

Handling

MOTORIZED OPERATION

Aleph series can be handled by any kind of motors. Nowadays it's possible a direct motorization for some IEC flanges thanks to an innovative molding process able to shroud bolts in the carter. It's possible to connect 4, 6 or 8 poles motors, while it's not suggested to assemble 2 poles motors for not overpass 1500/1800 rpm input rotational speed. Power curves show, in case of unitary service factors and for single jack unit, the input power in function of the size, ratio, dynamic load and linear speed.

MANUAL OPERATION

The Aleph series can be manually operated.

ROTATION DIRECTIONS

The rotation directions and the respective linear movements are showed in the drawings below. In standard conditions, UNIMEC supplies screw jacks equipped with right-handed worm screw, to which the movements illustrated in drawings 1 and 2 correspond. Upon request it is possible to have a left-handed worm screw, to which the movements illustrated in drawings 3 and 4 correspond. The combinations between threaded spindles and left-handed or right-handed worm screw, lead to the four combinations listed in the table below.

Worm screw	RH	LH
Threaded spindle	RH	RH
Direct motorization on the worm screw	Possible	Impossible
Handling	1-2	3-4



1



2



3



4

Lubrication

Thanks to particular solutions during the molding process, a film of pure polymer is formed on the molded components surfaces, which has high sliding properties. This factor, in synergy with light services, enables the Aleph series to work in absence of lubricant. Anyway the presence of a lubricant layer on the threaded spindle

can extend the screw jacks life; for the lubricants choice make reference to what has been indicated in the correspondent paragraph in the screw jacks section (page 17). It should be reminded that the Aleph series does not foresee any oil plug.

Installation and maintenance

INSTALLATION

The screw jack must be installed in such a manner as not to create lateral loads on the threaded spindle. Great care must be taken to ensure that the threaded spindle is orthogonal to the mounting plane, and that the load and threaded spindle are on the same axis. Employing multiple screw jacks to handle the same load requires further verifications: it is critical that the load support points, (the end fittings for TP models and the lead nuts for TPR models), be perfectly aligned in order that the load can be uniformly distributed; otherwise the misaligned screw jacks would act as brake or counter-load. Whenever several jacks have to be connected by means of transmission shafts, it is recommended that they be perfectly aligned in order to avoid overloading on the worm screws. It is advisable to use joints capable of absorbing alignment errors but having at the same time a rigid torsion necessary to keep the synchronization of the transmission. The assembly or disassembly of the joints or pulleys of worm screw must be carried out by means of tie rods or extractors, using, if necessary, the threaded hole on top of the worm screw; striking or hammering could damage the inner bearings. For heat-shrinking joints or pulleys, we recommend a temperature between 80-100 °C. Installations environments with dust, water, vapors, etc. require precautions systems to protect the threaded spindle. This can be done by using elastic protections or rigid protections. The above protections are also used in order to avoid any accidental human contact with the moving devices.

START-UP

All Aleph screw jacks undergo a careful quality examination before being delivered to the client, and are dynamically tested load-free. When starting-up a machine where screw jacks are installed, it is critical to check for the lubrication of the threaded spindles (whether foreseen and if possible) and for the absence of foreign material. During the calibration of the electrical end-of-stroke systems, the inertia of the moving masses should be considered, which for vertical loads will be lower in ascent and greater in descent. It is advisable to start the machine with the minimum possible load and to make sure all components are working properly, before assuming regular operation. Especially at start-up, it is critical to follow the instructions given in the manual: continuous or hazardous testing maneuvers could lead to an abnormal overheating and cause irreparable damages. One only temperature peak is enough to cause premature wear or breakdown of the aleph screw jack.

ROUTINE MAINTENANCE

Screw jacks must be periodically inspected, depending on the use and working environment.

STORAGE

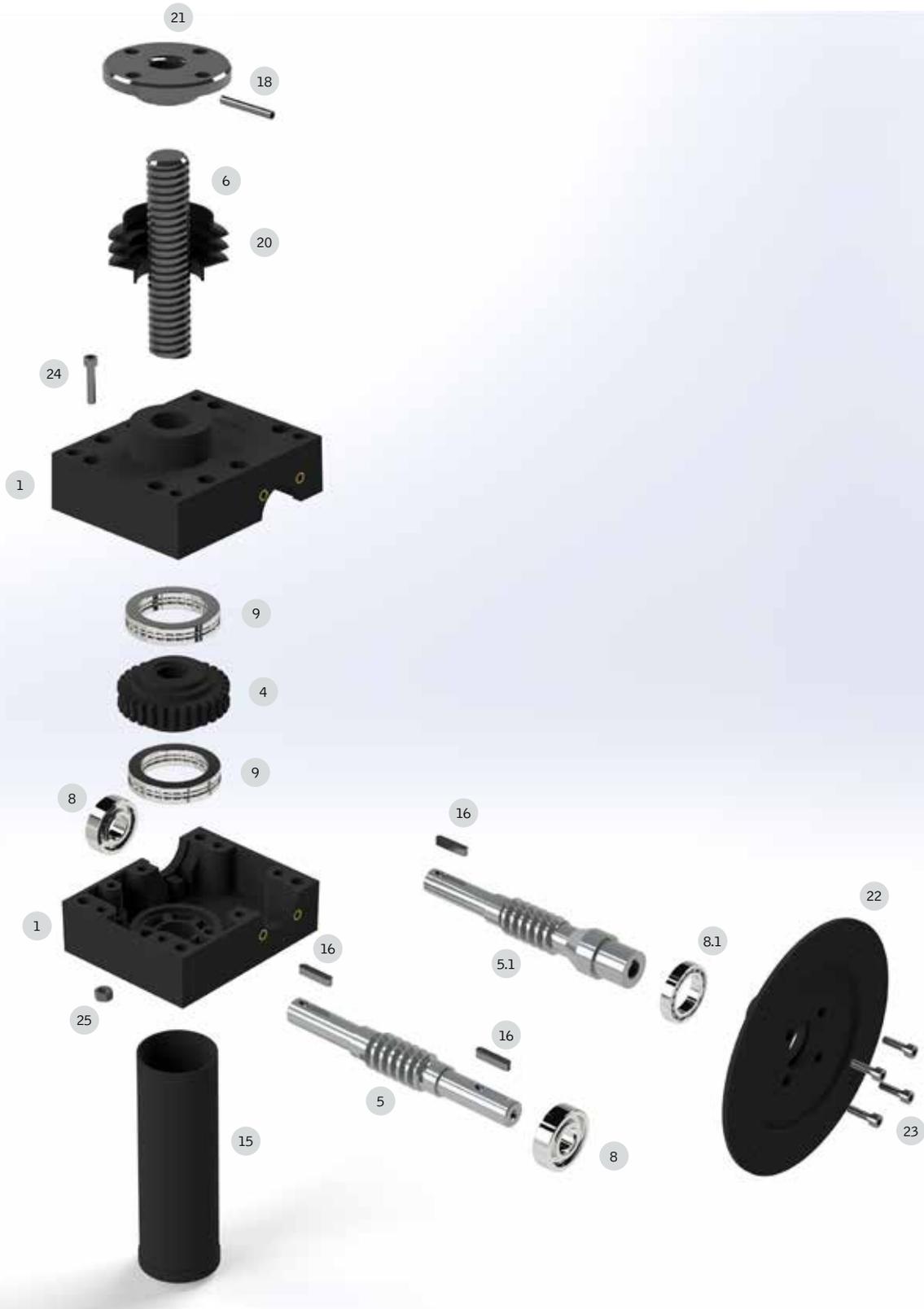
The screw jacks must be protected from deposits of dust and foreign matter during storage. Particular attention must be paid to saline or corrosive atmospheres. We recommend to store Aleph screw jacks in a closed place, in order to avoid an excessive water absorption of the polymer. We also recommend to:

- Lubricate and protect the threaded spindle, the worm screw and the non varnished components
- Support the threaded spindle in case of horizontal storage.

