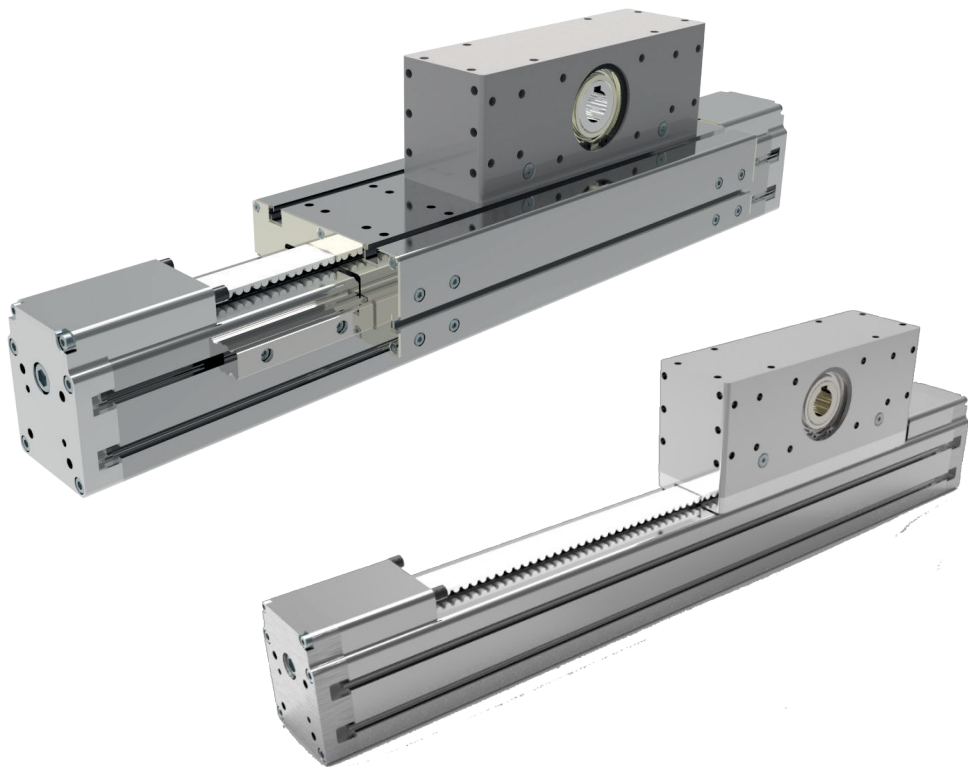


MTZ

SERIES LINEAR UNITS

USER AND MAINTENANCE MANUAL



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1. INFORMATION ABOUT THIS DOCUMENT




Thank you for purchasing our products and please read this manual carefully before using the product to ensure its best possible performance. You are, also, requested to keep the documentation for future reference.

Target audience: installers and end users.

Motus Tech srl reserves the right to modify this document at any time..

2. SYMBOLS FOR SAFETY/STANDARDS AND REQUIREMENTS

This section illustrates, for important indications related to personal protection and safe operation, the warning, danger and information symbols and signs.

<p>Safety Warnings.</p> 	<p>indicates instructions that should be followed carefully to avoid injury to people and malfunction or damage to the product.</p>
	<p>indicates technical instructions to be followed to avoid damage and malfunction of the device.</p>
	<p>Indicates a precaution to be followed for safety or proper operation of the device</p>

Standards and requirements

The product complies with the following regulations:

European Directives 2006/42/EC - Machinery Directive

and the Standardized Standards for the Machinery Directive of which a non-exhaustive list follows:

EN 12100:2010



The use of unsuitable materials for cleaning, lubrication, load securing, and securing the product may affect the safety and performance of the product.

This product is not intended for use by individuals (including children) whose physical, sensory, or cognitive abilities are limited or who lack relevant experience and/or knowledge, unless they are supervised by a person responsible for their safety or have received instructions from that person regarding the use of this equipment.

3. GENERAL SAFETY REQUIREMENTS

The following manual is intended for the end user. The following requirements must be followed in all cases and for permitted operations:

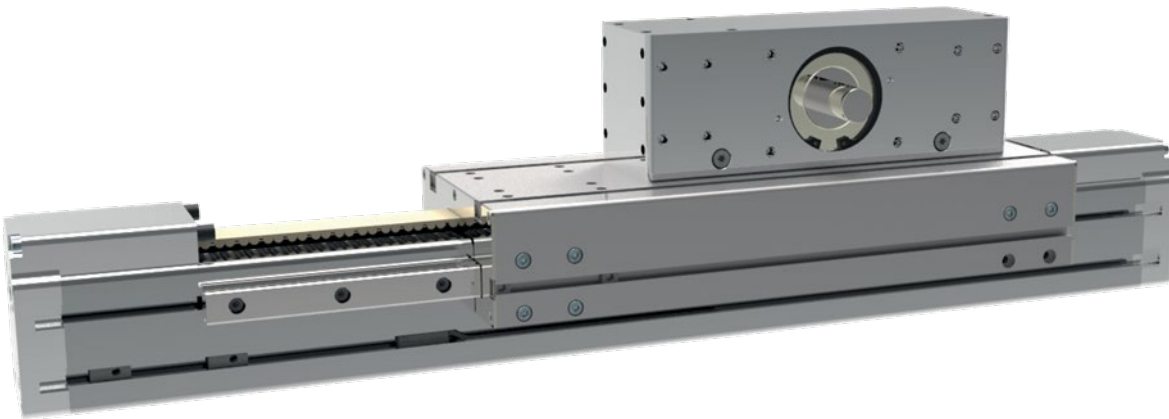
	The assembly, installation, and commissioning of the product inside a machine must be carried out by a qualified technician in full compliance with the relevant laws, regulations and directives, and in accordance with the assembly instructions
	The product is designed for mechanical connection to an electric motor. The user is responsible for all connection work, from fixing to electrical connection. No safety instructions for the electrical part are specified in this document.
	The unit must not be disassembled or opened for any reason. The safety prescriptions for permitted maintenance operations are in the following paragraphs.
	Never use abrasive substances or cleaning agents containing acids or chlorine on the surfaces of the appliance.
	Ensure that the attachment of the linear unit has been carried out in a safe position and manner, to prevent slipping or sliding during operation.
	If technical changes are made to the factory settings, MOTUS TECH accepts no liability for any consequential damage.
	MTE units must be stored in a dry and clean environment. If the environment does not meet the conditions, protect the linear unit by covering it or placing it inside a container.
	Any special operating conditions for environment and performance must be communicated in advance to our technical department to check feasibility.
	MTE units must be handled with care, also in view of their weight. Furthermore, it is not permitted to place tools or anything else on the unit that could impair its functionality.
	The linear unit may not be modified in relation to its condition of sale. In the event of unauthorized modifications, the user will be liable for any damage and injury caused by the modifications.
WARNING	Modifications to the linear unit are not permitted without the written consent of Motus Tech.
WARNING	All identification labels or warning signs may not be removed and must be legible. If damaged or unreadable they must be replaced.

4. GENERAL INFORMATION FOR OPERATION

The linear unit must not be put into operation until the machine in which it is intended (incorporated), has been declared in conformity with the Machinery Directive 2006/42/EC or at least until all safety precautions for the machine have been taken pending the Declaration of Conformity.

The machine installer or end user is responsible for the safeguarding of the linear unit following an appropriate risk assessment.

Any operation of the linear unit that is not in accordance with its intended use can lead to product damage, accidents and at the same time to production interruptions for which Motus Tech cannot be held responsible. To ensure safe operation, please refer to this operating manual and the operating instructions of other machines, in which the linear unit is to be incorporated.



5

5. FUNCTION AND APPLICATION

The MTE series linear units support a moving load. Due to the coupling with a motor axis, the unit moves the load back and forth according to the application conditions and load limits.

The unit is driven by a belt-pulley mechanism. The reference position can be detected by limit switch sensors. The unit is designed specifically for the development of Cartesian systems by means of motorized linear axes.

