INSTRUCTION MANUAL

3arm®

HEAD ASSEMBLY ANNEX

SERIES 6

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

TECNOSPIRO MACHINE TOOL SL

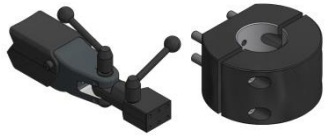
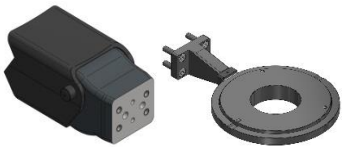
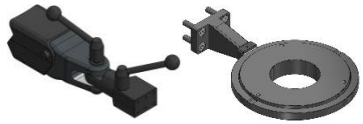
DESIGN & QUALITY 3arm Made in Barcelona

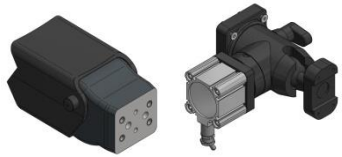
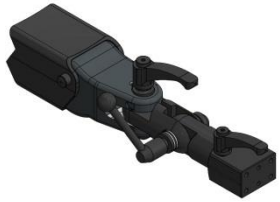
www.3arm.net

TABLE OF CONTENTS

Last update: 04/06/2019

1. S6 HEAD ASSEMBLIES

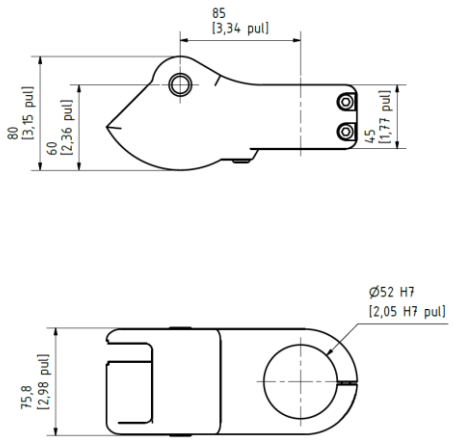
				
A – Vertical 0 kg **40100105**	**B** - Vertical (flat) 0 kg **MV306904**	**BA** - Vertical (flat) + ring 1 kg **MV306904 + Tecnospiro code**	**C** - Vertical (adjustable) 1 kg **MV301804**	**D** – Articulated 1 kg **MV3019A4**
				
E – Articulated (flat) 1 kg **MV302304**	**EA** – Articulated (flat) + ring 2 kg **MV302304 + Tecnospiro code**	**EB** – Articulated (heavy-duty, flat) 2 kg (base + pads) **MV30P504**	**EC** – Articulated (heavy-duty, flat) 3 kg (base + pads) + ring **MV30P504 + Tecnospiro code**	**F** – Articulated (adjustable) 2 kg **MV302504**
				
G – Multiturn (quick-change) 3 kg **MV3171B4 + MV3EAxxx (Timco)** **MV3171B4 + MV3EBxxx (Timsand)** **MV3CUxxx (customised)**	**H** – Multiturn (quick-change) ref. 6 kg **MV31E804 + MV3FAxxx (Timco)** **MV31E804 + MV3FBxxx (Timsand)** **MV3FUxxx (customised)**	**I** – Electromagnet (flat) **MV306904+MV3AM180 (normal)** 1.5 kg	**IR** – Electromagnet (flat) Heavy-duty **MV306904 + MV3RM200 (ref.)** 3 kg	**J**– Electromagnet (adjustable) **MV3205A4 + MV3AM180 (normal)** 3 kg
				
JR – Electromagnet (adjustable) Heavy-duty **MV3205A4 + MV3RM200 (ref.)** 3 kg	**K** – Belt 1 kg **M3146500**	**L** – Adjustable ball joint (vertical) 1.5 kg **40100105 + MV30C904**	**LA** – Adjustable ball joint (vertical) 1.5 kg **40100105 + M3103600**	**LB** – Adjustable ball joint (horizontal) 1 kg **MV306904 + M3103700**

				
LC – Adjustable ball joint (horizontal) 1 kg **MV306904 + MV30D004**	**M** – Press support 1.5 kg **MV3171B4 + MV31T104 (0–12 kg)**	**N** – Multiposition 1.5 kg **MV31F5A4 + MV3MAxxx (Timco)** **MV31F5A4 + MV3PBxxx (Timsand)** **MV3MUxxx (customised)**	**P** - Articulated (flat, double) 1.5 kg **MV302404**	**Q** – Multiposition (heavy-duty) 3 kg **MV30D2A4 + MV3JAxxx (Timco)** **MV30D2A4 + MV3JBxxx (Timsand)** **MV3JUxxx (customised)**
				
QH – Multiposition (heavy-duty with metal knobs) 3 kg **M3155100 + MV3JAxxx (Timco)** **M3155100 + MV3JBxxx (Timsand)** **MV3JUxxx (customised)**	**QA** – Multiposition (heavy-duty, safety) 3.5 kg **M3147600 + MV3JAxxx (Timco)** **M3147600 + MV3JBxxx (Timsand)**	**R** - Rotary **MV404404** 4.5 kg **MVRxxx04 (support)**	**RS** – Rotary (automatic) **M41007A0** 5.5 kg **MVRxxx04 (support)**	**RA** – Rotary (swing) **MV404404** 3.5 kg **MVBxxx04 (support)**
				
RAS – Rotary (swing, automatic) **M41007A0** 4.5 kg **MVBxxx04 (support)**	**RB** – Rotary (swing) **MV404404** 2 kg **Tecnospiro code (support)**	**RBS** – Rotary (swing, automatic) **M41007A0** 2.5 kg **Tecnospiro code (support)**	**RC** – Rotary (swing, 4 x 90°) **M3150900** 2 kg **Tecnospiro code (support)**	**SR** – Rotary (giraffe neck) 6 kg **MV30P604 + MVRxxx04 (rotary)** **MV30P604 + MVBxxx04 (vertical)**

				
SN – Multiposition (giraffe neck) 4 kg **MV30P704 + MV3MAxxx (Timco)** **MV30P704 + MV3PBxxx (Timsand)** **MV3MUxxx (customised)**	**SQ** – Multiposition (heavy-duty, giraffe neck) 5 kg **MV30P804 + MV3JAxxx (Timco)** **MV30P804 + MV3JBxxx (Timsand)** **MV3JUxxx (customised)**	**T** – Multiposition 2 kg **MV31F5A4 + MV3LAxxx (Timco)** **MV31F5A4 + MV3QBxxx (Timsand)** **MV3LUxxx (customised)**	**U**– Multiposition (heavy-duty) 2 kg **MV30D2A4 + MV3KAxxx (Timco)** **MV30D2A4 + MV3KBxxx (Timsand)** **MV3KUxxx (customised)**	**UH**– Multiposition (heavy-duty with metal knobs) 2 kg **M3155100 + MV3KAxxx (Timco)** **M3155100 + MV3KBxxx (Timsand)** **MV3KUxxx (customised)**
				
UA – Multiposition (safety ref.) 2 kg **M3147600 + MV3KAxxx (Timco)** **M3147600 + MV3KBxxx (Timsand)** **MV3KUxxx (customised)**	**Z** – Fork 0.25 kg **MV309304**	**ZA** – Fork (heavy-duty) 0.5 kg **M3125600**		

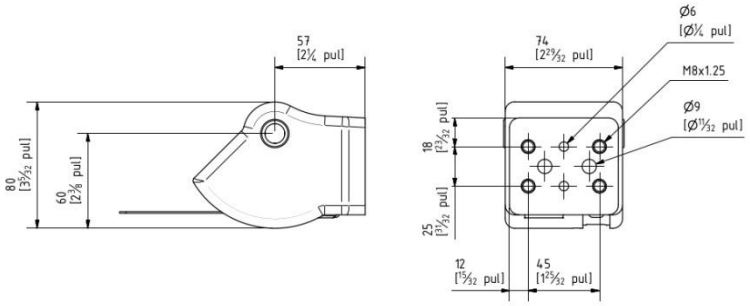
- **The short arm version can carry all the heads**
- **The long arm version only can carry the N and T heads**

2. HEAD ASSEMBLIES

2.1 VERTICAL - A **40100105**[1]
-Maximum torque: 150 Nm -Tool max. diameter: 52 mm (Adjustable bushing)
 

[1] See compatibility page 4

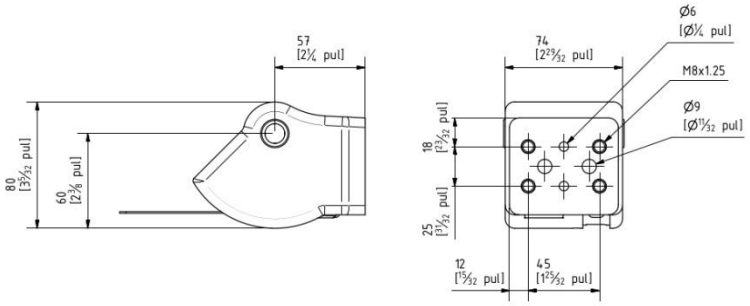
2.2 VERTICAL (FLAT) – B MV306904[2]



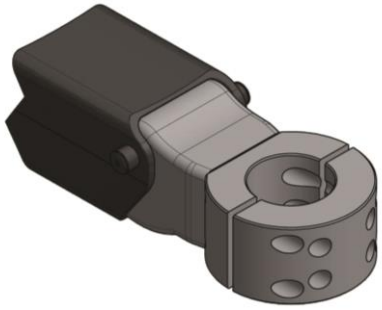
MAXIMUM TORQUE - Split Ring (Nm)		
Arm	**Vertical**	**Horizontal**
S6	300	250

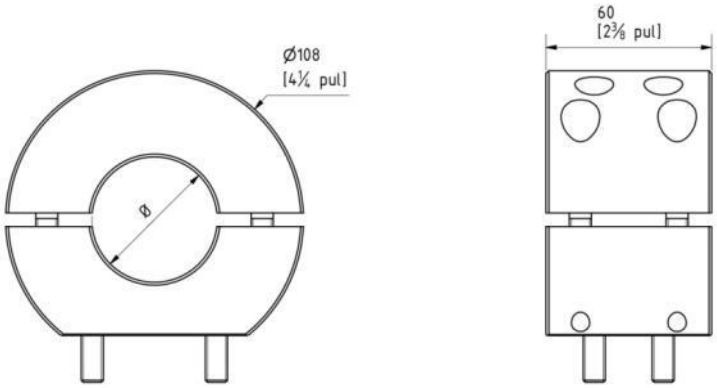
[2] See compatibility page 4

2.3 VERTICAL (FLAT) – BA MV306904[3] + Tecnospiro code



Split ring – Tecnospiro code (optional)





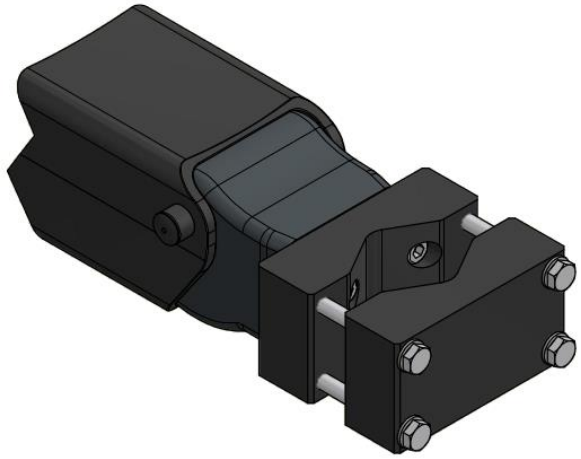
Ø: specific diameters made to order (max. diameter: 66mm).

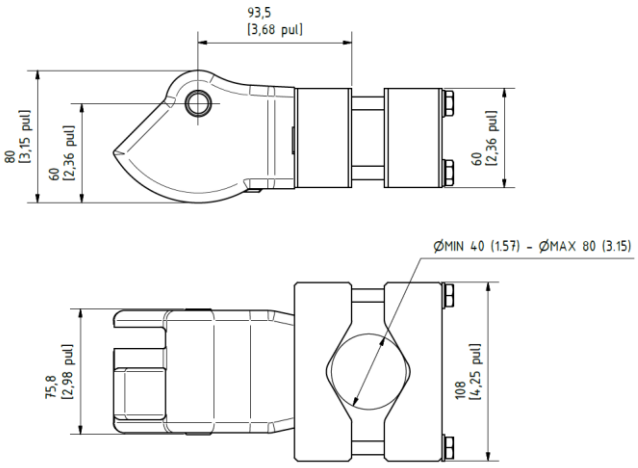
MAXIMUM TORQUE - Split Ring (Nm)		
Arm	**Vertical**	**Horizontal**
S6	300	250

[3] See compatibility page 4

2.4 VERTICAL (ADJUSTABLE) – C MV301804[4]

Cylindrical or irregularly-shaped tools
$D_{min.}$: 40 mm/$D_{max.}$: 80 mm

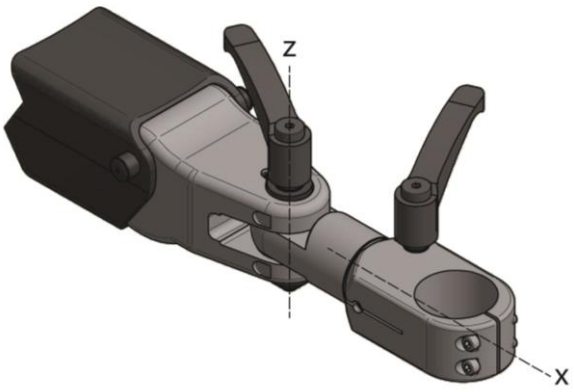


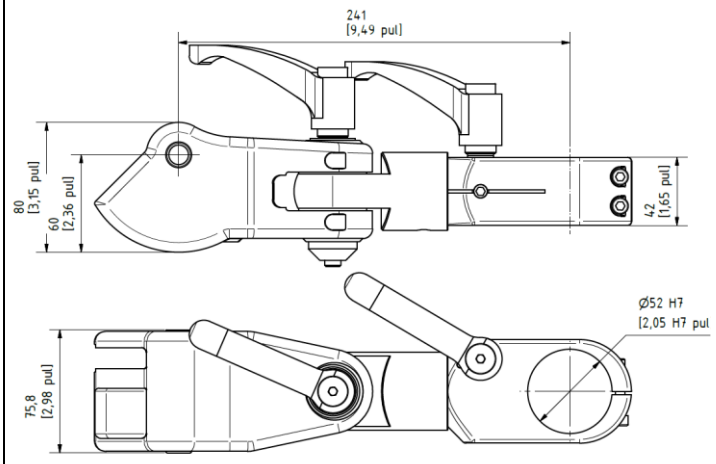


[4] See compatibility page 4

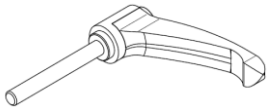
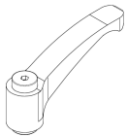
2.5 ARTICULATED – D
MV3019A4[5]

Maximum torque: 120 Nm
Max. diameter (tool): 52 mm





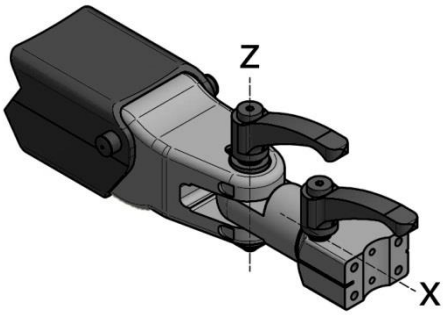
- X: Rotates 360º. Can be locked in any position
- Z: Rotates ±90º. Can be locked in any position

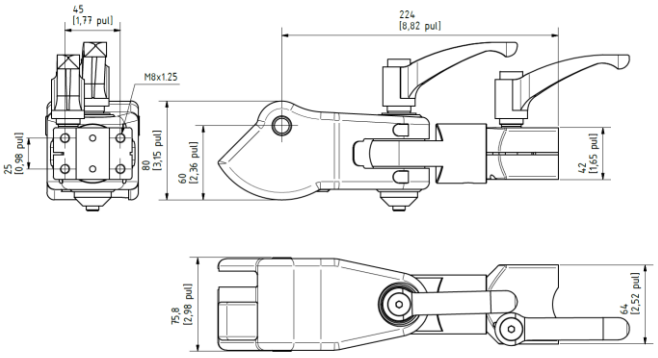
AC060576	HANDLE ERZ95PM10X80 *[Z axis]*	
AC060596	HANDLE ERZ95AM10 *[X axis]*	

[5] See compatibility page 4

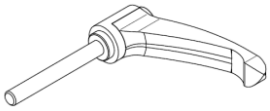
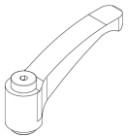
2.6 ARTICULATED (FLAT) – E MV302304[6]

Maximum torque: 120 Nm



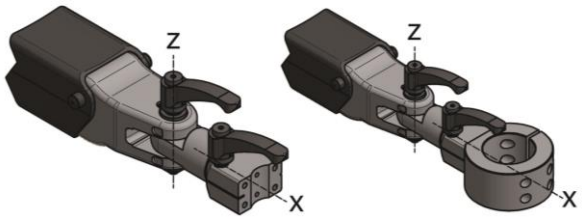


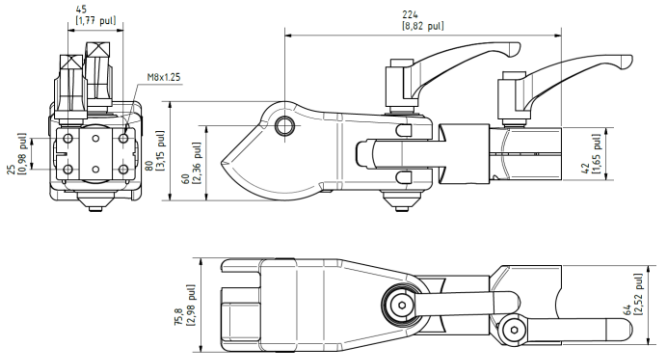
X: Rotates 360º. Can be locked in any position
Z: Rotates ±90º. Can be locked in any position.

AC060576	HANDLE ERZ95PM10X80 *[Z axis]*	
AC060596	HANDLE ERZ95AM10 *[X axis]*	

[6] See compatibility page 4

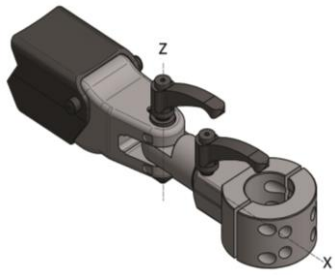
2.7 ARTICULATED (FLAT) – EA MV302304[7] + Tecnospiro code

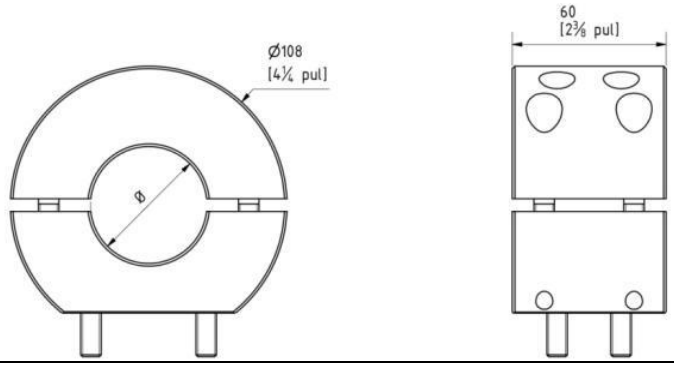




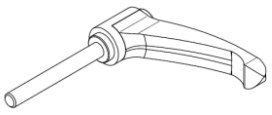
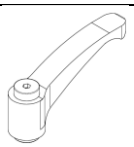
X: Rotates 360º. Can be locked in any position
Z: Rotates ±90º. Can be locked in any position.

Split ring – Tecnospiro code (optional)



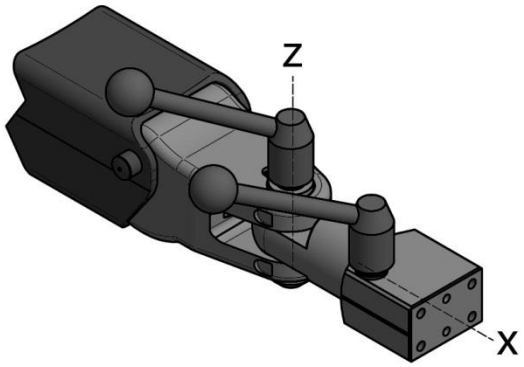


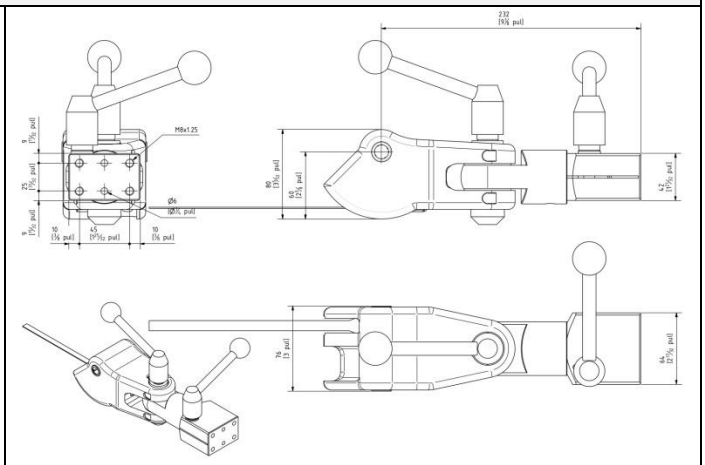
Ø: Specific diameter upon request.

AC060576	HANDLE ERZ95PM10X80 *[Z axis]*	
AC060596	HANDLE ERZ95AM10 *[X axis]*	

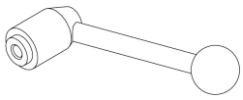
[7] See compatibility page 4

2.8 ARTICULATED (HEAVY-DUTY, FLAT) – EB MV30P504[8]





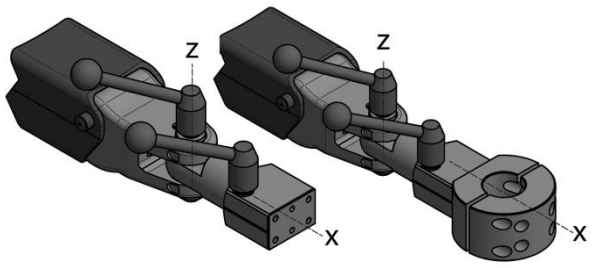
X: Rotates 360º. Can be locked in any position
Z: Rotates ±90º. Can be locked in any position.

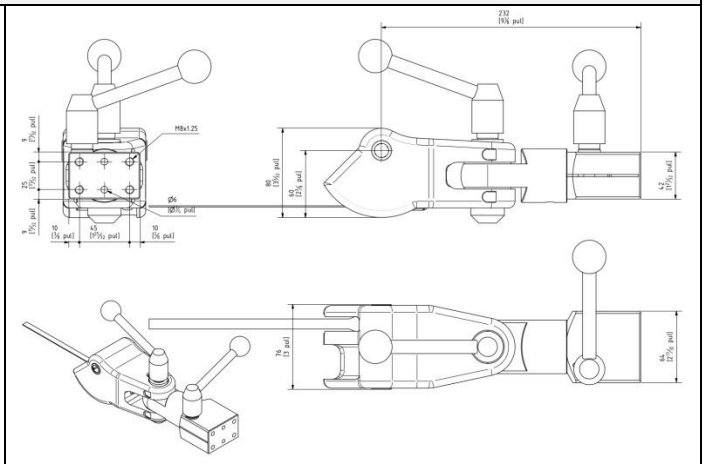
AC060606	LEVER (ELESA GN212-3-28-M10-E) *[Z, X axis]*	

ARTICULATED EB (HEAVY DUTY, FLAT): MV30P504
- For applications that require a lockable head assembly. - Fitted with larger, heavy-duty levers. - Max. torque: 120 Nm - Fitted with pads on the base (Z axis).