WARRANTY

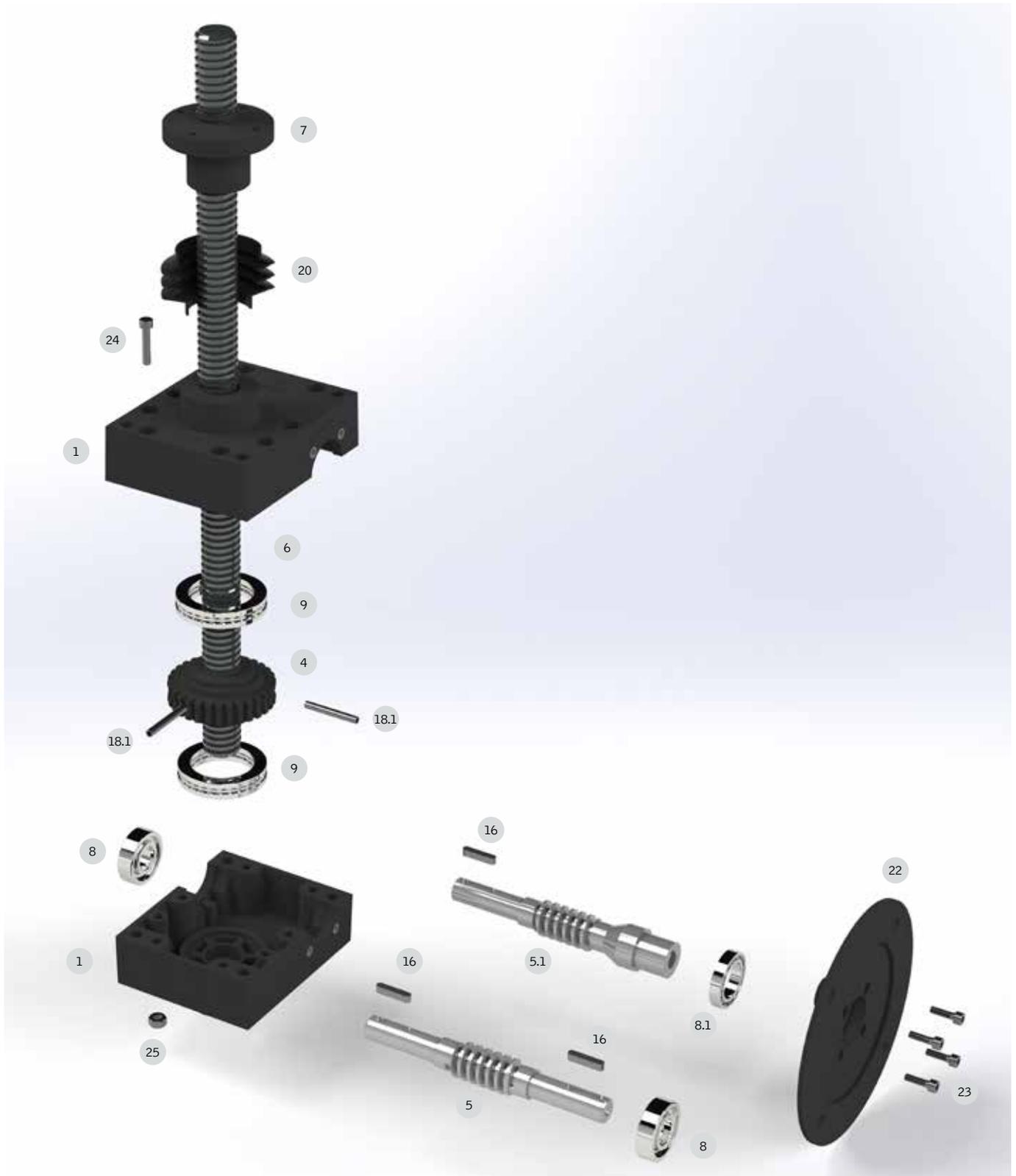
The warranty is valid only when the instructions contained in our manual are carefully followed.

TP Model



1 Casing (half-shell)	8 Worm screw bearing	18 End fitting elastic fastening pin	24 Bolt
4 Worm wheel	8.1 Motor worm screw bearing	20 Elastic protection	25 Nut
5 Worm screw	9 Worm wheel bearing	21 End fitting	
5.1 Motor worm screw	15 Rigid protection	22 Motor flange	
6 Threaded spindle	16 Key	23 Screw	

TPR Model

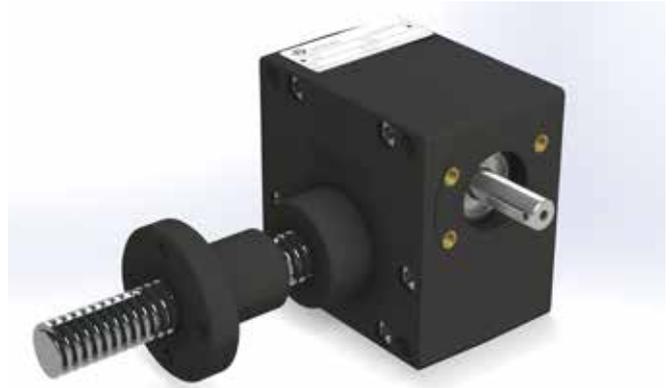


1 Casing (half-shell)	6 Threaded spindle	9 Worm wheel bearing	22 Motor flange
4 Worm wheel	7 Lead nut	16 Key	23 Screw
5 Worm screw	8 Worm screw bearing	18.1 Worm wheel elastic fastening pin	24 Bolt
5.1 Motor worm screw	8.1 Motor worm screw bearing	20 Elastic protection	25 Nut

Size 420 - 0,7 ton - 7 kN



TP Model



TPR Model

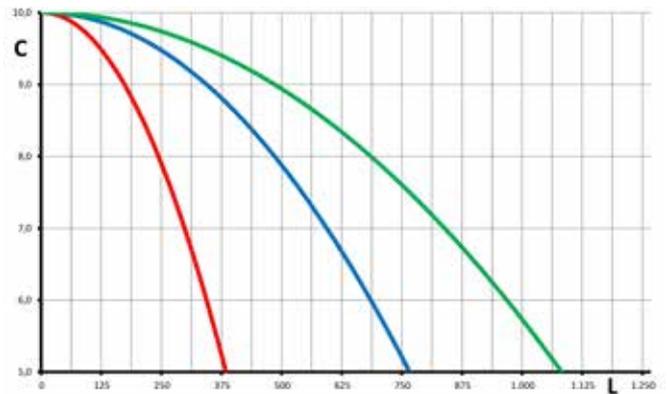
Materials

	Material	Norms	Specs	Indications
Worm	16NiCr4	EN 10084:2008	Casehardening alloy steel	Casehardened and ground on teeth and holds
Spindle	C45	EN 10083-2:2006	Carbon steel	Tr 20x4 (ISO 2901:2016) - Rolled or machined
Carter	Technopolymer		Polyarylamide	Made by 2 half-shell
Nut	Technopolymer		Polyarylamide	Glass fiber reinforced
Worm wheel	Technopolymer		Polyarylamide	Glass fiber reinforced

General features

Operating Temperature	-20 °C / 50 °C
Static Load (traction or compression)	12 kN
Dynamic Load (traction or compression)	7 kN
Max input speed	1800 rpm
Main Gearbox Weight	1 kg
Trapezoidal Screw Weight	2,22 kg/m
Anti-Rotation Torque with Max Load	17 Nm
Max admissible lateral loads	0 N
Center-to-center distance	30 mm
Max radial Load on worm Screw	220 N
Standard Working Conditions	25 °C - service 10%

Euler's law (safety factor =2; dynamic compression load)
 Limit Load 1 (red) - 2 (blue) - 3 (green)
 C = Load [kN]
 L = Overall trapezoidal screw length [mm]



Specific features

	Nominal Ratios		
	1/5	1/10	1/30
Real ratio	1/4,75	1/10,5	1/30
Translation per worm revolution	0,842 mm	0,38 mm	0,13 mm
Efficiency	31 %	28 %	20 %
Start-up efficiency	22 %	19 %	14 %
Maximum linear speed	1440	720	240
Torque at maximum load	4,2 Nm	2,3 Nm	1,1 Nm
Worm screw maximum torque	54 Nm	54 Nm	42 Nm
Loadless torque	0,25 Nm	0,2 Nm	0,15 Nm