6. PREREQUISITES FOR EMPLOYMENT

WARNING

Improper use may result in malfunction or injury. Ensure that the requirements set out in this document are always observed.

WARNING

Compare the limit values in these operating instructions with the specific use case (maybe, moments, temperature loads, speed).

WARNING

Mounting the load. The load must be mounted in such a way that the tilting torque resulting from the force parallel to the traversing axis is minimal.

WARNING

Secure the load with screws and centering sleeves.

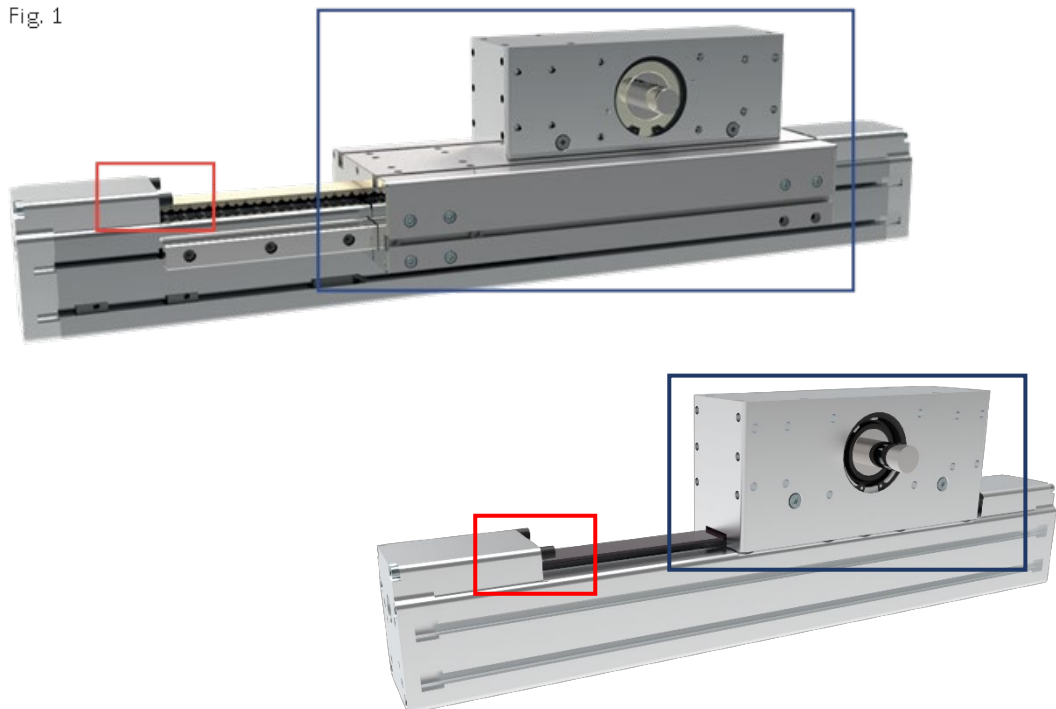
7. TRANSPORT AND MOVEMENT UNIT'

The units are packaged according to internal standards that provide for different types depending on the quantities and types of units to be shipped.

Handling the unit does not require any special precautions; it is not necessary to grip it at any other point other than for safety reasons.

Handle the unit with care because the moving part, shown in the red rectangle in figure 1, could cause damage or injury.

Fig. 1



8. DESCRIPTION OF THE LINEAR UNIT

Motus Tech MTZ S series linear units are linear actuators that transform the rotary motion of an electric motor into linear motion by means of a toothed belt drive, in this case with an Omega profile, and are designed for those applications where the load must be moved vertically.

Mainly they consist of:

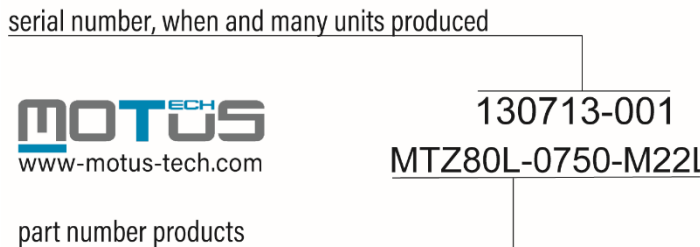
- an aluminum profile
- a recirculating ball rail with 2 sliders (in the MTB series) or with 4 sliders and 2 outer rails in the MTZ 55 S version
- two headers, with both having a belt tensioning system.
- one gearbox
- a toothed belt with profile RRP8/30

The units are designed to minimize maintenance work.

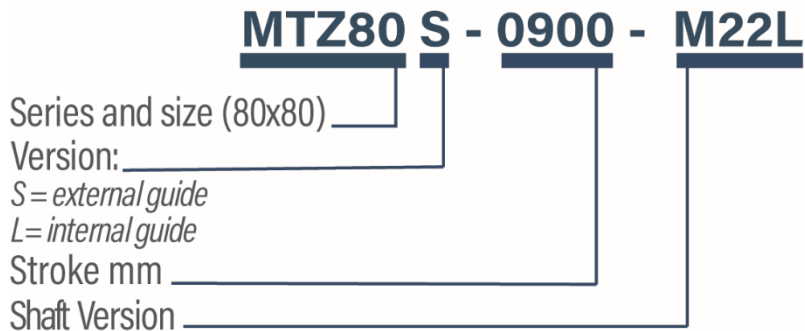
The units are equipped with a lubrication system that ensures optimal operation for a lifetime of more than 10,000 km.

It is suggested that, under very high speeds (>1 m/s) or high loads (depending on the size of the actuator) or aggressive environments, the recirculating ball bearing guides be lubricated once a year.

