INSTRUCTION MANUAL

3arm®

HEAD MEMBERS

ANNEX

SERIES 7

TECNOSPIRO MACHINE TOOL, S.L.U.
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ISO 9001
BUREAU VERITAS
Certification

TECNOSPIRO
MACHINE TOOL SLU

DESIGN & QUALITY
3arm
Made in Barcelona

www.3arm.net

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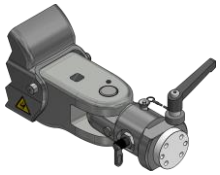
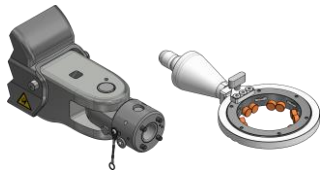
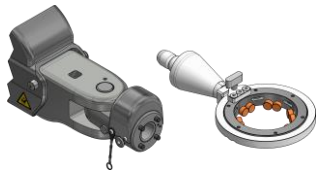
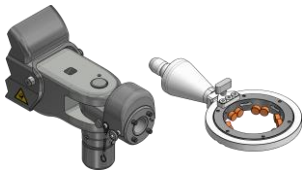
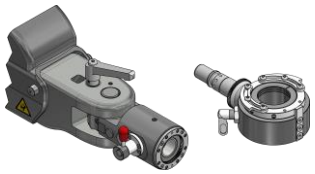
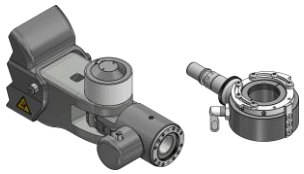
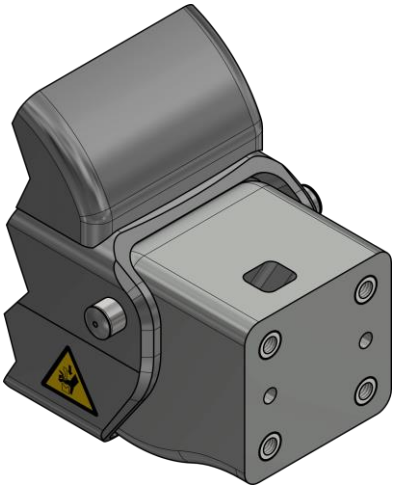
Date of revision: 10/04/2024

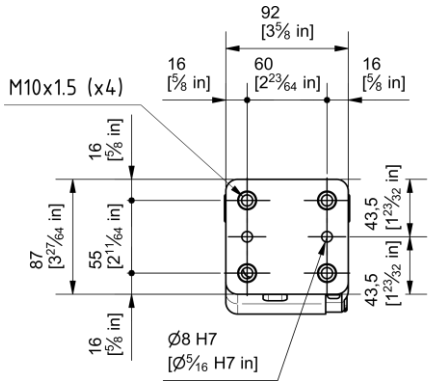
1. LIST OF HEAD MEMBERS S7

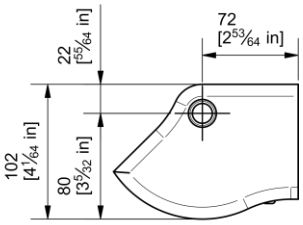
				
B7 - Vertical flat 0 kg **M72127600**	**E7** – Rotative 3 kg **M72107A0**	**E17**– Rotative with manual lock 4 kg **M72113A0**	**E27** – Rotative with pneumatic lock 4 kg **M72112A0**	**Q7** – Multi-position 2 kg **M72108A0 + MV7JAxxx (Timco)** **M72108A0 + MV7JBxxx (Timsand)** **M72108A0 + MV7JCxxx (TRS Timco)** **M72108A0 + MV7JDxxx (TRS Timsand)** **M72108A0 + MV7JUxxx (Custom)**
				
QA7 – Safety multi-position 2.5 kg **M7227500 + MV7JAxxx (Timco)** **M7227500 + MV7JBxxx (Timsand)** **M7227500 + MV7JCxxx (TRS Timco)** **M7227500 + MV7JDxxx (TRS Timsand)** **M7227500 + MV7JUxxx (Custom)**	**QA27** – Safety multi-position with pneumatic lock x kg **M7227400 + MV7JAxxx (Timco)** **M7227400 + MV7JBxxx (Timsand)** **M7227400 + MV7JCxxx (TRS Timco)** **M7227400 + MV7JDxxx (TRS Timsand)** **M7227400 + MV7JUxxx (Custom)**	**R7 -** Revolver + Rotative flange (bending tool) 2.5 kg **M7218600 + M7Rxxx04 (Rotative)**	**RS7 –** Automatic Double Revolver + Rotative Flange (bending tool) 3.5 kg **M7227300 + M7Rxxx04 (Rotative)**	**U7** – Multi-position 1.6 kg **M72108A0 + MV7KAxxx (Timco)** **M72108A0 + MV7KBxxx (Timsand)** **M72108A0 + MV7KCxxx (TRS Timco)** **M72108A0 + MV7KDxxx (TRS Timsand)** **M72108A0 + MV7WUxxx (Custom)**
				
UA7 – Safety multi-position 2 kg **M7227500 + MV7KAxxx (Timco)** **M7227500 + MV7KBxxx (Timsand)** **M7227500 + MV7KCxxx (TRS Timco)** **M7227500 + MV7KDxxx (TRS Timsand)** **M7227500 + MV7WUxxx (Custom)**	**UA27** – Safety multi-position with pneumatic lock 2 kg **M7227400 + MV7KAxxx (Timco)** **M7227400 + MV7KBxxx (Timsand)** **M7227400 + MV7KCxxx (TRS Timco)** **M7227400 + MV7KDxxx (TRS Timsand)** **M7227400 + MV7WUxxx (Custom)**	**W27** – Vertical extension with pneumatic lock 1.2 kg **M7225200 + Extension**		

2. HEAD MEMBERS

2.1. VERTICAL FLAT – B
M7217600



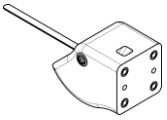




MAXIMUM TORQUE – Fixed flange (Nm)	
Vertical	**Horizontal**
1000	500

Operation L53 [See Arm locking p. 30].

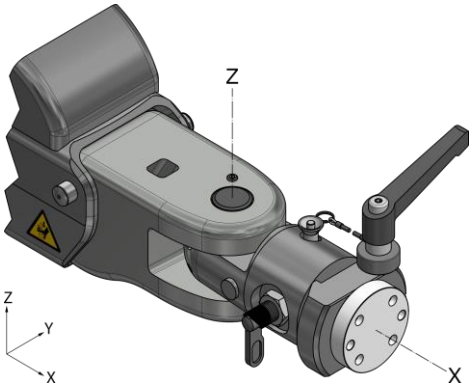
2.1.1. Spare parts

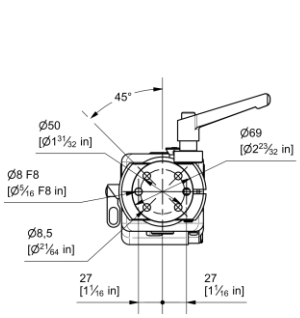
M7217600R	VERTICAL FLAT HEAD MEMBER	

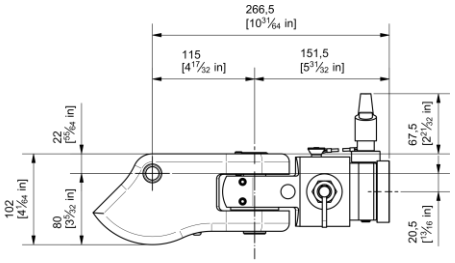
2.2. ARTICULATED ROTATIVE FLAT – E.

M72107A0

E7 - No lock

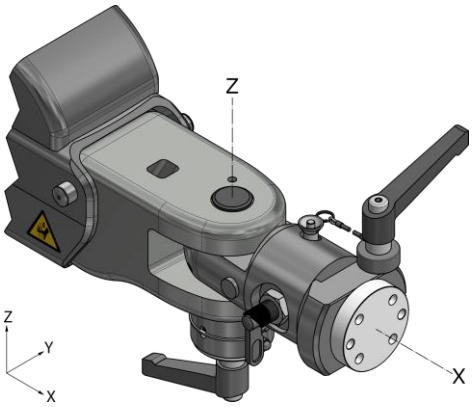


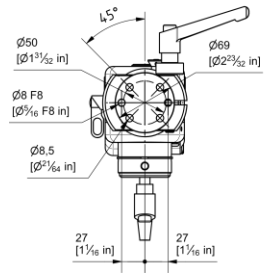


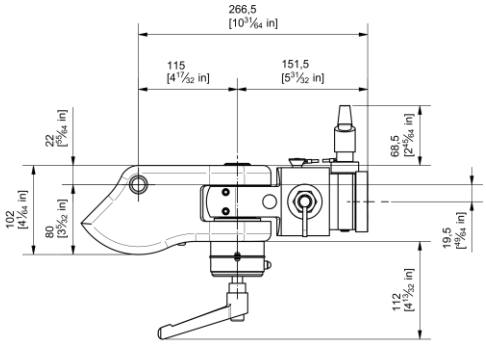


M72113A0

E17 - Manual lock[1]

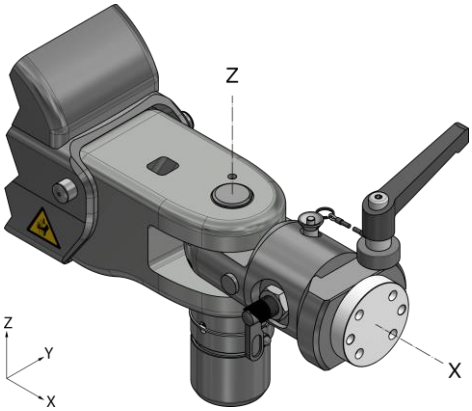


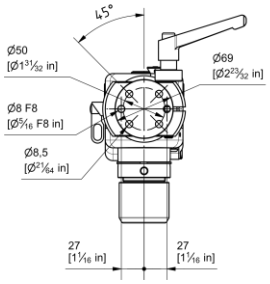


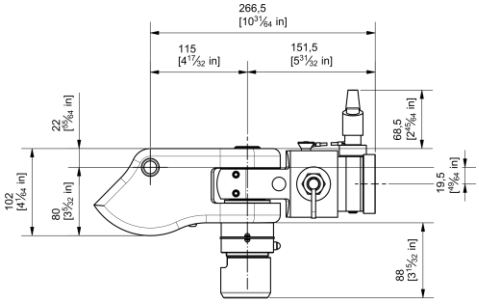


M72112A0

E27 - Pneumatic lock[2]







X: Turn 360º (4 x 90º). Manual lock in any position

Z: Turn ±90º.

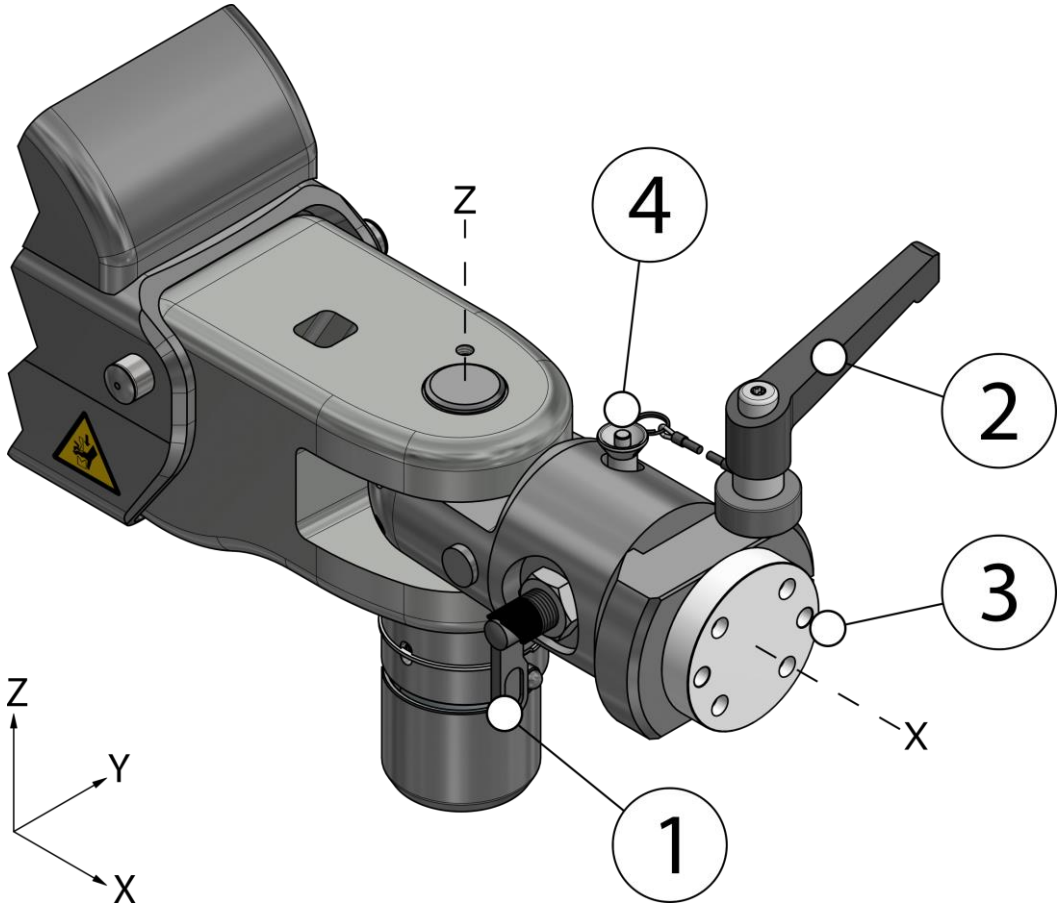
MAXIMUM TORQUE (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
E17	180	180	180
E27	120	120	120

[1] E17: Z axis, manual lock in any position

[2] E27: Z-axis, pneumatic lock in any position (requires L22 lock in the arm).

2.2.1. Movements and locks

The Positioner (1) releases/locks movement at X (360º, 4 x 90º).
The lever (2) releases/locks movement at X in any position.
To remove the crankpin (3) release the positioner (1), loosen the lever (2) and remove the positioner (4).



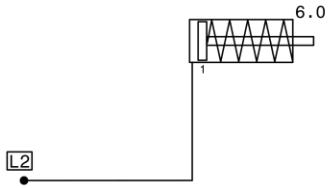
The pneumatic lock (Z axis) is activated/deactivated with the rest of the radial arm locks:

- Only on arms with L22 locks, it works with the radial lock selector

For more information consult the arm manual.