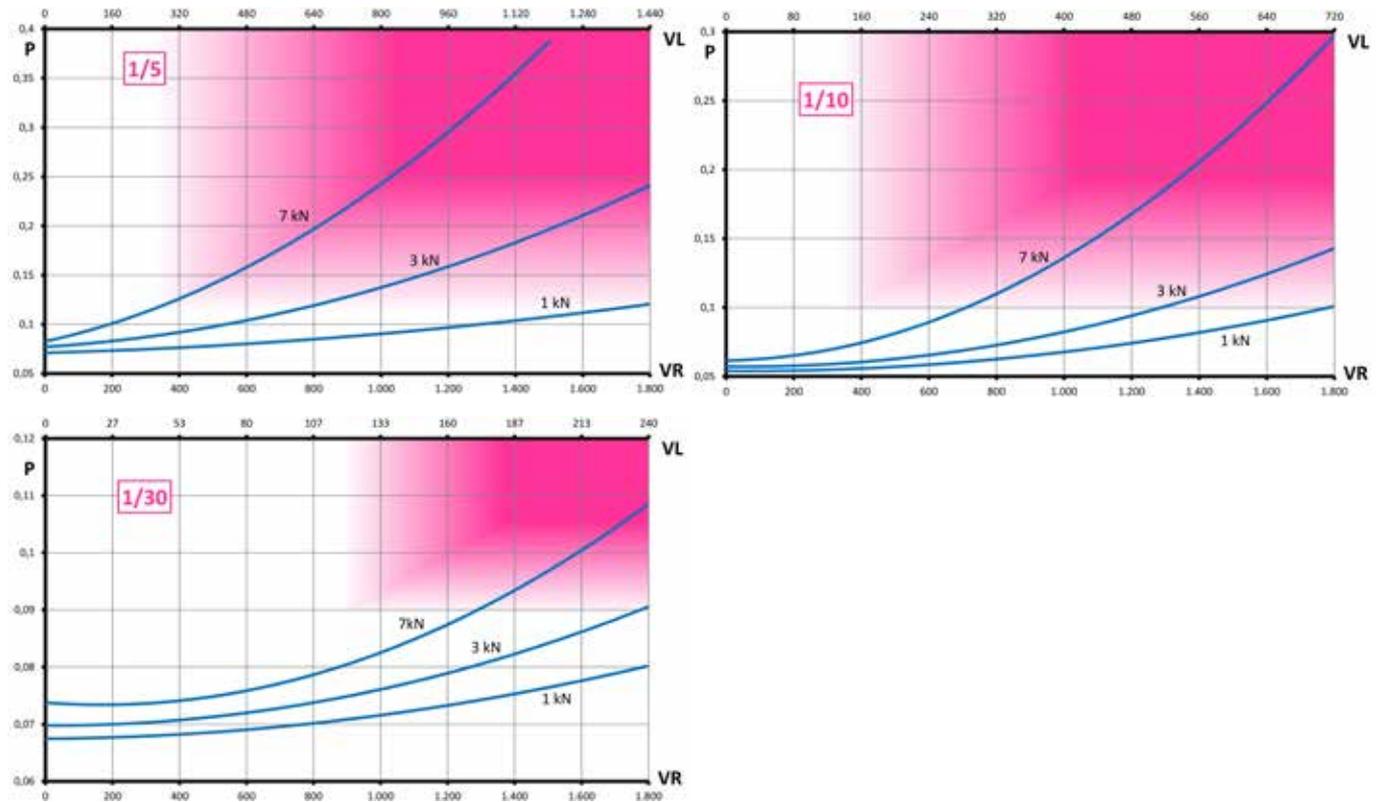
Power curves

The magenta zone indicates a potential heating risk. Working cycles must be carefully analyzed.

VR = Worm rotational speed [rpm]

VL = Spindle translation speed [mm/min]

P = Requested input power [kW]



Motor Models

	IEC	Worm screw bore diameter	Centering diameter	Nominal power (4 poles motor)
	IEC 63 B5	11 mm	95 mm	0,25 kW

Construction Forms



Size 630 - 1 ton - 10 kN



TP Model



TPR Model

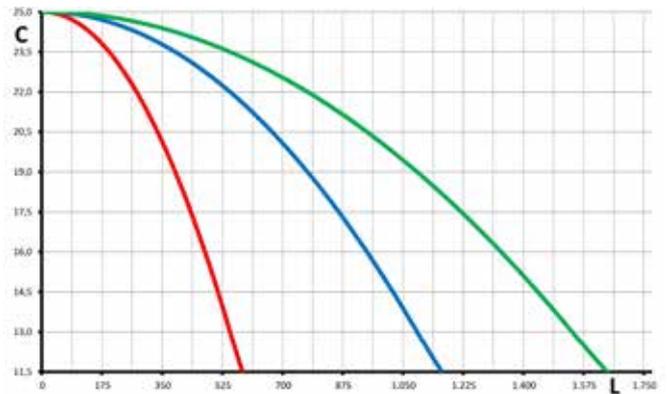
Materials

	Material	Norms	Specs	Indications
Worm	16NiCr4	EN 10084:2008	Casehardening alloy steel	Casehardened and ground on teeth and holds
Spindle	C45	EN 10083-2:2006	Carbon steel	Tr 30x6 (ISO 2901:2016) - Rolled or machined
Carter	Technopolymer		Polyarylamide	Made by 2 half-shell
Nut	Technopolymer		Polyarylamide	Glass fiber reinforced
Worm wheel	Technopolymer		Polyarylamide	Glass fiber reinforced

General features

Operating Temperature	-20 °C / 50 °C
Static Load (traction or compression)	18 kN
Dynamic Load (traction or compression)	10 kN
Max input speed	1800 rpm
Main Gearbox Weight	2,7 kg
Trapezoidal Screw Weight	5 kg/m
Anti-Rotation Torque with Max Load	63 Nm
Max admissible lateral loads	0 N
Center-to-center distance	50 mm
Max radial Load on worm Screw	450 N
Standard Working Conditions	25 °C - service 10%

Euler's law (safety factor =2; dynamic compression load)
 Limit Load 1 (red) - 2 (blue) - 3 (green)
 C = Load [kN]
 L = Overall trapezoidal screw length [mm]



Specific features

	Nominal Ratios		
	1/5	1/10	1/30
Real ratio	1/4,75	1/9,67	1/30
Translation per worm revolution	1,26 mm	0,62 mm	0,2 mm
Efficiency	30 %	26 %	18 %
Start-up efficiency	21 %	18 %	13 %
Maximum linear speed	2160	1080	360
Torque at maximum load	16 Nm	9,3 Nm	4,4 Nm
Worm screw maximum torque	69 Nm	154 Nm	183 Nm
Loadless torque	0,4 Nm	0,3 Nm	0,25 Nm

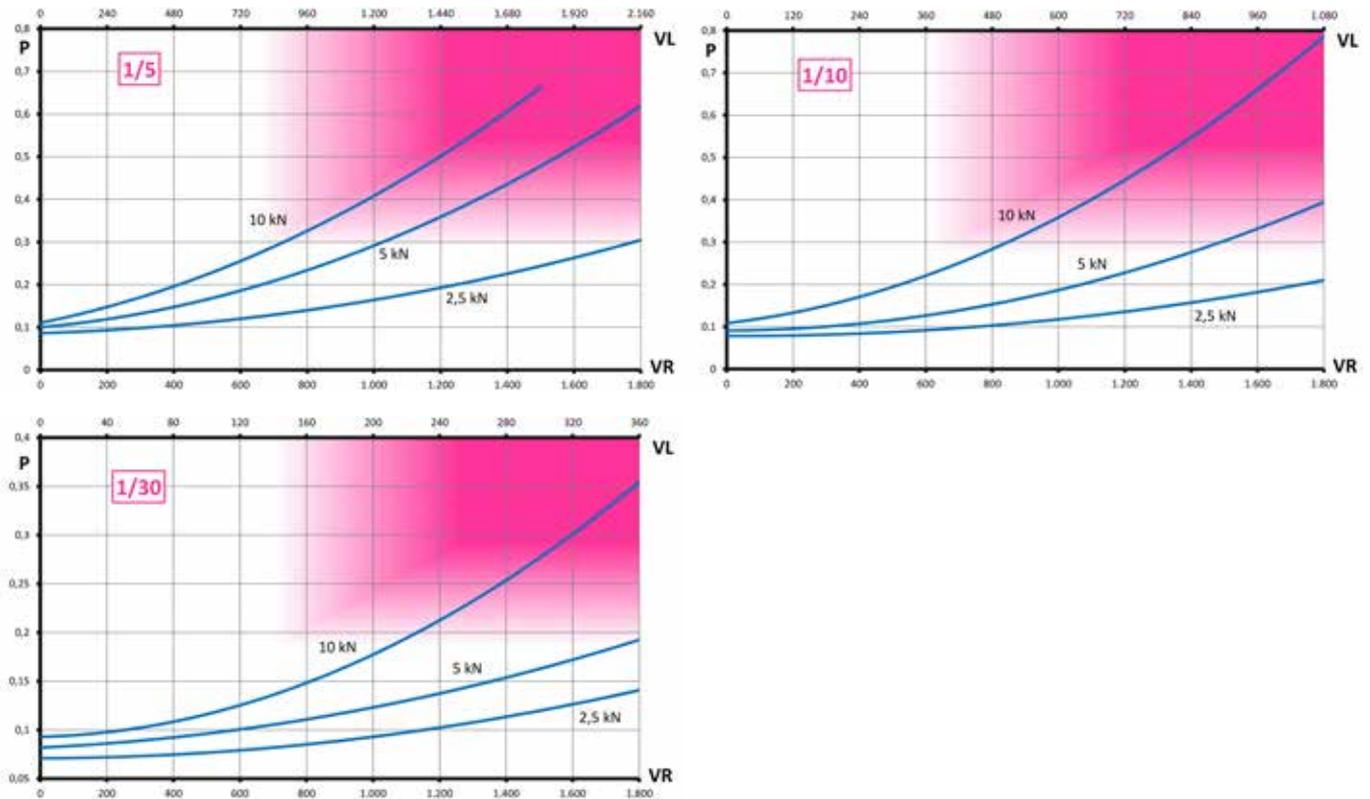
Power curves

The magenta zone indicates a potential heating risk. Working cycles must be carefully analyzed.

