cdot 0.16 \text{ m} \cdot 10^6 = 8{,}480{,}000 \text{ m}$

**Pinion Life in Revolutions ($N_{rev}$)**

$N_{rev} = N_{contacts}$

$N_{rev} =$

| Pinion Life in Revolutions |
|---|
| million revolutions |

**Sample:** $N_{rev} = 53$ million revolutions

## RPS Rack Life Data

### Table 5 - RPS Rack Life Values

| | | RPS Rack Size | RPS16 |
|---|---|---|---|
| | Pitch (P) | meters | 0.016 |
| | Distance Per Revolution ($L_{rev}$) | meters | 0.16 |
| Endurance Rack* | Max Dynamic Thrust ($F_{max}$) | N | 1500 |
| | Thrust at Max Life ($T_{final}$) | N | 1000 |
| | Transition Point ($E_T$) | million contacts | 5 |
| | Max Life ($N_{max\ contacts}$) | | 30 Million Contacts |
| | Slope (m) | | -20 |
| | Intercept (b) | N | 1600 |

**Endurance Rack is the default rack choice.*

## RPS Rack Life Calculations

### Step 1: Gather Application Data

Before you begin calculations, there are three key measurements that you will need from your application. Collect the data and record it in the space provided below.

| Measurements Required for Rack Calculations | Customer Data (Record your values below) | Sample Data |
|---|---|---|
| Average Thrust Force ($F_{avg}$) | N | 900 N |
| Distance Per Cycle (L) (single direction move) | m | 1.3 m |
| Average Speed ($V_{avg}$) | m/s | 1 m/s |

### Step 2: Calculate The Total Number of Tooth Contacts

Perform the following calculations using the data collected from your application and the values from Table 5.

#### Rack Tooth Contacts ($N_{contacts}$)

The total number of tooth contacts ($N_{contacts}$) that an RPS Rack can sustain before needing replacement is based on the average thrust force of your application. Use Table 5 to determine which equivalency or inequality statement below is true for the average thrust force ($F_{avg}$) of your application. Then complete the corresponding rack tooth contact formula and record your value below.

| If $F_{avg}$ is: | Then $N_{contacts}$: |
|---|---|
| $\leq F_{final}$ | $= N_{max\ contacts}$ |
| $> F_{final}$ & $< F_{max}$ | $= (F_{avg} - b) \div m =$ ( ____ N − 1600 N ) ÷ − 20 |
| $= F_{max}$ | $= E_T$ |

| Rack Life in Tooth Contacts |
|---|
| $N_{contacts}$ = ____ million contacts |

**Sample: (Evaluating RPS20 size) $N_{contacts}$ = (900 N – 1600) ÷ -20 = 35 million contacts**

### Step 3: Convert Rack Tooth Contacts to Hours of Life

Perform the following calculations using the data collected from your application and the values from Table 5.

#### Rack Life in Hours ($N_{hours}$)

$$N_{hours} = (N_{contacts} \div 3600) \bullet (L \div V_{avg}) \bullet 10^6$$

$$N_{hours} = (\quad \div 3600) \bullet (\text{m} \div \text{m/s}) \bullet 10^6$$

| Rack Life in Hours |
|---|
| $N_{hours}$ = ____ hours |

**Sample: $N_{hours}$ = (35 ÷ 3600) • (1.3 m ÷ 1 m/s) • $10^6$ = 12639 hours**

## Linear Guideway Life Calculations

### Step 1: Gather Application Data

Before you begin calculations, there are three key measurements that you will need from your application. Collect the data and record it in the space provided below.

| Measurements Required for Rack Calculations | Customer Data (Record your values below) | Sample Data |
|---|---|---|
| **Bidirectional Equivalent Load (Pe)** | N | 2000 N |
| **Distance Per Cycle (L) (single direction move)** | m | 1.3 m |
| **Average Speed ($V_{avg}$)** | m/s | 1 m/s |

### Step 2: Calculate The Nominal Life of the Linear Guideway

Perform the following calculations using the data collected from your application and the values from Table 3.