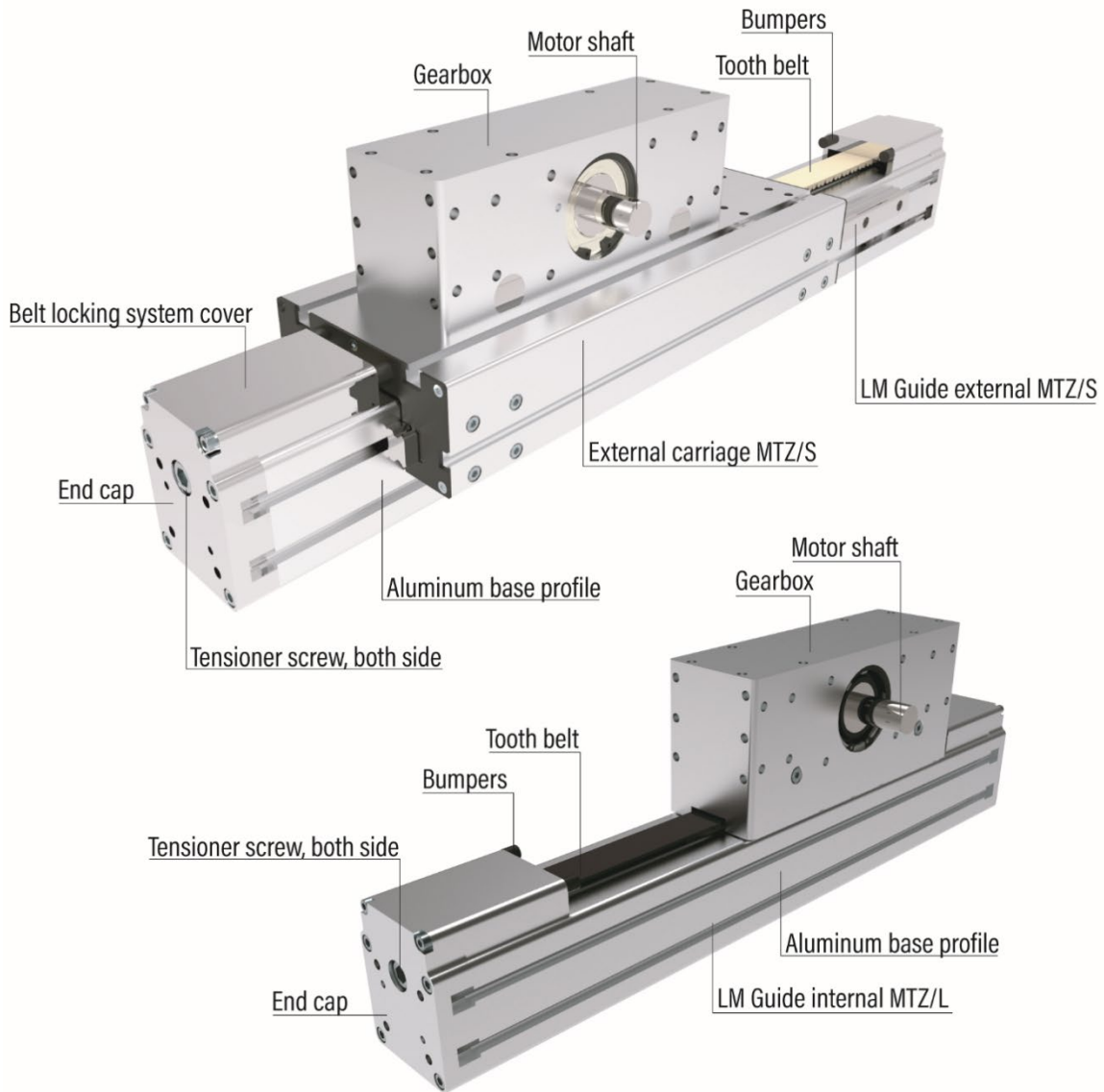
9. PRODUCT IDENTIFICATION



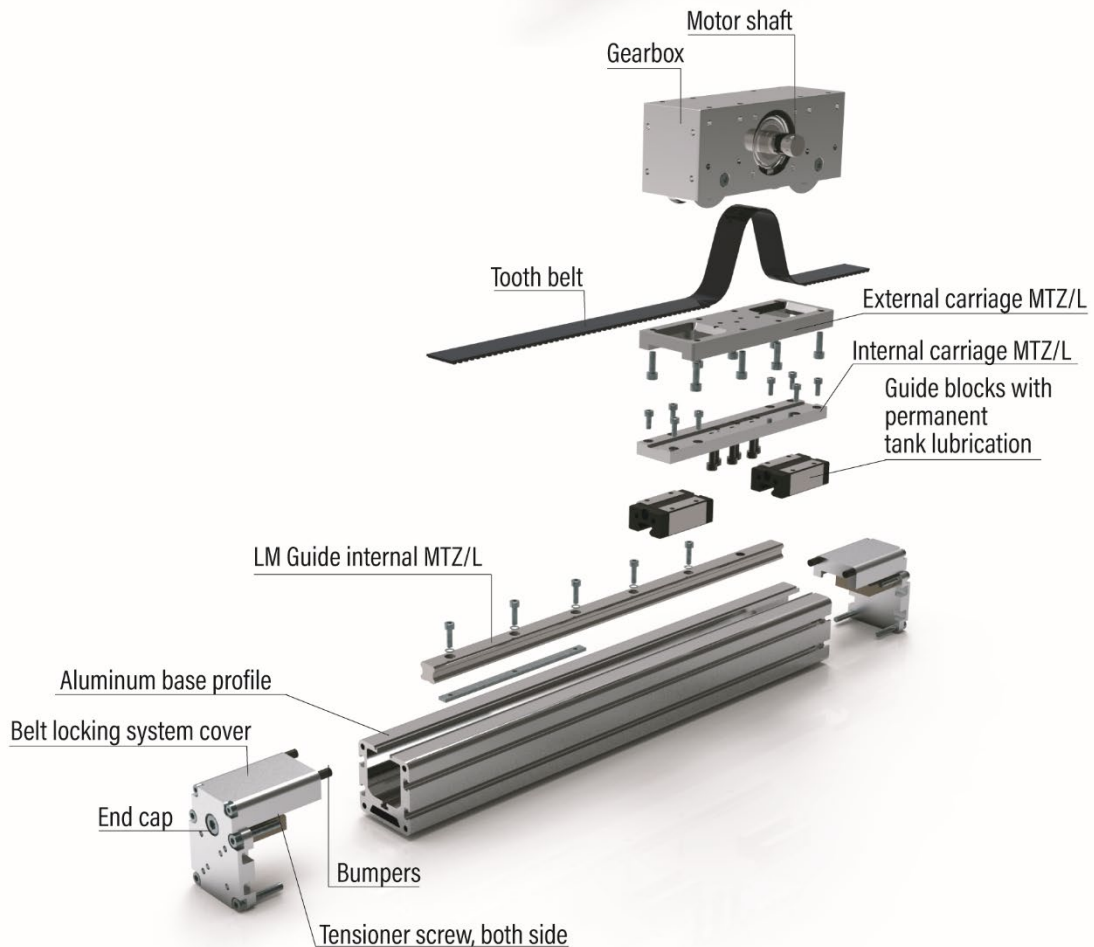
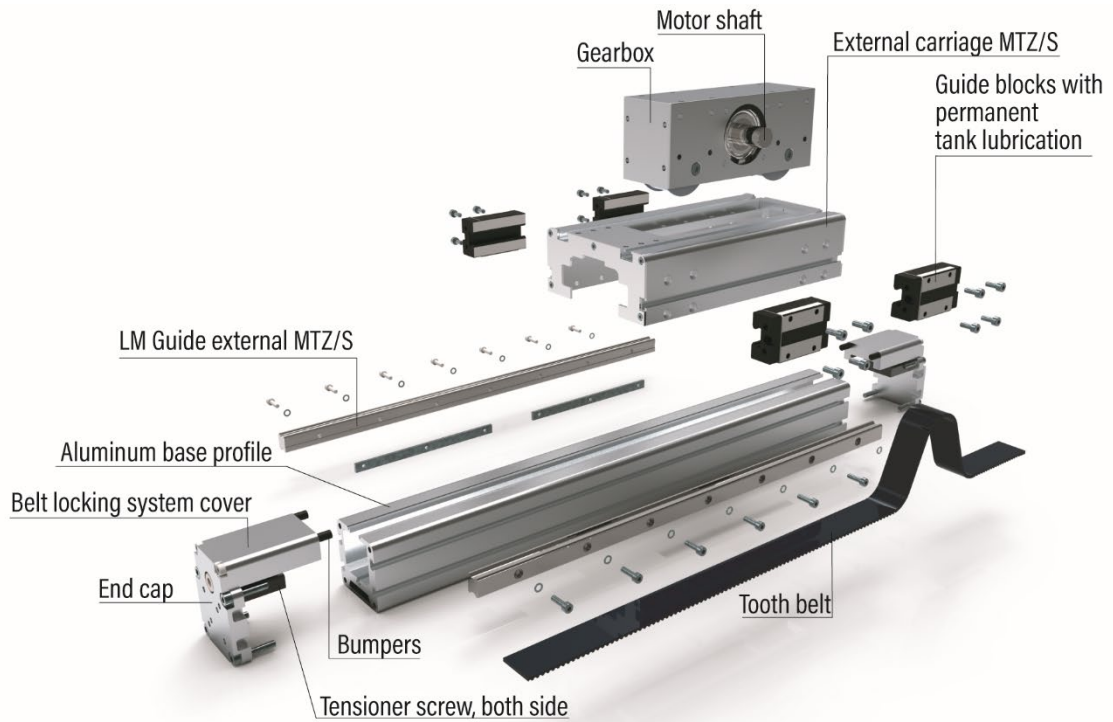
10. DESCRIPTION OF THE LINEAR UNIT