[8] See compatibility page 4

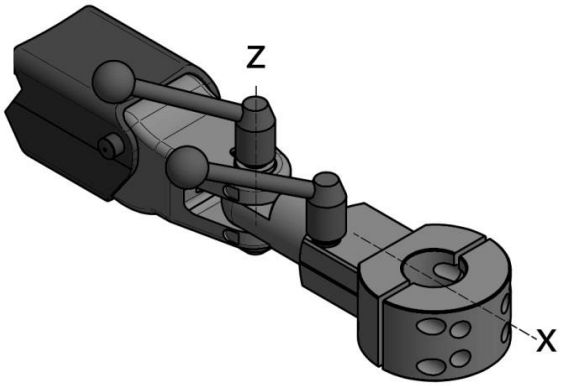
2.9 ARTICULATED (HEAVY-DUTY, FLAT) – EC MV30P504[9] + Tecnospiro code

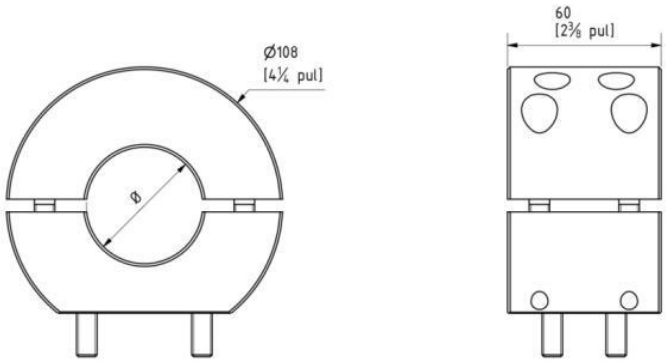




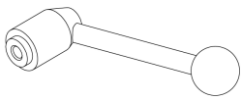
X: Rotates 360º. Can be locked in any position
Z: Rotates ±90º. Can be locked in any position.

Split ring – Tecnospiro code (optional)





Ø: Specific diameter upon request.

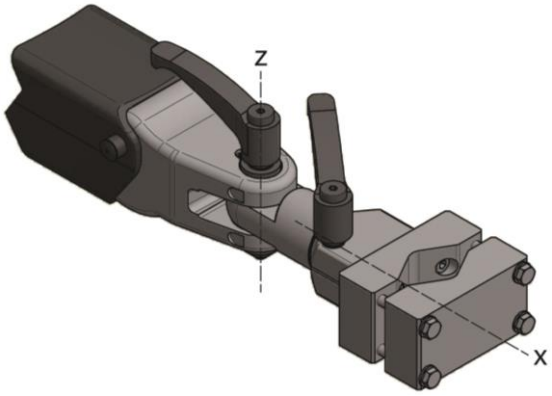
AC060606	LEVER (ELESA GN212-3-28-M10-E) *[Z, X axis]*	

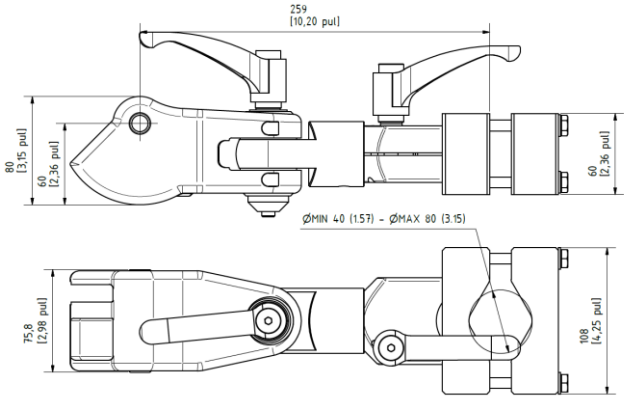
ARTICULATED EC (HEAVY DUTY, FLAT): MV30P504
- For applications that require a lockable head assembly. - Fitted with larger, heavy-duty levers. - Max. torque: 120 Nm - Fitted with pads on the base (Z axis).

[9] See compatibility page 4

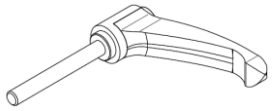
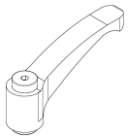
2.10 ARTICULATED (ADJUSTABLE) – F MV302504[10]

Cylindrical or irregularly-shaped tools
$D_{min.}$: 40 mm/ $D_{max.}$: 80 mm





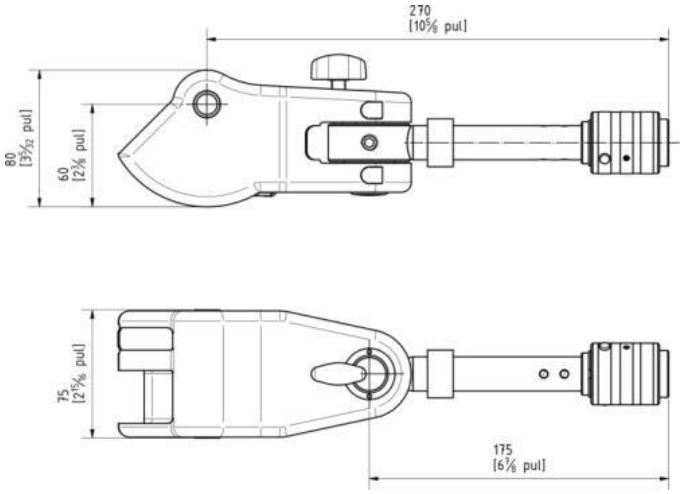
X: Rotates 360º. Can be locked in any position
Z: Rotates ±90º. Can be locked in any position

AC060576	HANDLE ERZ95PM10X80 *[Z axis]*	
AC060596	HANDLE ERZ95AM10 *[X axis]*	

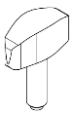
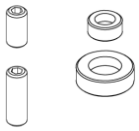
[10] See compatibility page 4

2.11 MULTITURN (QUICK-CHANGE) – G
MV3171B4[11] + MV3EAXXX/ MV3EBXXX/ MV3CUXXX

Maximum load: 12 kg / 6 kg[12]
Requires locks (L50)



Z_1: Rotates ±90º. Non-lockable
Z_2: Rotates 360º. Non-lockable
X_1: Rotates 360º. Lockable 8x45º
X_2: Rotates 360º. Non-lockable
Y: Rotates 360º. Non-lockable

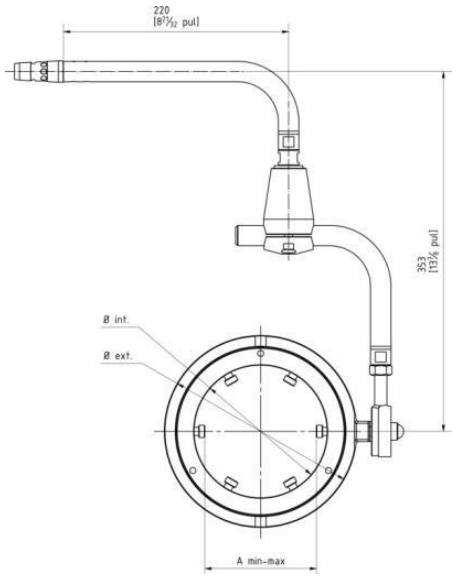
MV31J603	SECURING HANDLE M8x25	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

[11] See compatibility page 4
[12] Maximum load: **6 kg** for applications using the type-A grip bar (TIMCO) and vibration tools (impact, pulse, etc.). For other applications, or for applications using the type-B grip bar (TIMSAND), the maximum load is 12 kg.

2.11.1 Type A bars: TIMCO

2.11.1.1 Configurations

Suitable for any type of tool.
Part No.: MV3EAxxx (xxx = internal diameter in mm)



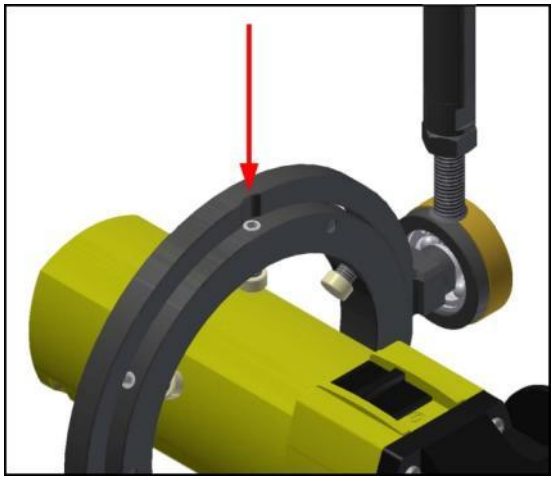
Øint.		Øext.		Ø max.	
mm	*Inches*	mm	*Inches*	mm	*Inches*
70	*2 3/4″*	128	*5″*	50	*2″*
80	*3 1/8″*	138	*5 3/8″*	60	*2 3/8″*
90	*3 ½″*	148	*5 7/8″*	70	*2 ¾″*
100	*3 7/8″*	158	*6 ¼″*	80	*3 1/8″*
110	*4 3/8"*	168	*6 5/8″*	90	*3 ½″*
120	*4 ¾″*	178	*7″*	100	*3 7/8″*
130	*5 1/8″*	188	*7 3/8″*	110	*4 3/8″*
140	*5 ½″*	198	*7 ¾″*	120	*4 ¾″*
150	*5 7/8″*	208	*8 ¼ “*	130	*5 1/8″*
160	*6 ¼ “*	218	*8 5/8″*	140	*5 ½″*
170	*6 ¾ “*	228	*9 “*	150	*5 7/8″*
180	*7 1/8″*	238	*9 3/8″*	160	*6 ¼″*

- Maximum load: 6 kg for applications using the type-A grip bar (TIMCO) and vibration tools (impact, pulse, etc.).
- Other dimensions upon request
- Extension pieces can be used to create various grip bar configurations. *See page. 112*

2.11.1.2 Installation of the tool

1. Position the tool in the orbital attachment, so that the weight remains balanced on both sides of the tool holder.

2. Once the tool is in position the notches in the outer ring must be aligned with the Allen bolts, the tool should be tightened progressively following a "X" pattern.



2.11.1.3 *Accessories included*

Included with the type A cylinders (TIMCO), are two types of ***cap (Nylon and rubber)*** and ***studs (DIN-913 M8x25 and DIN-913 M8x16).*** *(Supplied by default fitted with Nylon cap and stud DIN-913 M8x16).*

Nylon cap MV31B803	**Rubber cap MV31F303**
Material: Nylon *Identifying colour:* Translucent white *Level of grip:* High *Level of adaptation:* Medium 	*Material:* Polyurethane *Identifying colour:* Red *Level of grip:* Medium *Level of adaptation:* High 

Rubber caps (Polyurethane)**:**

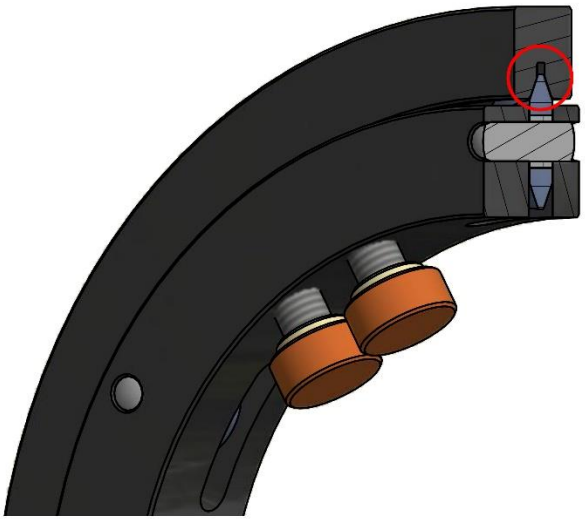
- These should be used for applications with vibration (impact tools), or with delicate tools (plastic bodies).
- The rubber caps should fit together with the nylon caps so that the free space around the tool is reduced.

2.11.1.4 *Gimbals maintenance and cleaning*

In order to maintain the gimbals clean, Tecnospiro recommend to blow air periodically inside the gimbals while rotating the inner track.

The way to blow air inside the gimbals it is important, to remove the dust accumulated in the groove. The dust and abrasive material could be accumulated inside the groove and wear the gimbal tracks.

Groove:

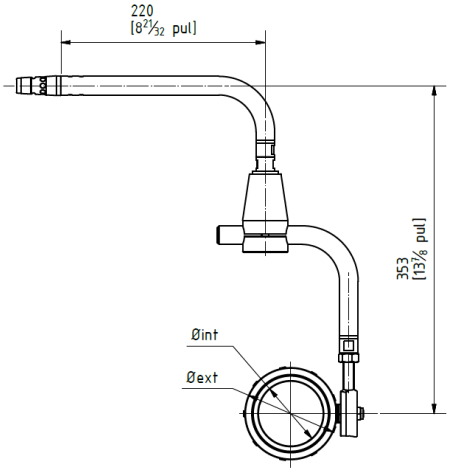


These pictures show how to blow the air inside the Gimbal.
Rotate the inner track while blowing

2.11.2 Type B bars: TIMSAND

2.11.2.1 Configurations

Suitable for tools with a cylindrical contact area.
Ref.: MV3EBxxx (xxx = internal diameter in mm)



Ø int.		Ø ext.		Ø max.	
mm	*Inches*	mm	*Inches*	mm	*Inches*
40	*1 5/8″*	69	*2 ¾″*	39	*1 ½″*
45	*1 ¾″*	74	*2 7/8″*	44	1 ¾″
50	*2″*	79	*3 1/8″*	49	1 7/8″
55	*2 1/8″*	84	*3 ¼″*	54	2 1/8″
60	*2 3/8″*	89	*3 ½″*	59	2 3/8″
65	*2 ½″*	94	*3 ¾″*	64	2 ½″
70	*2 ¾″*	99	*3 7/8″*	69	2 ¾″
75	*3″*	104	*4 1/8″*	74	2 7/8″
80	*3 1/8″*	109	*4 ¼″*	79	3 1/8″
85	*3 3/8″*	114	*4 ½″*	84	3 ¼″
90	*3 ½ “*	119	*4 5/8″*	89	3 ½"
95	*3 ¾ “*	124	*4 7/8″*	94	3 ¾“
100	*3 7/8″*	129	*5 1/8″*	99	3 7/8″
105	*4 1/8″*	134	*5 ¼ “*	104	4 1/8″
110	*4 3/8″*	139	*5 ½ “*	109	4 ¼″
115	*4 ½ “*	144	*5 5/8″*	114	4 ½″
120	*4 ¾ “*	149	*5 7/8″*	119	4 5/8″
125	*4 7/8″*	154	*6 1/8″*	124	4 7/8″
130	*5 1/8″*	159	*6 ¼ “*	129	5 1/8″

Studs with nylon and metal ends

- The cylinders (type-B) are supplied with nylon M8x16 studs fitted as default. Metal DIN-913 M8 x 25 studs are also available in a separate pack.
- By default, the use of Nylon studs is recommended
- Depending on tool type, the nylon studs may be replaced with metal studs to achieve a more suitable cylinder diameter in relation to the tool.

ADDITIONAL INFORMATION

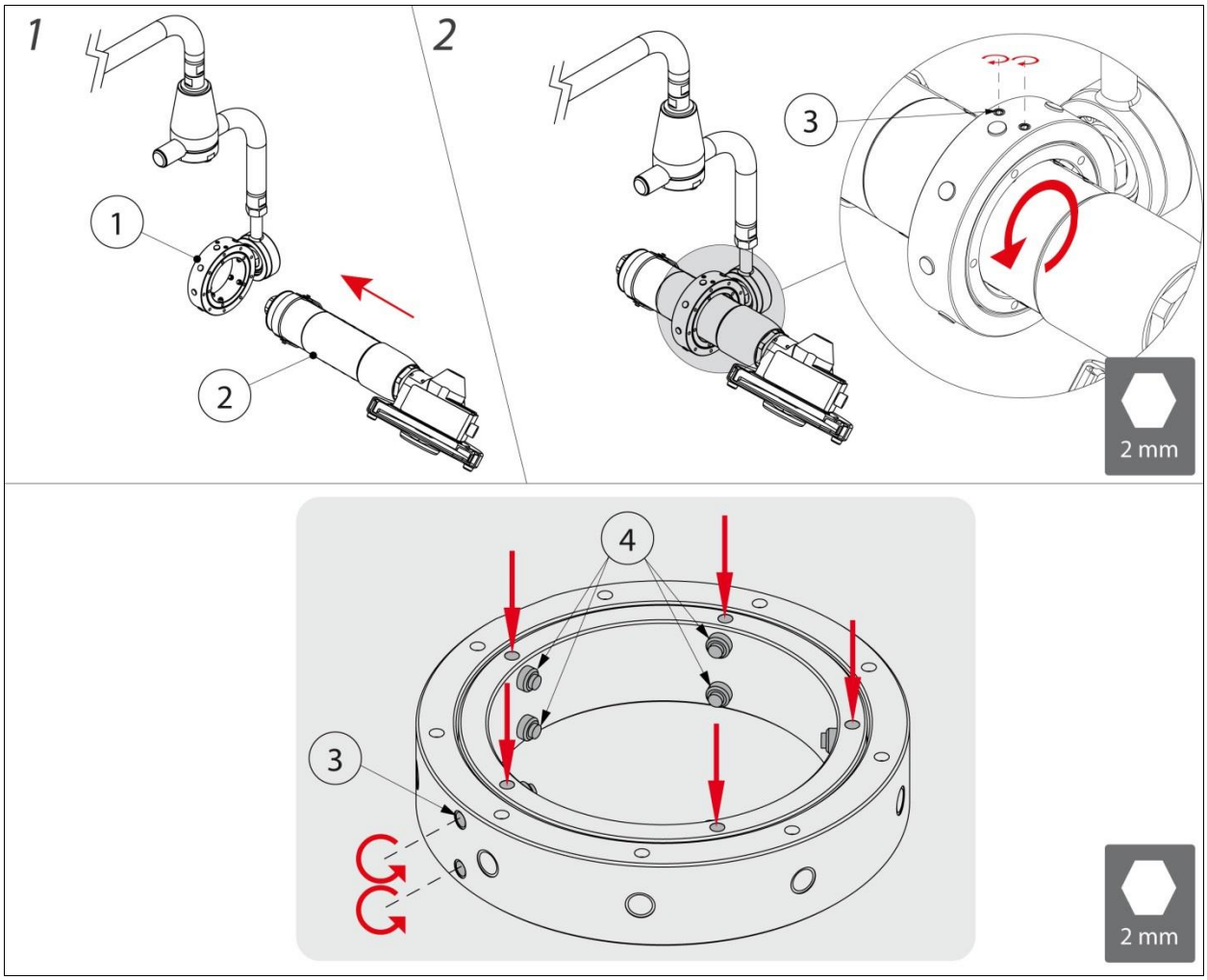
✓ *Maintenance and cleaning: See page 20*

- Other dimensions upon request
- Extension pieces can be used to create various grip bar configurations. *See page. 112*

2.11.2.2 *Installation of the tool*

To **install the tool in the type B cylinder**, follow the guidelines below.

1- Insert tool (2) into cylinder (1)
2- Align holes (3) located in the outside face of the external ring with studs (4) pressing against the tool. Screw/unscrew these studs to obtain the correct grip on the tool. *2-mm Allen key.*
3- Repeat the previous step to ensure that tool (2) is adjusted correctly along its perimeter. *Thread-lock the studs using medium-strength Loctite to prevent loosening.*



2.11.3 QUICK-CHANGE AND WORKING POSITIONS

The quick-change system provides free rotation, positioning in 8 45° positions and bar changes in a quick and simple manner manually actuating the joint located at the end of the bar.

Quick-change joint (3) has three positions:
- Free position.
- 360° free rotation of the bar
- Locking the bar in any of the eight positions (8x45°).

Follow the guidelines below for **coupling and adjusting the bar** (i.e.: type A or B).

1- Remove retaining ring (3) and move joint (2) to a position as far as possible to the left. Couple bar (1)

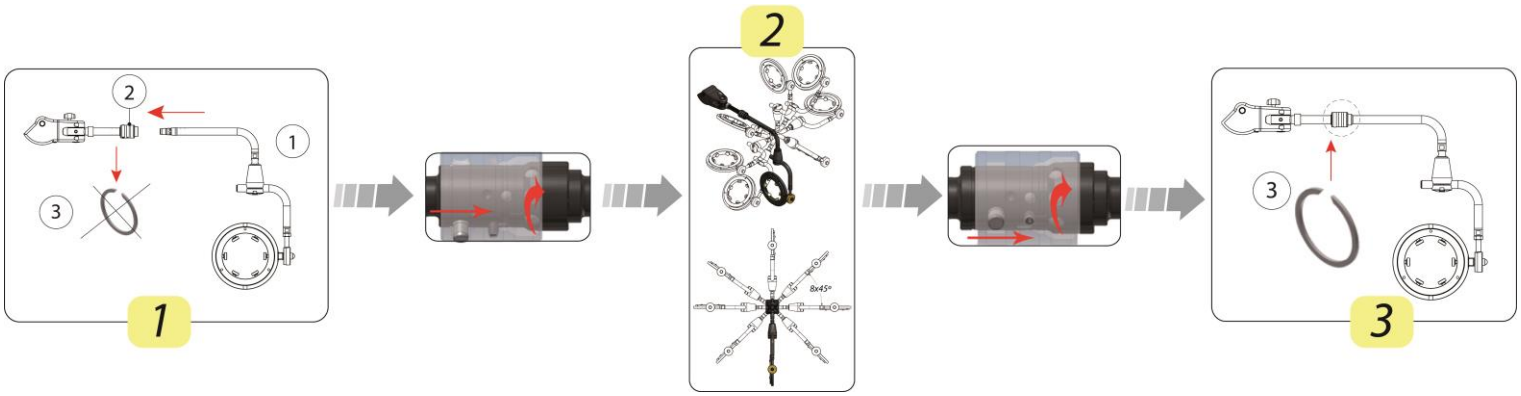
 Move joint (2) to the right until it stops and then turn it anti-clockwise until it stops again.

2- Position bar (1) in any of the possible positions (8x45°) and hold it in this position.

 Move joint (2) to the right until it stops and then turn it anti-clockwise until it stops again.

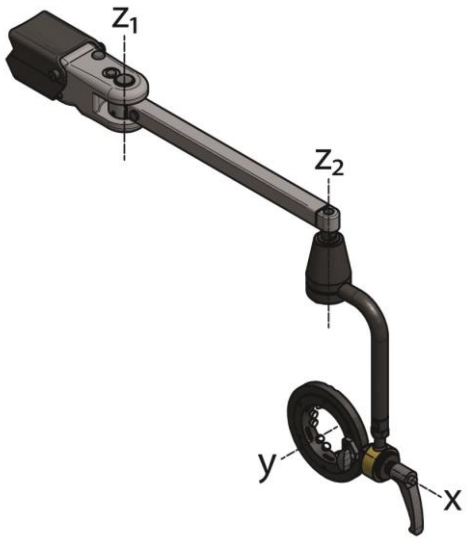
3- Position retaining ring (3) in the groove provided next to the quick-change (use pliers to make the operation easier).