#### Km of Stroke Length ($N_{length}$)

The bidirectional equivalent load will affect the nominal life of the linear guideway. Based on the basic dynamic rated load and the equivalent load, the nominal life of the linear guideway can be calculated by the equation below. Select the load factor which most closely resembles your application for use in the equation.

| Loading Condition | Service Speed | $f_w$ |
|---|---|---|
| **No impacts & vibration** | V ≤ 0.25 m/s | 1 - 1.2 |
| **Small impacts** | 0.25 m/s < V ≤ 1 m/s | 1.2 - 1.5 |
| **Normal load** | 1 m/s < V ≤ 2 m/s | 1.5 - 2.0 |
| **With impacts & vibration** | V > 2 m/s | 2.0 - 3.5 |

#### Guideway Life in km ($N_{length}$)

$$N_{length} = \left(\frac{C}{f_w \bullet P_e}\right)^3 \bullet 50 \text{ km}$$

Sample: $N_{length} = \left(\frac{27100}{1.5 \bullet 2000}\right)^3 \bullet 50 = 36857$ km

| Guideway Life in km of Stroke Length | |
|---|---|
| $N_{length}$ = | km |

### Step 3: Convert Km of Stroke Length to Hours of life

Perform the following calculations using the data collected from your application and the values from Table 5.

$$N_{hours} = \frac{N_{length} \bullet 1000}{V_{avg} \bullet 60}$$

Sample: $N_{hours} = \left(\frac{36857 \bullet 1000}{1 \bullet 60}\right) = 614283$ hours

| Guideway Life in Hours | |
|---|---|
| $N_{hours}$ = | hours |

### Compare Pinion, Rack, and Linear Guideway Life

Compare the calculated life of the pinion, rack, and linear guideway. Whichever life is shortest is the life of the UniTrax.

# Appendix: Understanding the Technology

**ArcSecond**
ArcSecond is a unit of angular measurement equal to $^{1}/_{3600}$ of a degree.

**Backlash**
The innovative design of the RPS tooth allows for a zero-backlash drive system. Because zero backlash is impossible to measure, industry standard maintains that anything under 3.2 microns is considered zero.

**Corrosion Resistance**
Nexen makes no corrosion resistance claims for specific applications but does offer various corrosion countermeasures that include stainless steel and various surface treatments or coatings. Nexen will convey all material and coating specifications, but it is up to the customer to determine application suitability based on this information and/or thorough sample testing.

**Efficiency**
The RPS system uses needle bearings to support the rollers that engage the teeth. This eliminates the sliding friction found in many other motion control systems and gives it an efficiency greater than 99%. This high efficiency means little is lost to friction, heat, and wear, providing a long life of 60,000,000 pinion revolutions (up to 36 million meters of travel).

**Life Rating**

Pinions: Pinion life is based on L10 of the bearing components. Just like any bearing, environmental conditions will affect life. The product rating is assuming a clean environment with normal manufacturing facility temperatures.

Pinion performance tends to be constant over its life with a rapid deterioration at the end of life as the needle bearings supporting the rollers fail.

Racks: The rack has its own specific life rating depending on model and is based on tooth contacts at allowed loads and speeds. The combined pinion and rack or gear that makes up a given RPS system will have the combined life of the lower-rated component and will be greatly effected by machine design, RPS installation, operating patterns, and receiving recommended lubrication intervals while operated in a clean, dry, 20° C environment.

Rack wear is relatively linear over its life. Application and environmental conditions and lubrication intervals will impact expected product life.

**Lubrication Free Operation**
In some cases the RPS rack can be operated without lubrication on the rack teeth or pinion rollers. This is dependent on the specific rack model and the maximum speed being less than 1 m/s. The no-lubrication option generally applies to rack that has received a surface treatment and does not apply to bare steel models of rack or any gearing. See specifications for the specific rack model you are considering to know if this is possible.

Operating without tooth/roller lubrication will reduce tooth life but can be beneficial in food, pharmaceutical, clean room, and other applications where the grease could contaminate the environment, or applications with high levels environmental contaminates that would be attracted to the grease and accelerate the wear rate. Nexen can not calculate a life rating when running without lubrication due to the number of variables that impact life, but based on past experience, the reduction has been modest and far exceeds other mechanical drive alternatives.

**Mass vs. Weight**
Mass is the quantity of matter contained in an object, while weight is the force by which the object is pulled to the earth due to gravity. Therefore, in this literature, mass is shown in kilograms (kg) and weight is shown in kilograms force (kgf).

**Noise Rating**
The RPS system is nearly silent at low speeds and typically less than 75 dB at full speed. This is dependent on machine design, proper RPS installation, whether lubrication is used or not, and is difficult to isolate from other drive train and guiding system noise, so your results may vary.