2.2.2. Pneumatic scheme

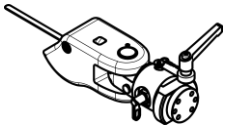
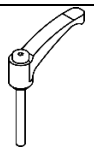
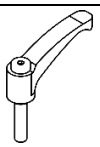
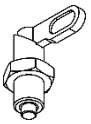
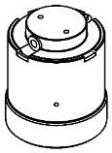
REF	QUANT	CODE	DESCRIPTION
6.0	1	MV405504	RADIAL ARM LOCK CYLINDER



DESCRIPTION	CODE
PNEUMATIC SCHEME - HEADMEMBER BRAKE	PNEUS30008

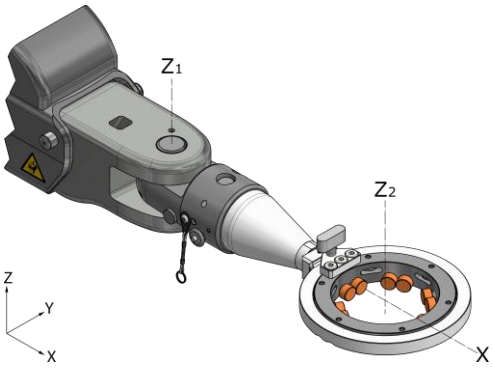
*				
	NAME	DATE	REVISION	
DRAWN BY	D. Gil	18/05/2022	0	TECNOSPIRO MACHINE TOOL SLU
APPROVED BY	OSCAR	18/05/2022		

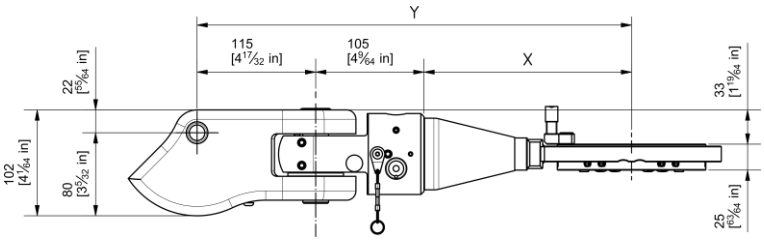
2.2.3. Spare parts

M72107A0R	ARTICULATED ROTATIVE HEAD MEMBER	
CM166300	LEVER M10x80 [Axis X]	
CM165400	LEVER M12x20 [Axis Z]	
W5206400	POSITIONER M16x1.5	
CM158300	POSITIONER Ø6x50	
MV405504	RADIAL ARM LOCKING CYLINDER	
MV405903	CYLINDER COVER 42	
MV4062A4	RADIAL PADS L22-L92 SPARE KIT	

2.3. MULTI-POSITION – Q

M72108A0
Q7 – No lock



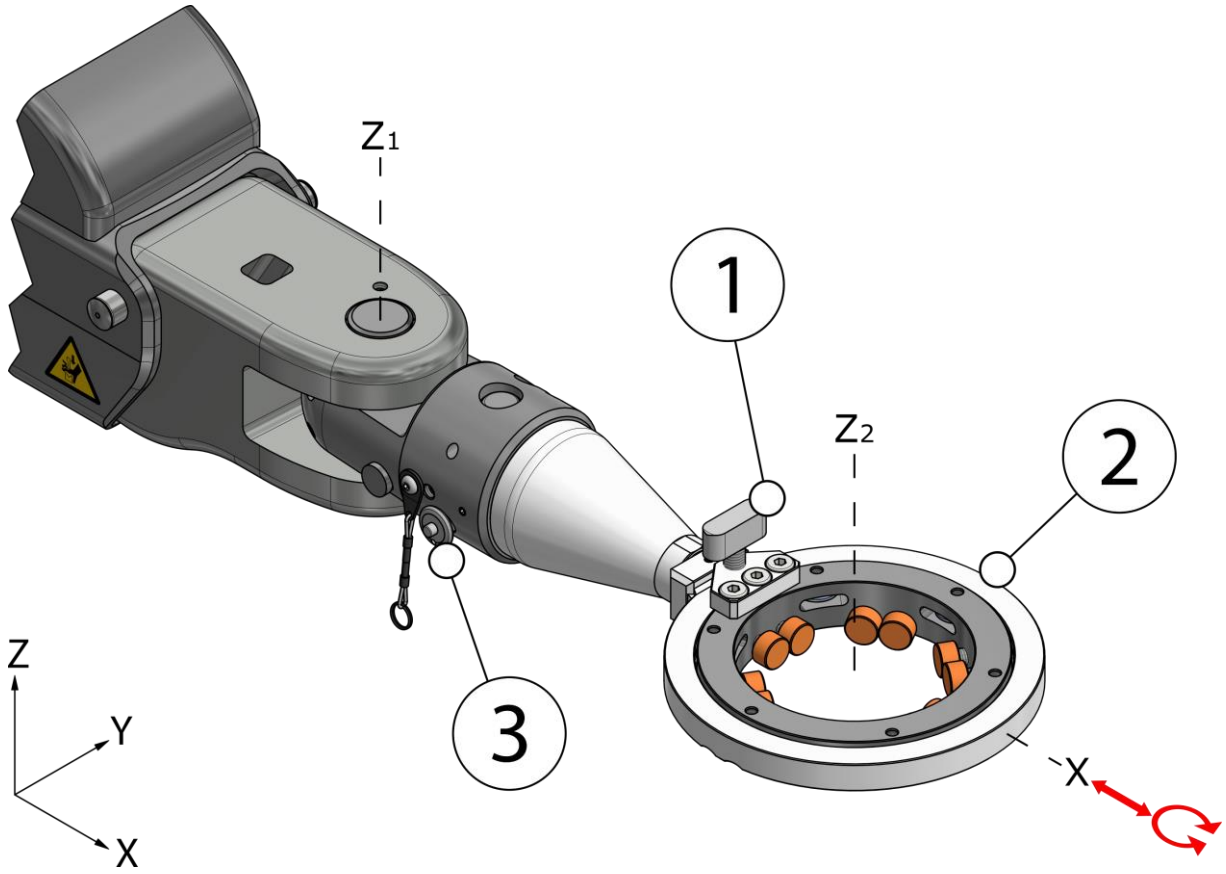


Z_1: Turn ±90º. Not lockable.[3]
Z_2: Turn 360º. Adjust smoothness of the rotation and fastening of the position
X: 4 x 90º

[3] Q17: Manual lock in any position.
Q27: Pneumatic lock in any position (requires L22 lock in the arm).

2.3.1. Movements

With the knob (1), adjust the smoothness of the rotation with the option to set the position to Z_2.
To rotate the ring (2), remove the positioner (3), partially pull out the ring (2) to be able to rotate it (4 x 90º).
Once rotated, put the ring (2) back in and place the positioner (3).

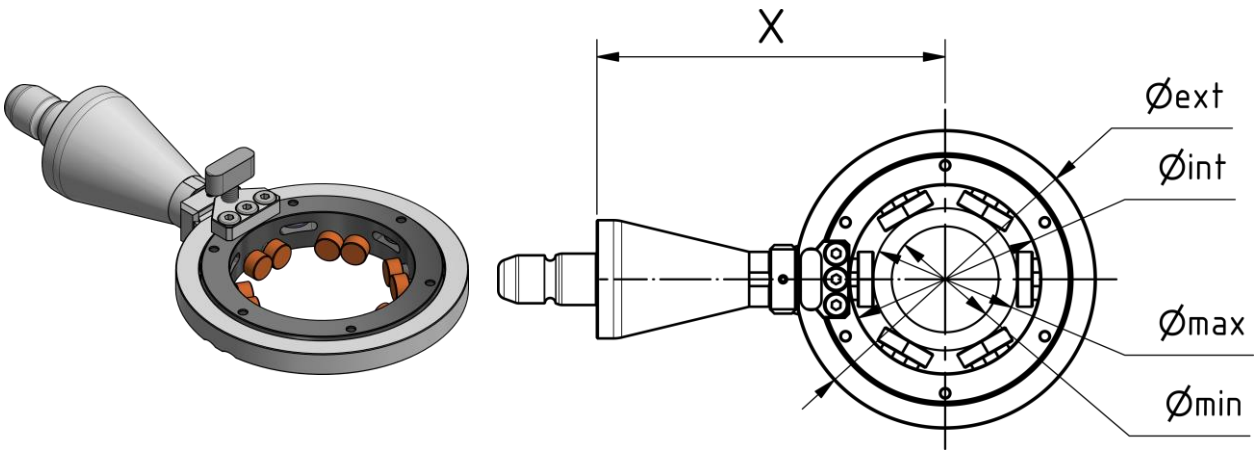


WARNING

✓ To remove the ring (2), tilt the arm to its highest position to avoid an abrupt upward reaction of the arm.

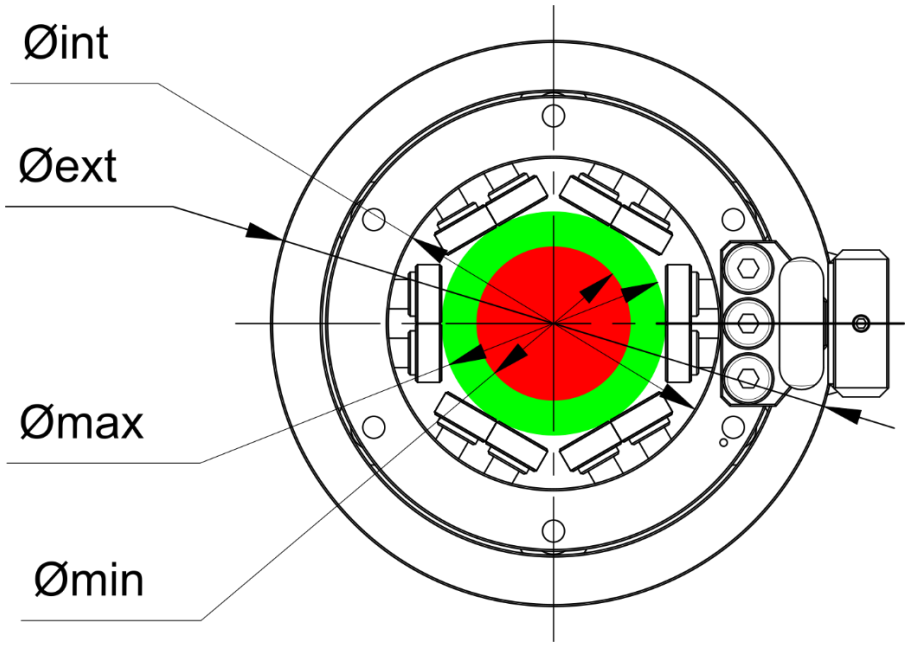
2.3.2. Type A drum: REINFORCED TIMCO

Suitable for any type of tool. ***Ref: MV7JAxxx (xxx = inner diameter in mm)***



- The X dimension is approximately the outer radius plus 146 mm ($X = \frac{Øext}{2} + 146$)
- Other dimensions upon request
- For applications with vibration tools (impact, pulse, etc.) consult your distributor

2.3.2.1. Dimensions REINFORCED TIMCO

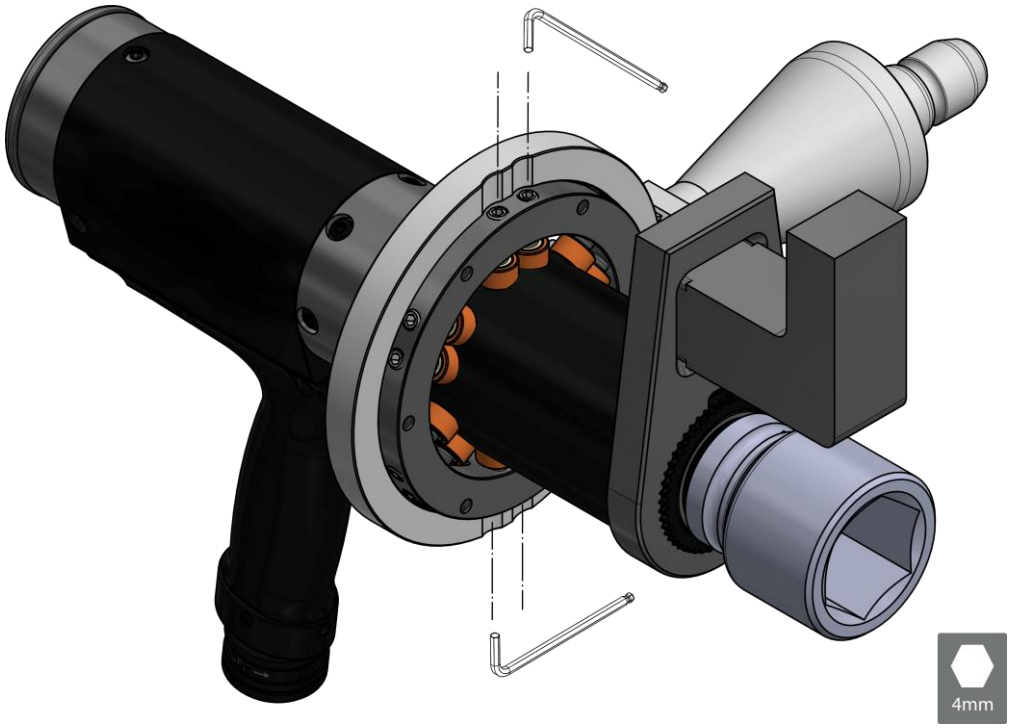


Ø int		Ø ext		Ø min – Ø max tool	
mm	*Inches*	mm	*Inches*	mm	*Inches*
80	*3 5/32″*	144	*5 43/64″*	35 - 67	*1 3/8″ - 2 41/64″*
90	*3 35/64″*	154	*6 1/16″*	45 - 73	*1 49/64″ - 2 7/8″*
100	*3 15/16″*	164	*6 29/64″*	55 - 83	*2 11/64″ - 3 17/64″*
110	*4 21/64″*	174	*6 27/32″*	65 - 93	*2 9/16″ - 3 21/32″*
120	*4 23/32″*	184	*7 1/4″*	75 - 103	*2 61/64″ - 4 1/16″*
130	*5 1/8″*	194	*7 41/64″*	85 - 113	*3 11/32″ - 4 29/64″*
140	*5 33/64″*	204	*8 1/32″*	95 - 123	*3 47/64″ - 4 27/32″*
150	*5 29/32″*	214	*8 27/64″*	105 - 133	*4 9/64″ - 5 15/64″*
160	*6 19/64″*	224	*8 13/16″*	115 - 143	*4 17/32″ - 5 5/8″*
170	*6 11/16″*	234	*9 7/32″*	125 - 153	*4 59/64″ - 6 1/32″*
180	*7 3/32″*	244	*9 39/64″*	135 - 163	*5 5/16″ - 6 27/64″*

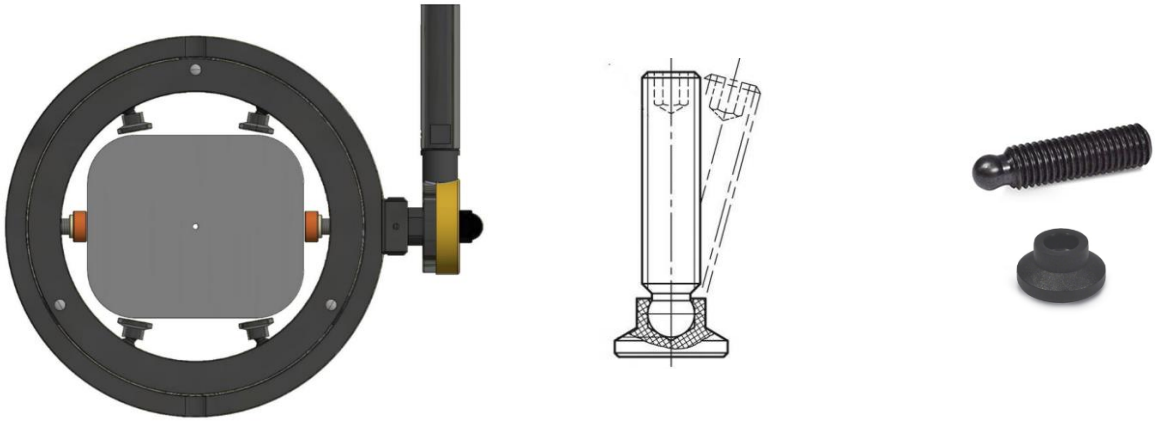
- The diameter of the tool must be in the green zone (between Ø min and Ø max).
- Other dimensions upon request

2.3.2.2. Assembly of the tool

1- Place the tool on the rotating shaft, so that the weight is balanced on both sides of the shaft.
2- Once you have the tool situated you must match the notches of the outer ring with the head of the Allen screw. The tool must be screwed together progressively and in the form of an "X".



In order to hold the tool in the right way[4], Tecnospiro recommends using headless ball point Allen pins for push pads. This component allows fastening the tool from all sides, and adjusting the pads to the surface of the tool.



[4] Optionally, to obtain an optimal fit you can fabricate a custom adapter.

2.3.2.3. Accessories included

Next to the type A drums (TIMCO), two types of ***caps (nylon and rubber)*** and ***pins (DIN-913 M8x25 and DIN-913 M8x20) are included.*** *(By default it is supplied mounted with nylon cap and pins DIN-913 M8x20).*

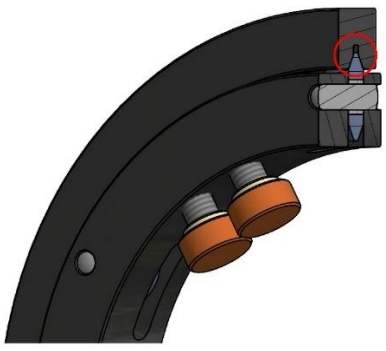
Nylon cap **MV31B803**	**Rubber cap** **MV31F303**
Material: Nylon *Identifying colour:* Translucent white *Tightening level:* High *Adjustment Level:* Medium 	*Material:* Polyurethane *Identifying colour:* Red *Tightening level:* Medium *Adjustment Level:* High 

ⓘ **Rubber caps** (polyurethane)**:**

- They should be used for applications with vibrations (impact tools), or with fragile tools (plastic housings).
- The rubber caps should fit together with the nylon caps, so the free space for the tool will be reduced.