VR = Worm rotational speed [rpm]

VL = Spindle translation speed [mm/min]

P = Requested input power [kW]



Motor Models

	IEC	Worm screw bore diameter	Centering diameter	Nominal power (4 poles motor)
	IEC 71 B5	11 mm	110 mm	0,55 kW

Construction Forms



Size 740 - 1,8 ton - 18 kN



TP Model



TPR Model

Materials

	Material	Norms	Specs	Indications
Worm	16NiCr4	EN 10084:2008	Casehardening alloy steel	Casehardened and ground on teeth and holds
Spindle	C45	EN 10083-2:2006	Carbon steel	Tr 40x7 (ISO 2901:2016) - Rolled or machined
Carter	Technopolymer		Polyarylamide	Made by 2 half-shell
Nut	Technopolymer		Polyarylamide	Glass fiber reinforced
Worm wheel	Technopolymer		Polyarylamide	Glass fiber reinforced

General features

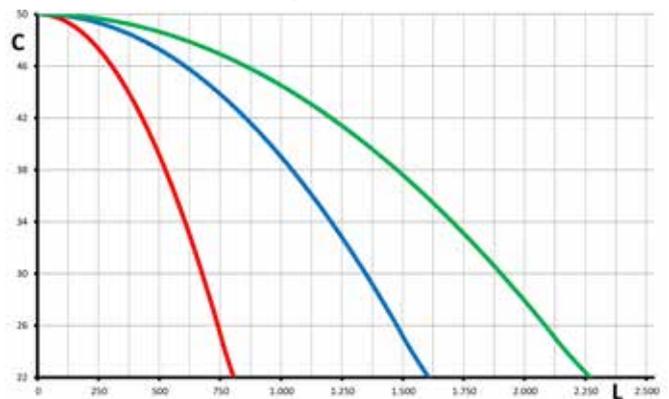
Operating Temperature	-20 °C / 50 °C
Static Load (traction or compression)	30 kN
Dynamic Load (traction or compression)	18 kN
Max input speed	1800 rpm
Main Gearbox Weight	3 kg
Trapezoidal Screw Weight	9 kg/m
Anti-Rotation Torque with Max Load	165 Nm
Max admissible lateral loads	300 N
Center-to-center distance	70 mm
Max radial Load on worm Screw	600 N
Standard Working Conditions	25 °C - service 10%

Euler's law (safety factor =2; dynamic compression load)

Limit Load 1 (red) - 2 (blue) - 3 (green)

C = Load [kN]

L = Overall trapezoidal screw length [mm]



Specific features

	Nominal Ratios		
	1/5	1/10	1/30
Real ratio	1/5	1/10	1/30
Translation per worm revolution	1,4 mm	0,7 mm	0,23 mm
Efficiency	28 %	25 %	18 %
Start-up efficiency	20 %	18 %	13 %
Maximum linear speed	2520	1260	420
Torque at maximum load	40 Nm	23 Nm	11 Nm
Worm screw maximum torque	490 Nm	128 Nm	154 Nm
Loadless torque	0,65 Nm	0,45 Nm	0,35 Nm

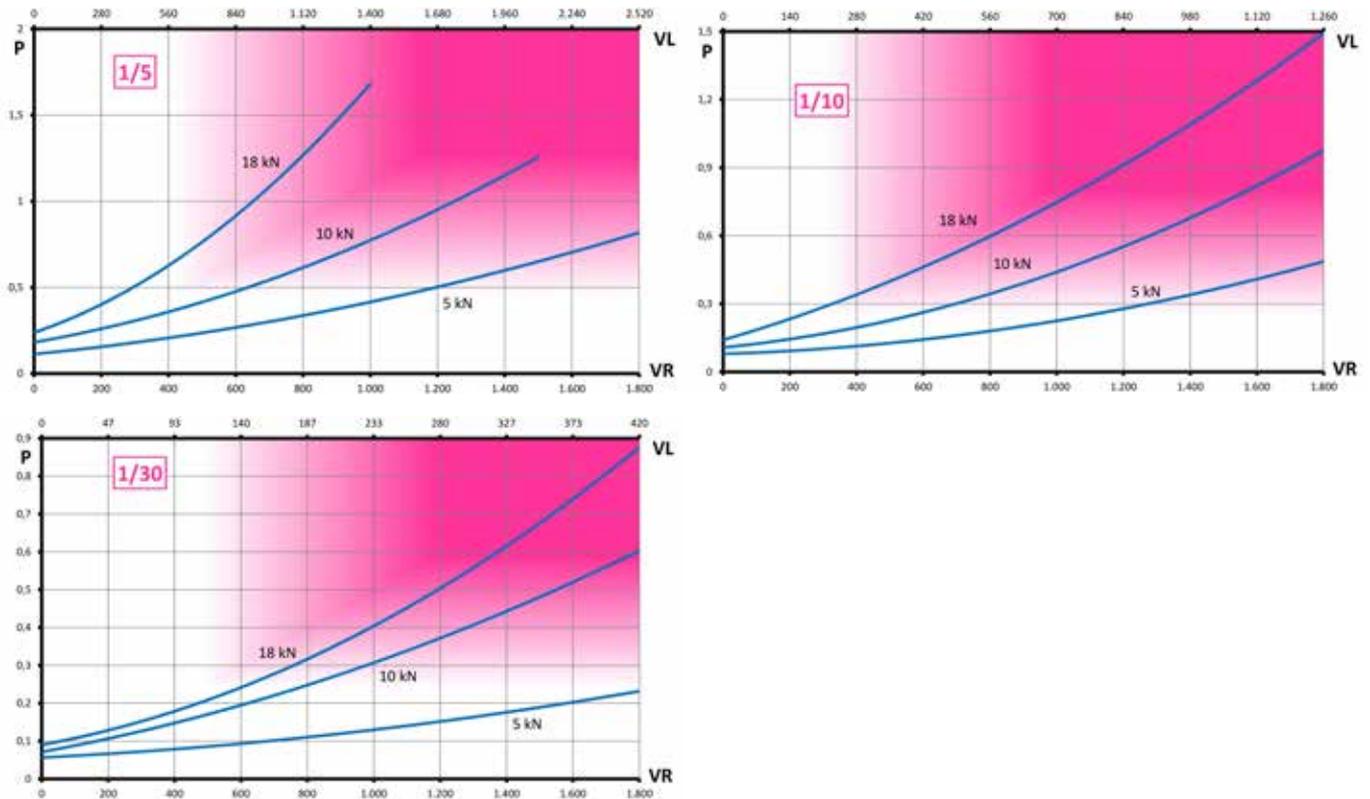
Power curves

The magenta zone indicates a potential heating risk. Working cycles must be carefully analyzed.

VR = Worm rotational speed [rpm]

VL = Spindle translation speed [mm/min]

P = Requested input power [kW]



Motor Models

	IEC	Worm screw bore diameter	Centering diameter	Nominal power (4 poles motor)
	IEC 80 B5	19 mm	130 mm / 80 mm	1,1 kW

Construction Forms



AB Worm Screw Protection Ring



> Specifications



The AB Worm Screw Protection Ring is a metal ring protecting the seal of the worm screw. It also serves as a support surface for mechanical couplings protecting the transmission from friction and accidental collisions.

AM-TP Over-Size Trapezoidal Screw



> Specifications



The AM-TP Over-Size Trapezoidal Screw is a simple and effective option used in cases where the static load is significantly higher than the dynamic load; the AM-TP Over-Size Trapezoidal Screw uses the next-size-up trapezoidal screw, thus adding a significant extra safety factor. The increased surface of the thread makes this option ideal with high loads at lower speeds.

Please note that while the Euler's Law compression static load verification may be calculated according to the next-size-up screw jack, all other dynamic parameters must be referenced to the actual size of the Screw Jack.

AM-TPR Over-Size Trapezoidal Screw



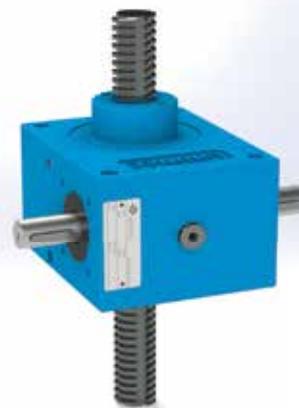
> Specifications



The AM-TPR Over-Size Trapezoidal Screw is a simple and effective option used in cases where the static load is significantly higher than the dynamic load; the AM-TPR Over-Size Trapezoidal Screw uses the next-size-up trapezoidal screw and nut and thus adding a significant extra safety factor. The increased surface of the thread makes this option ideal with high loads at lower speeds.

Please note that while the Euler's Law compression static load verification may be calculated according to the next-size-up screw jack, all other dynamic parameters must be referenced to the actual size of the Screw Jack.

AR Anti-Rotation System



> Specifications



The AR Anti-Rotation system consists of a full-length channel milled into the translating trapezoidal screw and a special collar with a key mounted on the cover of the Screw Jack: the fixed key slides along the channel, preventing the trapezoidal screw from rotating. Please keep in mind that the milled channel causes a mechanical weakening of the trapezoidal screw resulting in a 40% reduction of the dynamic load capacity and a 13% reduction of the

static load capacity. Additionally, because of the milled channel, it is recommended to use the AR Anti-Rotation system only when the F_a factor is < 1 . Finally, because the AR Anti-Rotation system locks the screw and the end-fitting in a specific position, it is always necessary to specify the exact position of special holes or asymmetrical/non-centered details in the trapezoidal screw.

BU Anti-Disengagement Bushing



> Specifications



The BU Anti-Disengagement Bushing is a safety device preventing the translating trapezoidal screw from disengaging from the Screw Jack in the event of an accidental overstroke. The BU Anti-Disengagement Bushing features a trapezoidal thread which guarantees the full load support during the attempted overstroke. The BU Anti-Disengagement Bushing can only be installed in Screw

Jacks in the TP Series. If the PRF Stroke Control accessory is also installed on the Screw Jack, the BU Anti-Disengagement Bushing will work as an additional end-stroke safety device. Please keep in mind that even a single overstroke accident (with consequent impact of the BU Anti-Disengagement Bushing with the main body of the unit) can irreparably damage the internal gearing.