**Operating Temperature Range**
This is the range that the RPS system will function in. Accuracy specifications are based on 20° C and thermal expansion/contraction will effect the accuracy of the RPS system. It is recommended the RPS system be installed at the highest temperature the system will be operated at and avoid wide temperature swings for maximum accuracy and performance.

For applications outside of this temperature range, or with wide temperature swings, contact Nexen for more information.

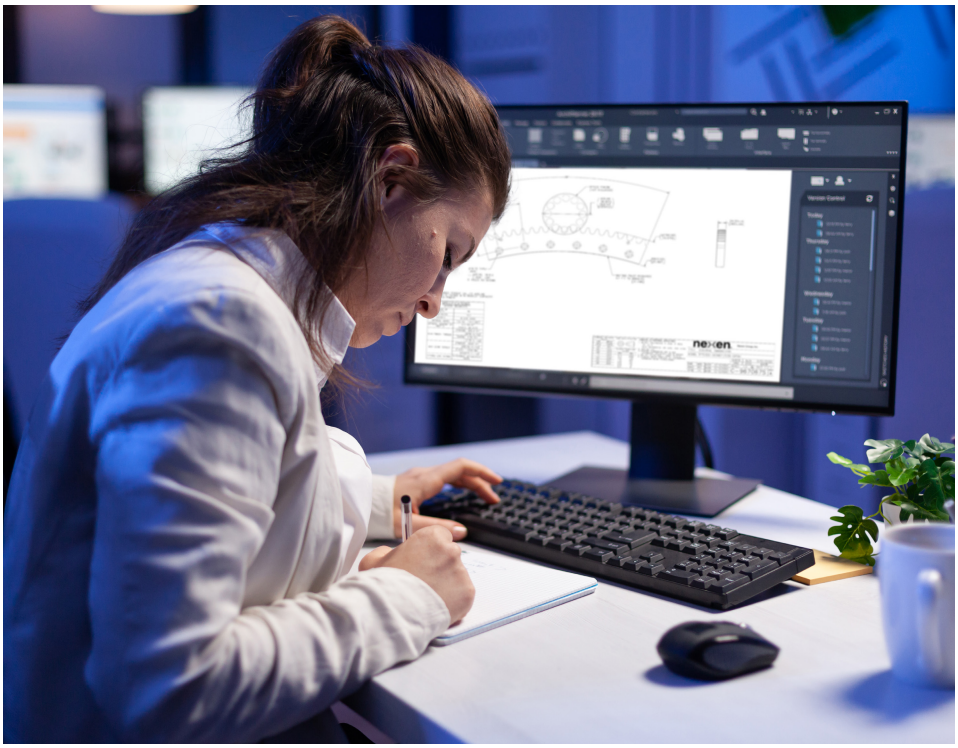
**Positional Accuracy**
This is dependent on proper machine design and RPS product installation. Positional accuracy is measured at 20° C and subject to variations due to mounting surface irregularities, rigidity, installation accuracy, proper maintenance, and ambient temperature. To be conservative, the RPS rack transmitting accuracy has been rounded up to the next ±10 µm. Other rack positional accuracy specifications have been rounded up to the next ±5 µm. This allows customers to achieve Nexen accuracy ratings with reasonable effort. Higher performance can be obtained if machine design and tolerances are optimized.

**Shock Factor**
Shock Factor is a value given to represent the smoothness of operation. Accommodating for Shock Factor when calculating system requirements ensures more accurate product selection.

# Engineering Support

Nexen Group engineers and manufactures precision motion control for OEM machine designers, system integrators, and maintenance personnel, keeping equipment running trouble-free in the harshest environments.

Contact Nexen Group to see how our engineers can help design the must-have motion control products for your next project.



- CE
- RoHS
- REACH
- Conflict Minerals
- Patented

**Nexen Group, Inc.**
560 Oak Grove Parkway | Vadnais Heights  MN, 55127
info@nexengroup.com | www.nexengroup.com | (800) 843-7445

In accordance with Nexen's established policy of constant product improvement, the specifications contained in this document are subject to change without notice. Technical data listed in this document are based on the latest information available at the time of printing and are also subject to change without notice. For current information, please consult www.nexengroup.com or contact Nexen's Technical Support Group.

©2026 Nexen Group, Inc

L-21802-A-1126