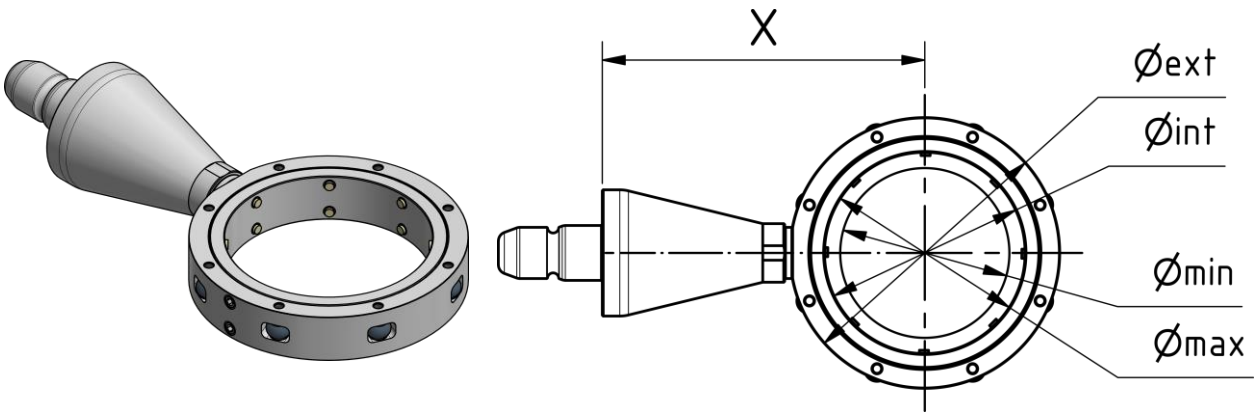
2.3.2.4. Maintenance and cleaning of the drums

To keep the rotating drums clean, Tecnospiro recommends blowing air periodically into the drum while turning the inner ring.
Blowing air inside the drums is important to remove dust accumulated in the groove. Dust and abrasive material could accumulate inside the groove and wear down the drum tracks. To do this, blow air inside the drum as shown in the picture. The inner ring should be rotated while the air is blown.



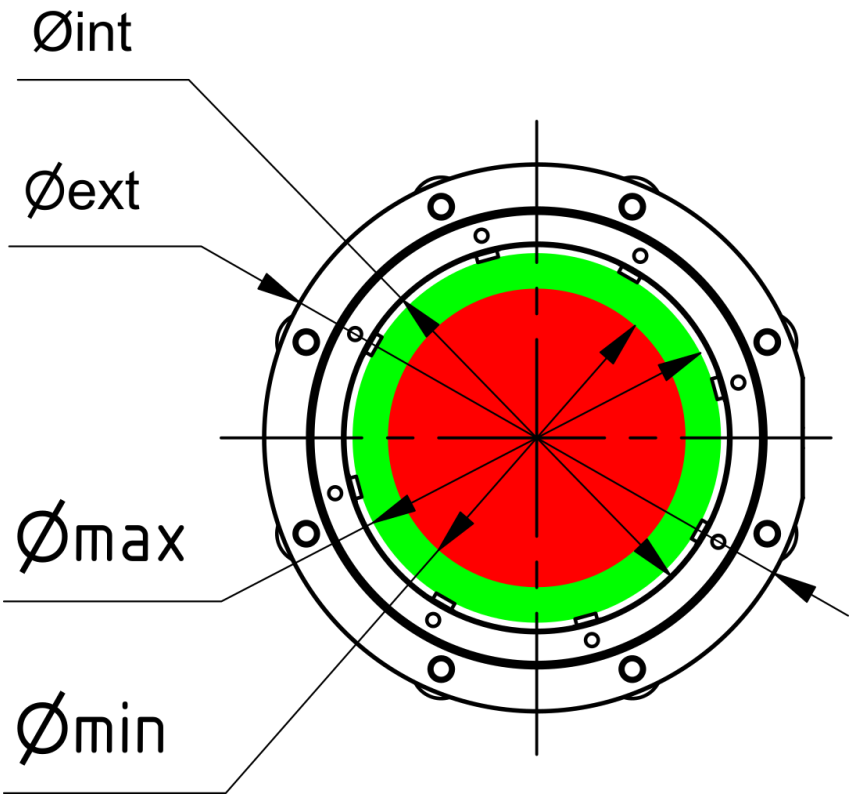
2.3.3. Type B drum: REINFORCED TIMSAND

Suitable for tools with the cylindrical fastening area. ***Ref: MV7JBxxx (xxx = inner diameter in mm)***



- The X dimension is approximately the outer radius plus 121.5 mm ($X = \frac{Øext}{2} + 121.5$)
- Other dimensions upon request

2.3.3.1. REINFORCED TIMSAND Dimensions



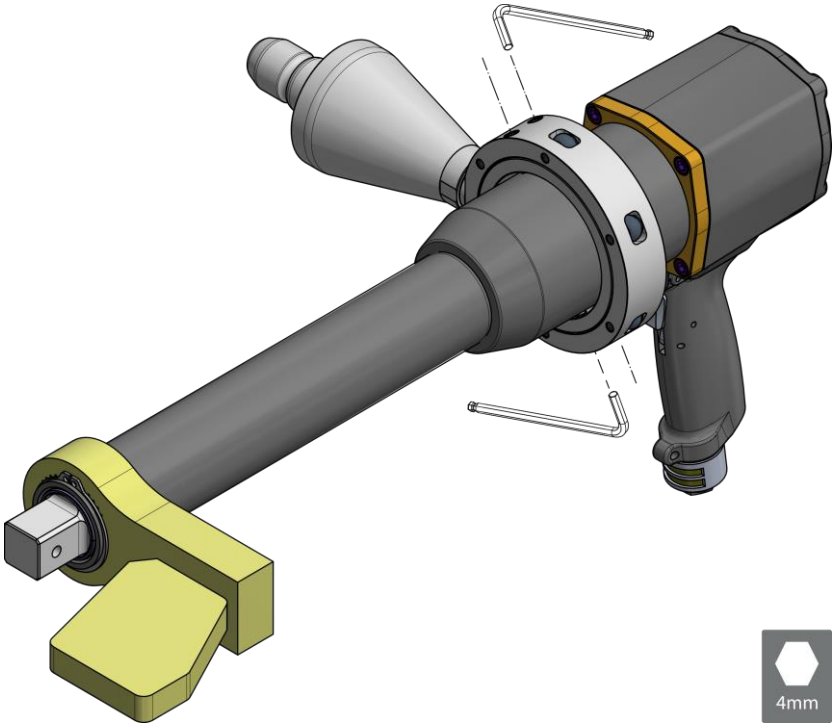
Ø int		Ø ext		Ø min – Ø max tool	
mm	*Inches*	mm	*Inches*	mm	*Inches*
60	*2 23/64″*	98	*3 55/64″*	50 - 60	*1 31/32″ - 2 23/64″*
70	*2 3/4″*	108	*4 1/4″*	60 - 70	*2 23/64″ - 2 3/4″*
80	*3 5/32″*	118	*4 41/64″*	70 - 80	*2 3/4″ - 3 5/32″*
90	*3 35/64″*	128	*5 3/64″*	80 - 90	*3 5/32″ - 3 35/64″*
100	*3 15/16″*	138	*5 7/16″*	90 - 100	*3 35/64″ - 3 15/16″*
110	*4 21/64″*	148	*5 53/64″*	100 - 110	*3 15/16″ - 4 21/64″*
120	*4 23/32″*	158	*6 7/32″*	110 - 120	*4 21/64″ - 4 23/32″*
130	*5 1/8″*	168	*6 39/64″*	120 - 130	*4 23/32″ - 5 1/8″*
140	*5 33/64″*	178	*7 1/64″*	130 - 140	*5 1/8″ - 5 33/64″*
150	*5 29/32″*	188	*7 13/32″*	140 - 150	*5 33/64″ - 5 29/32″*

- The diameter of the tool must be in the green zone (between Ø min and Ø max).
- It is recommended to use a custom adapter cap to ensure concentricity.
- Other dimensions upon request

2.3.3.2. Assembly of the tool

To install the tool in the Type B drum, follow these guidelines.

1- Remove the pin from the outer ring (4mm Allen wrench).
2- Insert the tool into the drum. Align the holes on the outer face of the outer ring with the pin pressing the tool. Thread/unthread these pins to get a correct grip on the tool (4mm Allen wrench).
3- Repeat the previous step to ensure that the tool is properly adjusted along its perimeter. *Fasten the pins with medium Loctite force to prevent loosening.*



2.3.3.3. Accessories included

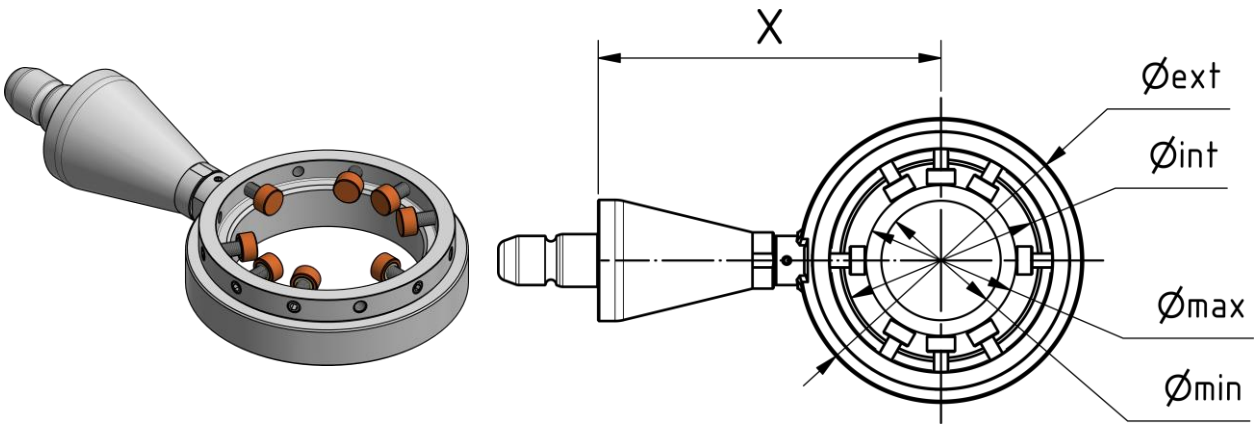
Along with Type B drums (TIMSAND), ***nylon-tipped pins (M8x8)*** and ***metal pins (DIN-913 M8x8) are included.***

By default it is supplied with the nylon tip pin mounted.

Depending on the type of tool, nylon pins may be replaced with metal pins to achieve a diameter of the drum better adjusted relative to the tool.

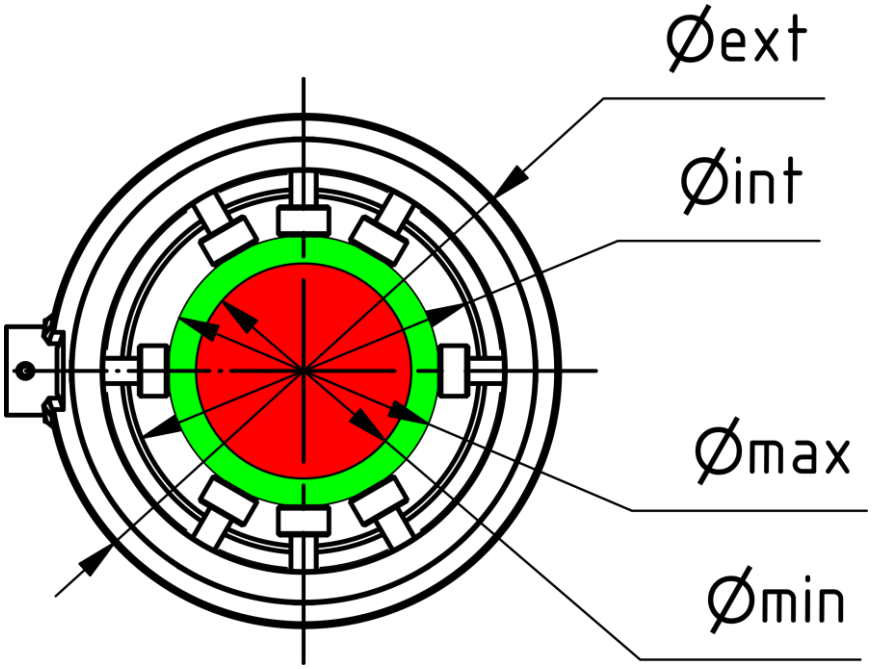
2.3.4. Type C drum: TRS TIMCO

Suitable for any type of tool. ***Ref: MV7JCxxx (xxx = inner diameter in mm)***



- The X dimension is approximately the outer radius plus 140mm ($X = \frac{\emptyset ext}{2} + 140$)
- Other dimensions upon request

2.3.4.1. TRS TIMCO Dimensions



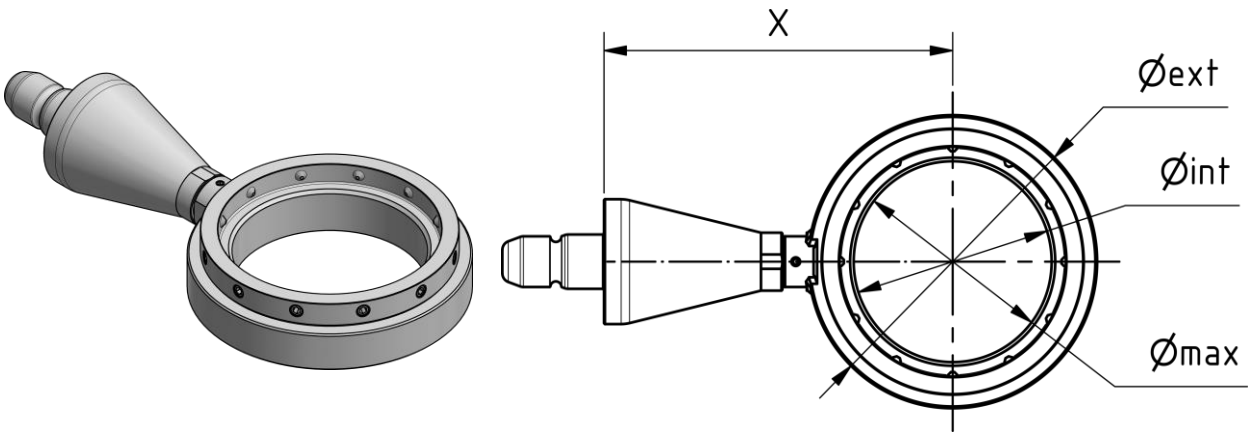
Ø int		Ø ext		Ø min – Ø max	
mm	*Inches*	mm	*Inches*	mm	*Inches*
80	*3 5/32″*	127	*5″*	50 - 75	*1 31/32″ - 2 61/64″*
90	*3 35/64″*	137	*5 25/64″*	60 - 85	*2 23/64″ - 3 11/32″*
100	*3 15/16″*	152	*5 63/64″*	70 - 95	*2 3/4″ - 3 47/64″*
110	*4 21/64″*	162	*6 3/8″*	80 - 105	*3 5/32″ - 4 9/64″*
120	*4 23/32″*	177	*6 31/32″*	90 - 115	*3 35/64″ - 4 17/32″*
130	*5 1/8″*	187	*7 23/64″*	100 - 125	*3 15/16″ - 4 59/64″*
140	*5 33/64″*	202	*7 61/64″*	110 - 135	*4 21/64″ - 5 5/16″*
170	*6 11/16″*	240	*9 29/64″*	140 - 165	*5 33/64″ - 6 1/2″*
180	*7 3/32″*	255	*10 3/64″*	150 - 175	*5 29/32″ - 6 57/64″*