11. MAIN COMPONENTS

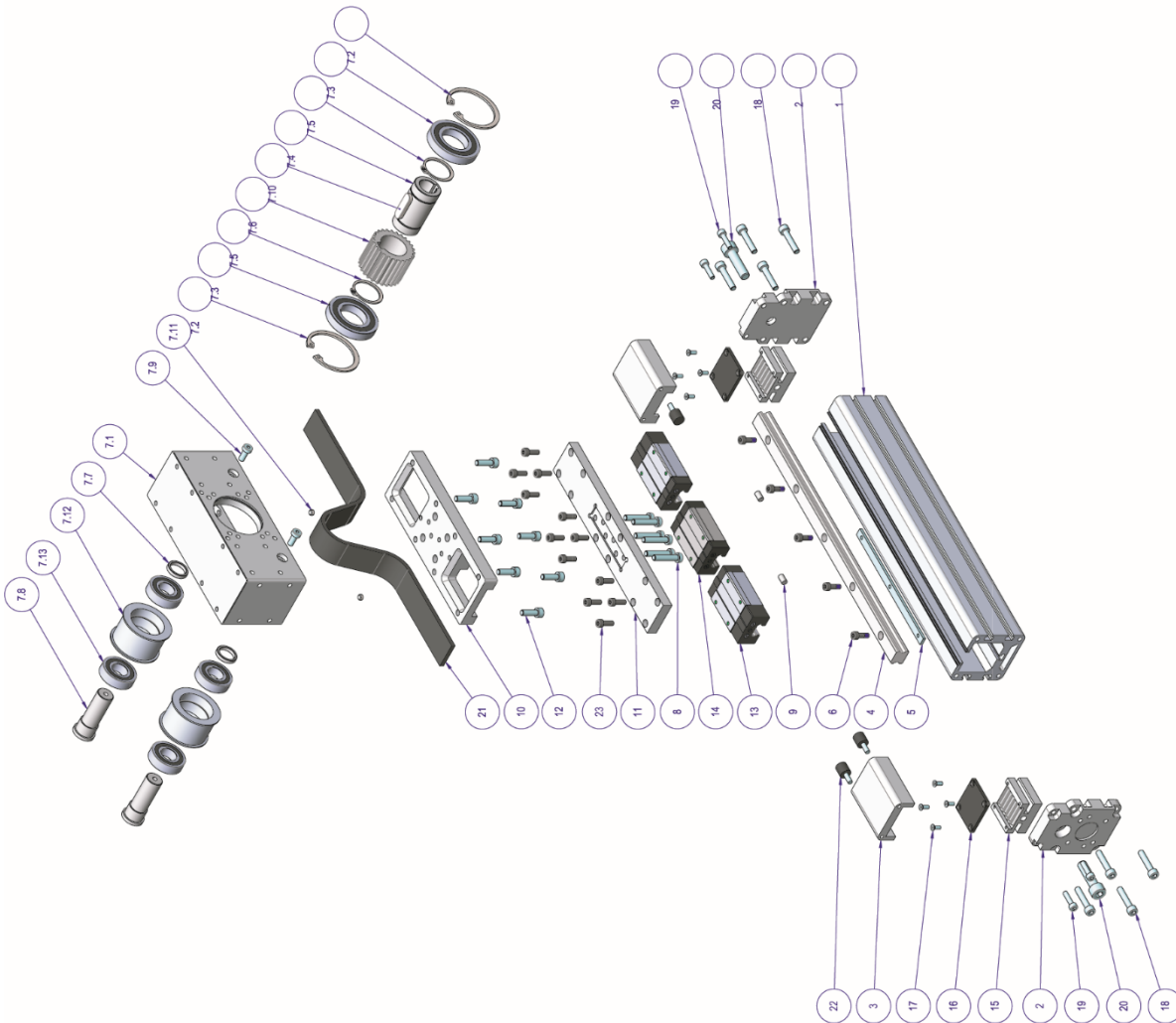


EXPLODED VIEW OF THE MAIN COMPONENTS



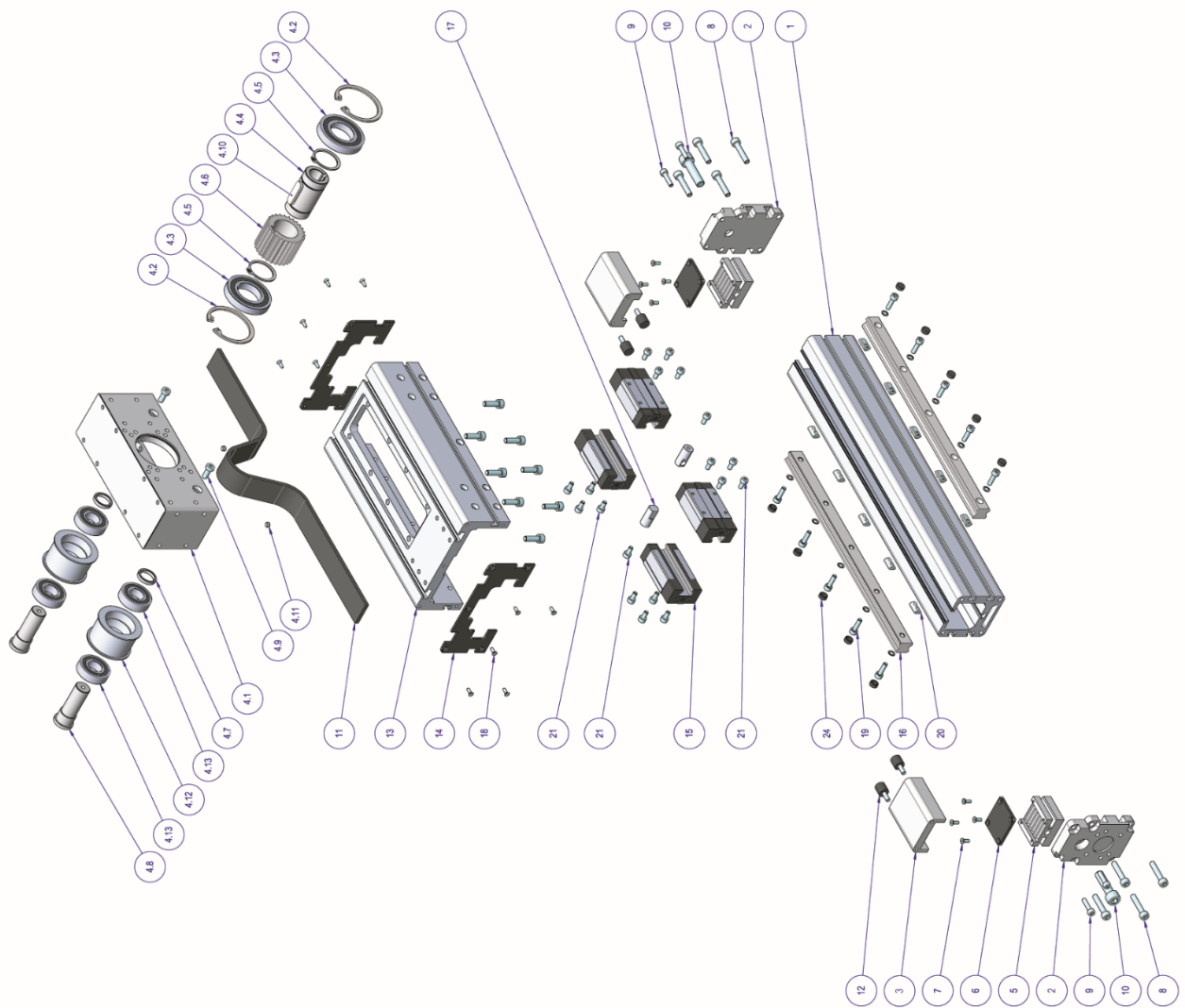
13. BOM MTZ55L

Pos.	Code	Descrizione	Q.tà
1	A1A001L-0284	PROFILO ALL. MASCHIATURA M5 L-CORSA+294 MM	1
2	A7W005A	TESTATA-ANODIZZATO MTZ55L	2
3	A7W012A	COPIERTURA TENDICINGHIA ANODIZZATO MTZ55L	2
4	A1G006-0284	GUIDA WON TG. 15 L-284	1
5	BA0A135	BARRETTA FILETTATA M16x55 MAX135	1
6	VTCE00-40-012-FF	VITE T.C.E. ISO4762 FRENAFIETTO - M4X12 N	5
7	A7PRM01-F16	KIT CARRELLO MTZ55L	1
7.1	A7W010A	CARRELLO SUPERIORE ANODIZZATO MTZ55L	1
7.2	SGF47	CIRCLIP PER FORI DIN472 - 47X1.75	2
7.3	CSR-16005-2RS	CUSCINETTO RADIALE A SFERE D47XD26X8	2
7.4	A7Y002-F16	ALBERO MOTORE FEMMINA Ø16 MTZ55L	1
7.5	SGA25	CIRCLIP PER ALBERI DIN471 - 25X1.2	2
7.6	A7S005	PULEGGIA MOTORE MTZ55L	1
7.7	A7Y003	DISTANZIALE PULEGGIA OZIOSA MTZ55L	2
7.8	A7Y001	PERNO PULEGGIA OZIOSA MTZ55L	2
7.9	VTRE20-50-012	VITE T.R.E. DIN984 - M5X12 Z	2
7.10	CHP8X7X28	CHIAVETTA PARALLELA DIN6885 8X7X28	1
7.11	VTCE00-50-003	GRANO CAVA ESAGONALE ISO4026 M5X3	2
7.12	A7Y002	PULEGGIA OZIOSA MTZ55L	2
7.13	CSR-06002-2RS	CUSCINETTO RADIALE A SFERE D32XD15X9	4
8	VTRE20-50-025	VITE T.R.E. DIN984 - M5X25 Z	6
9	A1W001	MAGNETE NEODIMIO Ø5X18	2
10	A7W016A	CARRELLO INTERMEDIO ANODIZZATO MTZ55L	1
11	A7W017	CARRELLO INFERIORE MTZ55L	1
12	VTCE20-50-016	VITE T.C.E. ISO4762 - M5X16 Z	8
13	A1D006LF	PATTINO IWON S'IRIUU CON 1 LF	2
14	A1D006	PATTINO WON S'IRIUU NO LF	1
15	A7W008V	BLOCCO TENDICINGHIA MTZ55L	2
16	A7X008V	PIASTRA BLOCCA CINGHIA VERNICIATO MTZ55L	2
17	VTSTM0-30-008	VITE T.S. TORX METRICA ISO14581 - M3X8	8
18	VTCE20-50-025	VITE T.C.E. ISO4762 - M5X25 Z	8
19	VTCE20-40-016	VITE T.C.E. ISO4762 - M4X16 Z	4
20	VTCE20-80-030	VITE T.C.E. ISO4762 - M8X30 Z	2
21	A7B101-0365	CINGHIA DENTATA W25 HTD5M MTZ55L L-CORSA+365	1
22	STOPPER-D10-M4	FERMO MECCANICO	4
23	VTCE00-40-012	VITE T.C.E. ISO4762 - M4X12 N	12