Reverse the process for uncoupling

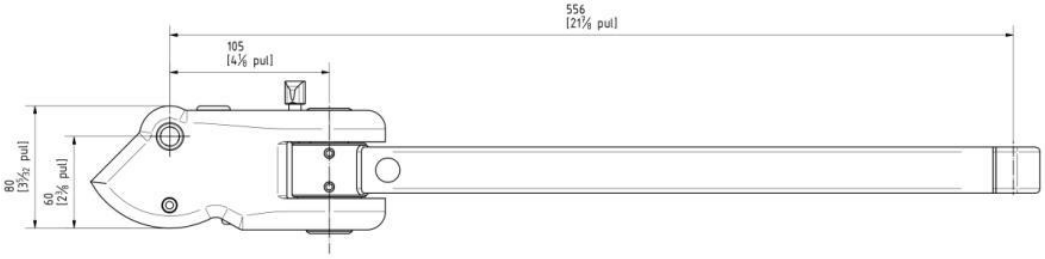


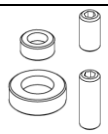
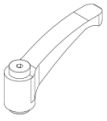
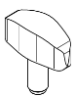
2.12 MULTITURN (HEAVY-DUTY) – H
MV31E804[14] + MV3FAXXX/ MV3FBXXX/ MV3FUXXX

Maximum load: 30 kg | □¾"[15]
Requires locks (L50)



Z_1: Rotates ±90º. Non-lockable
Z_2: Rotates 360º. Non-lockable
X: Rotates 360º. Can be locked in any position
Y: Rotates 360°. Adjustable rotation smoothness and position locking.



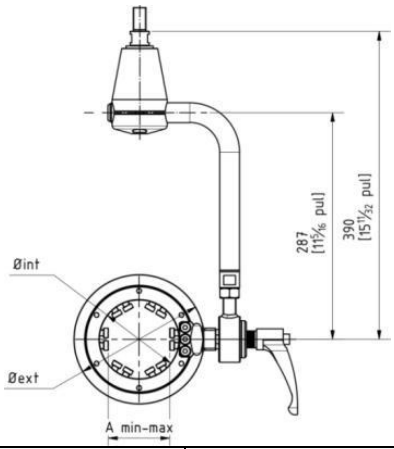
MV31J603	SECURING HANDLE M8x25	
MV331104	REPLACEMENT STUDS AND CAPS KIT	
CM101000	STAINLESS-STEEL KNOB (GN 300.5-92-M12-IS)	
M3103200	STAINLESS-STEEL BRAKE KNOB (TIMCO)	

[14] See compatibility page 4
[15] Square tool-head size recommended for this head assembly.

2.12.1 Type A bars: HEAVY-DUTY TIMCO

2.12.1.1 Configurations

Suitable for any type of tool.
Part No.: MV3FAxxx (xxx = internal diameter in mm)



Øint.		Øext.		Ø max.	
mm	*Inches*	mm	*Inches*	mm	*Inches*
80	*3 1/8″*	144	*5 5/8″*	55	*2 1/8″*
90	*3 ½″*	154	*6 1/8″*	65	*2 ½ ″*
100	*3 7/8″*	164	*6 ½″*	75	*3″*
110	*4 3/8″*	174	*6 7/8″*	85	*3 3/8″*
120	*4 ¾″*	184	*7 ¼″*	95	*3 ¾″*
130	*5 1/8″*	194	*7 5/8″*	105	*4 ¼″*
140	*5 ½″*	204	*8″*	115	*4 2/4″*
150	*5 7/8″*	214	*8 3/8″*	125	*4 7/8″*
160	*6 ¼ ″*	224	*8 7/8″*	135	*5 3/8″*
170	*6 ¾ ″*	234	*9 ¼ ″*	145	*5 ¾ ″*
180	*7 1/8″*	244	*9 5/8″*	155	*6 1/8 ″*

* Other dimensions upon request

Studs with nylon and metal ends

- The cylinders (type-B) are supplied with nylon M8x16 studs fitted as default. Metal DIN-913 M8 x 25 studs are also available in a separate pack.
- By default, the use of Nylon studs is recommended.
- Depending on tool type, the nylon studs may be replaced with metal studs to achieve a more suitable cylinder diameter in relation to the tool.

ADDITIONAL INFORMATION

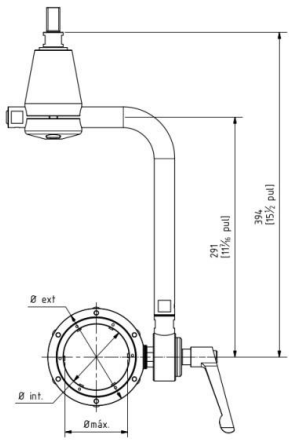
✓ *Installing the tool: See page 19*
✓ *Maintenance and cleaning: See page 20*

- Extension pieces can be used to create various grip bar configurations. *See page. 112*

2.12.2 Type-B grip bars: TIMSAND (HEAVY-DUTY)

2.12.2.1 Configurations

Suitable for tools with a cylindrical contact area.
Ref.: MV3FBxxx (xxx = internal diameter in mm)



int. Ø		ext. Ø		Ø max.	
mm	*Inches*	mm	*Inches*	mm	*Inches*
60	*2 3/8 "*	98	*3 7/8"*	59	2 3/8"
70	*2 ¾"*	108	*4 ¼ "*	69	2 ¾"
80	*3 1/8"*	118	*4 5/8"*	79	3 1/8"
90	*3 ½"*	128	*5"*	89	3 ½"
100	*3 7/8"*	138	*5 3/8"*	99	3 7/8"
110	*4 3/8"*	148	*5 7/8"*	109	4 ¼"
120	*4 ¾"*	158	*6 ¼"*	119	4 5/8"
130	*5 1/8"*	168	*6 5/8"*	129	5 1/8"
140	*5 ½"*	178	*7"*	139	5 ½"
150	*5 7/8 "*	188	*7 3/8"*	149	5 7/8"

Studs with nylon and metal ends

- The cylinders (type-B) are supplied with nylon M8x16 studs fitted as default. Metal DIN-913 M8 x 25 studs are also available in a separate pack.
- By default, the use of Nylon studs is recommended
- Depending on tool type, the nylon studs may be replaced with metal studs to achieve a more suitable cylinder diameter in relation to the tool.

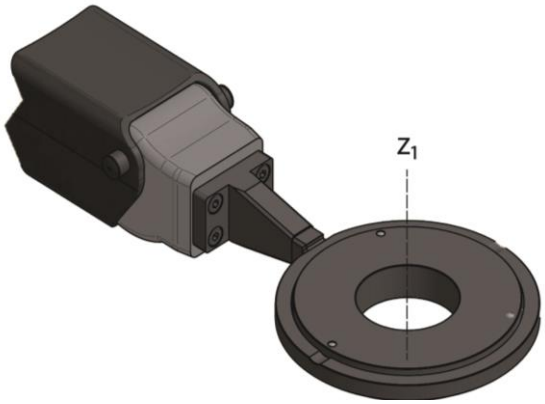
ADDITIONAL INFORMATION

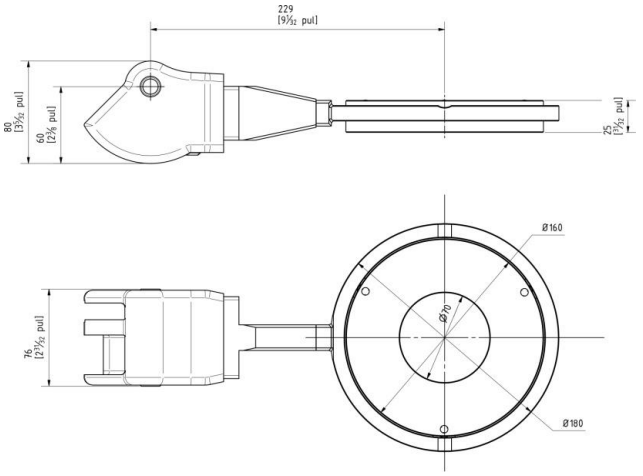
✓ *Installing the tool: See page 19*
✓ *Maintenance and cleaning: See page 20*

- Other dimensions upon request
- Extension pieces can be used to create various grip bar configurations. *See page. 112*

2.13 ELECTROMAGNET FLAT – I
MV306904[17] + MV3AM180

Maximum load: 12 Kg

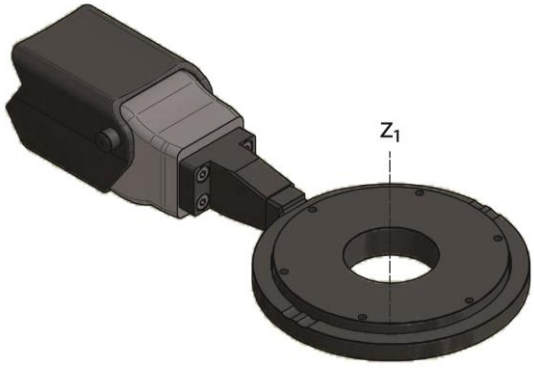


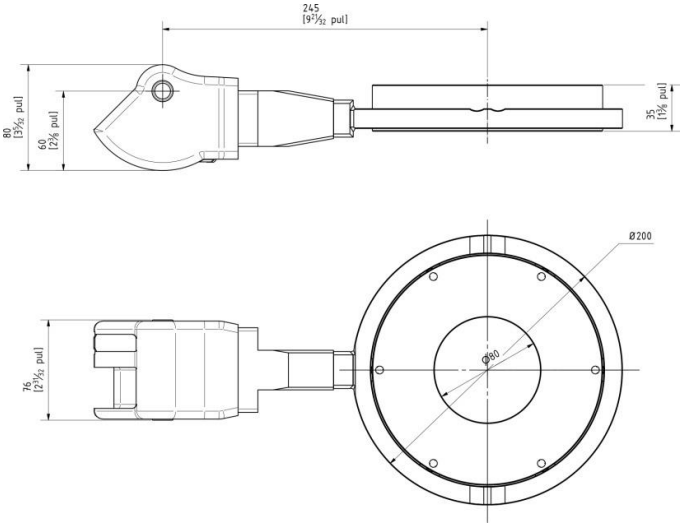


Z_1: Rotates 360º. Non-lockable

2.14 ELECTROMAGNET (FLAT) – IR
MV306904[18] + MV3RM200 (HEAVY-DUTY)

Maximum load: 30 Kg



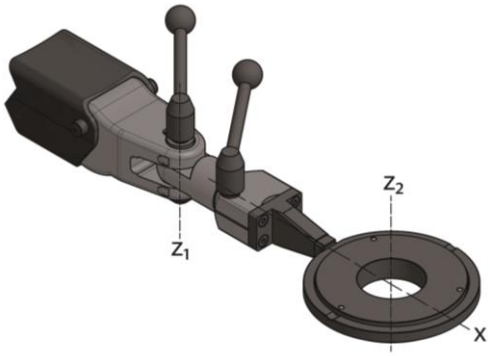


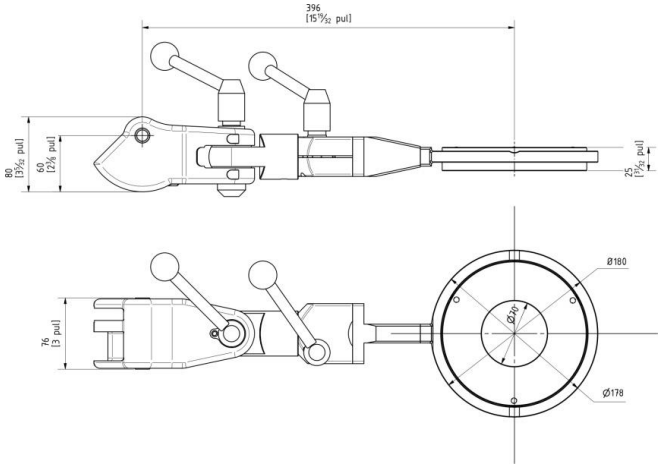
Z_1: Rotates 360º. Non-lockable

[17] See compatibility page 4
[18] See compatibility page 4

2.15 ELECTROMAGNET (ADJUSTABLE) – J
MV3205A4[19] + MV3AM180

Maximum load: 12 Kg





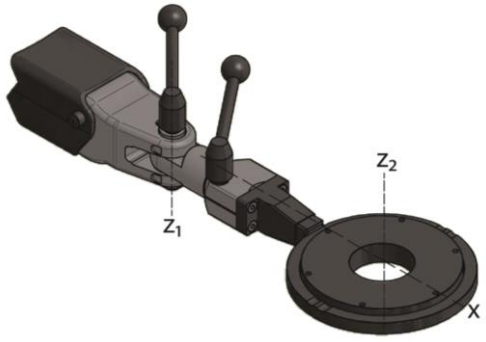
Z_1: Rotates ±90º. Can be locked in any position

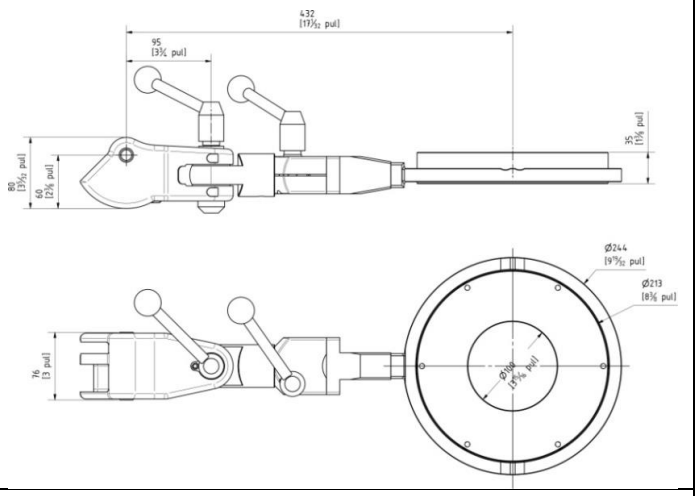
Z_2: Rotates 360º. Non-lockable

X: Rotates 360º. Can be locked in any position

2.16 ELECTROMAGNET (ADJUSTABLE) – JR
MV3205A4[20] + MV3RM200 (HEAVY-DUTY)

Maximum load: 30 Kg

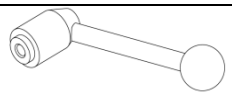




Z_1: Rotates ±90º. Can be locked in any position

Z_2: Rotates 360º. Non-lockable

X: Rotates 360º. Non-lockable

AC060606	HANDLE ELESA GN212-3-28-M10-E *[Z axis $_{1}$, X]*	

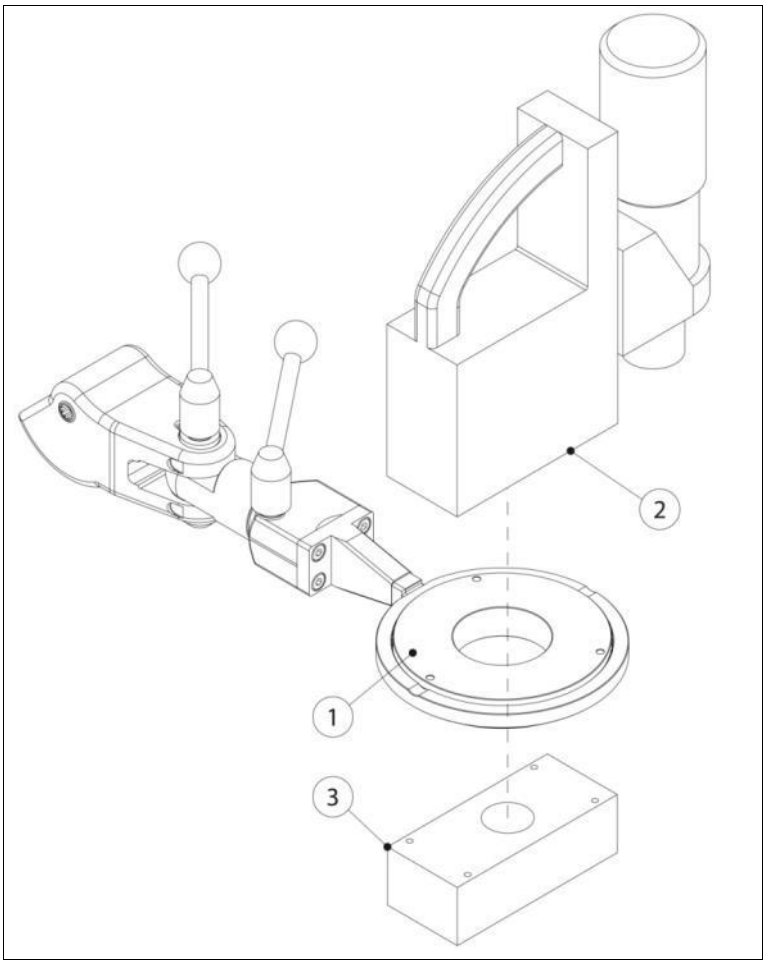
[19] See compatibility page 4

[20] See compatibility page 4

2.16.1 Tool installation. (Operation valid for head members I-J)

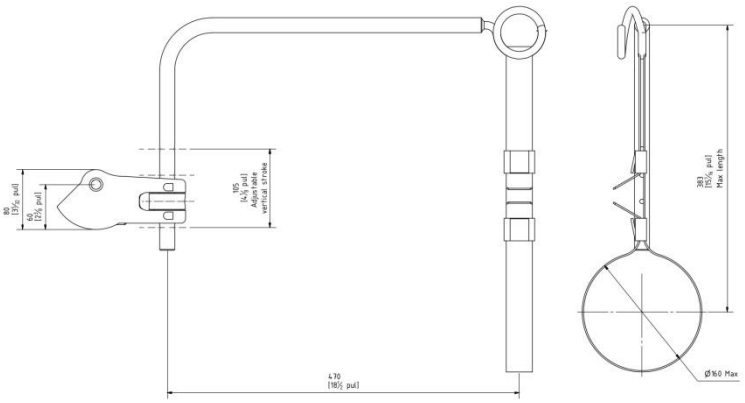
To mount a drilling tool with a magnetic base, it is necessary to:

- Separate magnetic base (3) from the rest of tool (2)
- Drill cylinder (1) of the head member to allow the screws attaching the two parts of the tool (2 and 3) to pass through
- Join the two parts of the tool leaving cylinder (1) in between them.



2.17 UNIVERSAL BELT – K M3146500[21]

Maximum load: 30 Kg

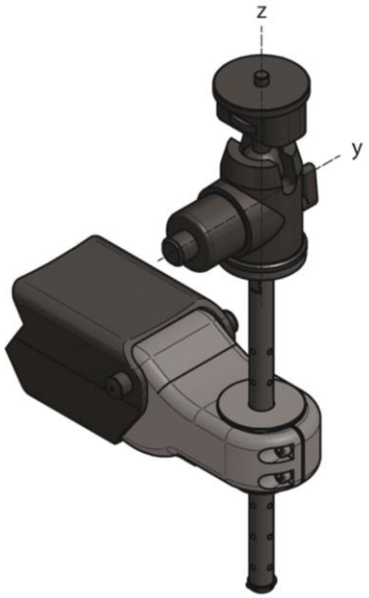


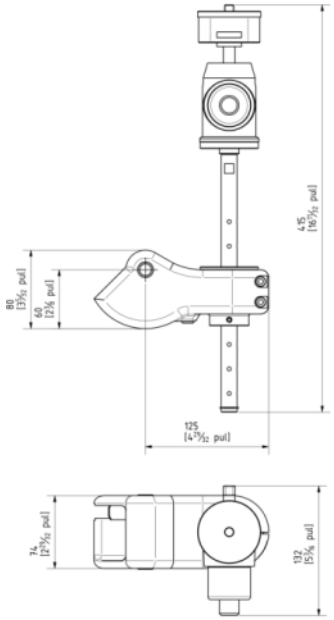
Z: Rotates 360°.

[21] See compatibility page 4

2.18 ADJUSTABLE BALL JOINT (VERTICAL) – L 40100105[22] + MV30C904 *[MANUAL LOCK]*

Maximum load: 16 kg





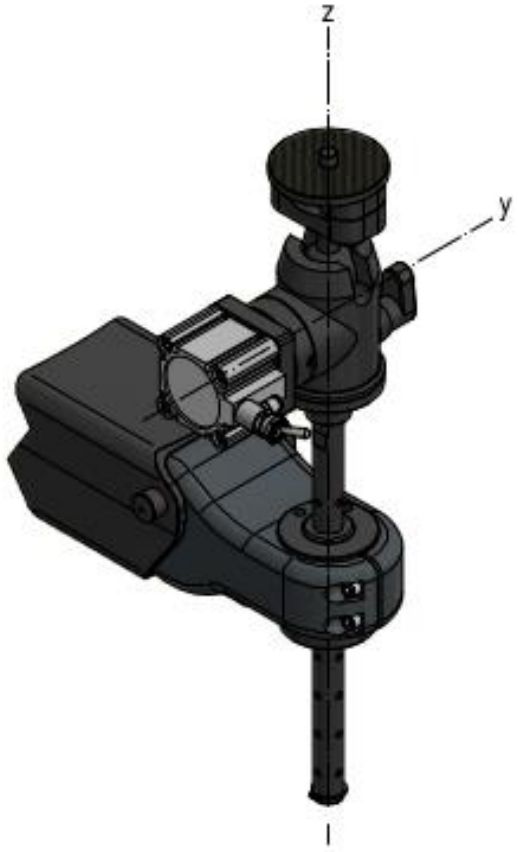
Y: Rotates 180º (90ºx2)
Z: Rotates 360°. Lockable in any position. Stroke adjustable up to 175 mm.
Tilting ball joint ±30º x 360º

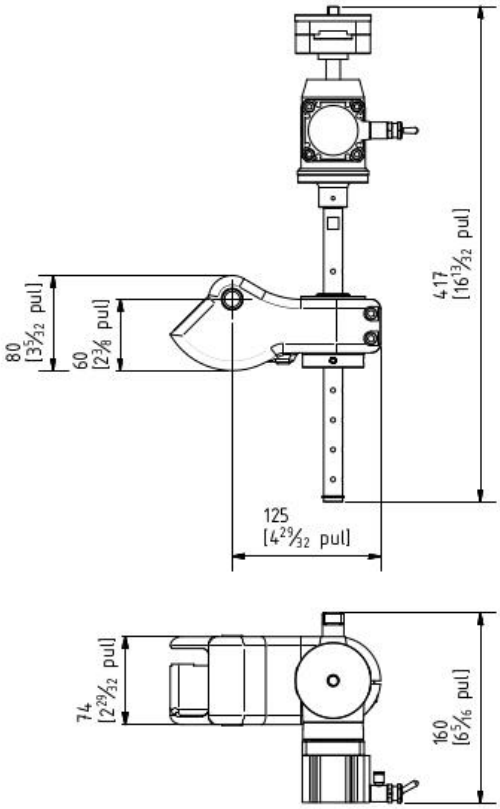
[22] See compatibility page 4

2.19 ADJUSTABLE BALL JOINT (VERTICAL) – LA 40100105[23] + M3103600 *[PNEUMATIC LOCK]*

Maximum load: 16 kg

Pneumatic lock

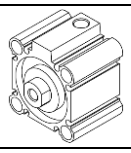




Y: Rotates 180º (90ºx2)

Z: Rotates 360°. Lockable in any position. Stroke adjustable up to 175 mm.