- Other dimensions upon request

-The maximum measurement always corresponds to TRS with cap

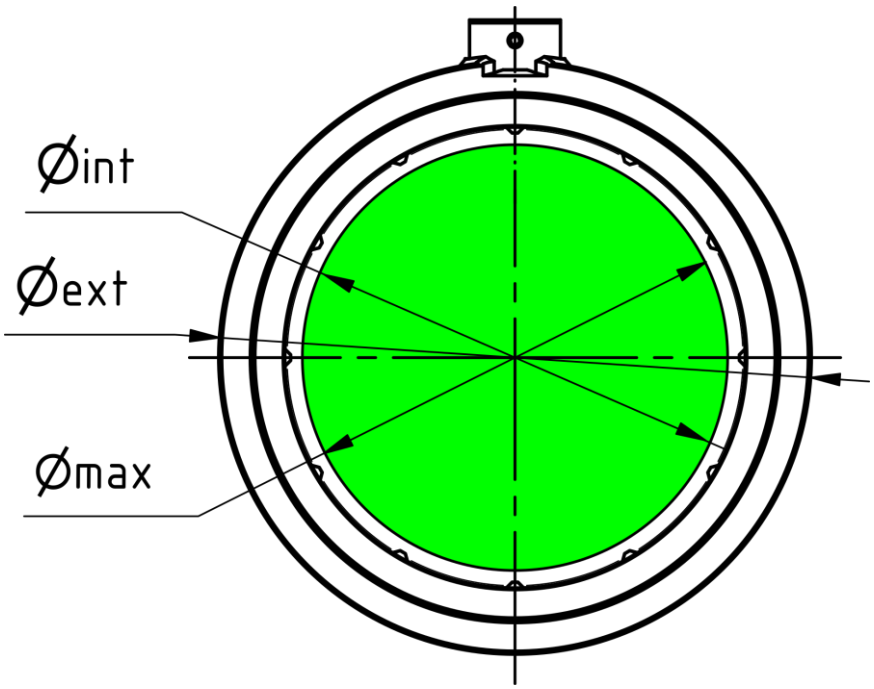
2.3.1. Type D drum: TRS TIMSAND

Suitable for any type of tool. ***Ref: MV7JDxxx (xxx = inner diameter in mm)***



- The X dimension is approximately the outer radius plus 140 mm ($X = \frac{Øext}{2} + 140$)
- Requires the fabrication of a custom cap
- Other dimensions upon request

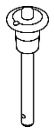
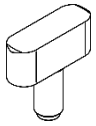
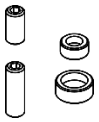
2.3.1.1. TRS TIMSAND Dimensions



Ø int		Ø ext		Ø max	
mm	*Inches*	mm	*Inches*	mm	*Inches*
80	*3 5/32″*	127	*5″*	75	*2 61/64″*
90	*3 35/64″*	137	*5 25/64″*	85	*3 11/32″*
100	*3 15/16″*	152	*5 63/64″*	95	*3 47/64″*
110	*4 21/64″*	162	*6 3/8″*	105	*4 9/64″*
120	*4 23/32″*	177	*6 31/32″*	115	*4 17/32″*
130	*5 1/8″*	187	*7 23/64″*	125	*4 59/64″*
140	*5 33/64″*	202	*7 61/64″*	135	*5 5/16″*
170	*6 11/16″*	240	*9 29/64″*	165	*6 1/2″*
180	*7 3/32″*	255	*10 3/64″*	175	*6 57/64″*

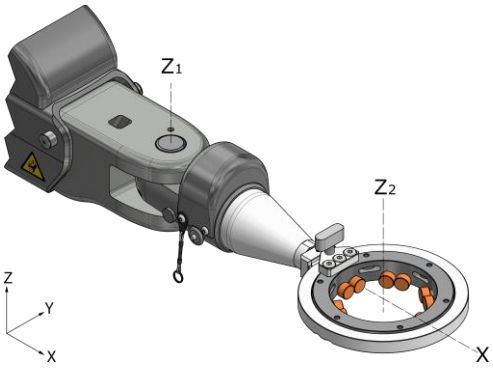
- Other dimensions upon request
- The cap must be used in all cases

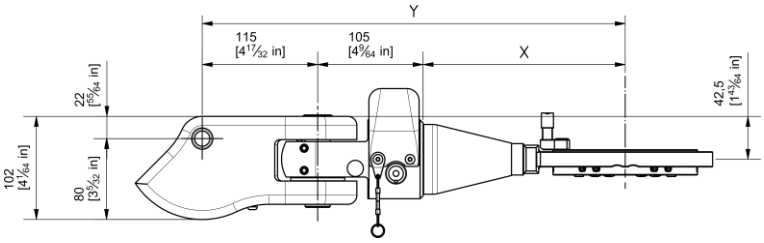
2.3.2. Spare parts

CM158300	POSITIONER Ø6x50	
M3103200R	TIMCO STAINLESS STEEL BRAKE RETOUCH [AXIS Z_2]	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

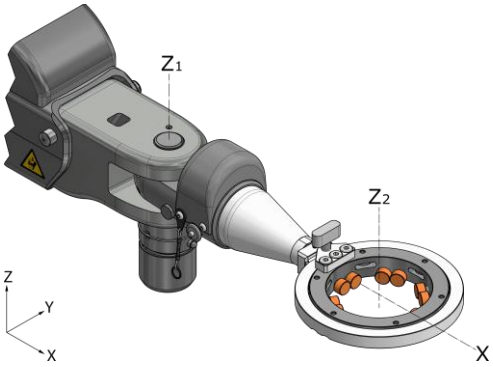
2.4. SAFETY MULTI-POSITION – QA

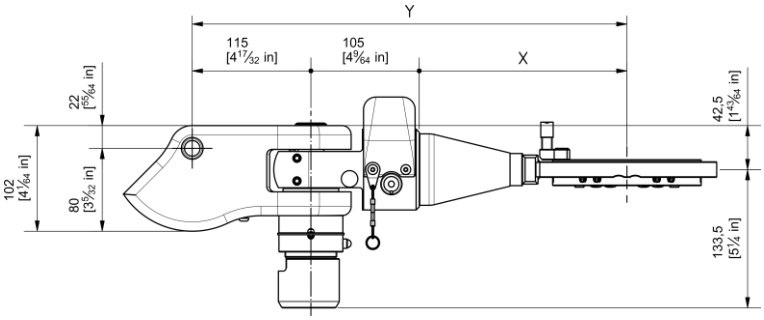
M7227500
QA7 – No lock





M7227400
QA27 - Pneumatic lock[5]





Requires locks (L52 or L22)

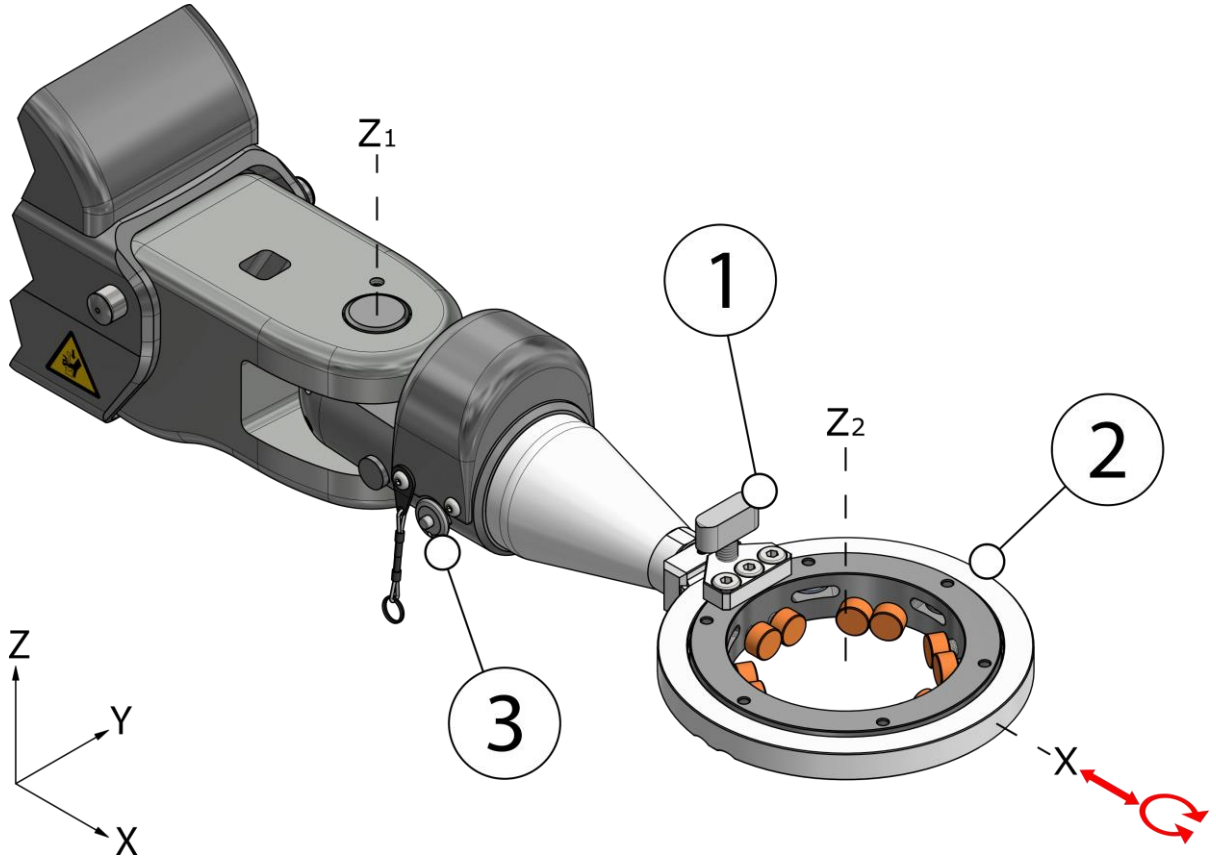
Z_1: Turn ±90º.
Z_2: Turn 360º. Adjust smoothness of the rotation and fastening of the position
X: 4 x 90º.

[5] QA27: Z axis$_1$, pneumatic lock in any position (requires L22 lock in the arm).

2.4.1. Movements

The head member is provided with a safety system that locks the tilting arm when removing the tool, thus preventing a possible accident.

With the knob (1), adjust the smoothness of the rotation with the option to set the position at Z_2.
To rotate the ring (2), remove the positioner (3), pull out the ring (2) to be able to rotate it (4 x 90º).
Once rotated, put the ring back in (2) and place the positioner (3).



The pneumatic lock[6] (Z $axis_1$) is activated/deactivated with the rest of the radial arm locks:

- Only on arms with L22 locks, it works with the radial lock selector

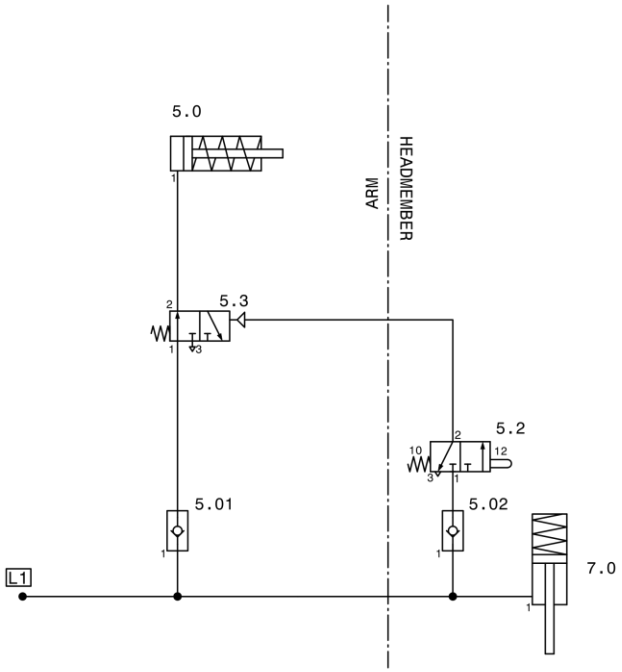
For more information consult the arm manual.

Type A drum: TIMCO [See Type A drum: REINFORCED TIMCO p. 11].
Type B drum: TIMSAND [See Type B drum: REINFORCED TIMSAND p. 15].
Type C drum: TRS [See Type C drum: TRS p. 18].

[6] Only with the QA27 head member

2.4.2. Pneumatic scheme

REF	QUANT	CODE	DESCRIPTION
5.0	1	W5178900	TILTING BRAKE CYLINDER
5.01-5.02	2	NH026186	CHECK VALVE AKH04-00
5.2	1	NH104700	VALVE CLIPPARD MAV 3C
5.3	1	NH026206	AIR OPERATED VALVE 3 PORT SYJA522-M5
7.0	1	M3148100	HEAD MEMBER LOCK CYLINDER

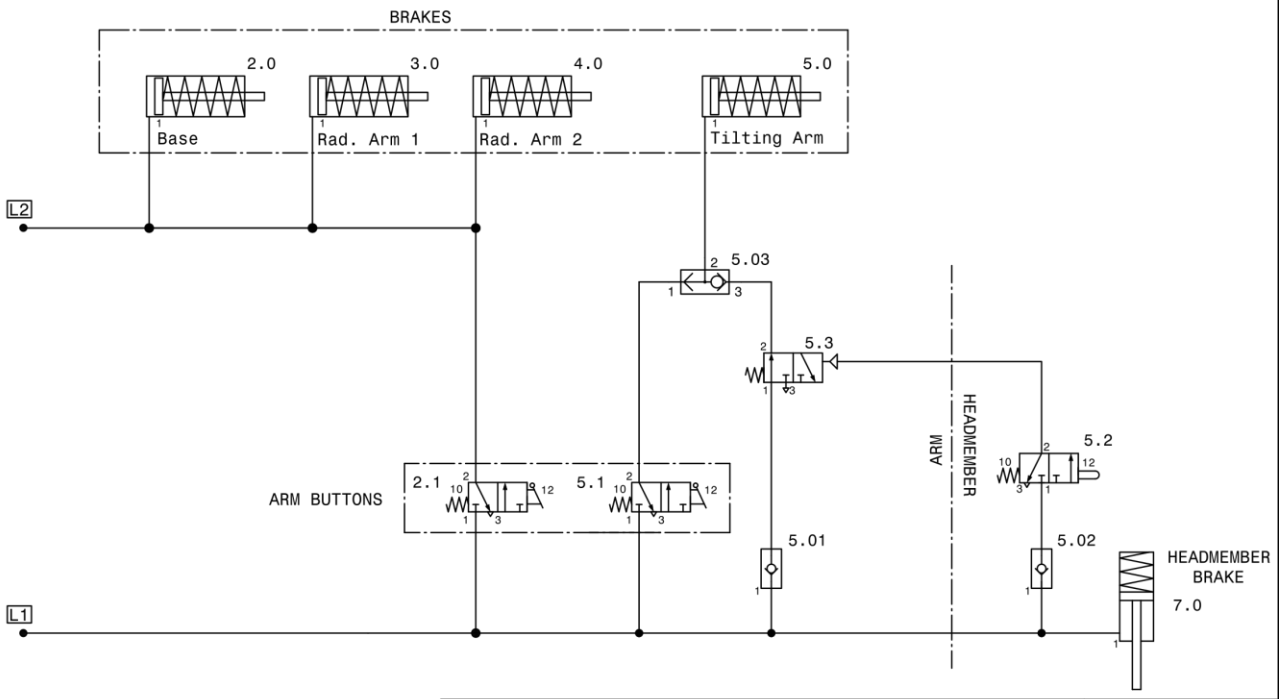


DESCRIPTION				CODE
PNEUMATIC SCHEME S7 TOOL CHANGE				PNEUS70003
*	Transcribe error on 5.0			
	NAME	DATE	REVISION	
DRAWN BY	OSCAR	19/05/2020	4	
APPROVED BY	D. Gil	08/01/2024		