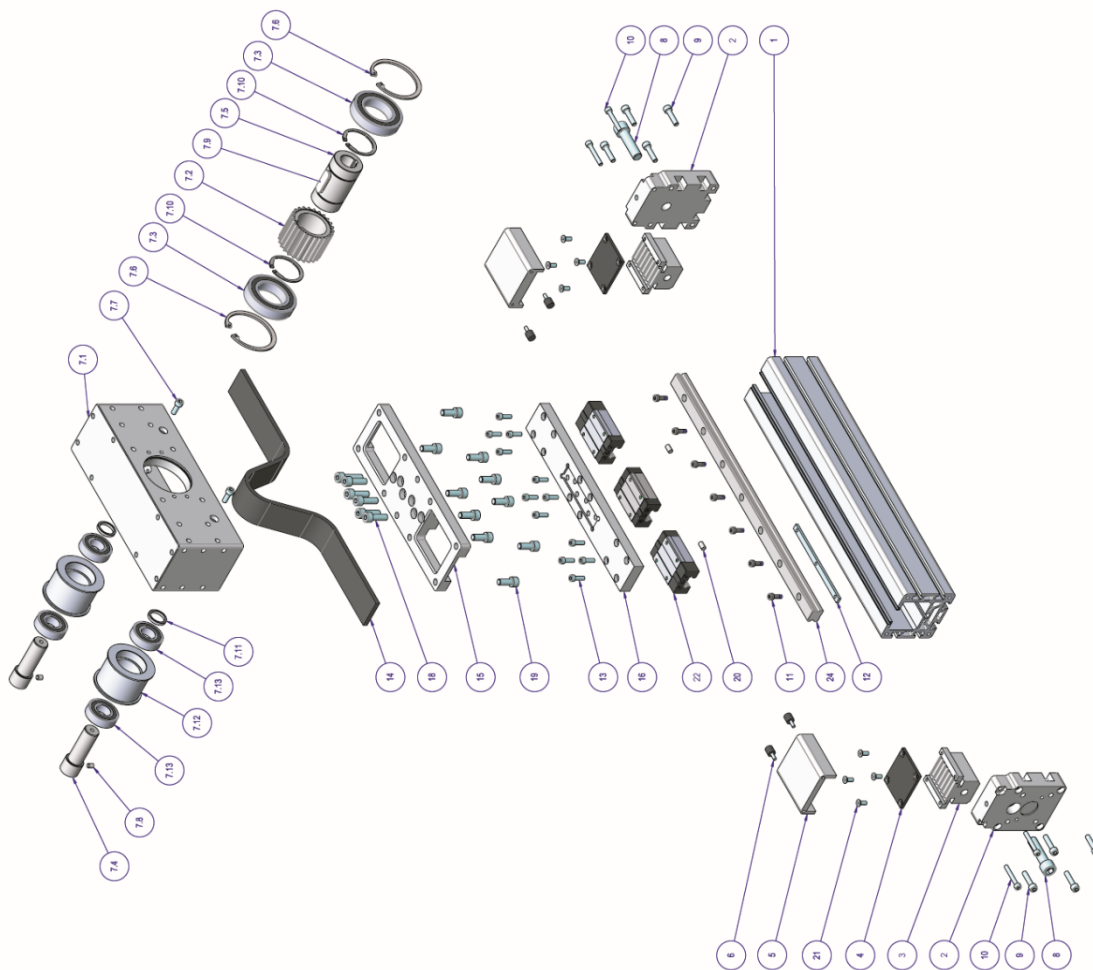
14. BOM MTZ55S

Pos.	Code	Descrizione	Q.tà
1	A1A001L-0386	PROFILO ALL. MASCHIATURA M5 L-CORSA+366 MM	1
2	A7W005A	TESTATA ANODIZZATO MTZ55LJS	2
3	A7W012A	COPERTURA TENDICINGHIA ANODIZZATO MTZ55LJS	2
4	A7PRM01-F16	KIT CARRELLO MTZ55L	1
4.1	A7W010A	CARRELLO SUPERIORE ANODIZZATO MTZ55LJS	1
4.2	SGF47	CIRCLIP PER FORI DIN472 - 47X1,75	2
4.3	CSR-16005-2RS	CUSCINETTO RADIALE A SFERE D47XD26X8	2
4.4	A7Y002-F16	ALBERO MOTORE FEMMINA Ø16 MTZ55LJS	1
4.5	SGA25	CIRCLIP PER ALBERI DIN471 - 25X1,2	2
4.6	A7S005	PULEGGIA MOTORE MTZ55LJS	1
4.7	A7Y003	DISTANZIALE PULEGGIA OZIOSA MTZ55LJS	2
4.8	A7Y001	PERNO PULEGGIA OZIOSA MTZ55LJS	2
4.9	V7REZ0,50-012	VITE T.R.E. DIN7984 - M5X12 Z	2
4.10	CHP8X7X28	CHIAVETTA PARALLELA DIN6885 8X7X28	1
4.11	V7TCE0,50-003	GRANDI CAVI ESAGONALI ISO4026 M5X3	2
4.12	A7Y002	PULEGGIA OZIOSA MTZ55LJS	2
4.13	CSR-06002-2RS	CUSCINETTO RADIALE A SFERE D32XD15X9	4
5	A7W009	BLOCCO TENDICINGHIA MTZ55LJS	2
6	A7X008V	PIASTRA BLOCCA CINGHIA VERNICIATO MTZ55LJS	2
7	V7STM0,30-008	VITE T.S. TORX METRICA ISO14581 - M3X8	8
8	V7CEZ0,50-025	VITE T.C.E. ISO4762 - M5X25 Z	8
9	V7CEZ0,40-016	VITE T.C.E. ISO4762 - M4X16 Z	4
10	V7CEZ0,50-030	VITE T.C.E. ISO4762 - M5X30 Z	2
11	A7B101-0425	CINGHIA DENTATA W25 HTD5M MTZ55S L-CORSA+425	1
12	STOPPER-D10-M4	FERMO MECCANICO	4
13	A7W013A	CARRELLO INFERIORE ANODIZZATO MTZ55S	1
14	A7X01TV	PIASTRA CARRELLO VERNICIATO MTZ55S	2
15	A1D006LF	PATTINO W0N S15RUU CON 1 LF	4
16	A1G006-0262	GUIDA W0N TG.15 L=262	2
17	A1Y006	PORTA MAGNETE MTZ55S	2
18	V7STA0,30-008	VITE T.S. TORX AUTOFORMANTE DIN7500M - M3X8	10
19	V7CEZ0,40-014	VITE T.C.E. ISO4762 - M4X14 Z	10
20	DTM05-M4	DADO A T.7,7X4 CAVA 5 M4	10
21	V7CEZ0,40-008	VITE T.C.E. ISO4762 - M4X8 Z	18
22	V7CEZ0,50-016	VITE T.C.E. ISO4762 - M5X16 Z	8
23	SCHZ-4	SCHNORR M4	10
24	TAP-M4	TAPPO VITE ISO4762	10