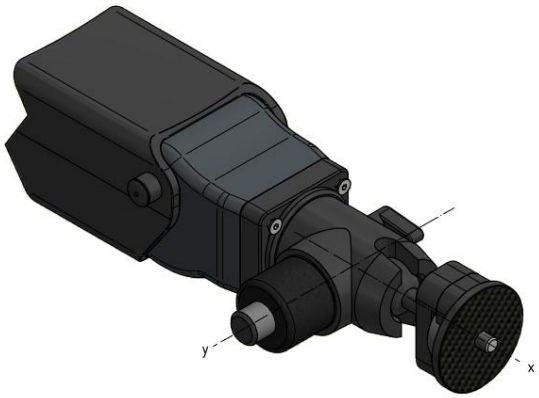
Tilting ball joint ±30º x 360º

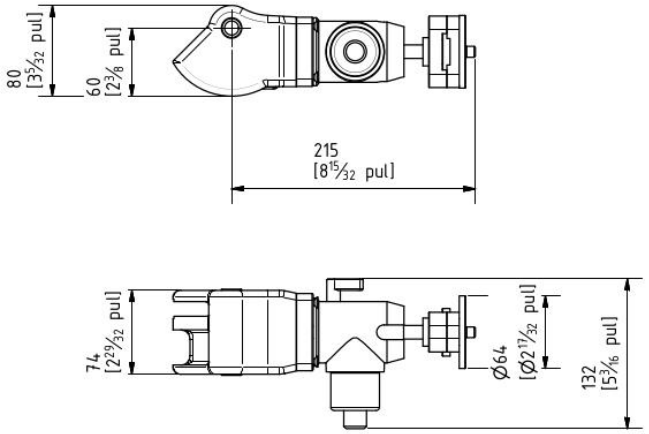
NH075006	CYLINDER CQ2B40-10SZ	
NH027616	COUPLING WITH SELECTOR 7800 04 10	

[23] See compatibility page 4

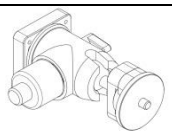
2.20 ADJUSTABLE BALL JOINT (HORIZONTAL) – LB MV306904[24] + M3103700 *[MANUAL LOCK]*

Maximum torque: 25 Nm





Y: Rotates 180º (90ºx2)
X: Rotates 360°.
Tilting ball joint ±30º x 360º

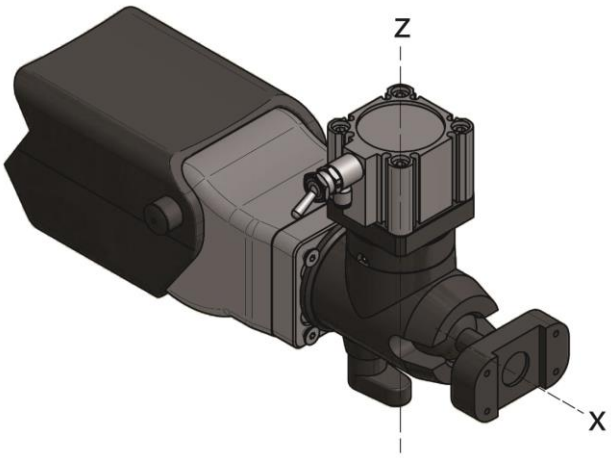
AC006196	HYDROSTATIC BALL JOINT (MANFROTTO 468MG)	

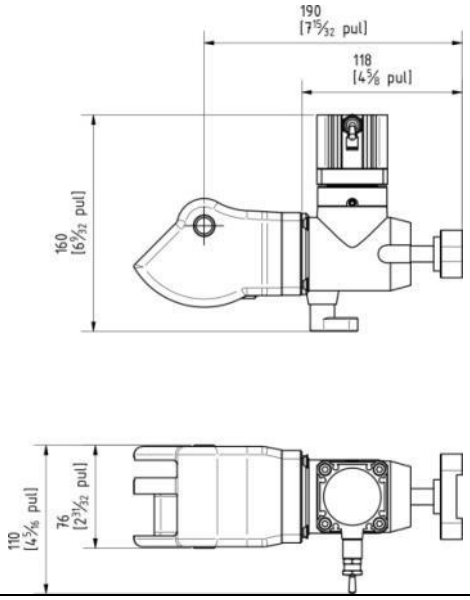
[24] See compatibility page 4

2.21 ADJUSTABLE BALL JOINT (HORIZONTAL) – LC MV306904[25] + MV30D004 *[MANUAL LOCK]*

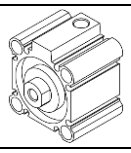
Maximum torque: 25 Nm

Pneumatic lock





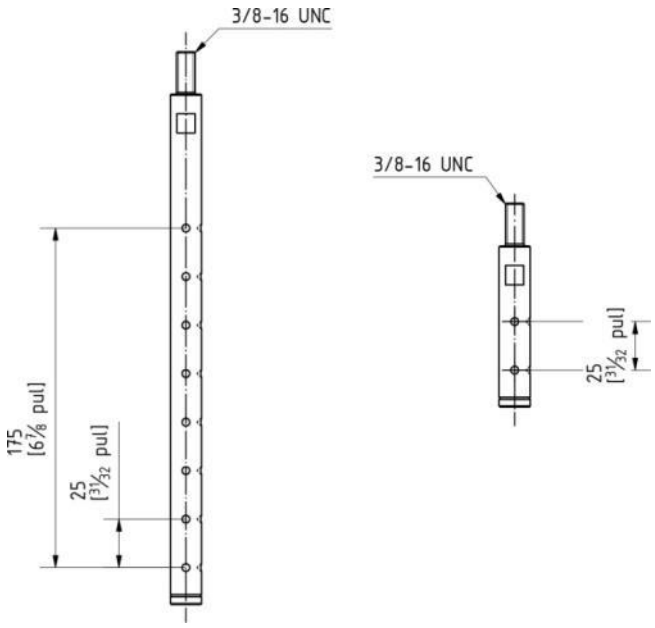
X: Rotates 360º. Can be locked in any position
Z: Rotates 180º (90ºx2). Lockable in any position
Tilting ball joint ±30º x 360º

NH075006	CYLINDER CQ2B40-10SZ	
NH027616	COUPLING WITH SELECTOR 7800 04 10	

[25] See compatibility page 4

2.21.1 CONFIGURATIONS

For vertical versions of head member L, different versions of coupling axes can be selected to obtain a reach suited to requirements.



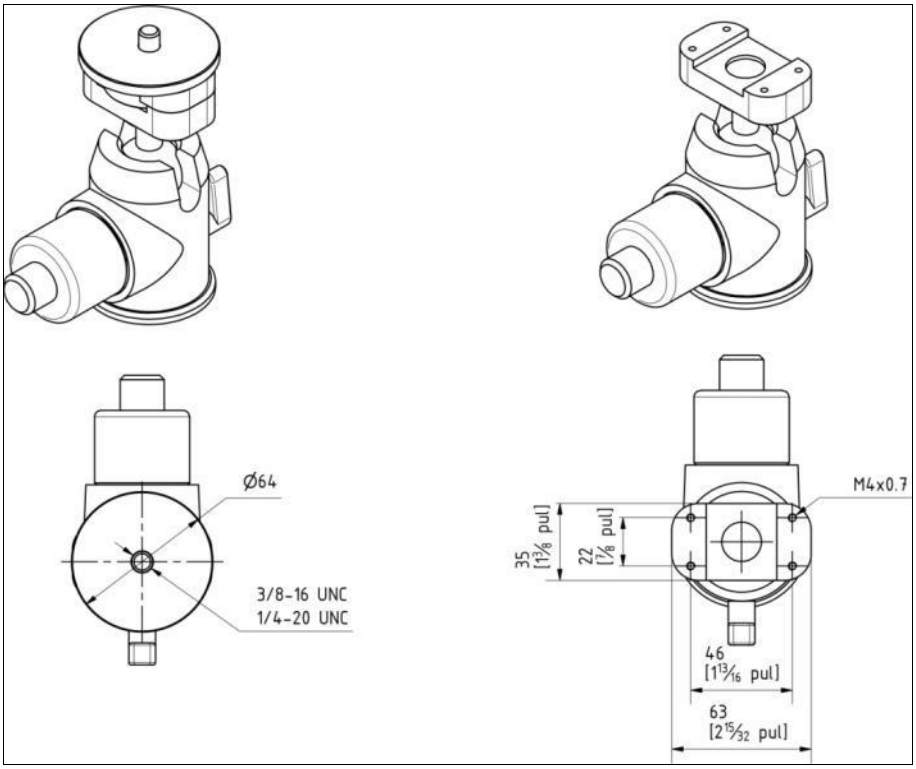
NOTE: For other lengths and configurations, contact the 3arm® distributor.

2.21.2 END GRIPS

All variants of the Manfrotto L head assembly have two end pieces for mounting the tool.

- End piece with four anchoring points (Direct grip)
- End piece with single anchoring point (Grip with platen)

GRIP WITH PLATEN DIRECT GRIP



- At the same time, the platen grip end piece has two sizes of thread.
  3/8-16UNC and 1/4-20 UNC.

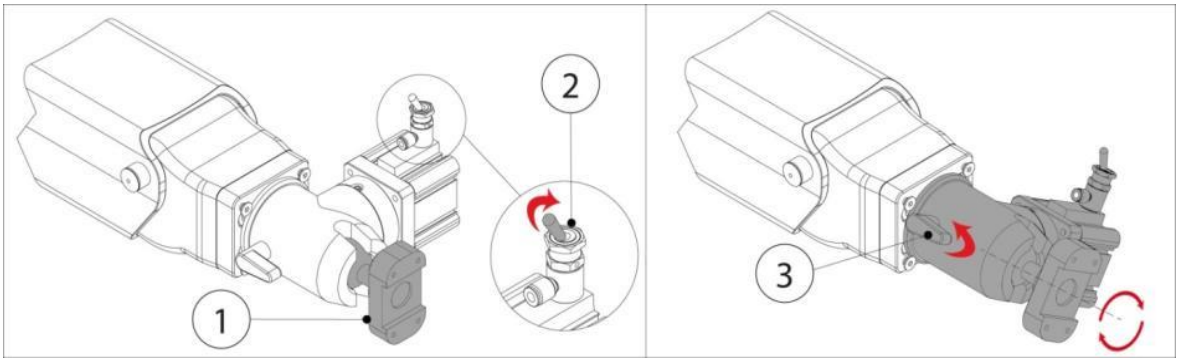
- By default, the Manfrotto L head assembly is used with a platen grip, although the removal of the felt and the retaining screws results in a direct-grip end piece.

2.21.3 CONNECTED

- The head member requires a compressed air supply of 6 bar.
  The hose should be suitable for working with compressed air and of an external diameter Øext=4 mm

2.21.4 PNEUMATIC LOCK

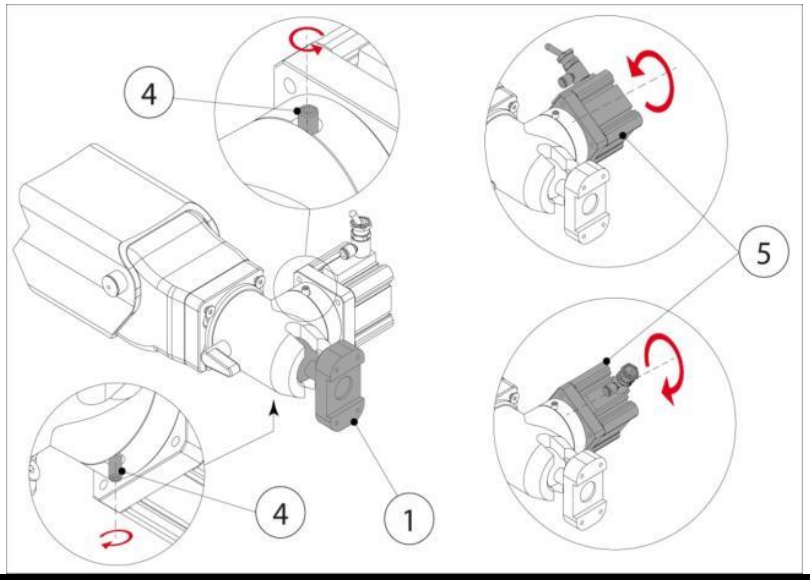
1. Movement of end piece (1) can be stopped by actuating switch (2). The pneumatic cylinder will actuate and lock the movement of said part.
2. Movement of the entire assembly can be locked by actuating handle (3).



2.21.4.1 GRIP ADJUSTMENT

To adjust the grip of end piece (1) to obtain a more or less easy transition, follow the steps below.

1. Switch (2) must remain in the disengaged position, so end piece (1) must remain free.
2. Loosen the studs (4). 2.5 mm Allen key
3. To make the movement smoother, turn the cylinder (5) anticlockwise. To apply more friction, turn the cylinder (5) clockwise.
4. Tighten the studs (4). End piece (1) may now be moved more or less easily depending on your preferences.



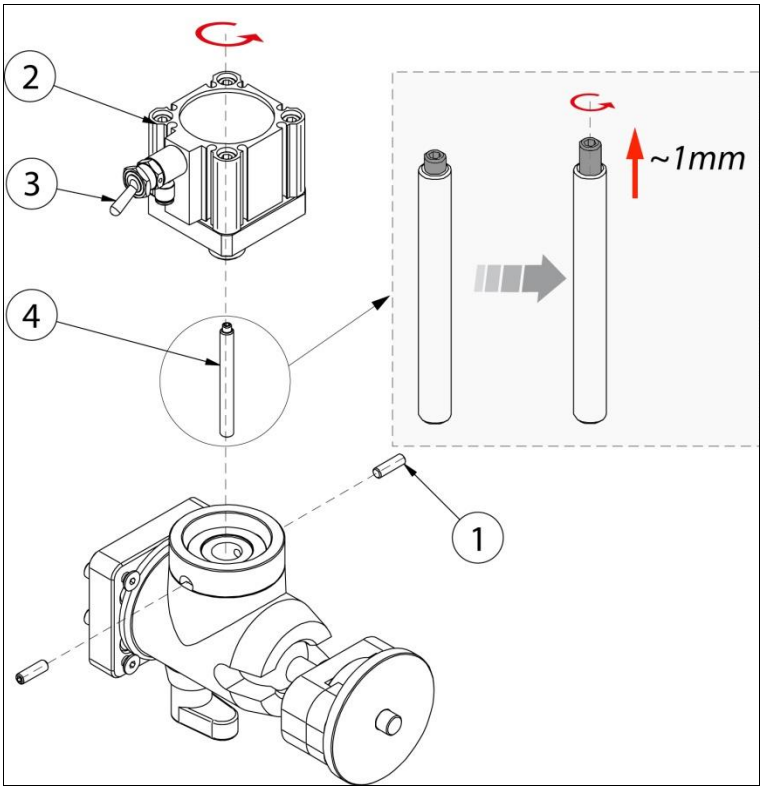
MAINTENANCE

✓ Grip adjustment must be carried out every 1000 operating cycles

2.21.4.2 CYLINDER REACH ADJUSTMENT

To adjust the travel of cylinder (1) to obtain effective locking, follow the steps below:

1. Switch (3) must remain in the disengaged position so that the end piece remains free.
2. Loosen the studs (1). *2.5 mm Allen key*
3. Remove cylinder (2) by turning it anti-clockwise.
4. Bar (4) will remain free. Loosen the existing stud at the end of the bar to extend the length (approximately 1 mm). *2 mm Allen key*
5. Position bar (4) in its location and proceed in the reverse order to make the assembly operational.



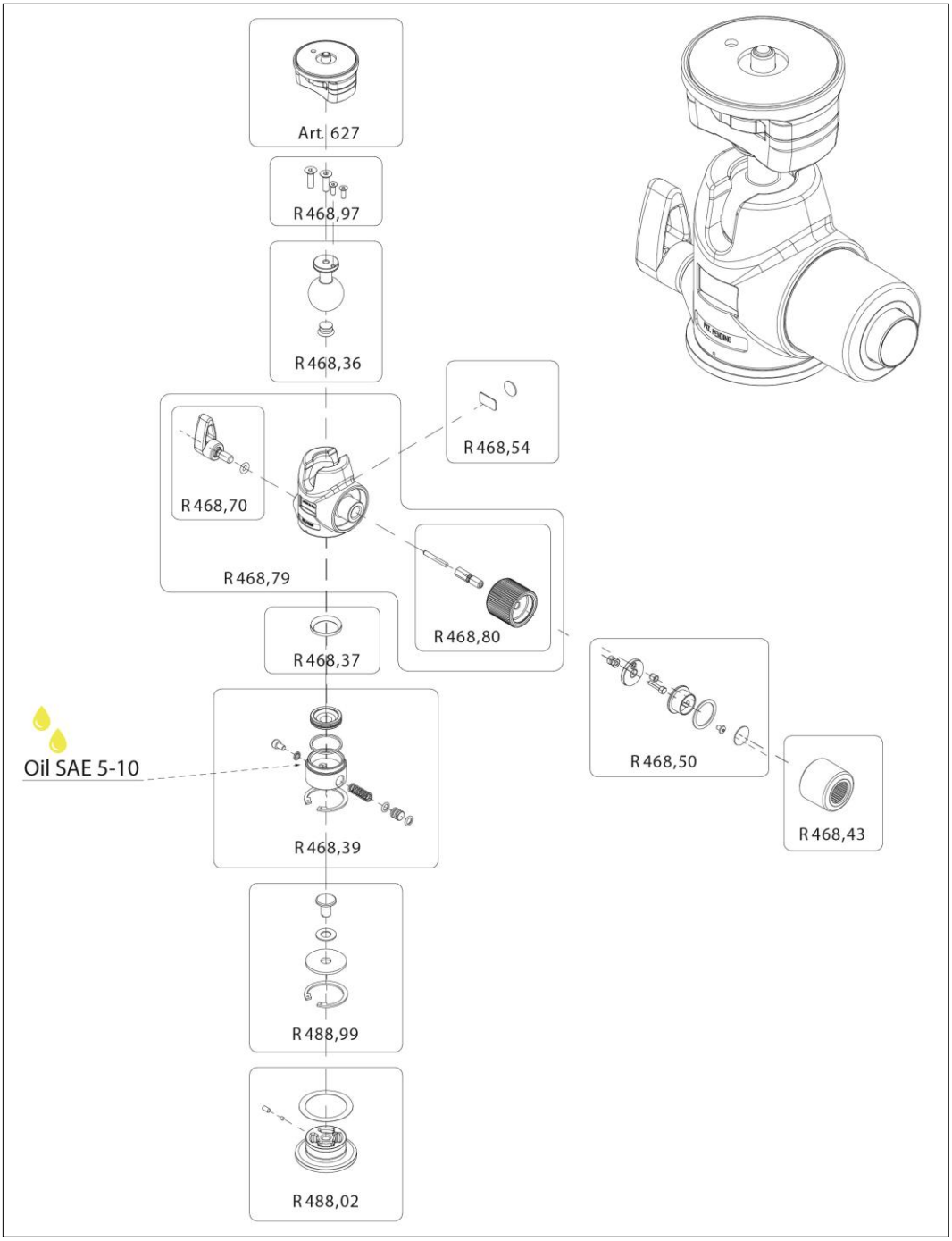
MAINTENANCE

✓ Bar length should be increased by approximately 1 mm per 5000 operating cycles.

2.21.4.3 OIL LEVEL

Add SAE 5-10 hydraulic oil if, after adjusting the friction and bar length, the system still does not function correctly (does not lock).

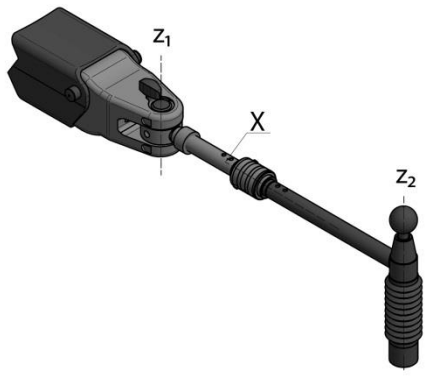
2.21.4.4 EXPLODED DIAGRAM (MANFROTTO NORD 468MG)

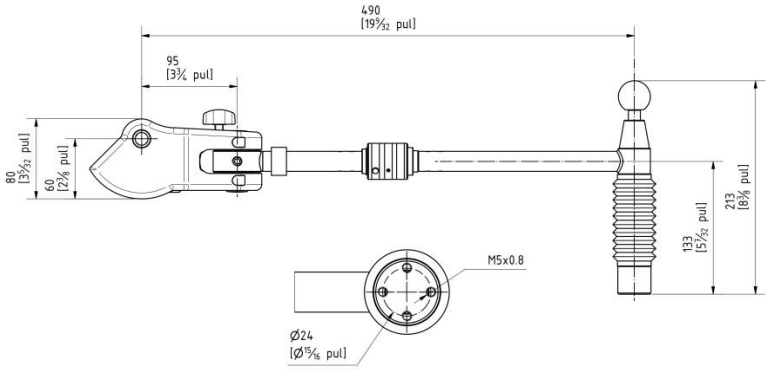


2.22 PRESS SUPPORT – M
MV3171B4[26] + MV31T104

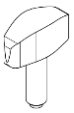
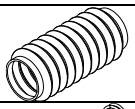
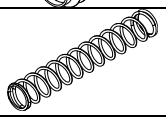
Maximum load: 12 Kg

Requires a lock on the tilt arm (L50)





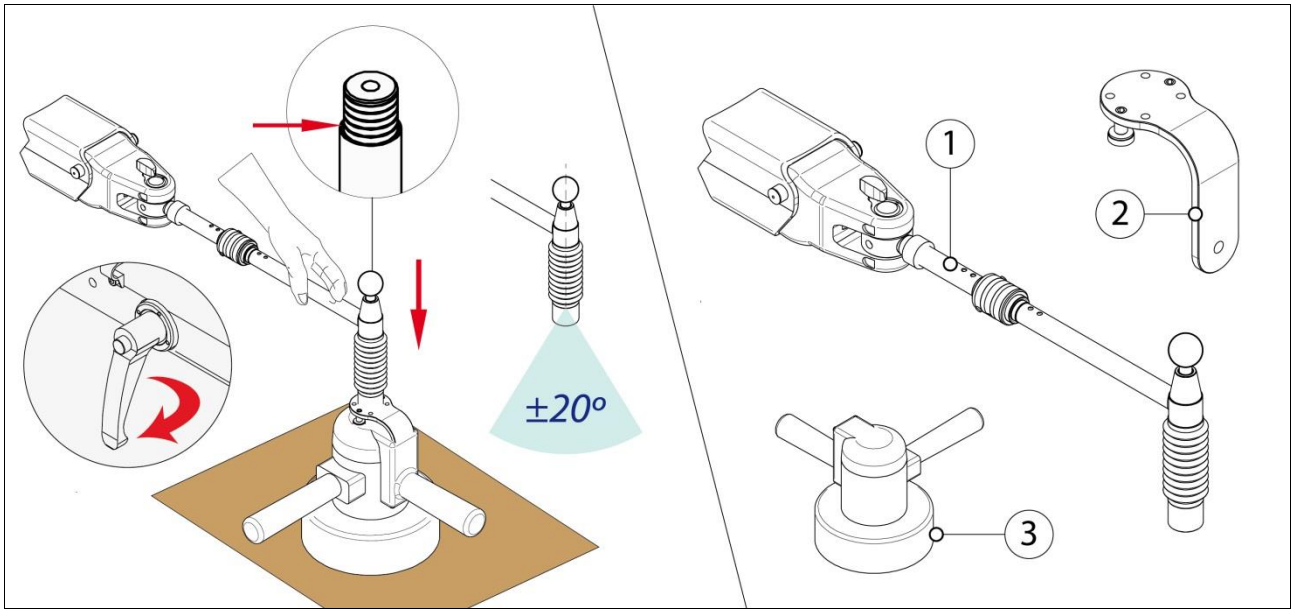
-Z_1: Rotates 180°. Non-lockable.
-Z_2: Rotates 360°. Non-lockable. Tilting ball joint (± 20°)
-X: Rotates 360°. Lockable 8 x 45°.