TECNOSPIRO MACHINE TOOL SLU SPIROGEAR

L52 pneumatic scheme with safety head member

REF	QUANT	CODE	DESCRIPTION
2.0	1	W5178900	50 CYLINDER ARM BRAKE
2.1-5.1	2	NH121136	MICRO VALVE VM1000-4NU-08
3.0-4.0	2	W5179000	48 CYLINDER ARM BRAKE
5.0	1	W5179400	TILT LOCK CYLINDER
5.01-5.02	2	NH026186	CHECK VALVE AKH04-00
5.03	1	NH026196	FUNCTION "O" VALVE VR1210F-04
5.2	1	NH104700	VALVE CLIPPARD MAV 3C
5.3	1	NH026206	AIR OPERATED VALVE 3 PORT SYJA522-M5
7.0	1	M3148100	HEADMEMBER LOCK CYLINDER



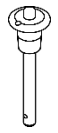
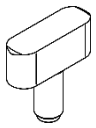
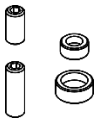
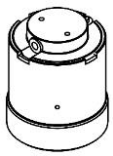
DESCRIPTION	CODE
PNEUMATIC SCHEME BRAKES S7 & UA HEADMEMBER	PNEUS70004

*	Transcribe error on 7.0		
	NAME	DATE	REVISION
DRAWN BY	OSCAR	03/10/2023	1
APPROVED BY	D. Gil	08/01/2024	

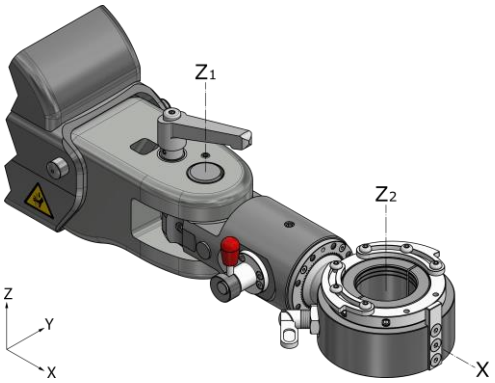
TECNOSPIRO MACHINE TOOL SLU

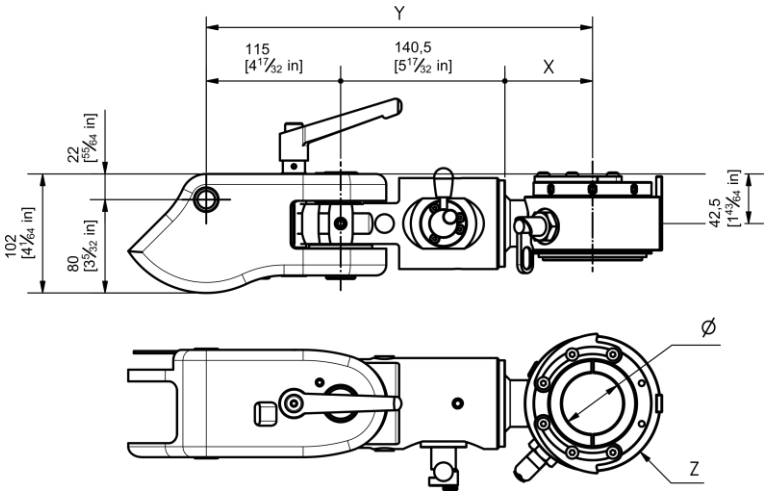
L22 pneumatic scheme with safety head member

2.4.1. Spare parts

CM158300	POSITIONER Ø6x50	
M3103200R	TIMCO STAINLESS STEEL BRAKE RETOUCH [AXIS Z_2]	
MV331104	REPLACEMENT STUDS AND CAPS KIT	
MV405504	RADIAL ARM LOCKING CYLINDER	
MV405903	CYLINDER COVER 42	
MV4062A4	RADIAL PADS L22-L92 SPARE KIT	

2.5. REVOLVER - R.
M7218600 + Rotative flange (M7Rxxx04)





Requires L53 locks
Suitable for Angular Tools

X: Turn 360º. Manual lock in 64 positions (64 x 5.6º)
Z_1: Turn 180º. Manual lock in 5 positions (5 x 45º)
Z_2: Turn 360º. Manual lock in 4 positions (4 x 90º)

Dimensions				
Ø min (mm)	**Ø max (mm)**	**X (mm)**	**Y (mm)**	**Z (mm)**
*25 *(63/64")*	45 *(1 49/64")*	67.5 *(2 21/32")*	323 *(12 23/32")*	Ø 102 *(4 1/64")*
*40 *(1 37/64")*	60 *(2 23/64")*	75 *(2 61/64")*	330.5 *(13 1/64")*	Ø 116 *(4 9/16")*

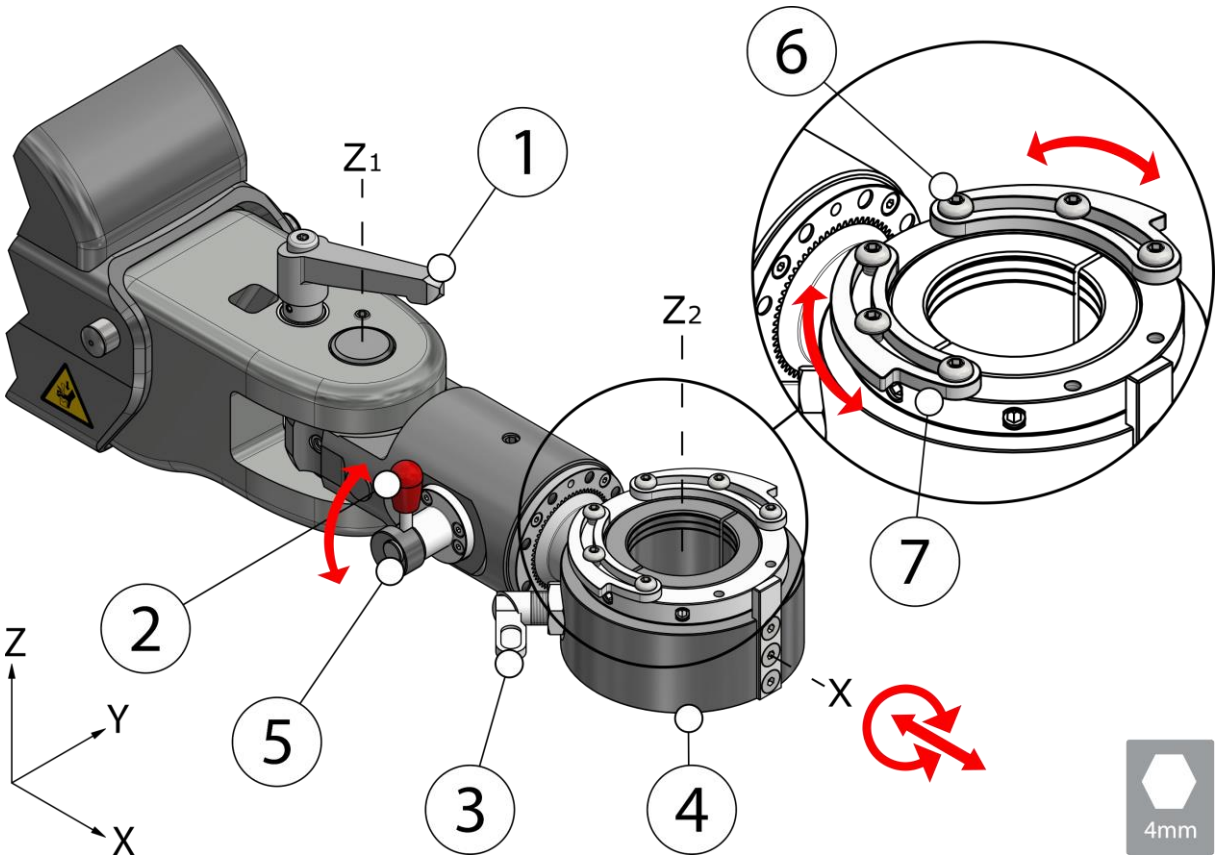
*Guideline measurement

MAXIMUM TORQUE – Rotative flange (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S7	600	500	400

2.5.1. Movements and locks

The lever (1) releases/locks movement at Z_1 (180º, 5 x 45º).
The knob (2) releases/locks movement at X (360º, 64 x 5.6º).
The positioner (3) releases/locks movement at Z_2 (360º, 4 x 90º).

To remove the flange (4), unscrew the wheel without removing it (5), move the knob (2) outward and remove the flange (4). To insert the flange (4), do the previous steps in the reverse order.



Additionally, to limit the turn at Z_2, remove one of the screws (6) (4mm Allen wrench) from each cap (7) and loosen the remaining ones.
Move the cap (7) to adjust the desired movement and fasten the screws (6) (4mm Allen wrench).
With the caps (7) you can limit Z_2 from 180º to 40º. You can remove them if you need more than 180º.

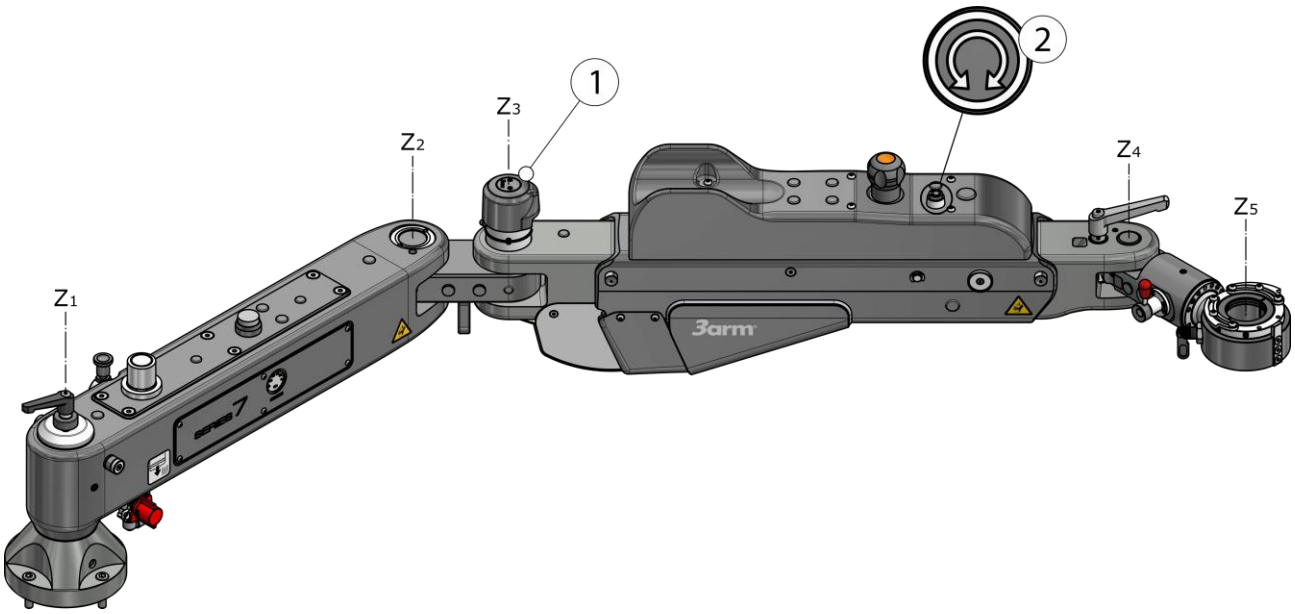
WARNING

✓ To remove the flange (4), tilt the arm to its highest position to avoid an abrupt upward reaction of the arm.

2.5.2. Arm locking

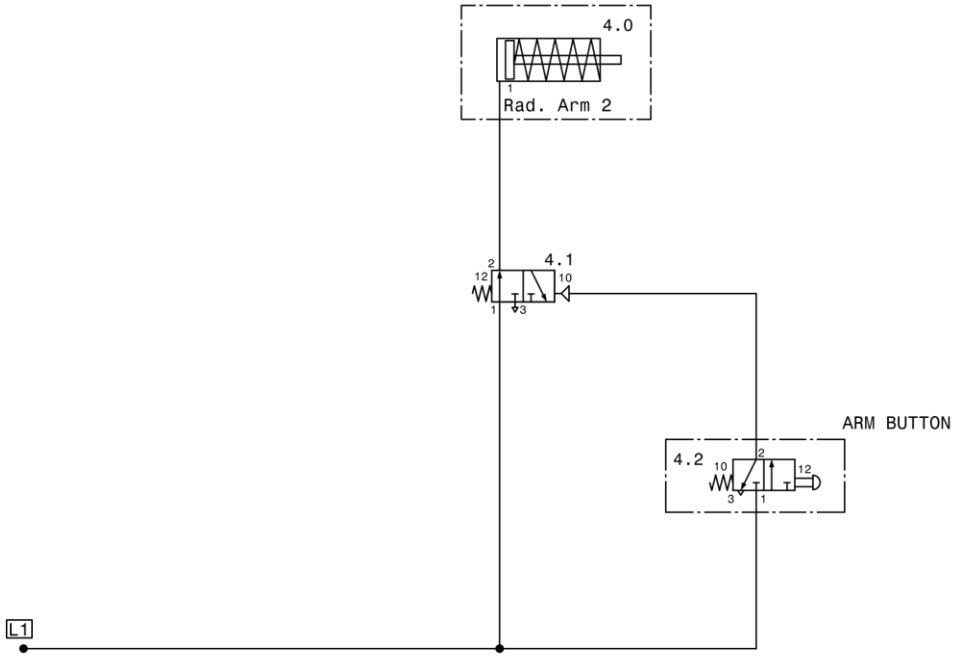
This head member features a special type of lock in the arm.

For the Revolver R and B head member, *(especially suitable for fastening the torque application tool),* the arm must incorporate a safety brake (1), on the Z axis$_3$.
This brake prevents any reaction movement of the arm, by receiving the effect of the tightening torque of the tool.
Once the tightening is complete, the user can unlock the brake by pressing the unlock button (2) and can relocate the arm position for the next operation.



2.5.2.1. Pneumatic scheme L53

REF	QUANT	CODE	DESCRIPTION
4.0	1	W5179000	50 CYLINDER ARM BRAKE
4.1	1	NH026206	AIR OPERATED VALVE 3 PORT SYJA522-M5
4.2	1	M7227800	BUTTON VALVE VM1000-4NU-32B - UNLOCK TURN

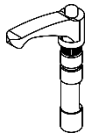
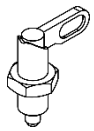
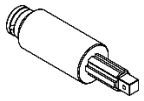
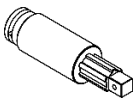


DESCRIPTION	CODE
PNEUMATIC SCHEME S7 L53	PNEUS70007

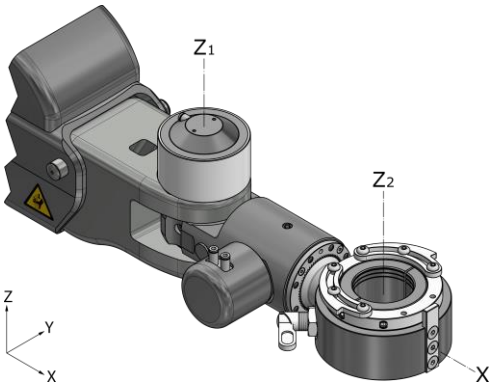
*			
	NAME	DATE	REVISION
DRAWN BY	D. Gil	20/02/2024	0
APPROVED BY	R. Jou	20/02/2024	

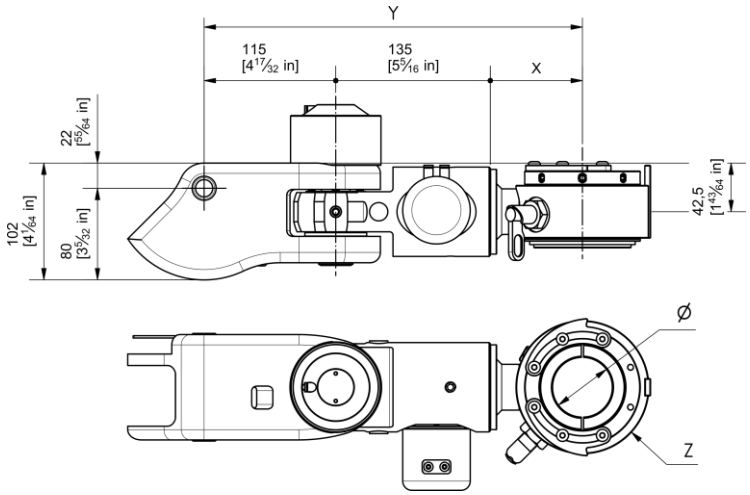
TECNOSPIRO MACHINE TOOL SLU

2.5.1. Spare parts

M7218700R	SECURING HANDLE ASSEMBLY [AXIS Z_1]	
MV331205	REPLACEMENT ECCENTRIC GRIP ASSEMBLY KIT	
W5206400	POSITIONER M16x1.5	
MV328104	FLOATING SPINDLE T2140801/00 3/4" (Stroke: 45 mm/ 1.77″ – Torque max.: 300Nm – □: ¾″ – Weight: 1.5kg / 3.3lbs)	
M3318700	FLOATING SPINDLE 80999126 1" (Stroke: 50 mm/ 1.97″ – Torque max.: 750 Nm – □: 1″ – Weight: 2.9 kg / 6.4lbs)	