CAPP Worm Screw Protection Cover



> Specifications



The CAPP Worm Screw Protection Cover is a rigid plastic protection that covers one of the worm screw extremities protecting it from accidental collisions, dust and debris. It also works as a safety

device protecting live operators from moving parts. The CAPP Worm Screw Protection Cover can only be installed on Screw Jacks in the B Construction Form.

CHA Self-Aligning Nut

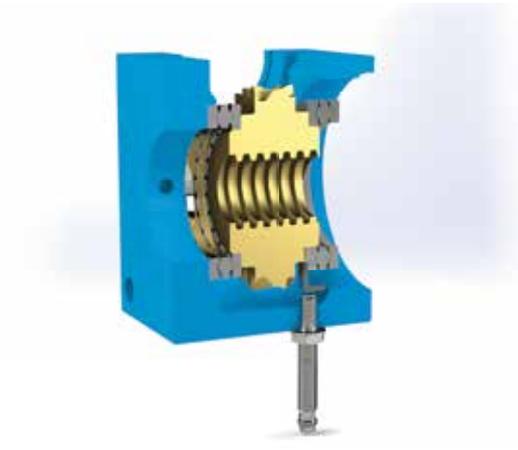


> Specifications

The CHA Self-Aligning Nut is an ingenious solution to potential problems determined by lateral loads. Specifically designed for the TPR Series, the CHA Self-Aligning Nut is based on a spherical nut embedded in two semi-shells made of strong and durable fiberglass-reinforced polymer adequately sized to support the load. Thanks to a special connection between the spherical nut and the polymer shells, the system is capable of compensating planar misalignments up to +/- 10°.

The system guarantees perfect axial coplanarity between screw and nut and eliminates overloads, stress, excessive friction and wear determined by lateral loads. The CHA Self-Aligning Nut is the ideal solution for large structures where the system is guided by framing beams and not by precision linear bearings.

CR Rotation Control Device



> Specifications

The CR Rotation Control Device, available on both the TP and TPR Series, is a rotation monitoring system based on a proximity transmitter sending an impulse at each revolution of the worm wheel.

The absence of signal indicates that the worm wheel is not rotating. Special configurations with multiple impulses per revolution are available upon request.

CS-TP Manual Wear Control Safety Nut



> Specifications



The CS-TP Safety Nut is a safety system allowing the Screw Jack to support the load even when, due to friction, the worm wheel begins to wear. The CS-TP Safety Nut is installed adjacent to the worm wheel and does not actively participate in supporting the payload until the worm wheel begins to wear. Once the worm wheel begins to wear, the play between the trapezoidal screw and worm wheel will naturally begin to increase; when a load is applied in these conditions, the CS-TP Safety Nut becomes engaged and begins to progressively support the load. Once engaged, the visible

protruding part of the CS-TP Safety Nut decreases and will continue to shorten with use; once this visible protruding part reaches the critical minimum height of 17 mm, it is necessary to replace both the worm wheel and the CS-TP Safety Nut. Failure to do so may cause irreparable damage to the main unit and catastrophic failure. The CS-TP Safety Nut can only work in a single direction (compression or traction); standard configuration is "compression"; please always specify load direction.

CS-TPR Manual Wear Control Safety Nut



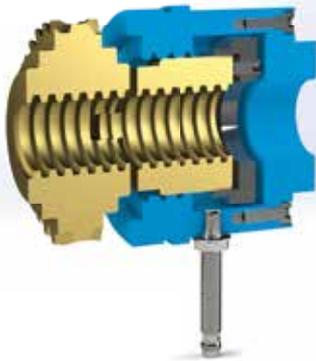
> Specifications



The CS-TPR Safety Nut is a safety system allowing the Screw Jack to support the load even when, due to friction, the main nut begins to wear. The CS-TPR Safety Nut is installed adjacent to the main nut and does not actively participate in supporting the payload until the nut begins to wear. Once the main nut begins to wear, the play between the trapezoidal screw and nut will naturally begin to increase; when a load is applied in these conditions, the CS-TPR Safety Nut becomes engaged and begins to progressively support

the load. Once engaged, the distance between the main nut and the CS-TPR Safety Nut decreases and will continue to shorten with use; once this distance reaches the critical minimum value of 2 mm, it is necessary to replace both the main nut and the CS-TPR Safety Nut. Failure to do so may cause irreparable damage to the main unit and catastrophic failure. The CS-TPR Safety Nut can only work in a single direction (compression or traction); standard configuration is "compression"; please always specify load direction.

CSU-TP Automatic Wear Control Safety Nut



> Specifications



The CSU-TP Safety Nut with Automatic Wear Control is the automatic version of the manual CS-TP Safety Nut. The CSU-TP Safety Nut is installed adjacent to the worm wheel and does not actively participate in supporting the payload until the worm wheel begins to wear. Once the worm wheel begins to wear, the play between the trapezoidal screw and worm wheel will naturally begin to increase; when a load is applied in these conditions, the CS-TP Safety Nut becomes engaged and begins to progressively support the load. Differently from the manual version, with the CSU-TP Automatic Wear Control Safety Nut the protruding part

of the nut is covered by a lid and not visible to the operator; a proximity switch monitors the gap and alerts when the distance reaches the critical minimum height (approximately 1/4 of the nominal lead of the trapezoidal screw). Once the critical distance is reached it is necessary to replace both the worm wheel and the CS-TP Safety Nut. Failure to do so may cause irreparable damage to the main unit and catastrophic failure. The CS-TP Safety Nut can only work in a single direction (compression or traction); standard configuration is "compression"; please always specify load direction.

CSU-TPR Automatic Wear Control Safety Nut



> Specifications



The CSU-TPR Safety Nut with Automatic Wear Control is the automatic version of the manual CS-TPR Safety Nut. The CSU-TPR Safety Nut is installed adjacent to the main nut and does not actively participate in supporting the payload until the nut begins to wear. Once the nut begins to wear, the play between the trapezoidal screw and the nut will naturally begin to increase; when a load is applied in these conditions, the CS-TPR Safety Nut becomes engaged and begins to progressively support the load. In the CSU-TPR Automatic Wear Control Safety Nut the protruding

part of the nut is both visible to the operator and monitored by a proximity switch constantly measuring the gap. Once the critical distance (approximately 1/4 of the nominal lead of the trapezoidal screw) is reached the proximity switch will alert the operator that it is time to replace both the main nut and the CS-TPR Safety Nut. Failure to do so may cause irreparable damage to the main unit and catastrophic failure. The CS-TPR Safety Nut can only work in a single direction (compression or traction); standard configuration is "compression"; please always specify load direction.

CT Temperature Control



> Specifications



The CT Temperature Control option is based on a temperature measuring probe, installed directly on the body of the unit and capable of measuring temperature variations between -40°C (-40°F) and 90°C (194°F). Being irreversible power transmissions, screw jacks tend to dissipate a significant amount of input power in the form of heat; the CT Temperature Control

is recommended in all those applications where temperature monitoring is a critical factor. It is recommended to never exceed the upper limit of 80°C (176°F); when the system reaches this critical limit, it is necessary to stop the transmission and wait until the system returns to room temperature. Failure to do so may cause premature wear and/or catastrophic failure.

CTC Nut Temperature Control



> Specifications



The CTC Nut Temperature Control option, specifically designed for the TPR Series, is based on a temperature measuring probe, installed directly on the nut of the Screw Jack and capable of measuring temperature variations between -40°C (-40°F) and 90°C (194°F).

Being irreversible power transmissions, screw jacks tend to dissipate a significant amount of input power in the form of heat;

the CTC Nut Temperature Control is recommended in all those applications where temperature monitoring is a critical factor. It is recommended to never exceed the upper limit of 80°C (176°F); when the system reaches this critical limit, it is necessary to stop the transmission and wait until the system returns to room temperature. Failure to do so may cause premature wear and/or catastrophic failure.

CU Single Chamber Assembly



> Specifications



The CU Single Chamber Assembly is a completely sealed, oil-bath configuration, indicated for those applications where the cycle duty requires a constant, continuously operated lubrication of all moving parts. This option is only applicable to the TP Series. It is imperative that the oil fill-up process is completed while the translating trapezoidal screw is fully lowered. In order to guarantee adequate adherence, it is recommended to use high-viscosity gear oils (1,000 mm²/s) with high-pressure PE Additives.

Unimec offers a wide selection of proprietary and recommended lubricants depending on the specific requirements of the applications. The CU Single Chamber Assembly also requires the installation of the PR Rigid Protection option to be used as a lubricant reservoir. A lubrication port is installed directly on the body of the unit while a drain plug is installed on the bottom of the PR Rigid Protection.