MV31J603	SECURING HANDLE M8x25	
MV31T603	PRESS SUPPORT SPRING GUIDE DAMPER	
AC006596	RUBBER BELLOWS (V6-904)	
MV31T703	BALL JOINT PRESS SUPPORT SPRING	

[26] See compatibility page 4

Press support: functionality

- Applies pressure to a surface area (for example, a surface area that must be polished). Meanwhile, the ball joint (Z_2 movement) adapts the support to the work surface (± 20°).
- Requires a lock on the tilt arm (L50)
- Tool (3) is gripped by means of a coupling platen (2) which should be designed individually. (Contact your 3arm® distributor)



Application example: 1- Pressure support head member, 2- Adaptor piece, 3- Polishing tool

For usage, follow the guidelines below:

Once the tool is installed

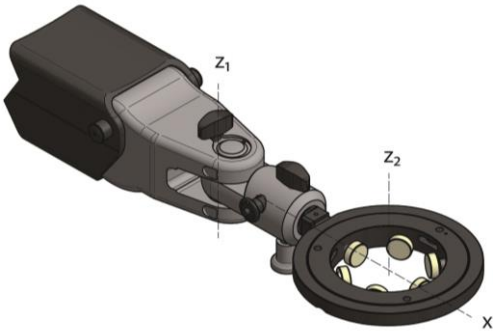
1-Position the tool in the working position (for example, on a surface area that is to be polished).

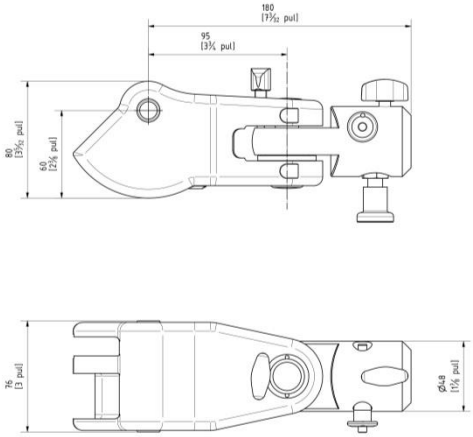
2-Apply pressure to the head member bar in the direction shown. *(Each mark is equivalent to 2.4 Kg approximately).*

3- Turn the lever to lock the arm's tilting movement and so maintain constant pressure against the working surface.

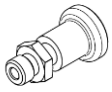
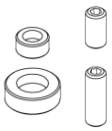
2.23 MULTIPOSITION – N
MV31F5A4[27] + MV3MAXXX/ MV3PBXXX / MV3MUXXX

Maximum load: 12 kg / 6 kg[28] | □½" [29]





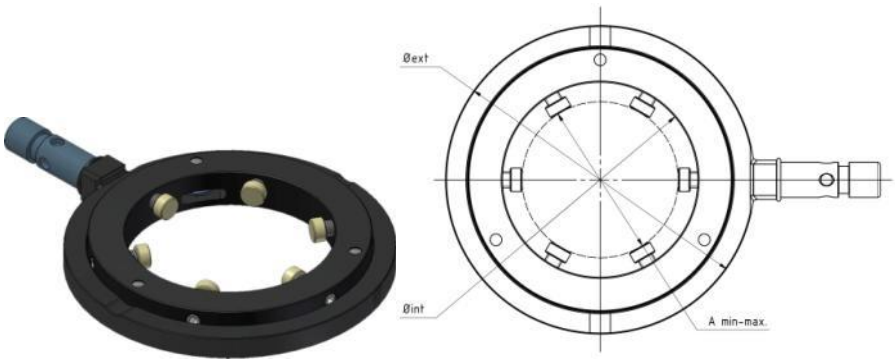
-Z1: Rotates ±90º. Non-lockable
-X: Rotates 360º. Lockable 4x90º
-Z2: Rotates 360º. Non-lockable

MV31J603	SECURING HANDLE M8x25 *[Z axis$_1$]*	
MV31K703	SECURING HANDLE M8x25 (BRASS) *[X axis]*	
AC004046	POSITIONER GN 607.1-6-A-ST	
AC006406	POSITIONER K0641_02106030	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

[27] See compatibility page 4
[28] Maximum load: **6 kg** for applications using the type-A grip bar (TIMCO) and vibration tools (impact, pulse, etc.). For other applications, or for applications using the type-B grip bar (TIMSAND), the maximum load is 12 kg.
[29] Square tool-head size recommended for this head assembly.

2.23.1 Type A cylinders: TIMCO

Suitable for any type of tool.
Ref.: MV3MAxxx (xxx = internal diameter in mm)



Øint.		Øext.		Ø max.	
mm	*Inches*	mm	*Inches*	mm	*Inches*
70	*2 3/4″*	128	*5″*	50	2″
80	*3 1/8″*	138	*5 3/8″*	60	2 3/8″
90	*3 ½″*	148	*5 7/8″*	70	2 ¾ ″
100	*3 7/8″*	158	*6 ¼″*	80	3 1/8″
110	*4 3/8"*	168	*6 5/8″*	90	3 ½ ″
120	*4 ¾″*	178	*7″*	100	3 7/8″
130	*5 1/8″*	188	*7 3/8″*	110	4 3/8″
140	*5 ½″*	198	*7 ¾″*	120	4 ¾ ″
150	*5 7/8″*	208	*8 ¼ “*	130	5 1/8″
160	*6 ¼ “*	218	*8 5/8″*	140	5 ½ ″
170	*6 ¾ “*	228	*9 “*	150	5 7/8″
180	*7 1/8″*	238	*9 3/8″*	160	6 ¼ ″

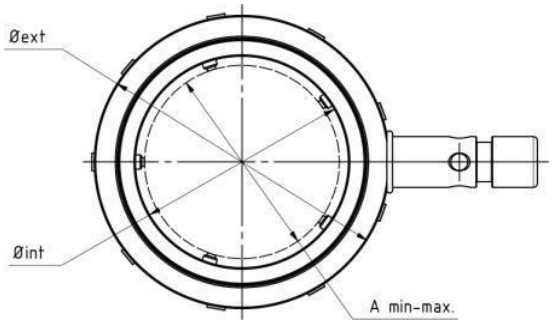
ADDITIONAL INFORMATION

- ✓ *Installing the tool: See page 19*
- ✓ *Maintenance and cleaning: See page 20*

- Maximum load: 6 kg for applications using the type-A grip bar (TIMCO) and vibration tools (impact, pulse, etc.).
- Other dimensions upon request

2.23.2 Type B cylinders: TIMSAND

Suitable for tools with a cylindrical contact area.
Ref.: MV3PBxxx (xxx = internal diameter in mm)



Ø int.		Ø ext.		Ø max.	
mm	*Inches*	mm	*Inches*	mm	*Inches*
40	*1 5/8″*	69	*2 ¾″*	39	*1 ½″*
45	*1 ¾″*	74	*2 7/8″*	44	1 ¾″
50	*2″*	79	*3 1/8″*	49	1 7/8″
55	*2 1/8″*	84	*3 ¼″*	54	2 1/8″
60	*2 3/8″*	89	*3 ½″*	59	2 3/8″
65	*2 ½″*	94	*3 ¾″*	64	2 ½″
70	*2 ¾″*	99	*3 7/8″*	69	2 ¾″
75	*3″*	104	*4 1/8″*	74	2 7/8″
80	*3 1/8″*	109	*4 ¼″*	79	3 1/8″
85	*3 3/8″*	114	*4 ½″*	84	3 ¼″
90	*3 ½ ″*	119	*4 5/8″*	89	3 ½"
95	*3 ¾ ″*	124	*4 7/8″*	94	3 ¾″
100	*3 7/8″*	129	*5 1/8″*	99	3 7/8″
105	*4 1/8″*	134	*5 ¼ ″*	104	4 1/8″
110	*4 3/8″*	139	*5 ½ ″*	109	4 ¼″
115	*4 ½ ″*	144	*5 5/8″*	114	4 ½″
120	*4 ¾ ″*	149	*5 7/8″*	119	4 5/8″
125	*4 7/8″*	154	*6 1/8″*	124	4 7/8″
130	*5 1/8″*	159	*6 ¼ ″*	129	5 1/8″

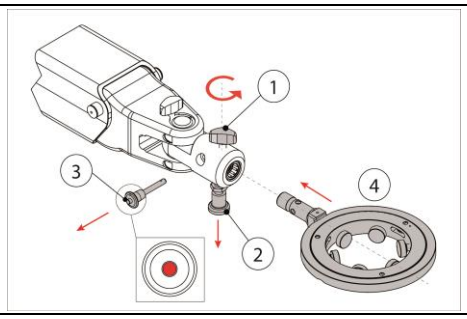
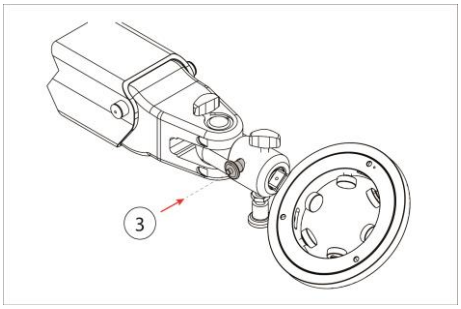
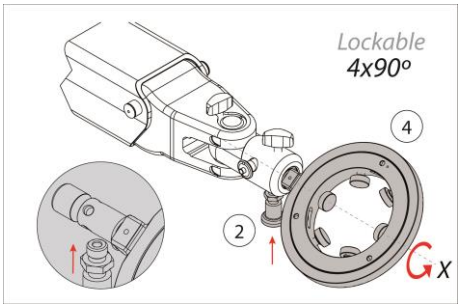
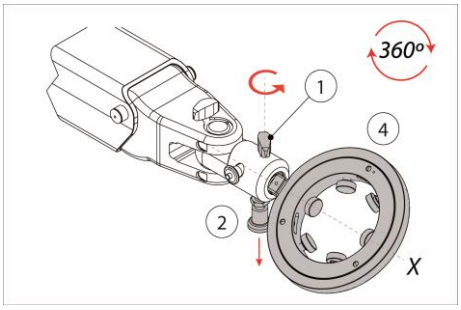
ADDITIONAL INFORMATION

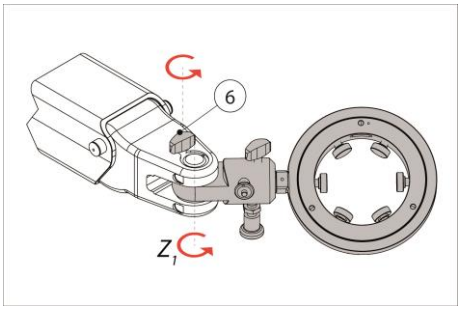
- ✓ *Installing the tool: See page 24*
- ✓ *Maintenance and cleaning: See page 20*

- Other dimensions upon request

2.23.3 Installation and adjustment

To couple the cylinder to the head assembly, follow the instructions below.

- Loosen knob (1), Retract positioner (2) applying a downward motion and a slight twist. Extract centre button (3), press the marked area and then pull it out at the same time. - Then insert the selected cylinder (4) into the head assembly.	
- Press the marked area of centre button (3), insert it into the hole provided. Stop pressing. - Check that centre button (3) remains immobile axially and that it prevents cylinder (4) detaching.	
- If you wish to immobilise cylinder (4) movement on the X axis, move positioner (2) upwards to align it with one of the four indents in the shaft of the cylinder to lock it.	
- If you wish to have free cylinder (4) movement on the X axis, leave positioner (2) retracted and screw/unscrew knob (1) to adjust the grip resistance.	

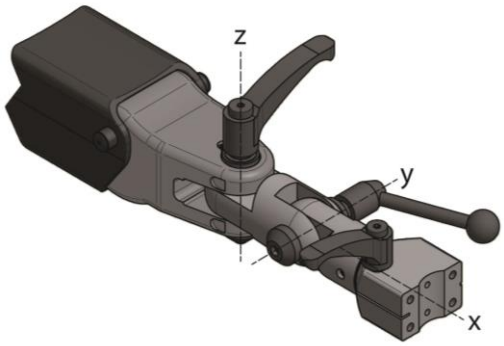
- Ease of movement on the Z_1 axis can be adjusted by screwing/unscrewing knob (6).	

Proceed in the reverse order to dismantle or uncouple the cylinder.

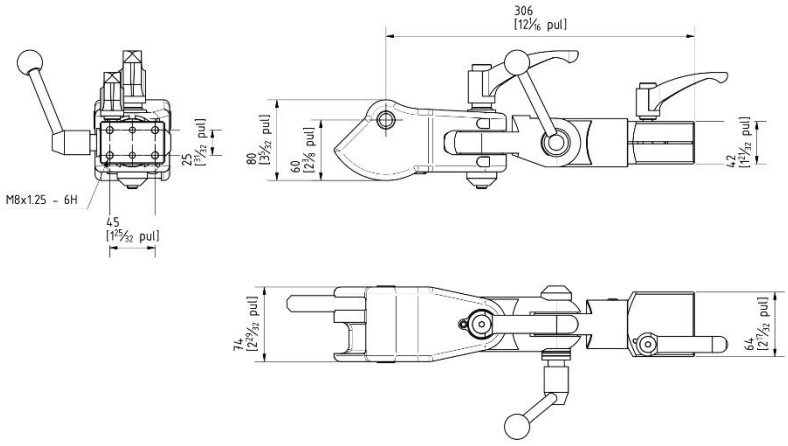
2.24 DOUBLE ARTICULATED FLAT – P

MV302404[32]

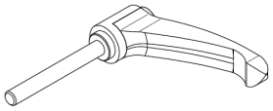
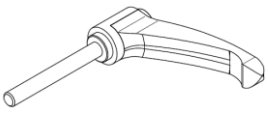
Maximum torque: 120 Nm



3



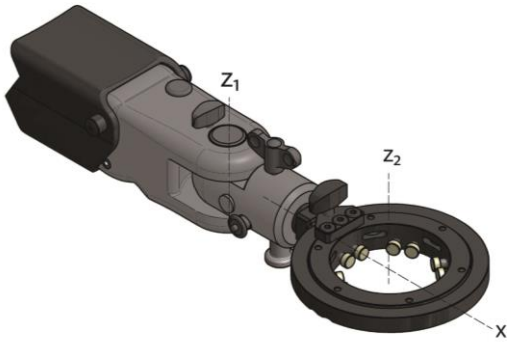
X: Rotates 360º. Can be locked in any position
Y: Rotates ±90º. Can be locked in any position
Z: Rotates ±90º. Can be locked in any position

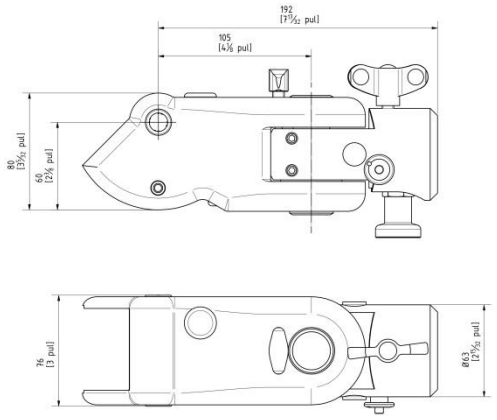
AC060576	HANDLE ERZ95P M10X80 *[Z axis]*	
AC060546	HANDLE ERZ78P M10x40 *[X axis]*	

[32] See compatibility page 4

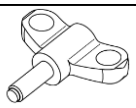
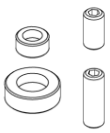
2.25 MULTIPOSITION (HEAVY-DUTY) – Q
MV30D2A4[33] + MV3JAXXX / MV3JBXXX / MV3JUXXX

Maximum load: 30 kg | □¾"[34]





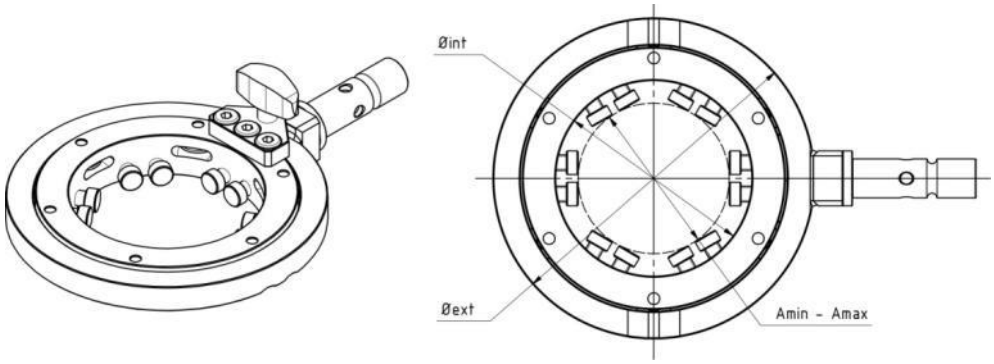
-Z1: Rotates ±90º
-X: Rotates 360º. Lockable 4x90º
- Z2: Rotates 360º. Can be locked in any position

MV31J603	SECURING HANDLE M8x25 *[Z axis$_1$]*	
AC004086	POSITIONER GN 607.1-8-A-ST	
MV31F605	M8 HANDLE SUB-ASSEMBLY *[X axis]*	
AC006426	POSITIONER K0641_02106040	
MV31H103	TIMCO FORODO BRAKE FINE ADJUSTER – H *[Z axis$_2$]*	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

[33] See compatibility page 4
[34] Square tool-head size recommended for this head assembly.

2.25.1 Type A cylinder: HEAVY-DUTY TIMCO.

Suitable for any type of tool.
Part No.: MV3JAxxx (xxx = internal diameter in mm)



Øint.		Øext.		Ø max.	
mm	*Inches*	mm	*Inches*	mm	*Inches*
80	*3 1/8″*	144	*5 5/8″*	55	*2 1/8″*
90	*3 ½ ″*	154	*6 1/8″*	65	*2 ½ ″*
100	*3 7/8″*	164	*6 ½″*	75	*3″*
110	*4 3/8″*	174	*6 7/8″*	85	*3 3/8″*
120	*4 ¾″*	184	*7 ¼″*	95	*3 ¾″*
130	*5 1/8″*	194	*7 5/8″*	105	*4 ¼″*
140	*5 ½″*	204	*8″*	115	*4 2/4″*
150	*5 7/8″*	214	*8 3/8″*	125	*4 7/8″*
160	*6 ¼ ″*	224	*8 7/8″*	135	*5 3/8″*
170	*6 ¾ ″*	234	*9 ¼ ″*	145	*5 ¾ ″*
180	*7 1/8″*	244	*9 5/8″*	155	*6 1/8″*

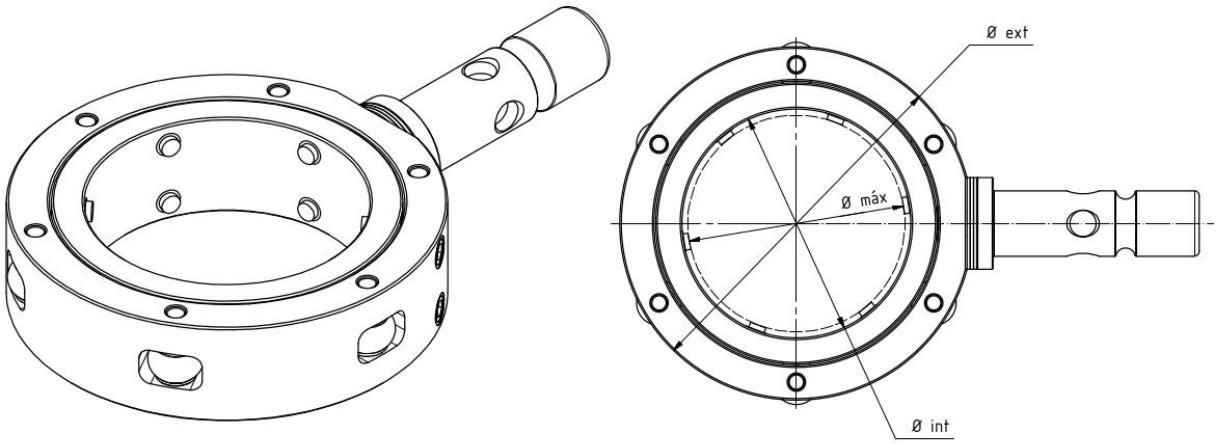
* Other dimensions upon request

ADDITIONAL INFORMATION

- ✓ *Installing the tool: See page 19*
- ✓ *Maintenance and cleaning: See page 20*

2.25.2 Type-B ring: TIMSAND (HEAVY-DUTY).

Suitable for any type of tool.
Ref.: MV3JBxxx (xxx = internal diameter in mm)



int. Ø		ext. Ø		Ø max.	
mm	*Inches*	mm	*Inches*	mm	*Inches*
60	*2 3/8 "*	98	*3 7/8"*	59	2 3/8"
70	*2 ¾"*	108	*4 ¼ "*	69	2 ¾"
80	*3 1/8"*	118	*4 5/8"*	79	3 1/8"
90	*3 ½"*	128	*5"*	89	3 ½"
100	*3 7/8"*	138	*5 3/8"*	99	3 7/8"
110	*4 3/8"*	148	*5 7/8"*	109	4 ¼"
120	*4 ¾"*	158	*6 ¼"*	119	4 5/8"
130	*5 1/8"*	168	*6 5/8"*	129	5 1/8"
140	*5 ½"*	178	*7"*	139	5 ½"
150	*5 7/8 "*	188	*7 3/8"*	149	5 7/8"

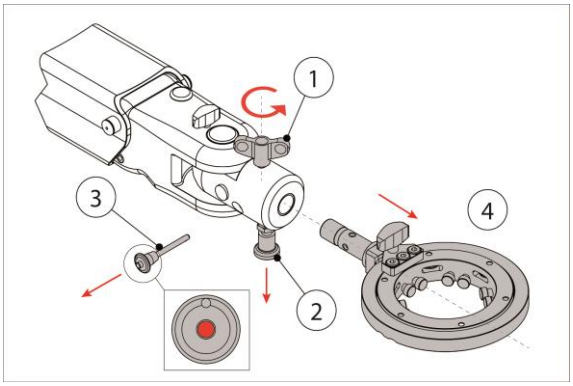
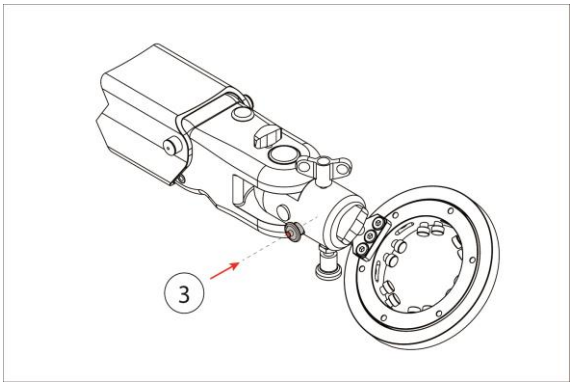
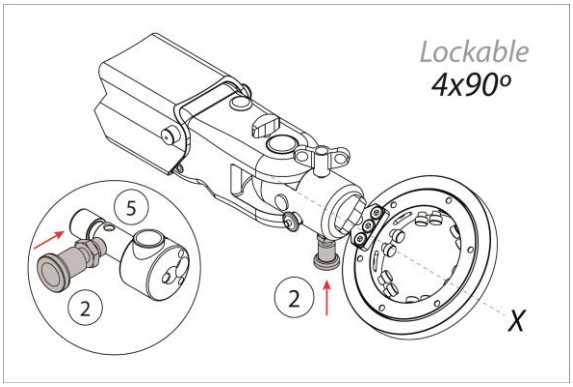
* Other dimensions upon request

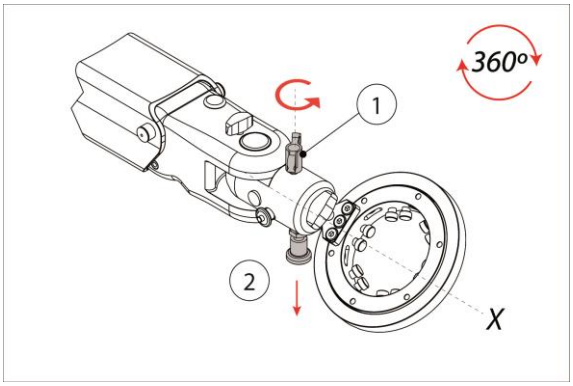
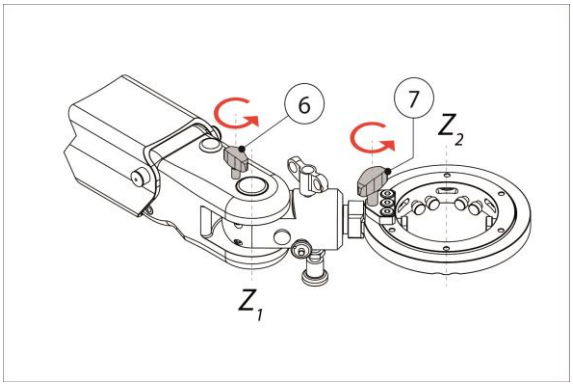
ADDITIONAL INFORMATION

- ✓ *Installing the tool: See page 24*
- ✓ *Maintenance and cleaning: See page 20*

2.25.3 Installation and adjustment

To couple the ring to the head assembly and adjust it, follow the instructions below.