2.6. DOUBLE AUTOMATIC REVOLVER - RS M7227300 + Rotative flange (M7Rxxx04)





Requires L92 locks
Suitable for Angular Tools

X: Turn 360º. Pneumatic lock in 64 positions (64 x 5.6º)
Z_1: Turn 180º. Pneumatic lock in 32 positions (32 x 5.6º)
Z_2: Turn 360º. Manual lock in 4 positions (4 x 90º)

Dimensions				
Ø min (mm)	**Ø max (mm)**	**X (mm)**	**Y (mm)**	**Z (mm)**
*25 *(63/64")*	45 *(1 49/64")*	67.5 *(2 21/32")*	323 *(12 23/32")*	Ø 102 *(4 1/64")*
*40 *(1 37/64")*	60 *(2 23/64")*	75 *(2 61/64")*	330.5 *(13 1/64")*	Ø 116 *(4 9/16")*

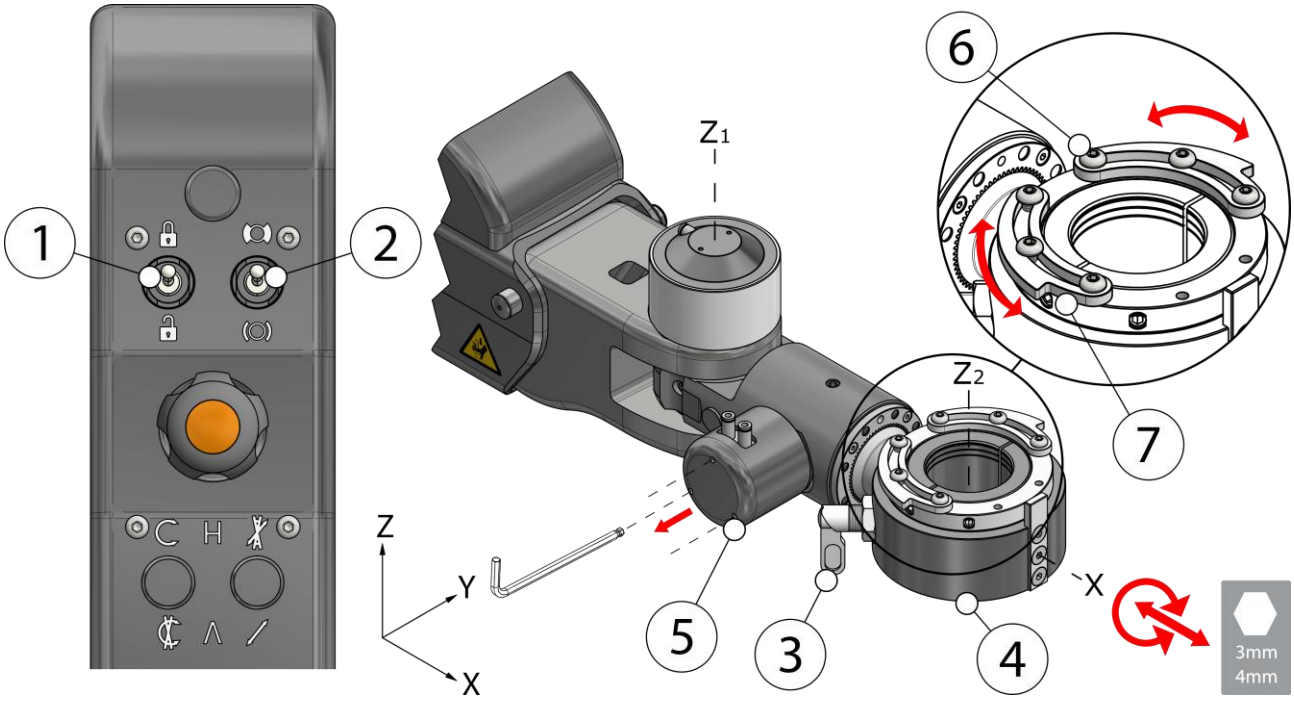
*Guideline measurement

MAXIMUM TORQUE – Rotative flange (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S7	600	500	500

2.6.1. Movements and locks

The entire piece of equipment can be locked with the selector (1) or by activating the tool.
The selector (2) releases/locks movement on the X axis (360º, 64 x 5.6º).
The positioner (3) releases/locks movement at Z_2 (360º, 4 x 90º).

To remove the flange (4), activate the selector (1), loosen the cylinder screws (5) (3mm Allen wrench), move the cylinder (5) out slightly and remove the flange (4). To insert the flange (4), do the previous steps in the reverse order.



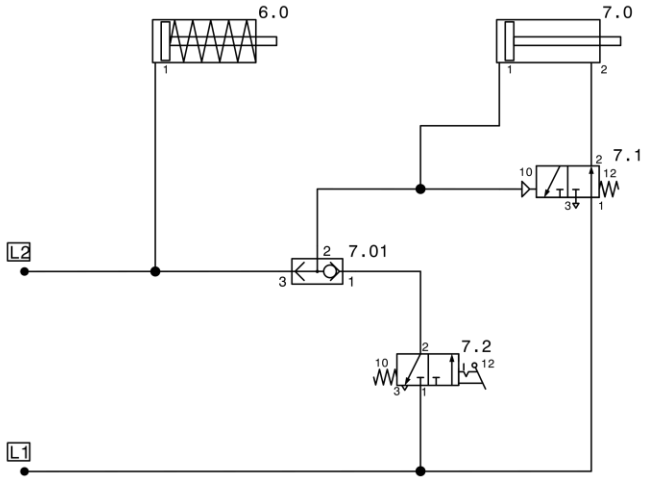
Additionally, to limit the turn at Z_2, remove one of the screws (6) (4mm Allen wrench) from each cap (7) and loosen the remaining screws.
Move the cap (7) to adjust the desired movement and fasten the screws (6) (4mm Allen wrench).
With the caps (7) you can limit Z_2 from 180º to 40º. You can remove them if you need more than 180º.

2.6.2. Pneumatic scheme

REF	QUANT	CODE	DESCRIPTION
6.0	1	-	HEADMEMBER RADIAL LOCK CYLINDER (See note)
7.0	1	NH114500	RADIAL LOCK CYLINDER CRB2BS30-180SZ
7.01	1	NH026196	FUNCTION "O" VALVE VR1210F-04
7.1	1	NH026206	AIR OPERATED VALVE 3 PORT SYJA522-M5
7.2	1	NH121136	MICRO VALVE VM1000-4NU-08

NOTE:

S0/S3/S4/S6	M32552A0 HEADMEMBER RADIAL LOCK CYLINDER
S7	M7226600 HEADMEMBER RADIAL LOCK CYLINDER



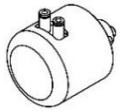
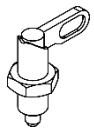
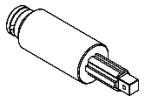
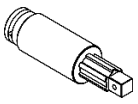
DESCRIPTION	CODE
PNEUMATIC SCHEME - DUAL RS HEADMEMBER	PNEUS30010

*	Standardization of the scheme.

	NAME	DATE	REVISION
DRAWN BY	D. Gil	18/05/2022	2
APPROVED BY	D. Gil	09/01/2024	

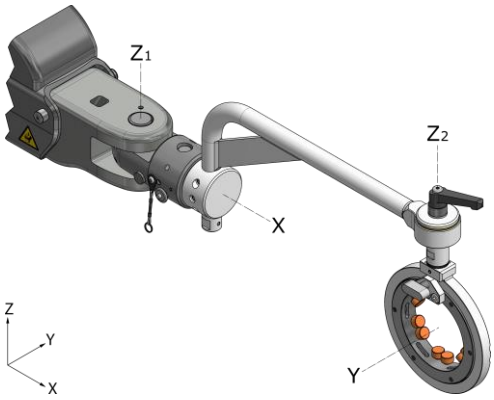
TECNOSPIRO MACHINE TOOL SLU

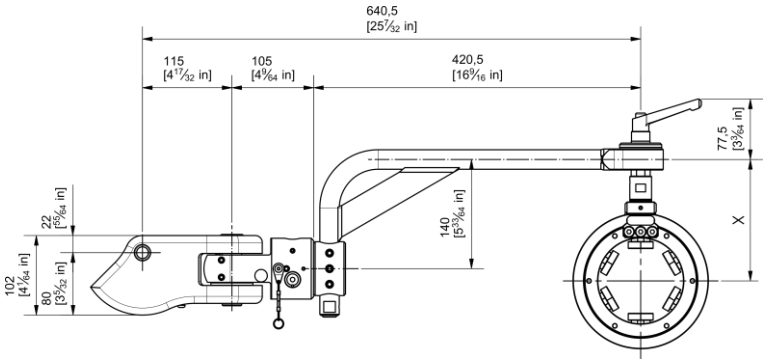
2.6.1. Spare parts

M7226600	REVOLVER AUTOMATIC BRAKE	
M3196200R	ECCENTRIC RS LOCK ASSEMBLY	
W5206400	POSITIONER M16x1.5	
MV328104	FLOATING SPINDLE T2140801/00 3/4" (Stroke: 45 mm/ 1.77″ – Torque max.: 300Nm – □: ¾″ – Weight: 1.5kg / 3.3lbs)	
M3318700	FLOATING SPINDLE 80999126 1" (Stroke: 50 mm/ 1.97″ – Torque max.: 750 Nm – □: 1″ – Weight: 2.9 kg / 6.4lbs)	

2.7. MULTI-POSITION – U

M72108A0
U7 – No lock





Z_1: Turn ±90º. Non-lockable[7].

Z_2: Turn 360º. Manual lock in any position.

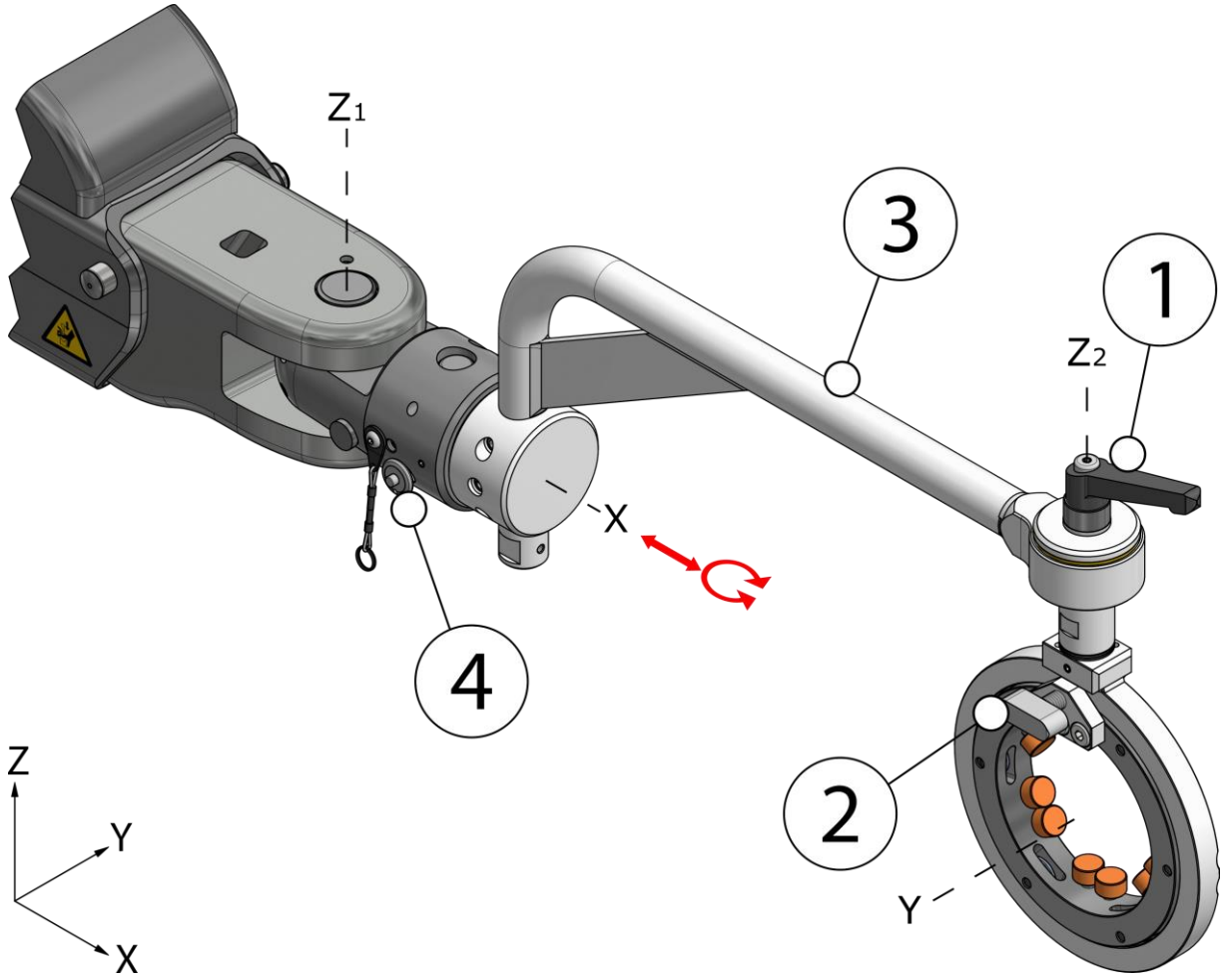
Y: Turn 360º. Adjust smoothness of the rotation and fastening of the position.

X: 4 x 90º.

[7] U17: Manual lock in any position.
U27: Pneumatic lock in any position (requires L22 lock in the arm).

2.7.1. Movements

The lever (1) releases/locks the rotation at Z_2.
With the knob (2), adjust the smoothness of the rotation with the option to set the position at Y.
To rotate the arm (3), remove the positioner (4), partially pull out the arm (3) to be able to rotate it (4 x 90º).
Once rotated, put the arm (3) back in and place the positioner (4).

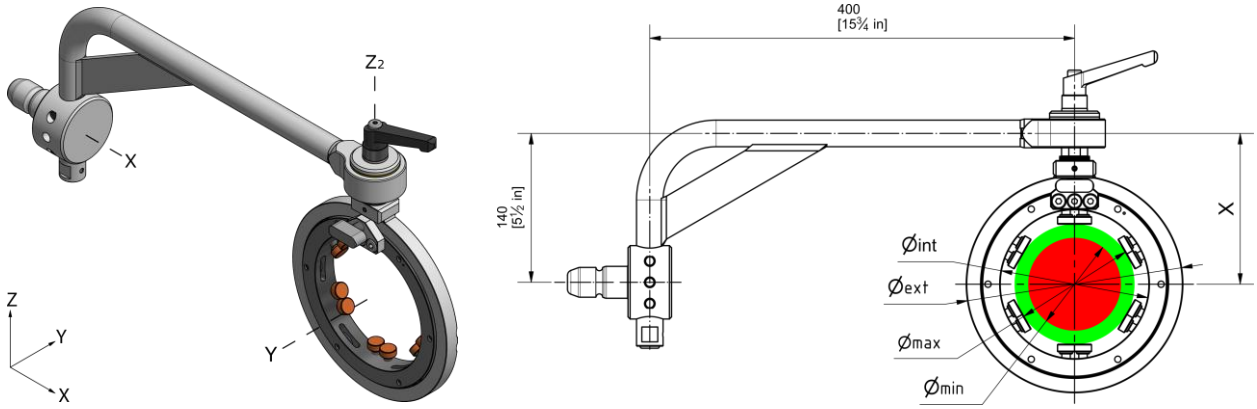


WARNING

✓ To remove the arm (3), tilt the arm to its highest position to avoid an abrupt upward reaction of the arm.