CU-PR-A Single Chamber Assembly with Dual-Guide Anti-Rotation System



> Specifications



The CU-PR-A Single Chamber Assembly with Dual-Guide Anti-Rotation System is the combination of our CU Single Chamber Assembly option and our PR-A Rigid Protection with Dual-Guide Anti-Rotation system. The CU Single Chamber Assembly is a completely sealed, oil-bath configuration, indicated for those applications where the service factor requires a constant, continuously operated lubrication of all moving parts. This option is only applicable to the TP Series. It is imperative that the oil fill-up process is completed while the translating trapezoidal screw is fully lowered. In order to guarantee adequate adherence, it is recommended to use high-viscosity gear oils (1,000 mm²/s) with high-pressure PE Additives. The CU-PR-A Single Chamber Assembly also requires the installation of the PR-A Rigid Protection

with Dual-Guide Anti-Rotation System: this option has a dual function as it serves both as a lubricant reservoir and as dual-guide anti-rotation. A lubrication port is installed directly on the body of the unit while a drain plug is installed on the bottom of the rigid protection. The Dual-Guide Anti-Rotation System is based on two linear guides embedded in the PR Rigid Protection and a no-friction Keniflon-treated bushing connected to the trapezoidal screw. In cases of longer strokes it is necessary to verify that torsional forces may not pose the risk of damaging the bushing. Finally, because the anti-rotation system locks the screw and the end-fitting in a specific position, it is always necessary to specify the exact position of special holes or asymmetrical/non-centered details in the trapezoidal screw.

DA Dual-Action



> Specifications



The DA Dual-Action is a special configuration capable of moving two separate loads with a single transmission. In the DA Dual-Action configuration, applicable to the TPR Series, the trapezoidal screw protrudes on both sides of the Screw Jack and can be executed in two versions: RH-LH (Right-Left) - the trapezoidal screw presents a Right thread on one side and a Left thread on the opposite side: this determines an opposing motion as illustrated

in picture 1; RH-RH (Right-Right) - the trapezoidal screw presents a Right thread on both sides: this determines a synchronous motion as illustrated in picture 2. Obviously, even the two loads can present opposing or synchronous directions, determining the following combinations. Please note that all load verifications must be calculated considering the total value of both loads.

FD Quick-Disconnect System



> Specifications



The FD Quick-Disconnect System allows a rapid disconnection of the trapezoidal screw from units in the TPR Series without requiring costly and time-consuming disassembly processes. The FD Quick-Disconnect System is based on two semi-lengths

of trapezoidal screw connected by special bolted TF flanges. The system obviously limits the total available stroke. The two TF flanges present a self-centering milled area to guarantee a quick and error-proof re-assembly.

FP Thruholes



> Specifications



The FP Thruholes option is an alternative mounting hole pattern typically used for larger size screw jacks. The use of thruholes may facilitate the installation of larger and heavier units.

Custom configurations with special diameter thruholes and alternative positions are available upon request depending on the dimensions of the unit.

GV Viton Seals



> Specifications



GV Viton Seals are used in cases of high temperature environments or when seals are subjected to high friction and consequent rising of temperatures. GV Viton seals are recommended in those applications with temperatures exceeding 80 ° C (176° F) and can operate up to a maximum of 200 ° C (392° F)

KL Lubrication Kit



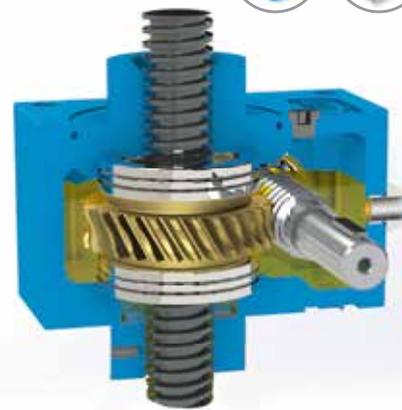
> Specifications



It is imperative to always ensure that the trapezoidal screw is properly lubricated. Unimec offers a wide variety of lubricants for diverse applications. The standard lubricant is the UNIMEC Mark CA, a proprietary semi-fluid grease with PE additives, specifically formulated to excel with our materials and greatly enhance the lifetime of our units. The KL Lubrication Kits are available in three options: TGM125 - A simple 125 ml tube of UNIMEC Mark CA semi-fluid grease to be manually dispensed on the trapezoidal screw.

KL1 - A fully automated, gas-operated lubricant dispenser (model NOVA125) with 125 ml of UNIMEC Mark CA; the fully programmable lid of the device allows the operator to program the ideal lubrication interval, up to a full year of continuous operation. The KL1 Kit comes with a 40" long tube for indirect installation of the device, as well as all necessary brackets and hardware. KL2 includes all features of the KL1 and offers an additional tube of UNIMEC Mark CA semi-fluid grease for initial lubrication.

LUBS Special Lubricants



> Specifications



Unimec offers a wide range of non-standard lubricants for specific applications; typical applications include: Food-Grade Lubricant (suitable for food and beverage processing applications); Biological Lubricant (highly bio-degradable lubricant, suitable for applications where lubricant could accidentally come in contact with the environment); High-Temperature Lubricant (suitable for high temperature applications, low flammability); Low-temperature Lubricant (suitable for low-temperature applications,

refrigeration); Dielectric Lubricant (suitable for explosive-prone applications, avoids production and transmission of ions greatly reducing the risk of sparks); Nuclear Lubricant (suitable for nuclear applications, great resistance to radioactive degradation); White-Room Lubricant (suitable for white room applications, vacuum applications, etc., high molecular connectivity, low dispersion of particulates)

NLY Niploy-Coating Treatment



> Specifications



The NLY Niploy-Coating Treatment is a patented chemical-nickel coating used to enhance the resistance to corrosion and other aggressive agents of the non-moving parts of Screw Jacks, Bevel Gear Reducers and Speed Modulators.

P Lateral Pins



> Specifications



The P Lateral Pins option is used for oscillating, piston-rod configurations. Two protruding pins are mounted directly on two sides of the Screw Jack, becoming the pivotal point in the system. For this reason, this option may be preferable to the PO Oscillating Rigid Protection as it offers a more advantageous factor in the 2nd

Euler's Law: in fact, when using the formulae, the center-to-center distance from the pin to rod-end is exactly half compared to the center-to-center distance between the PO eyelet and the rod-end. Please keep in mind that the use of the P lateral Pins and a rod-end, does not eliminate lateral loads.

PE Elastic Bellow Protection



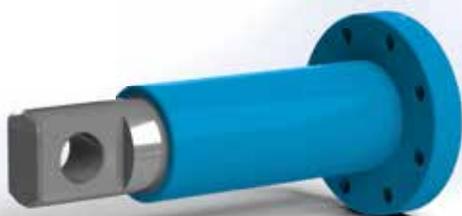
> Specifications



The PE Elastic Bellow Protection protects the trapezoidal screw from dust and debris. Standard bellows are made of PVC-coated Polyester and can be equipped with simple collar or flange end-fittings (available both in plastic or metal). The standard PVC-coated Polyester bellows are rated for temperatures between -30 °C and 70 °C (-20 °F / 160 °F). Optional bellow materials such as Neoprene® and Hypalon® (sea water resistant), Kevlar® (cut and abrasion resistant), Fiberglass (for extreme temperatures, from -50 °C to 250 °C (-60 °F / 480 °F)) and Aluminized Carbon Fiber (self-extinguishing material for use in applications with open fires and melted metals) are also available. If a waterproof seal is required, special bellows with thermo-sealed seals (vs. sewn)

are available. Please note that this option does not eliminate the risk of internal condensation. Finally, special bellow materials such as metal bellows or other materials for extreme applications are available upon request. In case of particularly long strokes, the PE Elastic Bellow Protection can be equipped with anti-stretching rings to allow a uniform opening and closing process. Please keep in mind that, in order to accommodate the fully retracted bellow, each PE Elastic Bellow Protection requires that the total trapezoidal screw length be increased by 1/8 of the stroke. In case of horizontal applications the PE Elastic Bellow Protection must be equipped with anti-collapsing rings. Please always specify the direction of the application.

PO Oscillating Rigid Protection



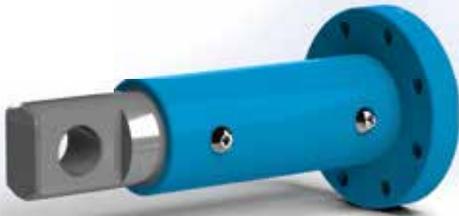
> Specifications



The PO Oscillating Rigid Protection is a special rigid protection with an eyelet in the lower extremity used in oscillating, piston-rod configurations. Please be aware that in this particular configuration, the payload is supported by the Rigid Protection tube and the lower eyelet; therefore, due to the risk of deflection, it is advisable to use caution with particularly long strokes. Please keep in mind that the

use of the PO Oscillating Rigid Protection and a rod-end, does not eliminate lateral loads. When working with compression loads, it is necessary to verify the load capacity under the 2nd Euler's Law: when using the formulae please consider the center-to-center distance between the eyelet and the rod-end. A motor can be installed directly on the screw jack.

PO-A Dual-Guide Anti-Rotation and Oscillating Rigid Protection



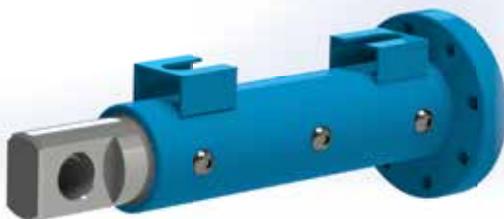
> Specifications

The PO-A Dual-Guide Anti-Rotation and Oscillating Rigid Protection is the combination of our PO Oscillating Rigid Protection and the Dual-Guide Anti-Rotation system and it is used in those oscillating, piston-rod applications where the user needs to contrast the inherent tendency to rotate that every screw jack presents. The PO-A Dual-Guide Anti-Rotation and Oscillating Rigid Protection, applicable on the TP Series, is a special Oscillating Rigid Protection (PO) with an eyelet in the lower extremity and two embedded linear guides with a no-friction Keniflon-treated bushing connected to the trapezoidal screw. In cases of longer strokes it is necessary to verify that torsional forces may not pose the risk of damaging the bushing.