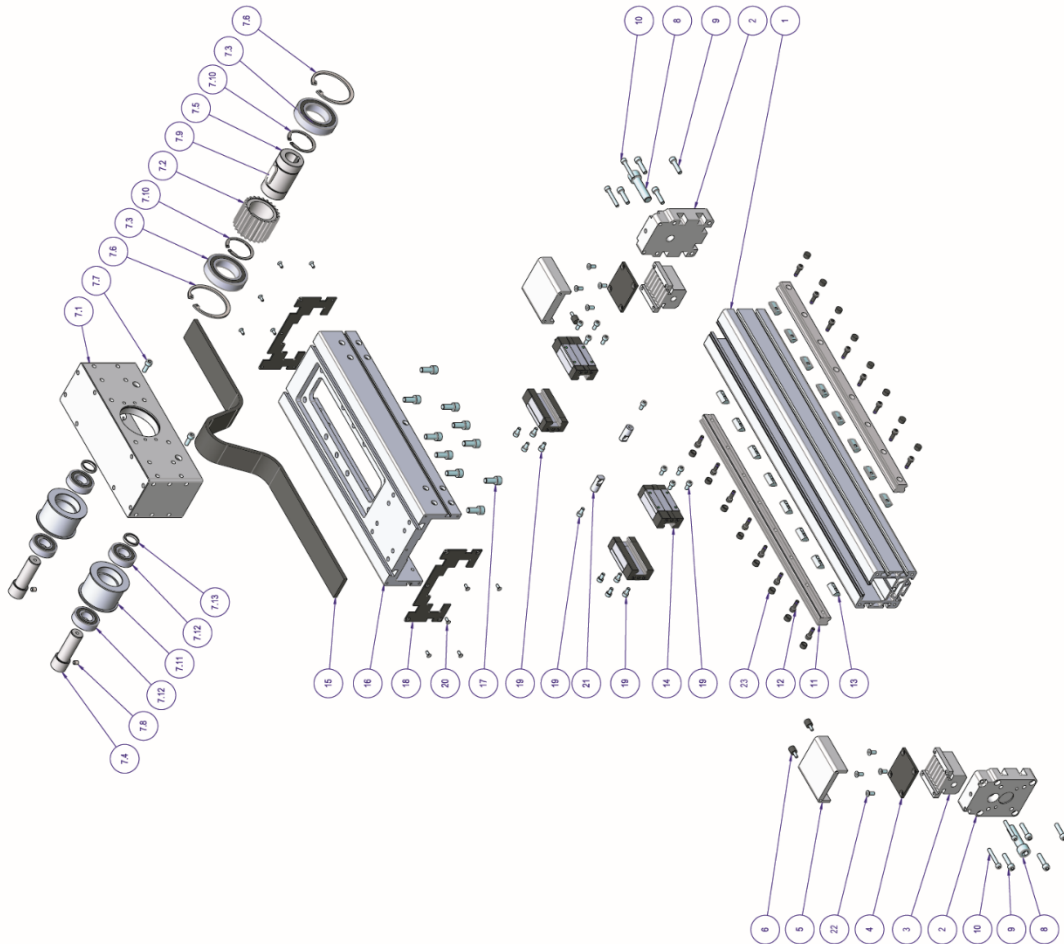
15. BOM MTZ80L

Pos.	Code	Descrizione	Q.tà
1	AZ4001L-0430	PROFILO ALL. MASCHIATURA M6 L=CORSA+430 MM	1
2	A8W005A	TESTATA ANODIZZATO MTZ80L/S	2
3	A8W009	BLOCCO TENDICINGHIA MTZ80L/S	2
4	A8X008V	PIASTRA BLOCCA CINGHIA VERNICIATO MTZ80L/S	2
5	A8W006A	COPERTURA TENDICINGHIA ANODIZZATO MTZ80L/S	2
6	STOPPER-D10-M4	FERMO MECCANICO	4
7	A8PRM01-F22	KIT CARRELLO MTZ80L	1
7.1	A8W010A	CARRELLO SUPERIORE ANODIZZATO MTZ80L/S	1
7.2	A8S005	PULLEGIA MOTORE MTZ80L/S	1
7.3	CSR-06008-2RS	CUSCINETTO RADIALE A SFERE D68XD40X15	2
7.4	A8Y001	PERNO PULLEGIA OZIOSA MTZ80L/S	2
7.5	A8Y002-F22	ALBERO MOTORE FEMMINA Ø22 MTZ80L/S	1
7.6	SGF68	CIRCLIP PER FORI DIN472 - 68X2,5	2
7.7	VTCEZ0.60-016	VITE T.C.E. ISO4762 - M6X16 Z	2
7.8	VSTCE0.60-008	GRANO CAVA ESAGONALE ISO4026 M6X8	2
7.9	CHP12X8X36	CHIAVETTA PARALLELA DIN6885 12X8X36	1
7.10	SGA40-V	CIRCLIP PER ALBERIV - 40X1,75	2
7.11	A8Y004	DISTANZIALE PULLEGIA OZIOSA MTZ80L/S	2
7.12	A8Y003	PULLEGIA OZIOSA MTZ80L/S	2
7.13	CSR-06004-2RS	CUSCINETTO RADIALE A SFERE D42XD20X12	4
8	VTCEZ1.20-045	VITE T.C.E. ISO4762 - M12X45 Z	2
9	VTCEZ0.60-025	VITE T.C.E. ISO4762 - M6X25 Z	8
10	VTCEZ0.50-035	VITE T.C.E. ISO4762 - M5X35 Z	4
11	VTCEZ0.50-014-FF	VITE T.C.E. ISO4762 FRENAFILETTO - M5X14 N	7
12	BA05X135	BARRETTA FILETTATA MTB80 M5X135	1
13	VTCEZ0.50-016	VITE T.C.E. ISO4762 - M5X16 Z	12
14	A88101-0535	CINGHIA DENTATA W16 AT05 MTZ80L L=CORSA+535	1
15	A8W016A	CARRELLO INTERMEDIO ANODIZZATO MTZ80L/S	1
16	A8W017	CARRELLO INFERIORE MTZ80L/S	1
17	VTCEZ0.80-030	VITE T.C.E. ISO4762 - M8X30 Z	1
18	VTCEZ0.80-025	VITE T.C.E. ISO4762 - M8X25 Z	5
19	VTCEZ0.80-020	VITE T.C.E. ISO4762 - M8X20 Z	10
20	A2N001	MAGNETE NEODIMIO Ø6X1,10	2
21	VTSTM0.50-012	VITE T.S. TORX METRICA ISO14581 - M5X12	8
22	A2D006LF	PATTINO WON S20RUU CON 1 LF	2
23	A2D006	PATTINO WON S20RUU NO LF	1
24	A2G006-0430	GUIDA WON TG.20 L=430	1