2.7.2. Type A arms: REINFORCED TIMCO

Suitable for any type of tool.
Ref: MV7KAxxx (xxx = inner diameter in mm)

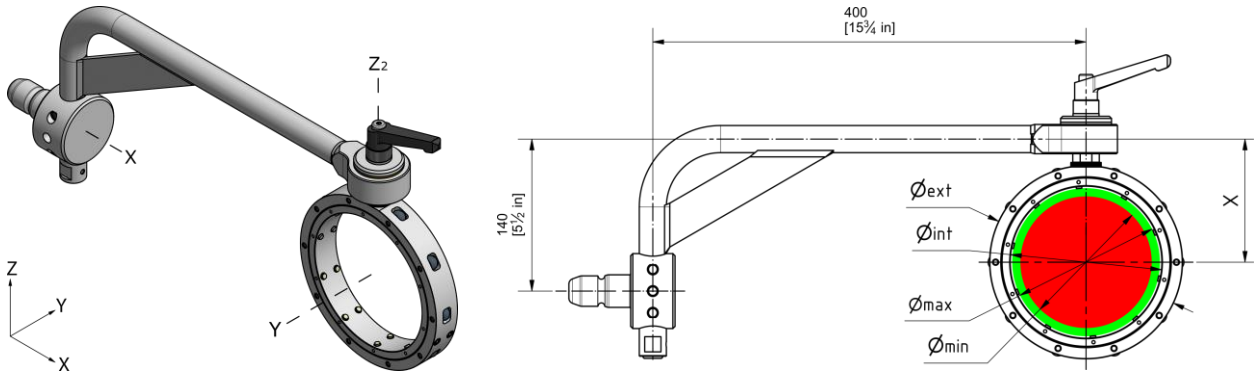


- The dimension X will be as close as possible to the X axis to ensure a good balance of the tool.
- For applications with vibration tools (impact, pulse, etc.) consult your distributor.

- ✓ REINFORCED TIMCO Dimensions [See Dimensions REINFORCED TIMCO page. 12].
- ✓ For the assembly of the tool [See Assembly of the tool page. 12].
- ✓ Accessories included [See Accessories included p. 14].
- ✓ For maintenance and cleaning [See Maintenance and cleaning of the drums p. 14].

2.7.3. Type B arms: REINFORCED TIMSAND

Suitable for tools with the cylindrical fastening area.
Ref: MV7KBxxx (xxx = inner diameter in mm)

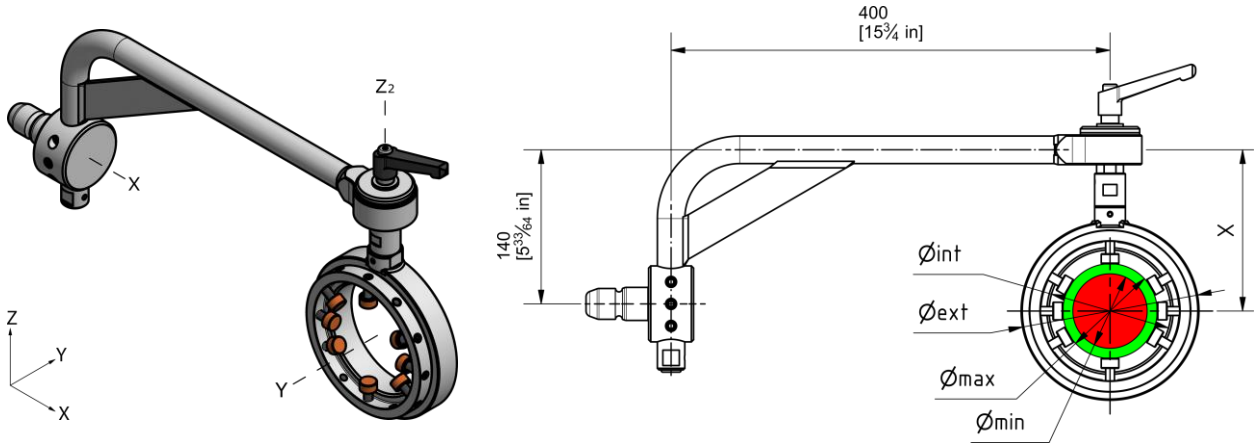


- The dimension X will be as close as possible to the X axis to ensure a good balance of the tool.
- It is recommended to use a custom adapter cap to ensure concentricity.

- ✓ REINFORCED TIMSAND Dimensions [See REINFORCED TIMSAND Dimensions. p. 16].
- ✓ For the assembly of the tool [See Assembly of the tool page. 17].
- ✓ Accessories included [See Accessories included p. 17].
- ✓ For maintenance and cleaning [See Maintenance and cleaning of the drums p. 14].

2.7.4. Type C arms: TRS TIMCO

Suitable for any type of tool.
Ref: MV7KCxxx (xxx = inner diameter in mm)

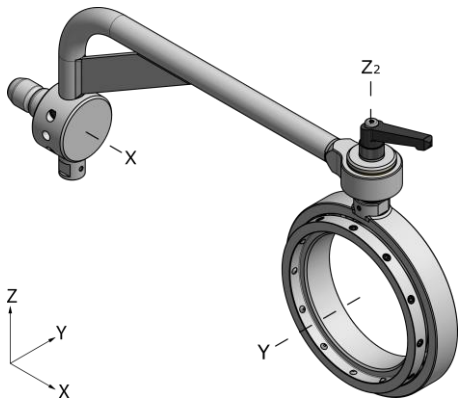


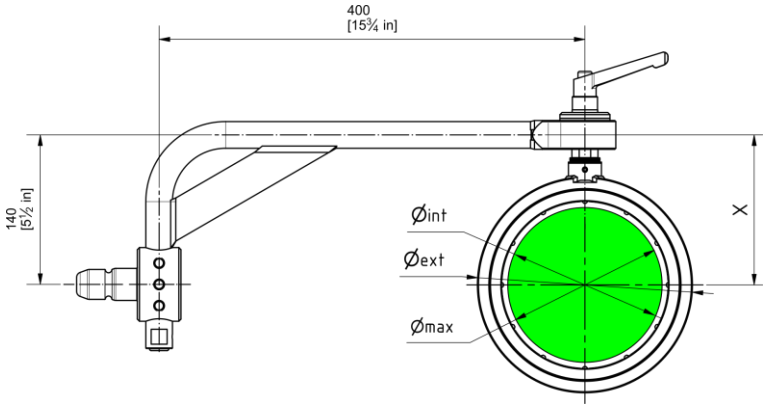
- For very long or heavy tools with cylindrical sections.
- The dimension X will be as close as possible to the X axis to ensure a good balance of the tool.

✓ TRS Dimensions [See TRS TIMCO Dimensions p. 19].

2.7.5. Type D arms: TRS TIMSAND

Suitable for any type of tool.
Ref: MV7KDxx (xxx = inner diameter in mm)



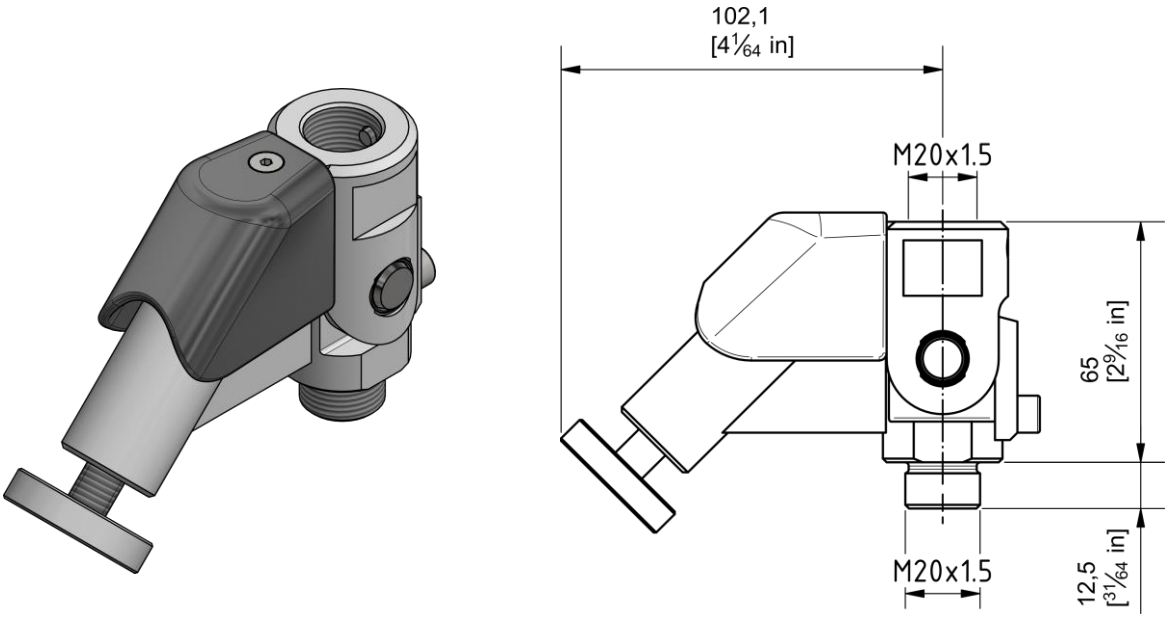


- For very long or heavy tools with cylindrical sections.
- The dimension X will be as close as possible to the X axis to ensure a good balance of the tool.
- Requires the manufacture of a custom cap

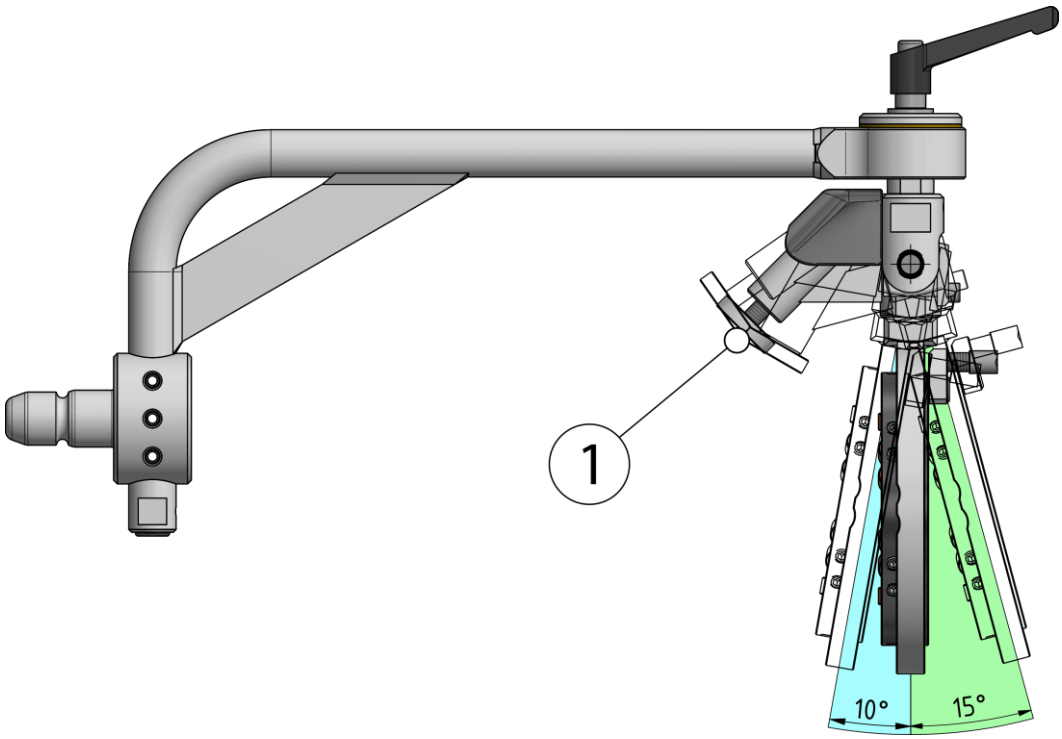
✓ TRS Dimensions [See TRS TIMSAND Dimensions p. 19].

2.7.6. Dynamic balancer

It is an optional accessory, available for U and UA arms, to allow absorbing some misalignment between the tool and the work piece.

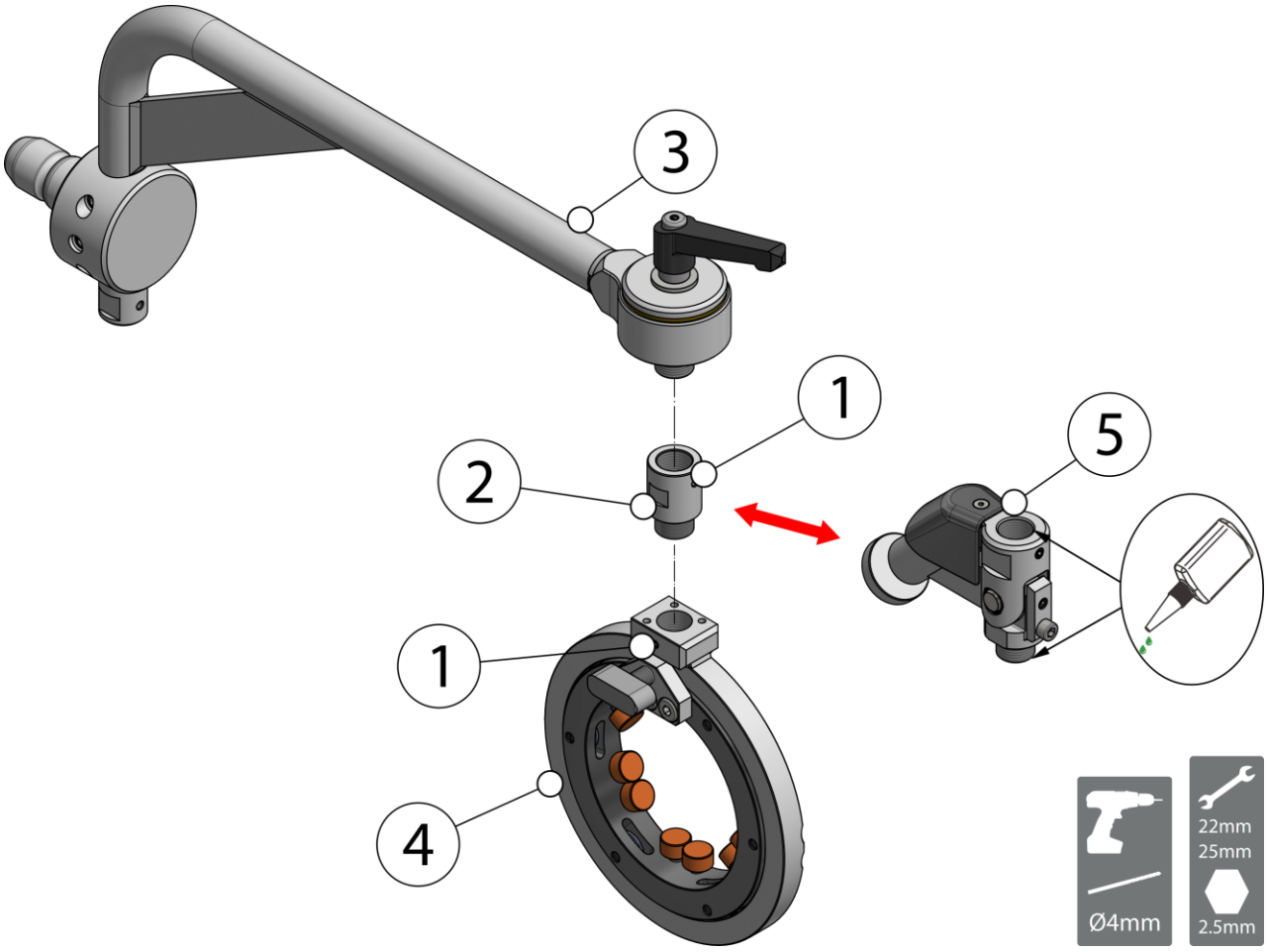


The wheel (1) regulates the force needed to tilt the tool (+15º/-10º). Different springs are provided, which may be replaced to increase or reduce the necessary force.