Please keep in mind that the use of the PO-A and a rod-end, does not eliminate lateral loads. When working with compression loads, it is necessary to verify the load capacity under the 2nd Euler's Law: when using the formulae please consider the center-to-center distance between the eyelet and the rod-end. A motor can be installed directly on the screw jack. Finally, because the anti-rotation system locks the screw and the end-fitting in a specific position, it is always necessary to specify the exact position of special holes or asymmetrical/non-centered details in the trapezoidal screw.



PO-A-F Dual-Guide Anti-Rotation and Oscillating Rigid Protection with Stroke Control



> Specifications

The PO-A-F Dual-Guide Anti-Rotation and Oscillating Rigid Protection with Stroke Control is the combination of our PO Oscillating Rigid Protection with our dual-guide anti-rotation system and stroke control. The PO-A-F Oscillating Rigid Protection with Stroke Control, applicable on all TP models, is a special PO Oscillating Rigid Protection with two milled areas to allow the installation of proximity switches and a dual-guide system with a no-friction Keniflon-treated bushing connected to the trapezoidal screw. Proximity switches are included and embedded in custom supports, specifically designed to be installed on the PR Rigid Protection. The special supports are made of two half-rings allowing ideal positioning and fine tuning of the proximity switches. The presence of O-Rings guarantees protection against dust, debris and moisture. It is possible to have more than two milled areas for multiple

proximity switches. Please be aware that in this particular configuration, the payload is supported by the Rigid Protection tube and the lower eyelet; therefore, due to the risk of deflection, it is advisable to use caution with particularly long strokes. In cases of longer strokes it is also necessary to verify that torsional forces may not pose the risk of damaging the bushing. Please keep in mind that the use of the PO Oscillating Rigid Protection and a rod-end, does not eliminate lateral loads. When working with compression loads, it is necessary to verify the load capacity under the 2nd Euler's Law: when using the formulae please consider the center to center distance between the eyelet and the rod-end. A motor can be installed directly on the Screw Jack. A BU Anti-Disengagement bushing is also required on the trapezoidal screw. Multiple BU Anti-Disengagement bushings can also be installed upon request.



PO-AR Oscillating Rigid Protection with Anti-Rotation System



> Specifications

The PO-AR Oscillating Rigid Protection with Anti-Rotation System is the combination of our PO Oscillating Rigid Protection and our AR Anti-Rotation System. The Oscillating Rigid Protection with Anti-Rotation System is based on a special rigid protection with an eyelet in the lower extremity and a full-length channel milled into the translating trapezoidal screw with a special collar and a key mounted on the cover of the Screw Jack. Please be aware that in this particular configuration, the payload is supported by the Rigid Protection tube and the lower eyelet; therefore, due to the risk of deflection, it is advisable to use caution with particularly long strokes. Please keep in mind that the milled channel causes a mechanical weakening of the trapezoidal screw resulting in a 40% reduction of the dynamic load capacity and

a 13% reduction of the static load capacity. Because of the milled channel, it is also recommended to use the AR Anti-Rotation System only when the F_a factor is < 1 . Also, please keep in mind that the use of the PO Oscillating Rigid Protection and a rod-end, does not eliminate lateral loads. When working with compression loads, it is necessary to verify the load capacity under the 2nd Euler's Law: when using the formulae please consider the center-to-center distance between the eyelet and the rod-end. A motor can be installed directly on the screw jack. Finally, because the AR Anti-Rotation system locks the screw and the end-fitting in a specific position, it is always necessary to specify the exact position of special holes or asymmetrical/non-centered details in the trapezoidal screw.

PO-BU Oscillating Rigid Protection with Anti-Disengagement Bushing



> Specifications

The PO-BU Oscillating Rigid Protection with Anti-Disengagement Bushing is the combination of our PO Oscillating Rigid Protection and our BU Anti-Disengagement Bushing and it is used in oscillating, piston-rod applications requiring that the trapezoidal screw be prevented from disengaging from the Screw Jack in the event of an accidental overstroke. The PO-BU Oscillating Rigid Protection with Anti-Disengagement Bushing, applicable on all TP models, is a special PO Oscillating Rigid Protection with a trapezoidal thread which guarantees the full load support during the attempted overstroke. Please be aware that in this particular configuration, the payload is supported by the Rigid Protection tube and the lower

eyelet; therefore, due to the risk of deflection, it is advisable to use caution with particularly long strokes. Please keep in mind that the use of the PO Oscillating Rigid Protection and a rod-end, does not eliminate lateral loads. When working with compression loads, it is necessary to verify the load capacity under the 2nd Euler's Law: when using the formulae please consider the center to center distance between the eyelet and the rod-end. A motor can be installed directly on the screw jack. Please keep in mind that even a single overstroke accident (with consequent impact of the BU Anti-Disengagement Bushing with the main body of the unit) can irreparably damage the internal gearing.

PO-F Oscillating Rigid Protection with Stroke Control



> Specifications

The PO-F Oscillating Rigid Protection with Stroke Control is the combination of our PO Oscillating Rigid Protection and our PR-F Electronic Stroke Control and it is used in oscillating, piston-rod applications requiring a stroke control. The PO-F Oscillating Rigid Protection with Stroke Control, applicable on TP models, is a special PO Oscillating Rigid Protection with two milled areas to allow the installation of proximity switches. Proximity switches are included on demand. It is possible to have more than two milled areas for multiple proximity switches. Please be aware that in this particular configuration, the payload is supported by the Rigid Protection tube and the lower eyelet; therefore, due to the risk of deflection, it is advisable to use caution with particularly long strokes. Please keep in

mind that the use of the PO-F and a rod-end, does not eliminate lateral loads. When working with compression loads, it is necessary to verify the load capacity under the 2nd Euler's Law: when using the formulae please consider the center to center distance between the eyelet and the rod-end. A motor can be installed directly on the Screw Jack. A BU Anti-Disengagement bushing is also required on the trapezoidal screw. Multiple BU Anti-Disengagement bushings can also be installed upon request.

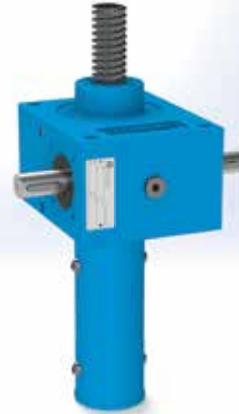
PR Rigid Protection



> Specifications

A PR Rigid Protection, installed on the lower end of the Screw Jack, is the ideal way to protect the translating trapezoidal screw from dust and debris. The PR Rigid Protection can only be installed in Screw Jacks in the TP Series. Three set screws safely secure the protection tube onto the lower collar.

PR-A Dual Guide Anti Rotation System



> Specifications



The PR-A Dual Guide Anti Rotation System is used when it's difficult to create an external contrast to the inherent tendency to rotate that every screw jack presents. The PR-A Dual Guide Anti Rotation System, applicable on the TP Series, is based on two linear guides embedded in the PR Rigid Protection and a no-friction Keniflon-treated bushing connected to the trapezoidal screw.

In cases of longer strokes it is necessary to verify that torsional forces may not pose the risk of damaging the bushing. Finally, because the anti-rotation system locks the screw and the end-fitting in a specific position, it is always necessary to specify the exact position of special holes or asymmetrical/non-centered details in the trapezoidal screw.

PR-A-F Dual-Guide Anti-Rotation System with Stroke Control



> Specifications



The PR-A-F Dual-Guide Anti-Rotation System is used to control the stroke and contrast the inherent tendency to rotate that every screw jack presents. The PR-A-F Dual-Guide Anti-Rotation System with Stroke Control, is based on two linear guides embedded in the PR Rigid Protection and a no-friction Keniflon-treated bushing connected to the trapezoidal screw. In cases of longer strokes it is necessary to verify that torsional forces may not pose the risk of damaging the bushing. Finally, because the anti-rotation system locks the screw and the end-fitting in a specific position, it is always necessary to specify the exact position of special holes or asymmetrical/non-centered details in the trapezoidal screw.

The system consists of a special PR Rigid Protection with two milled areas to allow the installation of proximity switches. Proximity switches are included and embedded in custom supports, specifically designed to be installed on the PR Rigid Protection. The special supports are made of two half-rings allowing ideal positioning and fine tuning of the proximity switches. The presence of O-Rings guarantees protection against dust, debris and moisture. It is possible to have more than two milled areas for multiple proximity switches. A BU Anti-Disengagement bushing is also required on the trapezoidal screw. Multiple BU Anti-Disengagement bushings can also be installed upon request.