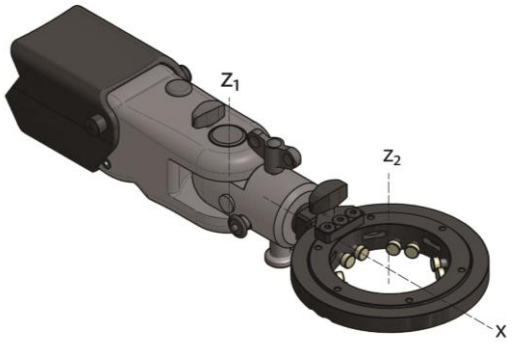
- Loosen knob (1). Retract positioner (2) applying a downward motion and a slight twist. Extract centre button (3), press the marked area and then pull it out at the same time - Insert the selected ring (4) into the head assembly.	
- Press the marked area of centre button (3), insert it into the hole provided. Stop pressing - Check that centre button (3) remains immobile axially and that it prevents cylinder (4) detaching.	
- If you wish to lock ring (4) movement on the X axis, engage the positioner (2) with one of the eight indents in the shaft of the ring (5).	

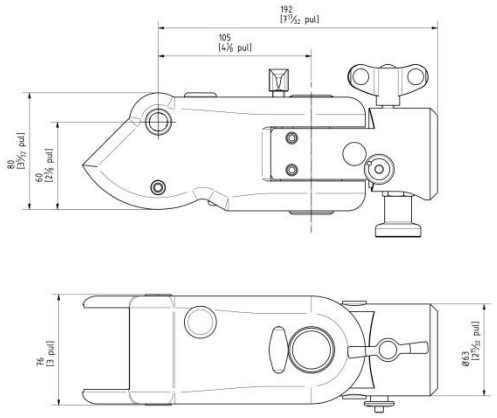
- If you wish to have free ring (4) movement on the X axis, leave the positioner (2) disengaged and tighten/loosen the knob (1) to adjust the grip resistance.	
- The ease of movement can also be adjusted at z_1 screwing/unscrewing knob (6), and at Z_2 using knob (7)	

Proceed in the reverse order to dismantle or uncouple the ring.

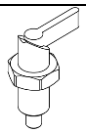
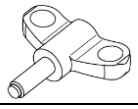
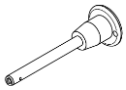
2.26 MULTIPOSITION (HEAVY-DUTY, WITH METAL KNOBS) – QH M3155100[35] + MV3JAXXX / MV3JBXXX / MV3JUXXX

Maximum load: 30 kg | □¾"[36]





-Z1: Rotates ±90º
-X: Rotates 360º. Lockable 4x90º
- Z2: Rotates 360º. Can be locked in any position

M3155400	SECURING HANDLE M8x25 *[Z axis$_1$]*	
AC006016	POSITIONER (ELESA GN612-8-M16x1.5-AK)	
M3103400	M8 STAINLESS-STEEL KNOB SUBASSEMBLY *[X axis]*	
AC006426	POSITIONER K0641_02106040	
M3103200	STAINLESS-STEEL BRAKE KNOB (TIMCOR) *[Y axis]*	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

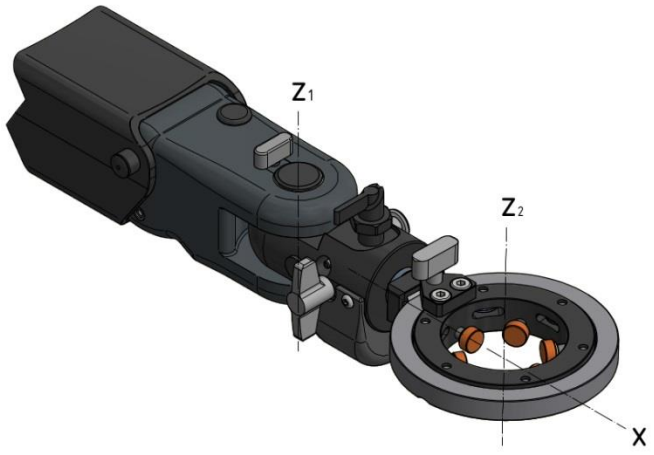
[35] See compatibility page 4
[36] Square tool-head size recommended for this head assembly.

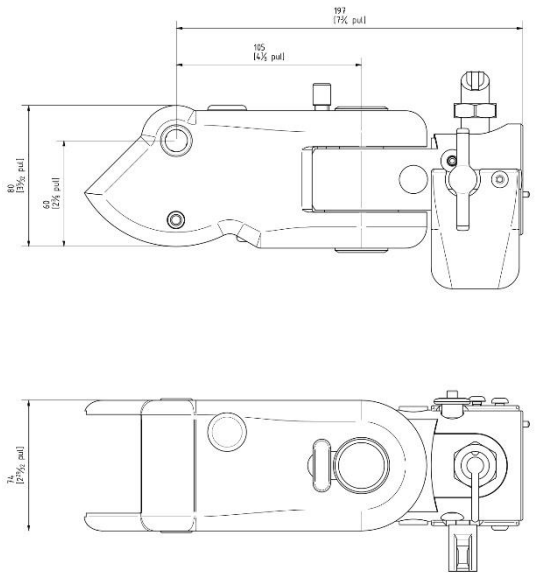
ADDITIONAL INFORMATION

- ✓ *HEAVY-DUTY TIMCO configurations: see page 27*
- ✓ *Installing the tool: See page 19*
- ✓ *HEAVY-DUTY TIMSAND configurations: see page 27*
- ✓ *Installing the tool: See page 24*
- ✓ *Assembly and adjustment: see page 53*

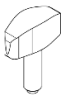
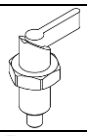
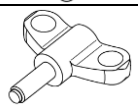
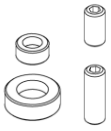
2.27 MULTIPOSITION (HEAVY-DUTY, SAFETY) – QA M3147600[37] + MV3JAXXX / MV3JBXXX

Maximum load: 30 kg | □¾"[38]





-Z_1: Rotates ± 90°
-X: Rotates 360º. Lockable 4x90º
-Z_2: Rotates 360º. Can be locked in any position

MV31J603	SECURING HANDLE M8x25 *[Z axis$_1$]*	
AC006016	POSITIONER (ELESA GN 612-8-M16x1.5-AK)	
M3103400	M8 HANDLE SUB-ASSEMBLY *[X axis]*	
AC006346	POSITIONER K0641_02105040	
M3103200	STAINLESS-STEEL BRAKE KNOB (TIMCO) *[Z_2 axis]*	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

[37] See compatibility page 4
[38] Square tool-head size recommended for this head assembly.

Multifunction (heavy-duty): safety

- The QA head assembly is equipped with a safety system that locks the swing arm when the tool is removed, thereby preventing potential accidents.

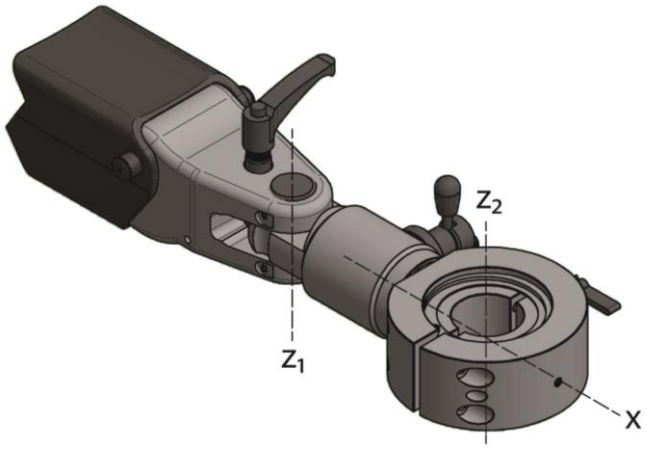
ADDITIONAL INFORMATION

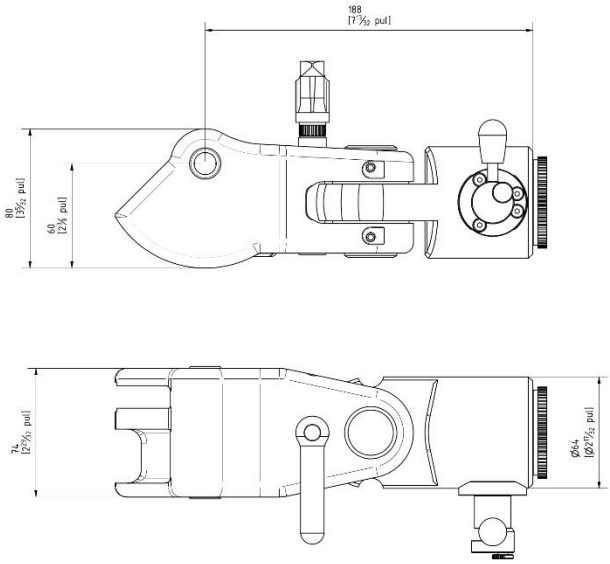
- ✓ *HEAVY-DUTY TIMCO configurations: see page 27*
- ✓ *HEAVY-DUTY TIMSAND configurations: see page 27*

2.28 ROTARY – R

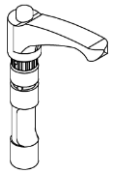
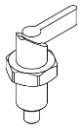
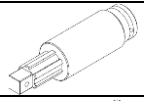
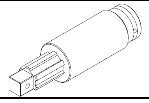
MV404404[39] + MVRXXX04

Suitable for angular tools.





X: Rotates 360º. Can be locked in 64 positions
Z_1: Rotates 180º. Can be locked in 5 positions
Z_2: Rotates 360º. Can be locked in 8 positions

CB004704	SECURING HANDLE ASSEMBLY *[Z axis$_1$]*	
MV331205	REPLACEMENT ECCENTRIC GRIP ASSEMBLY KIT	
AC006016	POSITIONER GN612-8-M16x1.5-AK	
MV328104	THREADED COMPENSATOR T2140801/00 3/4 " *(stroke: 45 mm / 1.77 " – max. torque: 300*Nm *– square head: ¾ " – weight: 1.5 kg / 0.7 lb)*	
MV328204	THREADED COMPENSATOR T2141212/00 1/2 " *(stroke: 40 mm / 1.57 " – max. torque: 150 Nm* *– square head: ½ " – weight: 0.9 kg / 0.4 lb)*	

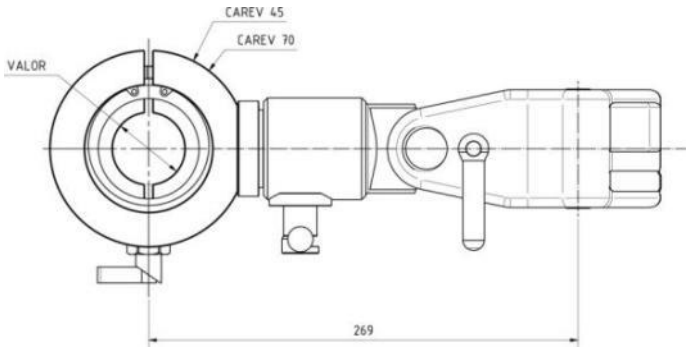
S6: Pneumatic locks (L92 / L92 + compensator) ***must*** be used.

[39] See compatibility page 4

2.28.1 MAXIMUM TORQUE:

WORKING POSITION	MAX. TORQUE (Nm)
Vertical (V)	300
Horizontal (H)	250
Angle (A)	200

2.28.2 CONFIGURATIONS

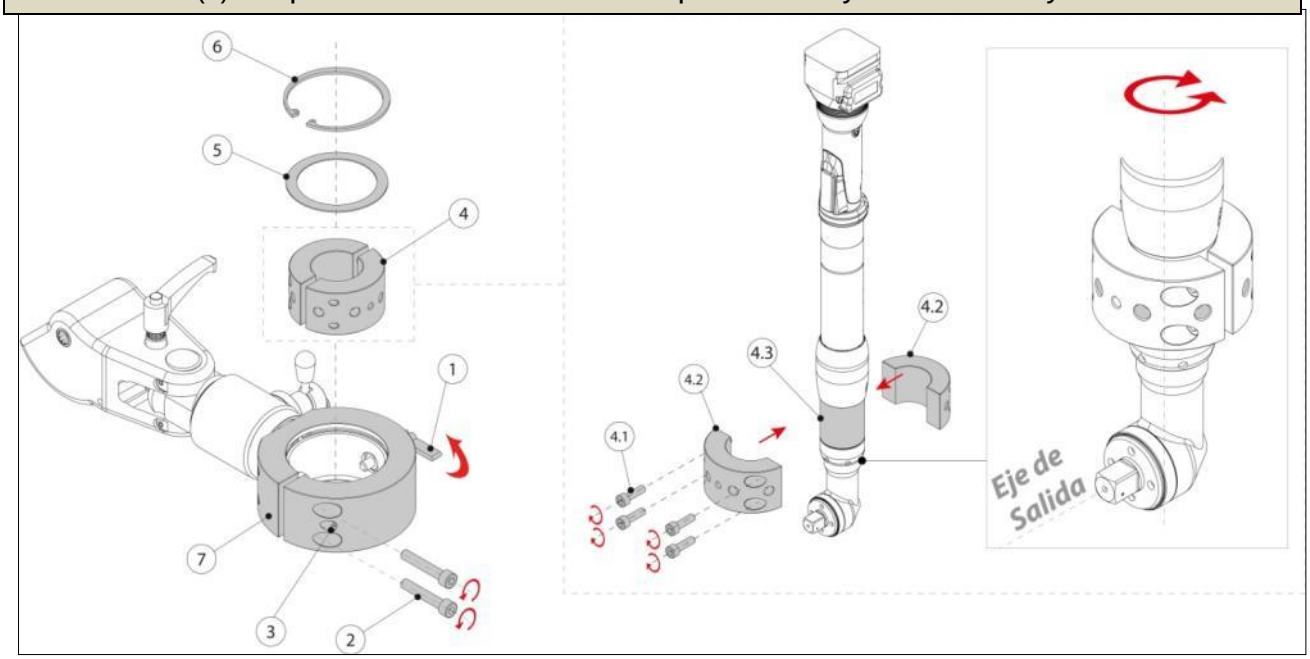


Head member type	*Ø min*	*Ø max.*
CAREV 45 - Ø124	Ø30	Ø55
CAREV 70 - Ø134	Ø55	Ø70
CAREV 80 – Ø144	Ø69	Ø80

2.28.3 Installation of the tool

To couple the tool to the head member, follow the steps below:

1. Unlock the position (1)
2. Remove rubber ring (6)
3. Remove axial disc (5)
4. Remove internal hoop (4) and open its two halves (4.2) removing screws (4.1). Couple the two halves again to the tool (4.3) in the clamping area. Tighten clamping screws (4.1). *5 mm Allen key*.
5. Position the tool assembly (4.3) and internal hoop (4) in their housing.
6. Tighten screws (2), until inner hoop (4) can be rotated gently. *6 mm Allen key* and tighten stud (3) fully to reinforce the assembly. 4 mm Allen key
7. Use stud (3) to open or close the external hoop if necessary. *4 mm Allen key.*

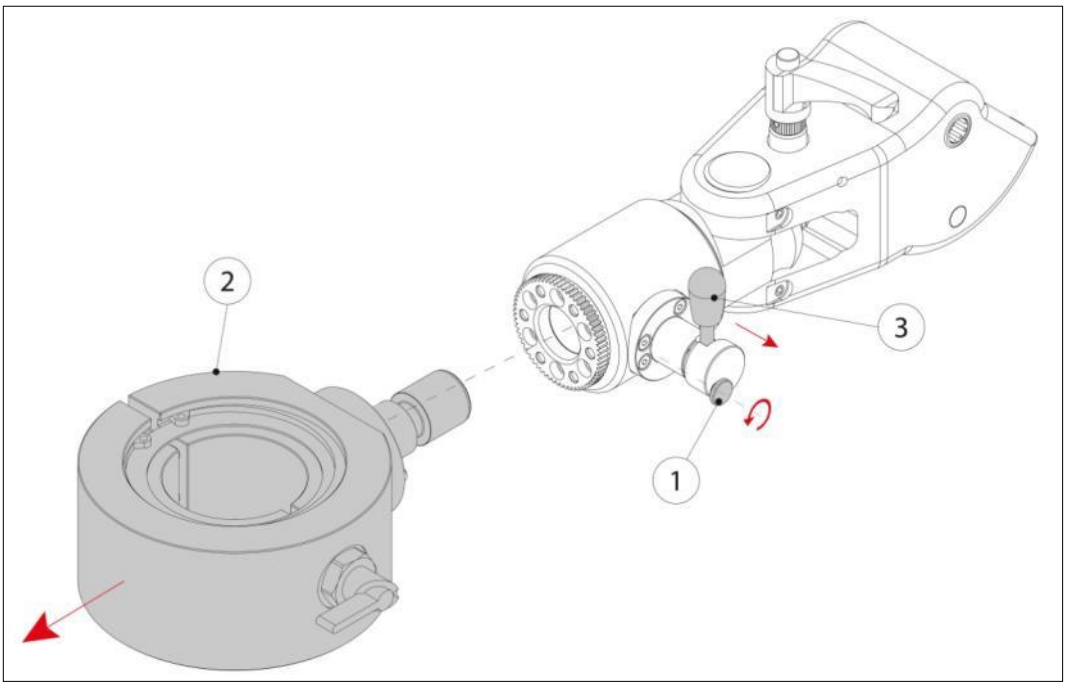


For angular tools, the tool output shaft must be aligned with one of the eight holes provided for locking (holes marked in grey).

2.28.4 CAREV CHANGING

To change moving part (2) or CAREV, follow the instructions below.

1. Unscrew small wheel (1)
2. Move handle (3) outwards and hold it in this position
3. Extract moving part or CAREV (2) and release handle (3)
4. Reverse the process for coupling.

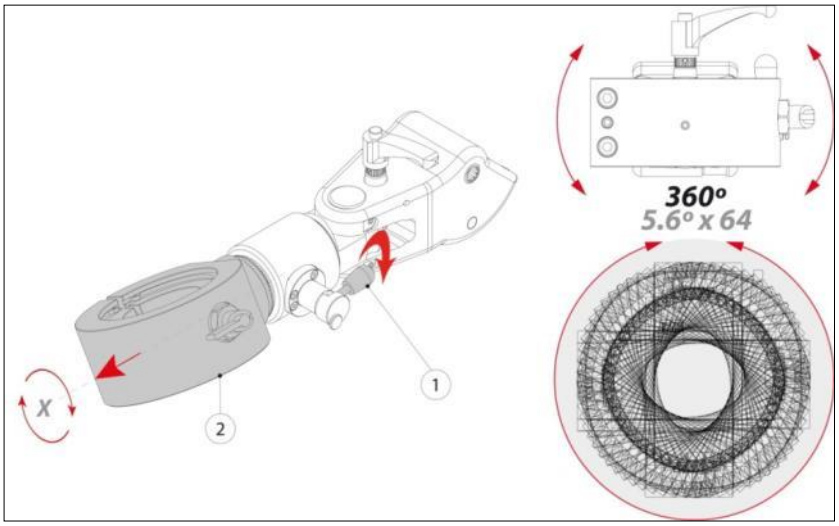


2.28.5 Movements and locking

X: Rotates 360º. Can be locked in 64 positions

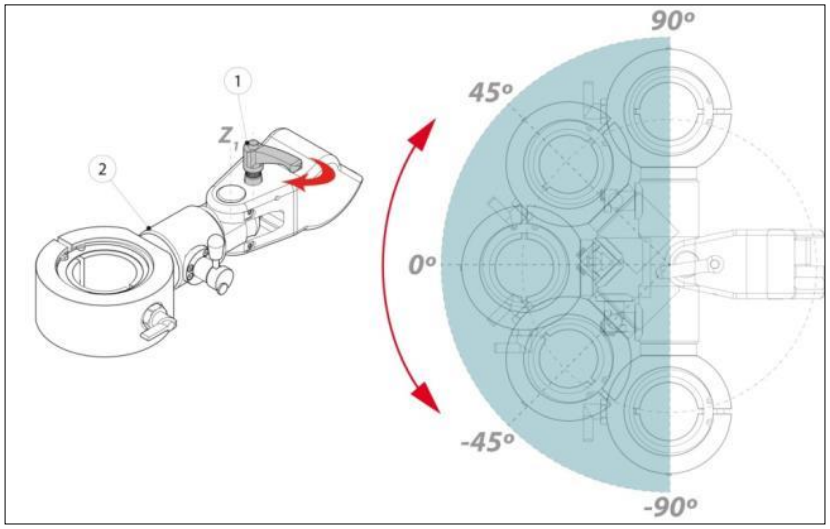
Actuating handle (1) will uncouple moving part (2) which can remain free on the X axis.

If handle (1) is turned to its initial position, moving part (2) will remain fixed in the chosen position.



Z1: Rotates 180º. Can be locked in 5 positions

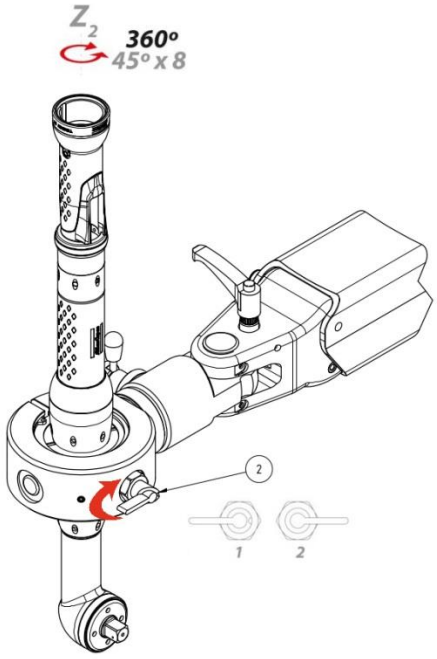
By turning the lever (1), rotation on the Z_1 axis can be free (± 90°) or locked in the 5 marked positions (90°, 45°, 0°, -45° and -90°).