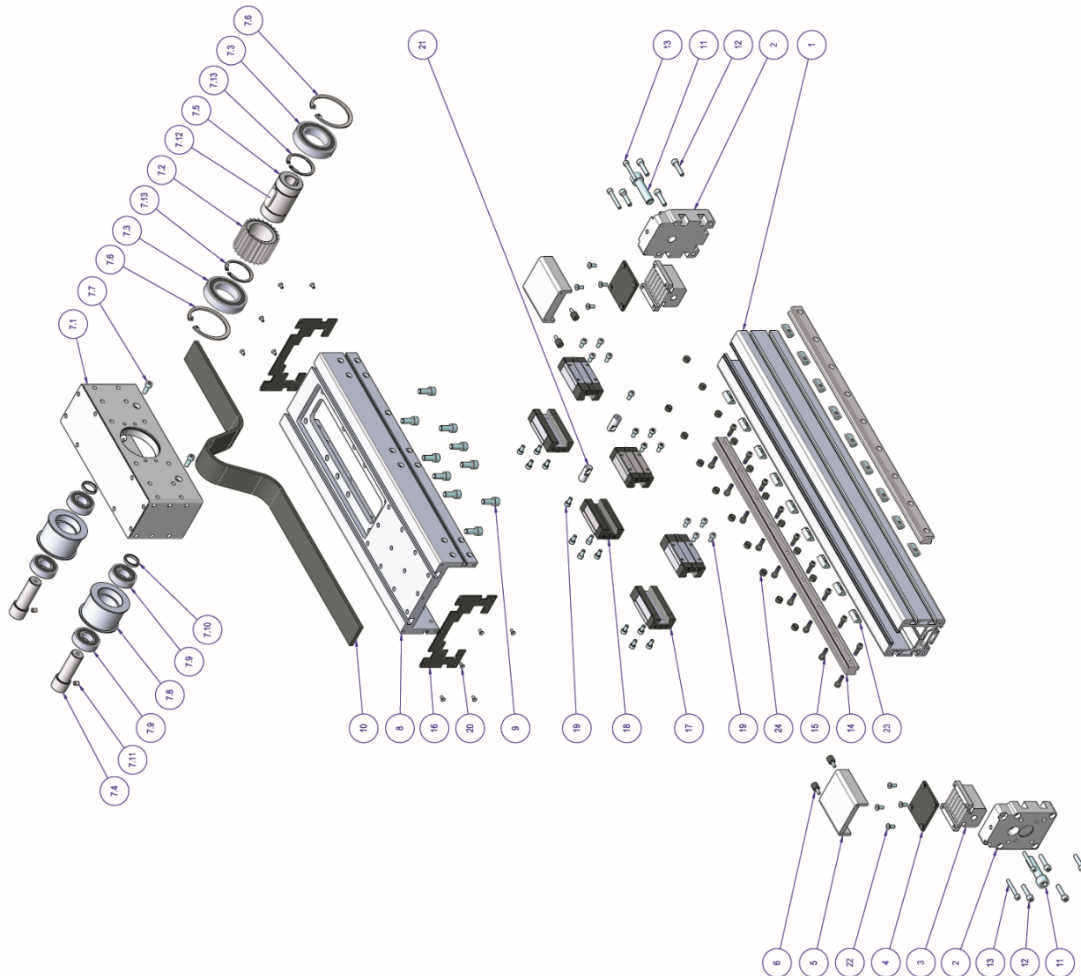
16. BOM MTZ80S

Pos.	Code	Descrizione	Q.tà
1	A2A001L-0574	PROFILO ALL. MASCHIATURA M6 L-CORSA+574 MM	1
2	A8W005A	TESTATA ANODIZZATO MTZ80L/S	2
3	A8W009	BLOCCO TENDICINGHIA MTZ80L/S	2
4	A8X008V	PIASTRA BLOCCA CINGHIA VERNICIATO MTZ80L/S	2
5	A8W006A	COPERTURA TENDICINGHIA ANODIZZATO MTZ80L/S	2
6	STOPPER-D10-M4	FERMO MECCANICO	4
7	A8PRM01-F22	KIT CARRELLO MTZ80L	1
7.1	A8W010A	CARRELLO SUPERIORE ANODIZZATO MTZ80L/S	1
7.2	A8S005	PULEGGIA MOTORE MTZ80L/S	1
7.3	CSR-06008-2RS	CUSCINETTO RADIALE A SFERE D68XD40X15	2
7.4	A8Y001	PERNO PULEGGIA OZIOSA MTZ80L/S	2
7.5	A8Y002-F22	ALBERO MOTORE FEMMINA Ø22 MTZ80L/S	1
7.6	SGF68	CIRCLIP PER FORI DINM72 - 68X2,5	2
7.7	VTCE20-60-016	VITE T.C.E. ISO4762 - M6X16 Z	2
7.8	VSTCE0-60-008	GRANO CAVA ESAGONALE ISO4026 M6X8	2
7.9	CHP12X8X36	CHIAVETTA PARALLELA DIN6885 12X8X36	1
7.10	SGA40-V	CIRCLIP PER ALBERI V - 40X1,75	2
7.11	A8Y003	PULEGGIA OZIOSA MTZ80L/S	2
7.12	CSR-06004-2RS	CUSCINETTO RADIALE A SFERE D42XD20X12	4
7.13	A8Y004	DISTANZIALE PULEGGIA OZIOSA MTZ80L/S	2
8	VTCE21-20-045	VITE T.C.E. ISO4762 - M12X45 Z	2
9	VTCE20-60-025	VITE T.C.E. ISO4762 - M6X25 Z	8
10	VTCE20-50-035	VITE T.C.E. ISO4762 - M5X35 Z	4
11	A2G006-0444	GUIDA WON TG.20 L=444	2
12	VTCE0-50-016-FF	VITE T.C.E. ISO4762 FRENAFILETTO - M5X16 N	16
13	DTM06-M5	DADO A T. 13,5X7,2 CAVA 8 M5	16
14	A2D006LF	PATTINO WON SZ0RUU CON 1 LF	4
15	ABB101-0680	CINGHIA DENTATA W16 AT05 MTZ80S L-CORSA+680	1
16	A8W013A	CARRELLO INFERIORE ANODIZZATO MTZ80S	1
17	VTCE20-60-020	VITE T.C.E. ISO4762 - M6X20 Z	10
18	A8X011V	PIASTRA CARRELLO VERNICIATO MTZ80S	2
19	VTCE20-50-010	VITE T.C.E. ISO4762 - M5X10 Z	18
20	VTSTA0-40-010	VITE T.S. TORX AUTIFORMANTE DIN7500M - M4X10	10
21	A2Y006	PORTA MAGNETE MTS80	2
22	VTSTM0-50-012	VITE T.S. TORX METRICA ISO14581 - M5X12	8
23	TAP-M5	TAPPO VITE ISO4762	16