2.7.6.1. Installation

1. Loosen the pins from the holes (1) (2.5 mm Allen wrench).
2. Loosen[8] and remove the separator (2) from the bars (3) and drum (4) (22 mm and 25 mm wrenches).
3. Apply sealant and thread the balancer (5) with the bars (3) and ring (4). (22 mm and 25 mm wrenches).
4. With a Ø 4 mm drill bit, drill the threads (1).
5. Put the M4 pin in the threads (1).

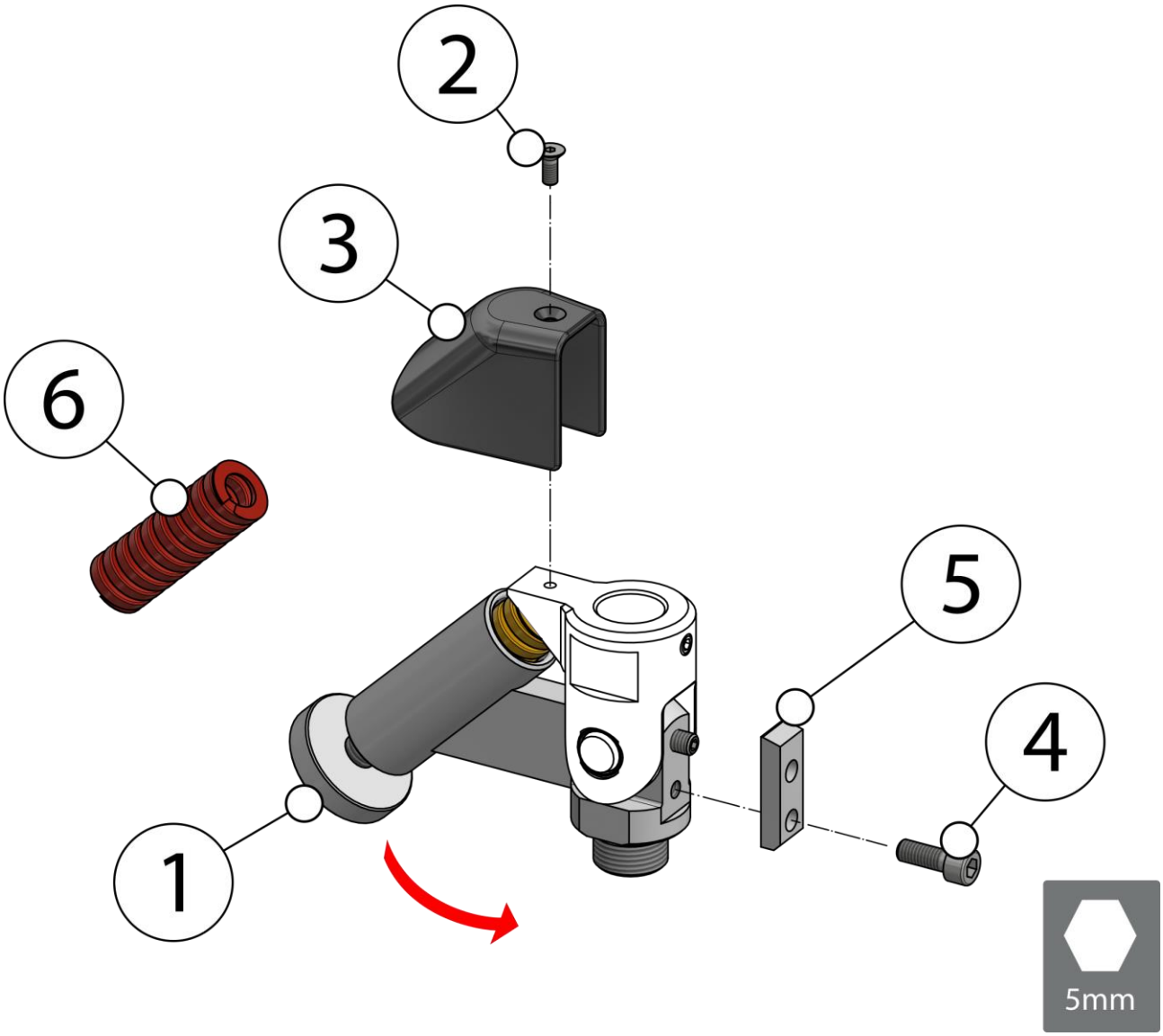


[8] There is sealant in the joints, you may have to heat the bar a little.

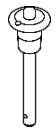
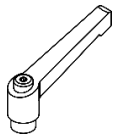
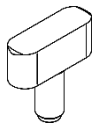
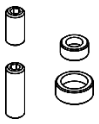
2.7.6.2. Replacing the spring

Different springs are available to adapt the desired force level to tilt the system. To replace it:

1. Loosen the wheel to the maximum (1).
2. Remove the screw (2) (2.5 mm Allen wrench) and remove the cap (3).
3. Loosen the screw (4) (5 mm Allen wrench) and turn the stop (5).
4. The whole unit will tilt and you will be able to remove the spring (6) and replace it.
5. For assembly, do the previous steps in reverse.

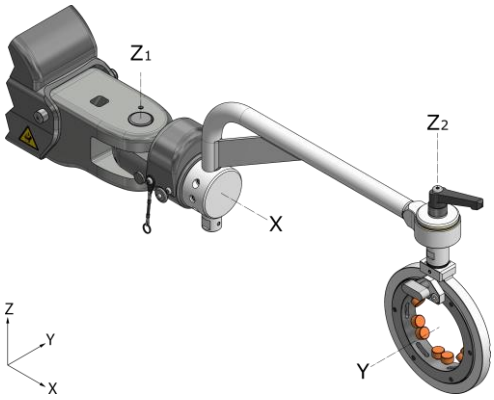


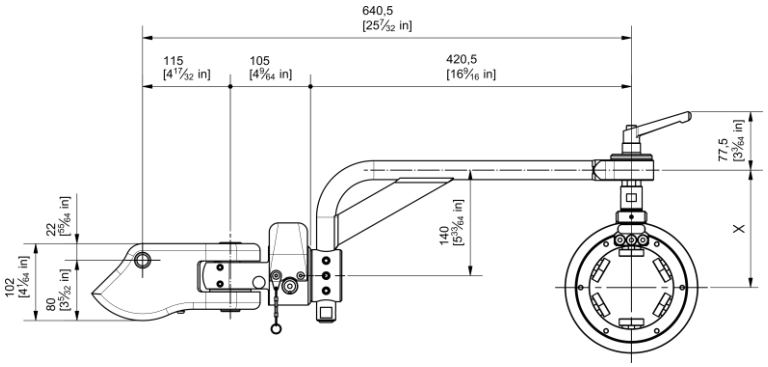
2.7.1. Spare parts

CM158300	POSITIONER Ø6x50	
CM166500	HANDLE M12 [AXIS Z_2]	
M3103200R	TIMCO STAINLESS STEEL BRAKE RETOUCH [AXIS Y]	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

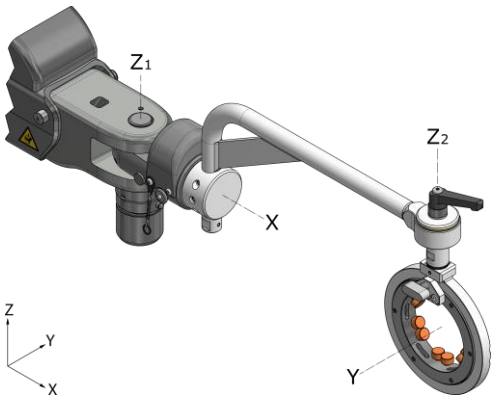
2.8. SAFETY MULTI-POSITION – UA

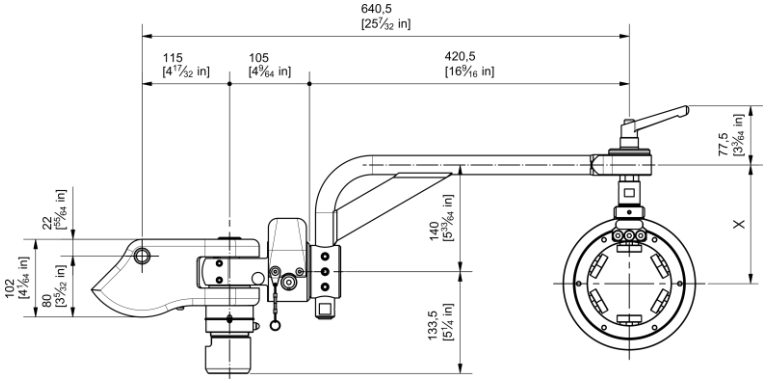
M7227500
UA7 – No lock





M7227400
UA27 - Pneumatic lock[9]





Requires locks (L52 or L22)

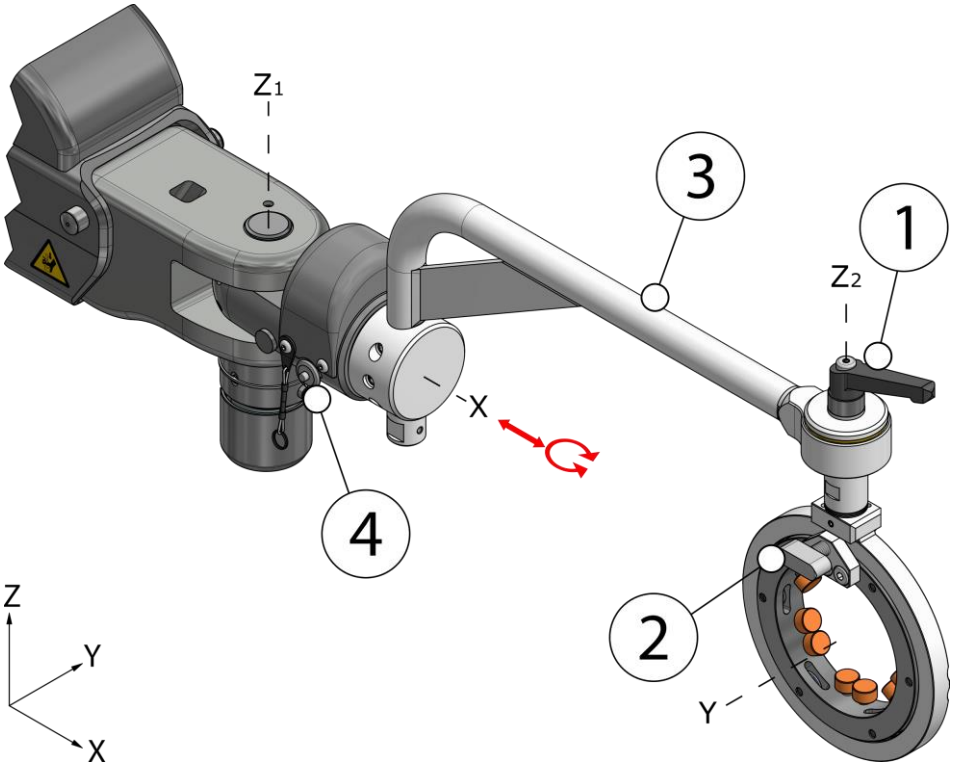
Z_1: Turn ±90º.
Z_2: Turn 360º. Adjust smoothness of the rotation and fastening of the position
X: 4 x 90º

[9] UA27: Z-axis, pneumatic lock in any position (requires L22 lock in the arm).

2.8.1. Movements

The head member is provided with a safety system that locks the tilting arm when removing the tool, thus preventing a possible accident.

The lever (1) releases/locks the rotation at Z_2.
With the knob (2), adjust the smoothness of the rotation with the option to set the position at Y.
To rotate the arm (3), remove the positioner (4), pull out the arm (3) to be able to rotate it (4 x 90°).
Once rotated, put the arm (3) back in and place the positioner (4).



The pneumatic lock[10] (Z axis$_1$) is activated/deactivated with the rest of the radial arm locks:

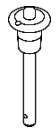
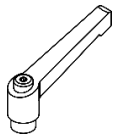
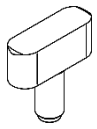
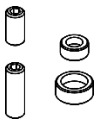
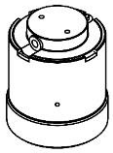
- Only on arms with L22 locks, it works with the radial lock selector

For more information consult the arm manual.

Pneumatic scheme [See Pneumatic scheme p. 25].
Type A arms: REINFORCED TIMCO [See Type A drum: REINFORCED TIMCO p. 39].
Type B arms: REINFORCED TIMSAND [See Type B drum: REINFORCED TIMSAND p. 39].
Type C arms: TRS [See Type C drum: TRS p. 41].
Dynamic Balancer [See Dynamic balancer p. 43].

[10] Only with the UA27 head member

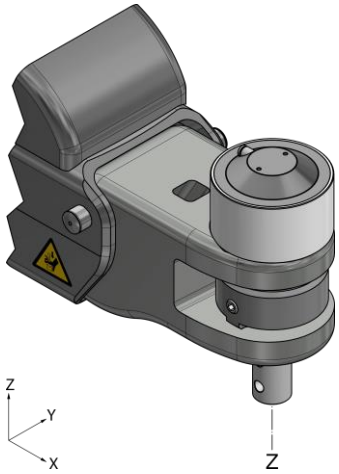
2.8.1. Spare parts

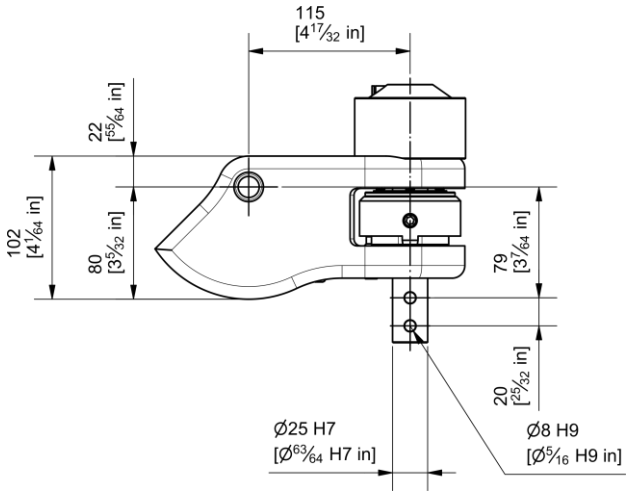
CM158300	POSITIONER Ø6x50	
CM166500	HANDLE M12 [AXIS Z_2]	
M3103200R	TIMCO STAINLESS STEEL BRAKE RETOUCH [AXIS Y]	
MV331104	REPLACEMENT STUDS AND CAPS KIT	
MV405504	RADIAL ARM LOCKING CYLINDER	
MV405903	CYLINDER COVER 42	
MV4062A4	RADIAL PADS L22-L92 SPARE KIT	

2.9. VERTICAL EXTENSION – W

M7225200

W27 – Pneumatic lock[11]





Z: Turn 340º

The pneumatic lock[12] (Z axis) is activated/deactivated with the rest of the radial arm locks:

- Only on arms with L22 locks, it works with the radial lock selector

For more information consult the arm manual.

[11] W27: Z-axis, pneumatic lock in 60 positions (60 x 5.6º) (requires L22 or L92 lock in the arm).

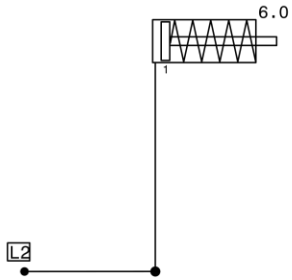
[12] Only with the W27 head member

2.9.1. Pneumatic scheme

REF	QUANT	CODE	DESCRIPTION
6.0	1	-	HEADMEMBER RADIAL LOCK CYLINDER (See note)

NOTE:

S0/S3/S4/S6	M32552A0 HEADMEMBER RADIAL LOCK CYLINDER
S7	M7226600 HEADMEMBER RADIAL LOCK CYLINDER



DESCRIPTION	CODE
PNEUMATIC SCHEME - SINGLE RS HEADMEMBER	PNEUS30009

		NAME	DATE	REVISION
*	Standardization of the scheme.			
	DRAWN BY	D. Gil	18/05/2022	2
	APPROVED BY	D. Gil	09/01/2024	

TECNOSPIRO MACHINE TOOL SLU

2.9.2. Spare parts

M7226600	REVOLVER AUTOMATIC BRAKE