Z2: Rotates 360°. Can be locked in 8 45° positions

Positioner (2) keeps the tool locked or free as described:

- **Position 1 (P1):** Z axis$_2$ locked
- **Position 2 (P2):** Z axis$_2$ free

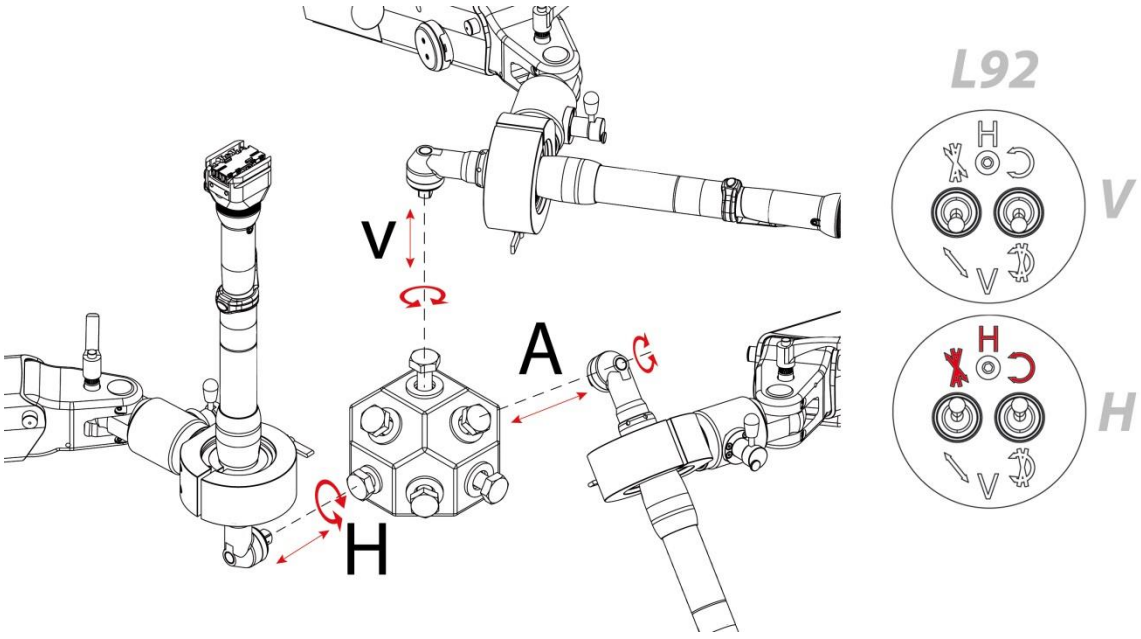


2.28.6 OPERATION

Depending on the type of work (Vertical, Horizontal or Angular) and the type of too, one or more locks should be applied, on the arm and on the rotating head member itself.

2.28.6.1 Arm locks

Depending on the working position, the V (vertical), H (horizontal) or A (angular) selectors should be positioned as shown in the image.



If pneumatic lock L92 + compensator is available, maintain the default configuration (all locked).

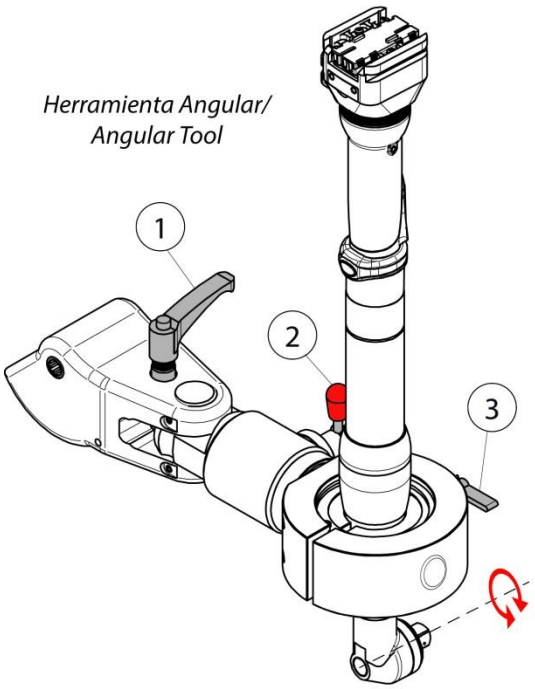
When working in A (angle), the selectors must be in the V (vertical) position if the position is overall more vertical than horizontal and H (horizontal) in the opposite situation.

2.28.6.2 Head member locks

Head member locks on the Handle (1), Small handle (2) and positioner (3) must be locked in accordance with the working position as shown in the following table.

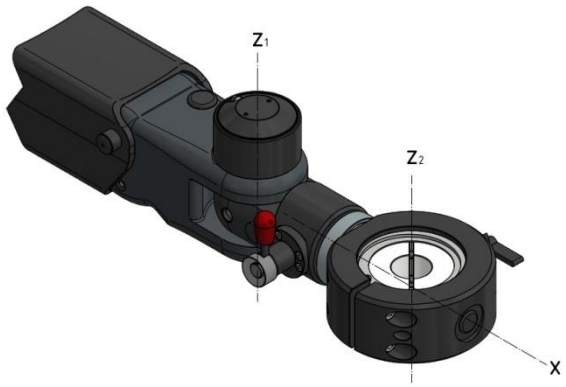
Working position (tool axis)→	***V***	***H***	***A***
Angular tool	1*	2	1*, 2

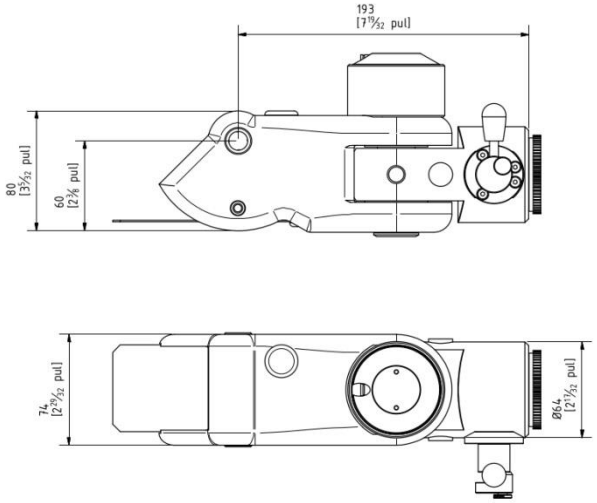
* Automatic RS head assembly



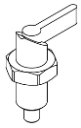
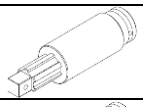
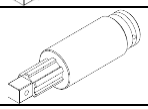
2.29 ROTARY (AUTOMATIC) – RS M41007A0[40] + MVRXXX04 *[PNEUMATIC LOCK]*

Suitable for angular tools.





X: Rotates 360º. Can be locked in 64 positions
Z_1: Rotates 180º. Can be locked in 64 positions
Z_2: Rotates 360º. Can be locked in 8 positions

NH103800	O-RING 55 x 1.5	
M3140000	ROTARY HEAD ASSEMBLY RING	
MV331205	REPLACEMENT ECCENTRIC GRIP ASSEMBLY KIT	
AC006016	POSITIONER GN612-8-M16x1.5-AK	
MV328104	THREADED COMPENSATOR T2140801/00 3/4 " *(stroke: 45 mm / 1.77 " – max. torque: 300 Nm – square head: ¾ " – weight: 1.5 kg / 0.7 lb)*	
MV328204	THREADED COMPENSATOR T2141212/00 1/2 " *(stroke: 40 mm / 1.57 " – max. torque: 150 Nm – square head: ½ " – weight: 0.9 kg / 0.4 lb)*	

S6: Pneumatic locks (L92 / L92 + compensator) ***must*** be used.

[40] See compatibility page 4

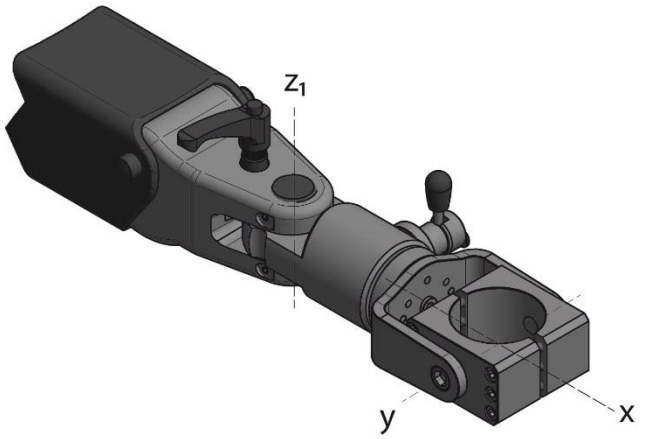
ADDITIONAL INFORMATION

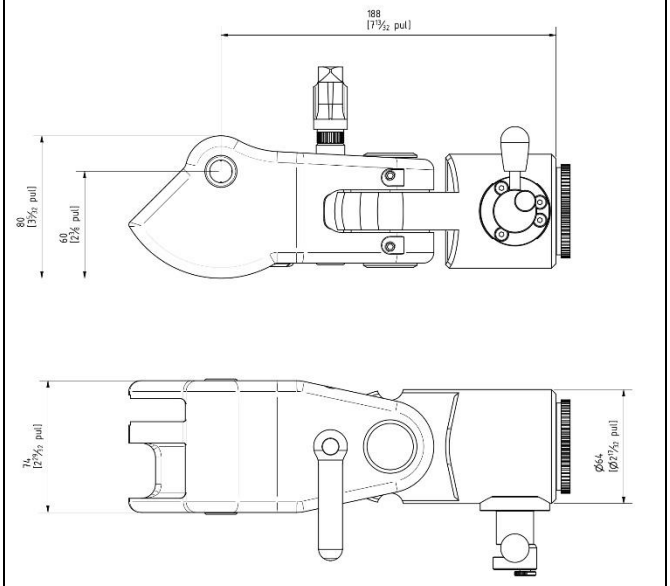
The RS and R head assemblies differ in that the RS head assembly includes an automatic head-assembly rotation lock (Z_1 axis).

- ✓ *Max. torque: see page 60*
- ✓ *Configurations: see page 60*
- ✓ *Installing the tool: See page 61*
- ✓ *CAREV changeover: see page 62*
- ✓ *Movements and locks: see page 63*

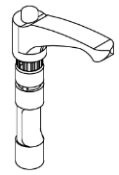
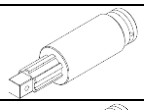
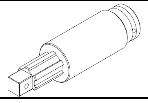
2.30 ROTARY (TILTING) – RA MV404404[41] + MVBXXX04

Suitable for straight tools.





X: Rotates 360º. Can be locked in 64 positions
Z_1: Rotates 180º. Can be locked in 5 positions
Y: Rotates 360°.

CB004704	SECURING HANDLE ASSEMBLY *[Z axis$_1$]*	
MV331205	REPLACEMENT ECCENTRIC GRIP ASSEMBLY KIT	
MV328104	THREADED COMPENSATOR T2140801/00 3/4 " *(stroke: 45 mm / 1.77 ″ – max. torque: 300 Nm – square head: ¾ ″ – weight: 1.5 kg / 0.7 lb)*	
MV328204	*THREADED COMPENSATOR T2141212/00 1/2 " (stroke: 40 mm / 1.57 ″ – max. torque: 150 Nm – square head: ½ ″ – weight: 0.9 kg / 0.4 lb)*	
MV32A003	THREADED INSERT FOR ROTARY TILTING HEAD ASSEMBLY	

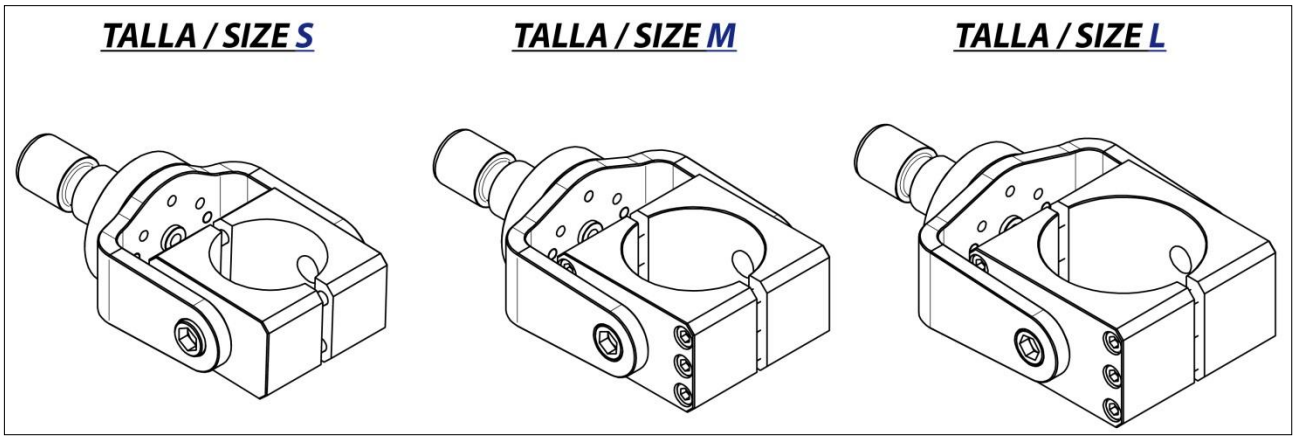
S6: Pneumatic locks (L92 / L92 + compensator) ***must*** be used.

[41] See compatibility page 4

2.30.1 MAXIMUM TORQUE:

WORKING POSITION	MAX. TORQUE (Nm)
Vertical (V)	300
Horizontal (H)	250
Angle (A)	200

2.30.2 CONFIGURATIONS

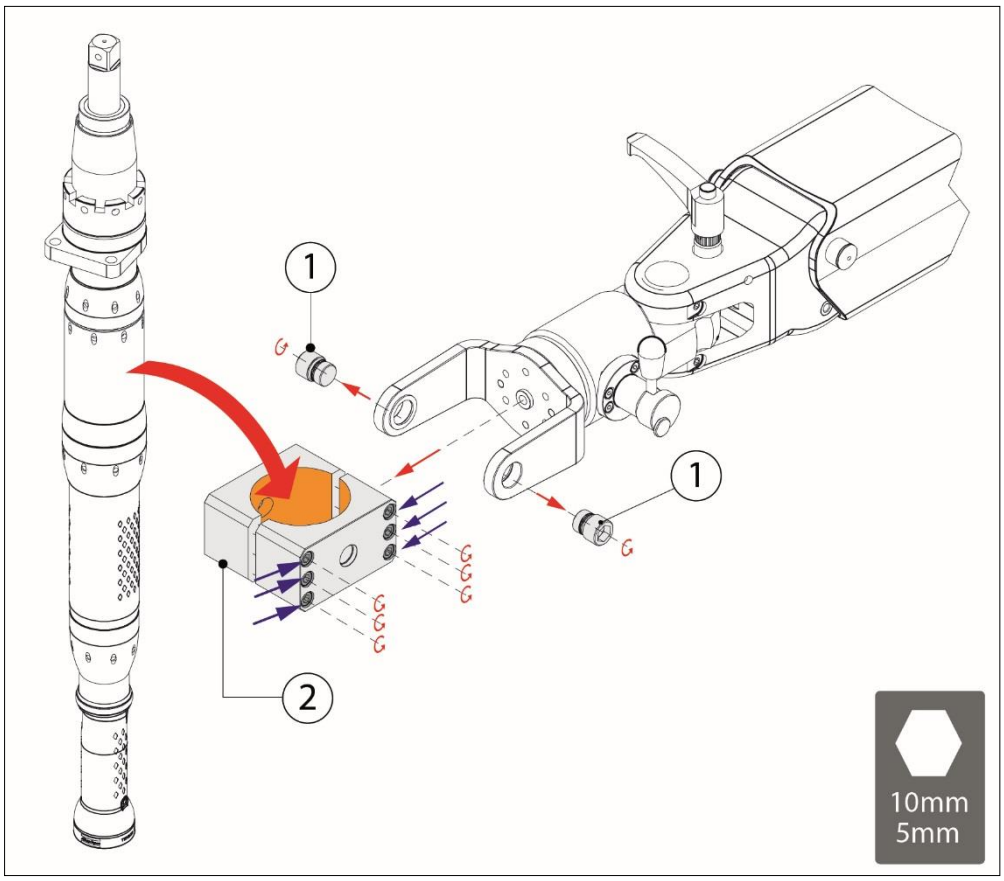


Head member type	*Ø min*	*Ø max.*
RING (S 49)	30	49
RING (M 59)	49	59
RING (L 69)	59	69

2.30.3 Installing the tool

To couple the tool to the head member, follow the steps below:

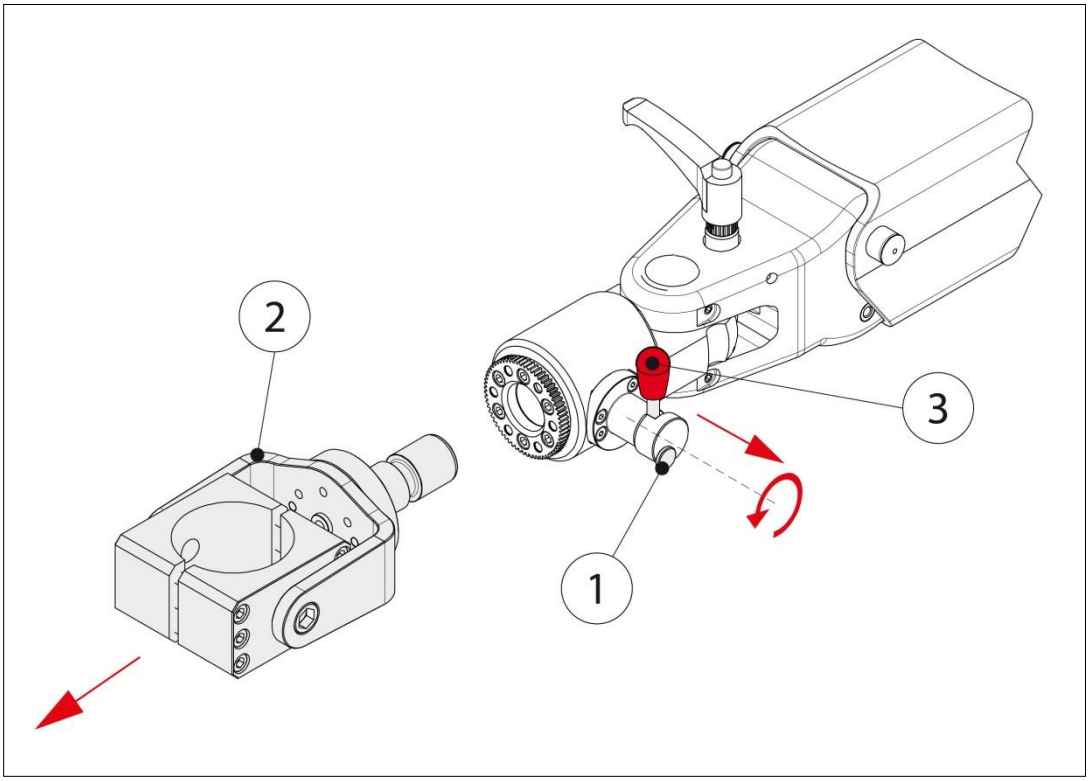
1. Remove the bolts (1) *(10-mm Allen key)*.
2. Remove the ring (2) from the head assembly.
3. Loosen the screws that join the two parts of the ring (2) *(5-mm Allen key)*.
4. Insert the tool and tighten the screws that join the two parts of the ring (2).



2.30.5 RING CHANGE-OVER:

To change the ring (4), follow the instructions below.

1. Unscrew small wheel (1)
2. Move handle (3) outwards and hold it in this position
3. Remove the moving part or ring (2) and release the lever (3).
4. Reverse the process for coupling.



2.30.6 Movements and locking

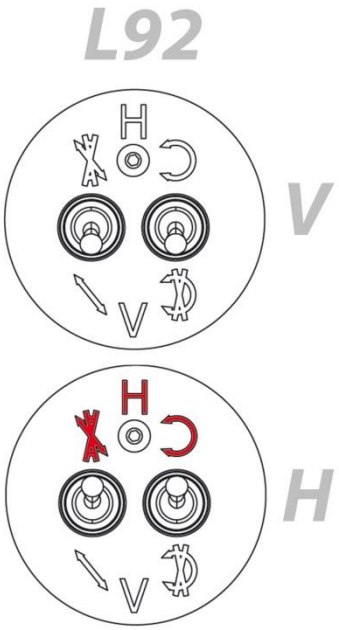
ADDITIONAL INFORMATION

- ✓ *X: Rotates 360°. Lockable in 64 positions: see page 63*
- ✓ *Z1: Rotates 180°. Lockable in 5 positions: see page 63*

2.30.8 OPERATION

2.30.8.1 Arm locks

Depending on the working position, the V (vertical), H (horizontal) or A (angular) selectors should be positioned as shown in the image.



If pneumatic lock L92 + compensator is available, maintain the default configuration (all locked).

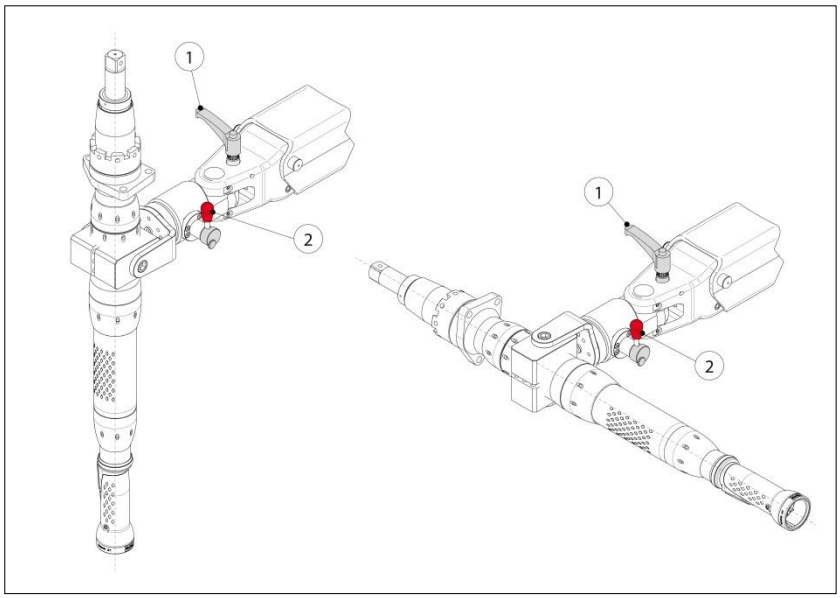
When working in A (angle), the selectors must be in the V (vertical) position if the position is overall more vertical than horizontal and H (horizontal) in the opposite situation.

2.30.8.2 Head member locks

The head assembly locks (1 and 2) must be engaged according to the working position, as shown in the table below.

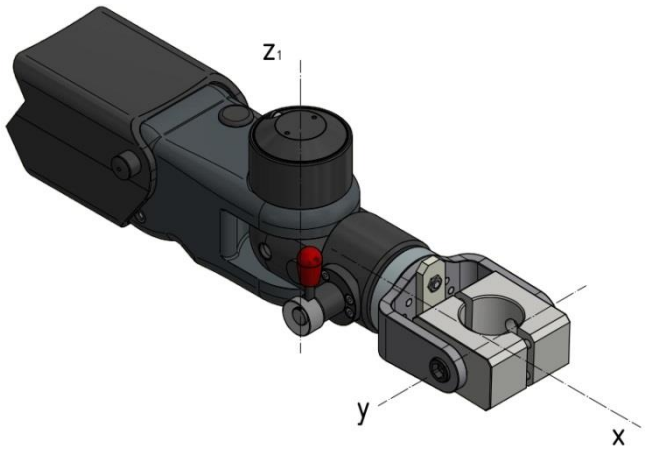
Working position (tool axis)→	***V***	***H***	***A***
Straight tool	1*	2	1*, 2

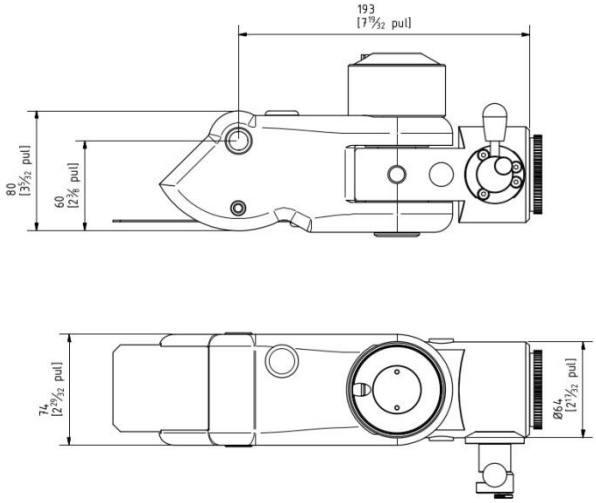
*Automatic RAS head assembly



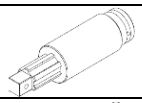
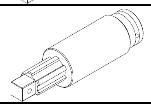
2.31 ROTARY (TILTING, AUTOMATIC) – RAS M41007A0[42] + MVBXXX04 [PNEUMATIC LOCK]

Suitable for straight tools.