17. BOM MTZ80SL

Pos.	Code	Descrizione	Q.tà
1	A2A001L-0634	PROFILO ALL. MASCHIATURA M6 L=CORSA+634 MM	1
2	A8W005A	TESTATA ANODIZZATO MTZ80L/S	2
3	A8W009	BLOCCO TENDICINGHIA MTZ80L/S	2
4	A8X008V	PIASTRA BLOCCA CINGHIA VERNICIATO MTZ80L/S	2
5	A8W006A	COPERTURA TENDICINGHIA ANODIZZATO MTZ80L/S	2
6	STOPPER-D10-M4	FERMO MECCANICO	4
7	A8PRM01-F22	KIT CARRELLO MTZ80L	1
7.1	A8W010A	CARRELLO SUPERIORE ANODIZZATO MTZ80L/S	1
7.2	A8S005	PULEGGIA MOTORE MTZ80L/S	1
7.3	CSR-06008-2RS	CUSCINETTO RADIALE A SFERE D68XD40X15	2
7.4	A8Y001	PERNO PULEGGIA OZIOSA MTZ80L/S	2
7.5	A8Y002-F22	ALBERO MOTORE FEMMINA Ø22 MTZ80L/S	1
7.6	SGF68	CIRCLIP PER FORI DIN472 - 68X2,5	2
7.7	VTCEZ0 60-016	VITE T.C.E. ISO4762 - M6X16 Z	2
7.8	A8Y003	PULEGGIA OZIOSA MTZ80L/S	2
7.9	CSR-06004-2RS	CUSCINETTO RADIALE A SFERE D42XD20X12	4
7.10	A8Y004	DISTANZIALE PULEGGIA OZIOSA MTZ80L/S	2
7.11	VSTCE0 60-008	GRANO CAVA ESAGONALE ISO4026 M6X8	2
7.12	CHP12X8X36	CHIAVETTA PARALLELA DIN6885 12X8X36	1
7.13	SGA40-V	CIRCLIP PER ALBERI V - 40X1,75	2
8	A8W013A-0460	CARRELLO INFERIORE ANODIZZATO MTZ80SL	1
9	VTCEZ0 80-020	VITE T.C.E. ISO4762 - M8X20 Z	10
10	A8B101-0740	CINGHIA DENTATA W16 AT05 MTZ80SL L=CORSA+740	1
11	VTCEZ1 20-045	VITE T.C.E. ISO4762 - M12X45 Z	2
12	VTCEZ0 60-025	VITE T.C.E. ISO4762 - M6X25 Z	8
13	VTCEZ0 50-035	VITE T.C.E. ISO4762 - M5X35 Z	4
14	A2G006-0504	GUIDA WON TG 20 L=504	2
15	VTCE00 50-016-FF	VITE T.C.E. ISO4762 FRENAFILETTO - M5X16 N	18
16	A8X011V	PIASTRA CARRELLO VERNICIATO MTZ80S	2
17	A2D006LF	PATTINO WON SZORUU CON 1 LF	4
18	A2D006	PATTINO WON SZORUU NO LF	2
19	VTCEZ0 50-010	VITE T.C.E. ISO4762 - M5X10 Z	26
20	VTSTA0 40-008	VITE T.S. TORX AUTOFORMANTE DIN7500M - M4X8	10
21	A2Y006	PORTA MAGNETE MTS80	2
22	VTSTM0 50-012	VITE T.S. TORX METRICA ISO14581 - M5X12	8
23	DTM08-M5	DADO A T 13.5X7,2 CAVA 8 M5	18
24	TAP-M5	TAPPO VITE ISO4762	18



18. BELT TENSION ADJUSTMENT

The units are already supplied with the belt properly tensioned, the instrument used, Trummeter, is an infrared device that reads the frequency of the belt vibration and through internal software transforms it into Newtons (thrust force achieved).

In case it is necessary to adjust the belt act as described in the table in the following figure.

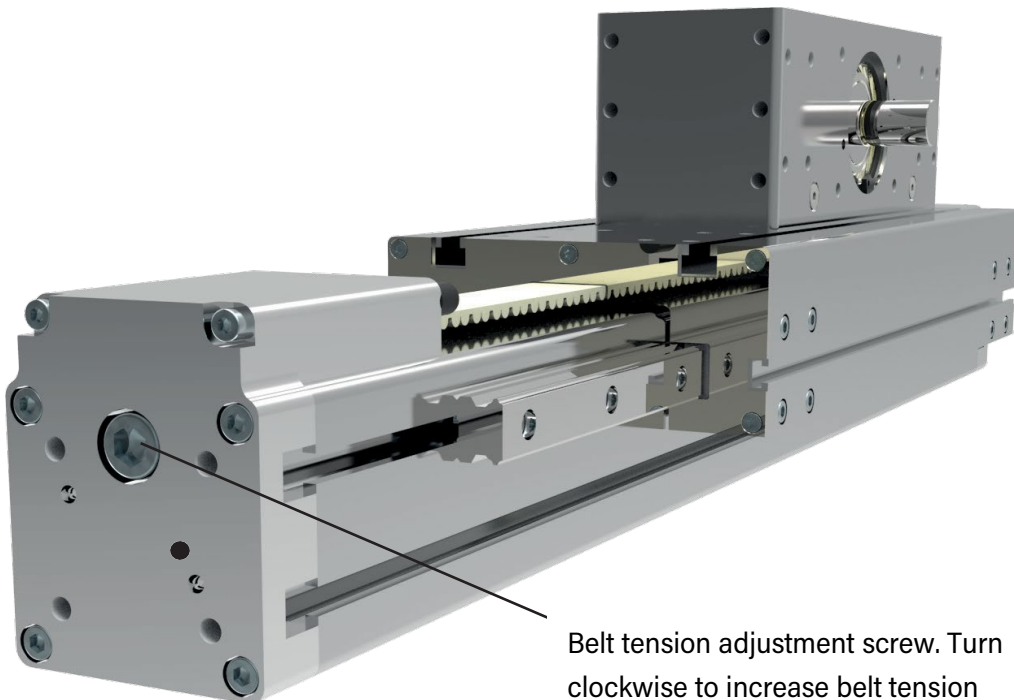
In case a belt tensioning tool is not available, it is necessary to proceed empirically:

- Bring the carriage about 200 mm from the head, apply a force at about 30 Newtons, the belt should not yield more than 2-3 mm.

Proper operation of the linear unit depends on the required thrust force and belt tension ratio.

Remember that:

- An overly "tensioned" belt leads to increased friction (higher residual torque without load) and increased mechanical stress on the bearings and the belt itself, in which case reduce the tension.
- A poorly "tensioned" belt, can lead to loss of precision and in case of sudden acceleration, the belt can lose pitch (slip on the pulley), in this case increase the tension.
- We recommend acting on the screw a quarter turn at a time.



Belt tension adjustment screw. Turn clockwise to increase belt tension (increases thrust force capacity). Turn counterclockwise to decrease belt tension (decreases thrust force capacity).

19. LUBRIFICATION

The units are already supplied with lubricated guides, the grease used is a special nanotechnology grease, (Teflon particles are less than nano, 10⁻⁹, so they are able to reach deeper) which allows the unit to be used for a longer time than standard lubricating greases.

MTZ units, are supplied with lubrication tanks with solid-state lubricant that allow for good lubrication regardless of the units' working position (vertical, horizontal, or inclined).

20. WARRANTY CONDITIONS

The guarantee conditions are set out in the terms and conditions of delivery and payment issued at the time of the order.

Warranty coverage shall be voided if:

- the unit is not used in accordance with the appropriate use of the unit.
- the instructions in this manual are not followed.
- the unit is modified without the manufacturers consent.
- the screws sealed with paint are unlocked.

The manufacturer's warranty for maintenance and repair applies only if original spare parts are used.

21. MAINTENANCE CONTACTS

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