PR-A-O Oil-Bath Rigid Protection with Dual-Guide Anti-Rotation System

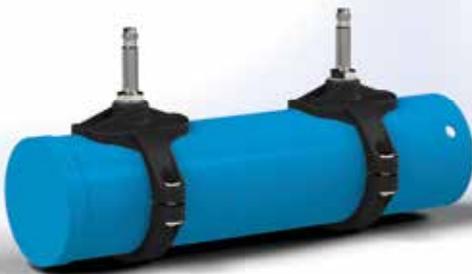


> Specifications

The PR-A-O Oil-Bath Rigid Protection with Dual-Guide Anti-Rotation System is the combination of our PR-O Oil Bath Rigid Protection and our Dual-Guide Anti-Rotation System. This option, applicable to the TP Series, performs three specific functions: protection of the trapezoidal screw from dust and debris, semi-automatic lubrication and prevention of the inherent tendency to rotation of the screw-jack. During the installation the PR-A-O Oil Bath Rigid Protection must be filled with the recommended lubricant. Every time the translating trapezoidal screw recedes in the PR-A-O Oil Bath Rigid Protection it receives a coat of lubricant. In order to guarantee adequate adherence, it is recommended to use high-viscosity gear oils (1,000 mm²/s) with high-pressure PE Additives. Unimec offers a wide selection of proprietary and recommended lubricants depending on the requirements of the

application. A lubrication port is installed directly on the body of the unit while a drain plug is installed on the bottom of the Rigid Protection. For applications with particularly long strokes it is recommended to add the TRO option: an oil-recirculation tube allowing the lubricant to flow from the gearbox to the rigid protection and compensate the pumping effect. The PR-A-O option also includes our Dual-Guide Anti-Rotation System based on two linear guides embedded in the PR Rigid Protection and a no-friction Keniflon-treated bushing connected to the trapezoidal screw. In cases of longer strokes it is necessary to verify that torsional forces may not pose the risk of damaging the bushing. Finally, because the anti-rotation system locks the screw and the end-fitting in a specific position, it is always necessary to specify the exact position of special holes or asymmetrical/non-centered details in the trapezoidal screw.

PR-F Electronic Stroke Control



> Specifications

The PR-F Electronic Stroke Control accessory is available for all Screw Jacks in the TP Series. The standard system consists of a special PR Rigid Protection with two milled areas to allow the installation of proximity switches. Proximity switches are included and embedded in custom supports, specifically designed to be installed on the PR Rigid Protection. The special supports are made of two half-rings allowing the ideal positioning and fine tuning

of the proximity switches. The presence of O-Rings guarantees protection against dust, debris and moisture. It is possible to have more than two milled areas for multiple proximity switches. A BU Anti-Disengagement bushing is also required on the trapezoidal screw. Multiple BU Anti-Disengagement bushings can also be installed upon request.

PR-O Oil Bath Rigid Protection



> Specifications



The PR-O Oil Bath Rigid Protection option has a dual function: protection of the trapezoidal screw from dust and debris and semi-automatic lubrication. During installation the PR-O Oil Bath Rigid Protection must be filled with the recommended lubricant (depending on the application). Every time the translating trapezoidal screw recedes in the PR-O Oil Bath Rigid Protection, it receives a coat of lubricant. In order to guarantee adequate adherence, it is recommended to use high-viscosity gear oils (1,000 mm²/s) with high-pressure PE Additives.

A lubrication port is installed directly on the body of the unit while a drain plug is installed on the bottom of the PR-O Rigid Protection. For applications with particularly long strokes it is recommended to add the TRO option: an oil-recirculation tube allowing the lubricant to flow from the gearbox to the rigid protection and compensate the pumping effect.

RG-TP Axial Play Compensation Nut



> Specifications



The RG-TP Axial Play Compensation Nut, applicable to the TP Series, is a special nut designed to compensate the natural (and necessary) play between the trapezoidal screw and the worm wheel. The RG-TP Axial Play Compensation Nut is particularly useful in applications where the load direction changes frequently from compression to traction and vice-versa. The reduction of play can be manually adjusted by rotating a special cover mounted on top of the play compensation nut.

Please be aware that an excessive reduction of play may determine premature wear and, in some cases, even a complete stop of the trapezoidal screw. Also, please be aware that the RG-TP Axial Play Compensation Nut causes a 40% reduction of Efficiency. Finally, please keep in mind that the area illustrated in the picture may present lubricant leaks and therefore it is necessary to opt for vertical mounting.

RG-TPR Axial Play Compensation Nut



> Specifications



The RG-TPR Axial Play Compensation Nut, applicable to the TPR Series, is a special nut designed to compensate the natural (and necessary) play between the trapezoidal screw and the translating nut. The RG-TP Axial Play Compensation Nut is particularly useful in applications where the load direction changes frequently from compression to traction and vice-versa. The RG-TPR Axial Play Compensation Nut is connected to the nut with the use of set-

screws: the reduction of play can be manually adjusted by rotating the set-screws. Please be aware that an excessive reduction of play may determine premature wear and, in some cases, even a complete stop of the translating nut. Also, please be aware that the RG-TPR Axial Play Compensation Nut causes a 40% reduction of Efficiency.

SP Mounting Plates



> Specifications



The SP Mounting Plates option is useful in those applications that do not allow the use of the pre-existing mounting holes on the body of the Screw Jack. Custom configurations with special hole patterns are available upon request.

TC Low Non-Threaded End-Fitting



› Specifications



TC Low Non-Threaded End-Fitting features a smaller diameter compared to the trapezoidal screw, ideal for the installation of an end-support bearing, typically in the TPR models.

An advanced version with integrated end-support bearing

and mounting flange is also available (TSC model). Custom configurations with special diameters, lengths and mounting hole patterns are available upon request.

TF Flange End-Fitting



› Specifications



The TF Flange End-Fitting is secured to the trapezoidal screw with a set screw. Thanks to the trapezoidal thread, the flange is capable of safely supporting the payload. Custom configurations with special mounting hole patterns are available upon request.

TFC Clevis Clip End-Fitting



> Specifications

The TFC Clevis Clip End-Fitting is mounted on the trapezoidal screw with a fine thread and features a clevis clip extremity ideal for oscillating applications. The Screw Jack can be equipped with the optional P Lateral Pins or with the PO Oscillating Rigid Protection.

TL Non-Threaded End Fitting



> Specifications

The TL Non-Threaded End-Fitting features a plain cylindrical extremity with the same diameter of the trapezoidal screw. Only cut screws (not rolled) can be supplied with the TL End-

Fitting option. Custom configurations with machined details, special diameters and lengths are available upon request.

TM Metric Thread End-Fitting



> Specifications



The TM threaded End-Fitting features a metric triangular thread that can be used to connect the trapezoidal screw to complex end-fittings or directly to the structure being moved. Custom configurations with special threads, diameters and lengths are available upon request.

TO Milled Eyelet End-Fitting



> Specifications



The TO Milled Eyelet End-Fitting is obtained by side-milling and drilling the trapezoidal screw and features an eyelet that can be equipped with a bushing or a hinge for oscillating configurations. The Screw Jack can be equipped with the optional P Lateral Pins or with the PO Oscillating Rigid Protection.

TOC Rod-End End-Fitting



> Specifications



The TOC Rod-End End-Fitting is mounted on the trapezoidal screw with a fine thread and features a rod-end extremity allowing oscillating configuration in presence of misalignments up to 13 degrees. The Screw Jack can be equipped with the optional P Lateral Pins or with the PO Oscillating Rigid Protection.

TOR Eyelet End-Fitting



> Specifications



The TOR Eyelet End-Fitting is mounted directly on the trapezoidal screw and features an eyelet for oscillating configurations; the TOR Eyelet End-Fitting allows the use of a bushing or a hinge. In an oscillating configuration, the screw jack can be equipped with the optional P Lateral Pins or with the PO Oscillating Rigid Protection. Custom configurations with special hole diameters are available upon request.

TPN Trapezoidal Thread End-Fitting



› Specifications



The TPN Trapezoidal Thread End-Fitting is a simple trapezoidal screw, cut to measure and deburred. Custom configurations with special holes and/or milled details are available upon request.

TSC Bearing-Support End-Fitting

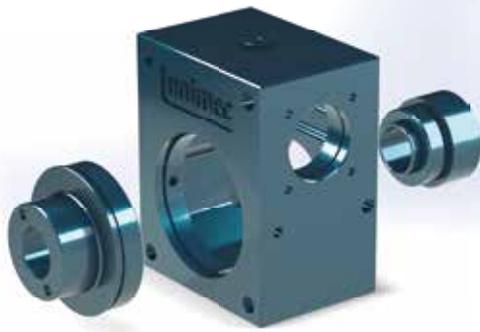


› Specifications



The TSC Bearing-Support End-Fitting is used in the TPR Series and consists of a drilled flange with a radial ball bearing supporting the trapezoidal screw. This option allows a more accurate assembly and improves the performance of the Screw Jack. Custom configurations with special dimensions and mounting holes patterns are available upon request.

VE Epoxy Painting



> Specifications



The VE Epoxy Painting is an optional painting based on a 3-stage process: stage 1 is a primer coat; stage 2 is a neutral coat base; stage 3 is the final color-coded coat. The end-result is aesthetically pleasant, with a rich gloss finish and improved resistance to

oxidation. Our epoxy painting is water-based and solvent-free and can be obtained in our standard RAL 5015 (Sky Blue) color. Custom colors may be obtained upon request.