X: Rotates 360º. Can be locked in 64 positions
Z_1: Rotates 180º. Can be locked in 64 positions
Y: Rotates 360°.

NH103800	O-RING 55 x 1.5	
M3140000	ROTARY HEAD ASSEMBLY RING	
MV331205	REPLACEMENT ECCENTRIC GRIP ASSEMBLY KIT	
MV328104	THREADED COMPENSATOR T2140801/00 3/4 " *(stroke: 45 mm / 1.77 " – max. torque: 300 Nm – square head: ¾ " – weight: 1.5 kg / 0.7 lb)*	
MV328204	*THREADED COMPENSATOR T2141212/00 1/2 "* *(stroke: 40 mm / 1.57 " – max. torque: 150 Nm – square head: ½ " – weight: 0.9 kg / 0.4 lb)*	
MV32A003	THREADED INSERT FOR ROTARY TILTING HEAD ASSEMBLY	

S6: Pneumatic locks (L92 / L92 + compensator) ***must*** be used.

[42] See compatibility page 4

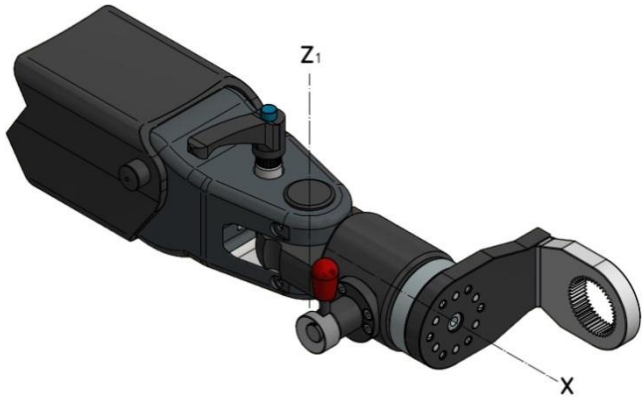
ADDITIONAL INFORMATION

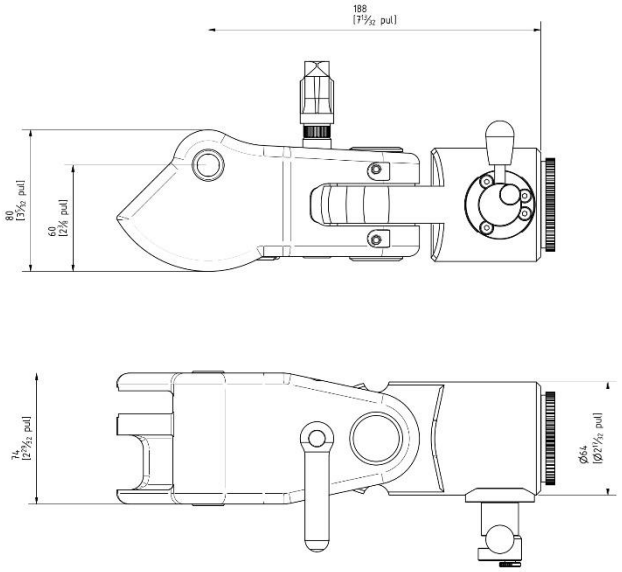
The RAS and RA head assemblies differ in that the RAS head assembly includes an automatic head-assembly rotation lock (Z_1 axis).

- ✓ *Max. torque: see page 69*
- ✓ *Configurations: see page 69*
- ✓ *Installing the tool: See page 70*
- ✓ *Ring change-over: see page 71*
- ✓ *Movements and locks: see page 71*

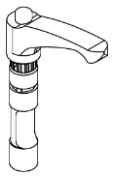
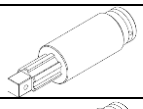
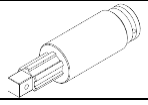
2.32 ROTARY (TILTING) – RB MV404404[43] + Tecnospiro code

Suitable for pistol-type tools





X: Rotates 360º. Can be locked in 64 positions
Z_1: Rotates 180º. Can be locked in 5 positions

CB004704	SECURING HANDLE ASSEMBLY *[Z axis$_1$]*	
MV331205	REPLACEMENT ECCENTRIC GRIP ASSEMBLY KIT	
MV328104	THREADED COMPENSATOR T2140801/00 3/4 " *(stroke: 45 mm / 1.77 ″ – max. torque: 300 Nm – square head: ¾ ″ – weight: 1.5 kg / 0.7 lb)*	
MV328204	*THREADED COMPENSATOR T2141212/00 1/2 " (stroke: 40 mm / 1.57 ″ – max. torque: 150 Nm – square head: ½ ″ – weight: 0.9 kg / 0.4 lb)*	

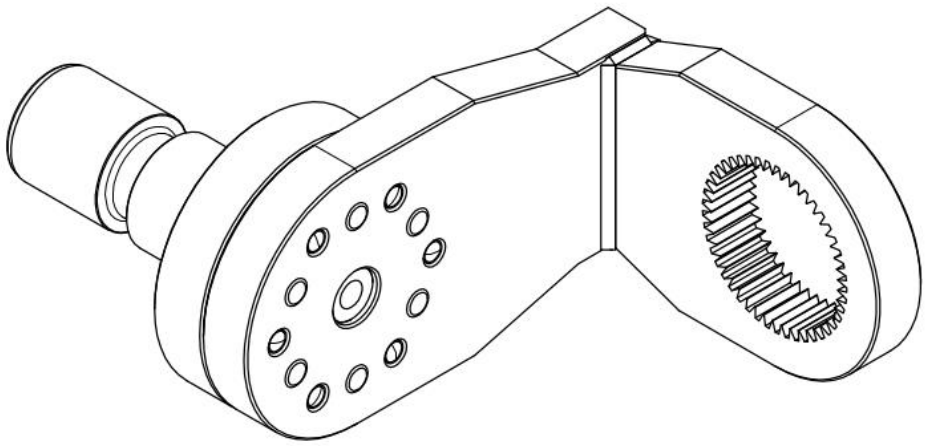
S6: Pneumatic locks (L92 / L92 + compensator) ***must*** be used.

[43] See compatibility page 4

MAXIMUM TORQUE:

WORKING POSITION	MAX. TORQUE (Nm)
Vertical (V)	300
Horizontal (H)	250
Angle (A)	200

2.32.1 CONFIGURATIONS

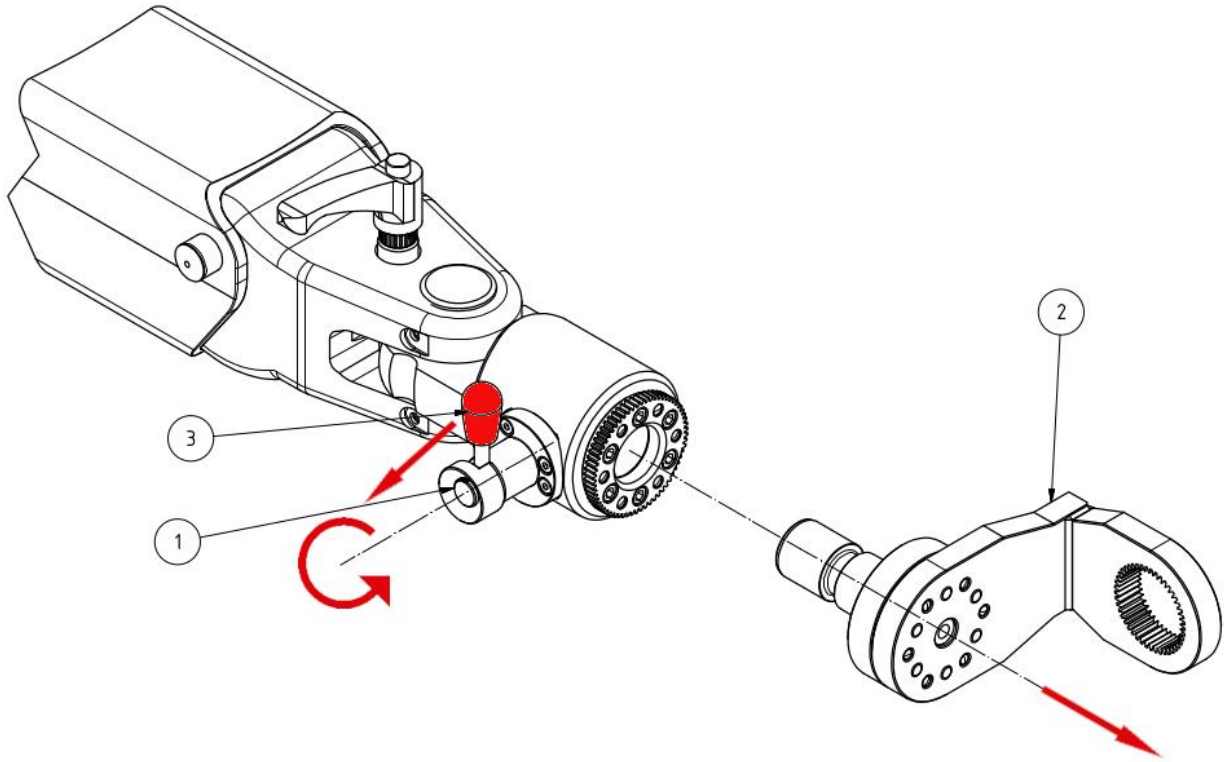


Head assembly configuration according to tool.

2.32.2 ACCESSORY CHANGE-OVER:

To change the accessory, follow the instructions below.

1. Unscrew small wheel (1)
2. Move handle (3) outwards and hold it in this position
3. Remove the moving part (2) and release the lever (3).
4. Reverse the process for coupling.



2.32.3 Movements and locking

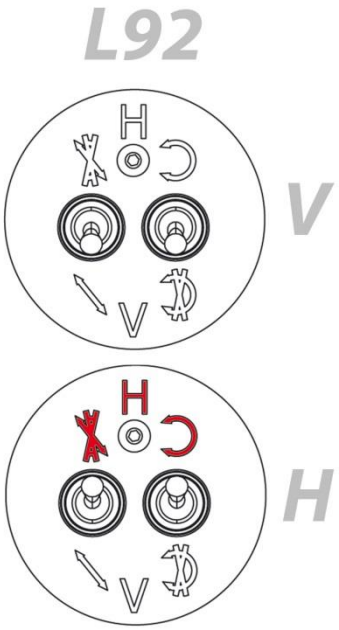
ADDITIONAL INFORMATION

- ✓ *X: Rotates 360°. Lockable in 64 positions: see page 63*
- ✓ *Z1: Rotates 180°. Lockable in 5 positions: see page 63*

2.32.4 OPERATION

2.32.4.1 Arm locks

Depending on the working position, the V (vertical), H (horizontal) or A (angular) selectors should be positioned as shown in the image.



If pneumatic lock L92 + compensator is available, maintain the default configuration (all locked).

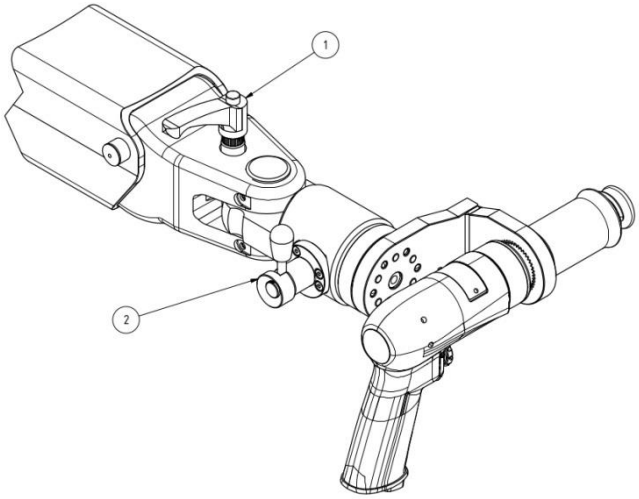
When working in A (angle), the selectors must be in the V (vertical) position if the position is overall more vertical than horizontal and H (horizontal) in the opposite situation.

2.32.4.2 Head member locks

The head assembly locks (1 and 2) must be engaged according to the working position, as shown in the table below.

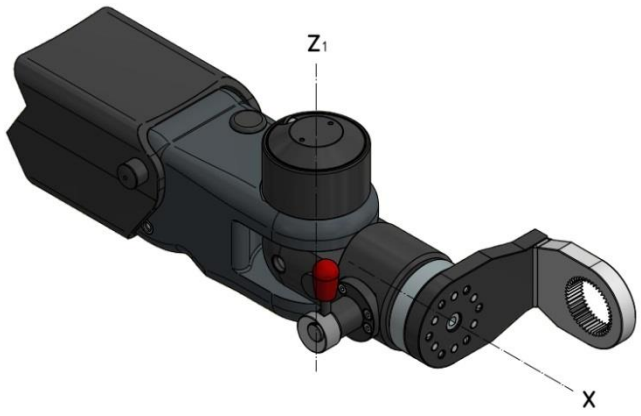
Working position (tool axis)→	***V***	***H***	***A***
Pistol-type tool	1*	2	1*, 2

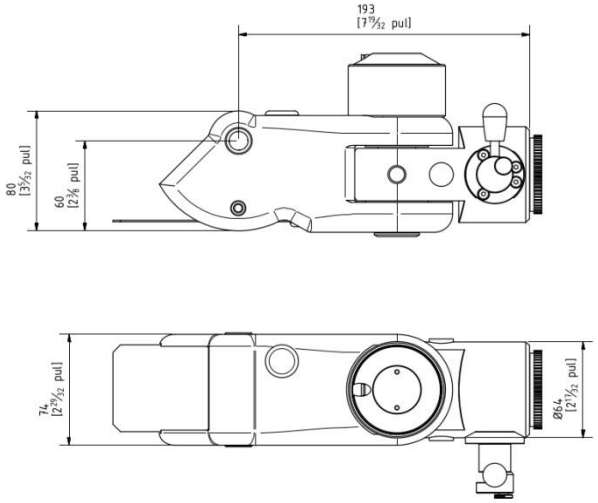
* Automatic RBS head assembly



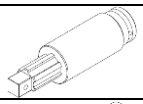
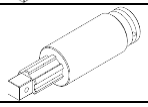
2.33 ROTARY (TILTING, AUTOMATIC) – RBS M41007A0[44] + Tecnospiro code *[PNEUMATIC LOCK]*

Suitable for pistol-type tools





X: Rotates 360º. Can be locked in 64 positions
Z_1: Rotates 180º. Can be locked in 64 positions

NH103800	O-RING 55 x 1.5	
M3140000	ROTARY HEAD ASSEMBLY RING	
MV331205	REPLACEMENT ECCENTRIC GRIP ASSEMBLY KIT	
MV328104	THREADED COMPENSATOR T2140801/00 3/4 " *(stroke: 45 mm / 1.77 " – max. torque: 300 Nm – square head: ¾ " – weight: 1.5 kg / 0.7 lb)*	
MV328204	*THREADED COMPENSATOR T2141212/00 1/2 " (stroke: 40 mm / 1.57 " – max. torque: 150 Nm – square head: ½ " – weight: 0.9 kg / 0.4 lb)*	

S6: Pneumatic locks (L92 / L92 + compensator) ***must*** be used.

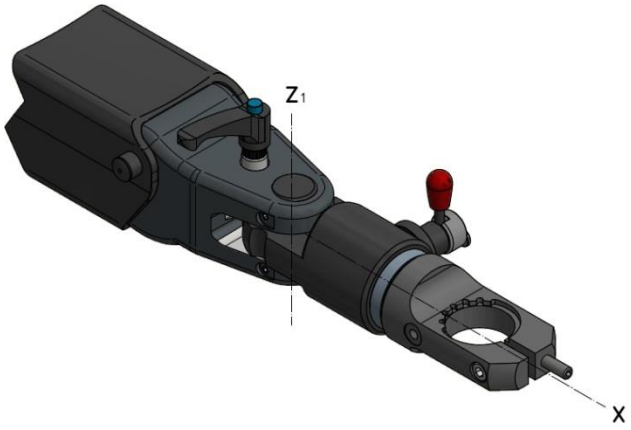
[44] See compatibility page 4

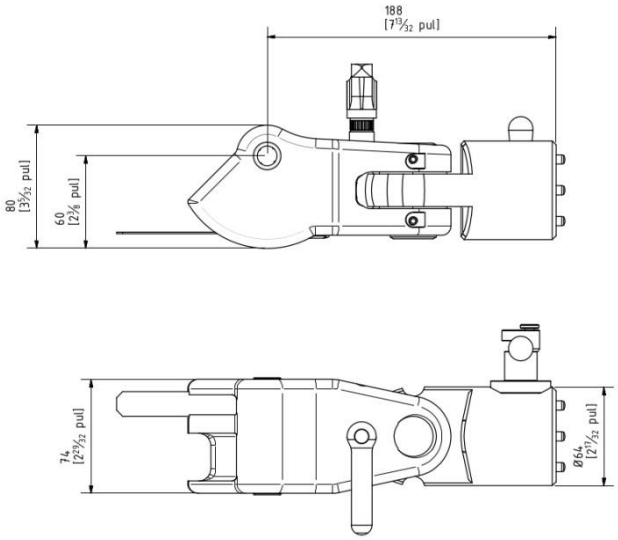
ADDITIONAL INFORMATION

The RBS and RB head assemblies differ in that the RS head assembly includes an automatic head-assembly rotation lock (Z_1 axis).

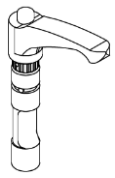
- ✓ *Max. torque: see page 77*
- ✓ *Configurations: see page 77*
- ✓ *Accessory change-over: see page 78*
- ✓ *Movements and locks: see page 78*

2.34 ROTARY (VERTICAL/HORIZONTAL) – RC M3150900[45] + custom code



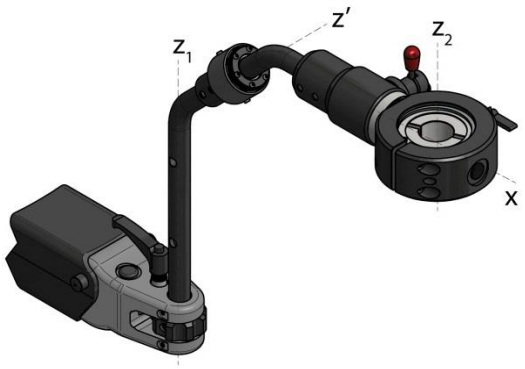


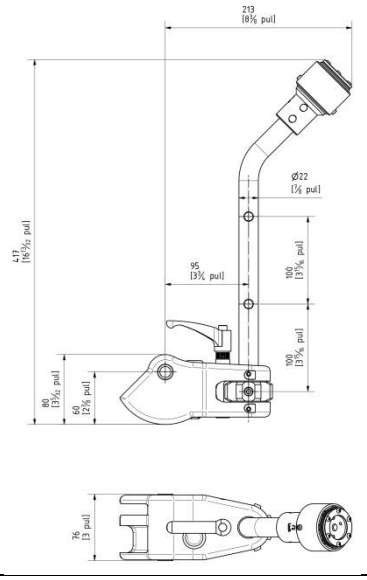
X: Rotates 360º. Can be locked in 4 positions
Z_1: Rotates 180º. Can be locked in 5 positions

CB004704	SECURING HANDLE ASSEMBLY *[Z axis$_1$]*	
MV331205	REPLACEMENT ECCENTRIC GRIP ASSEMBLY KIT	

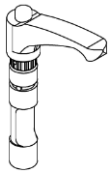
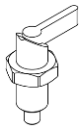
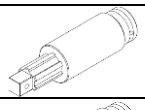
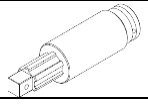
[45] See compatibility page 4

2.35 ROTARY (GIRAFFE NECK) – SR MV30P604[46] + MVRXXX04 / MVBXXX04





-Z_1: Rotates 360°. Lockable 8 x 45°.
-Z': Rotates 360°. Lockable 8 x 45°.
-Z_2: Rotates 360°. Lockable 8 x 45°.
-X: Rotates 360°. Lockable 65 x 5.6°.

CB004704	SECURING HANDLE ASSEMBLY *[Z axis$_1$]*	
MV331205	REPLACEMENT ECCENTRIC GRIP ASSEMBLY KIT	
AC006016	POSITIONER GN612-8-M16x1.5-AK	
MV328104	THREADED COMPENSATOR T2140801/00 3/4 " *(stroke: 45 mm / 1.77 ″ – max. torque: 300 Nm – square head: ¾ ″ – weight: 1.5 kg / 0.7 lb)*	
MV328204	*THREADED COMPENSATOR T2141212/00 1/2 "* *(stroke: 40 mm / 1.57 ″ – max. torque: 150 Nm – square head: ½ ″ – weight: 0.9 kg / 0.4 lb)*	

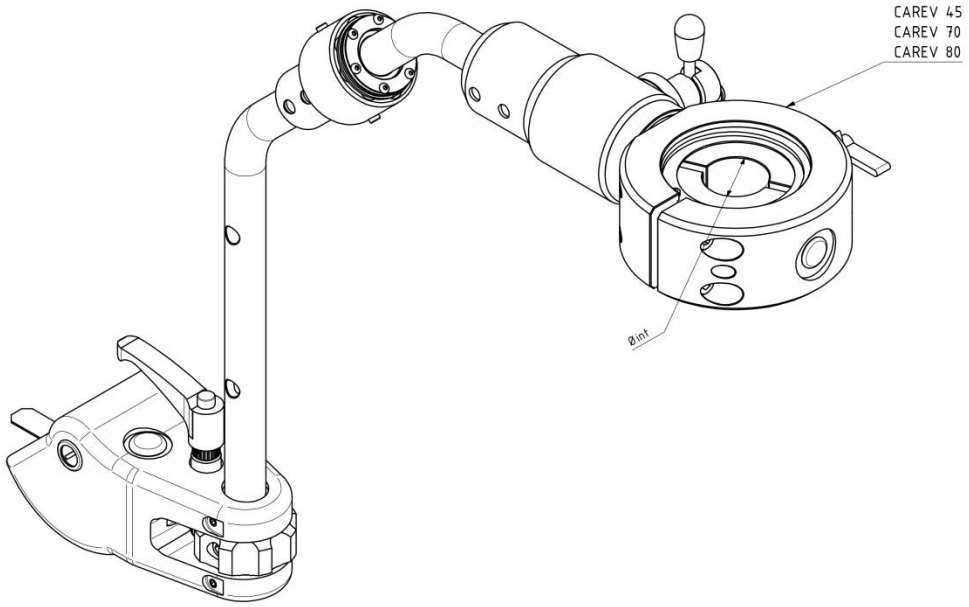
S6: Pneumatic locks (L22 / L92) ***must*** be used.

[46] See compatibility page 4

2.35.1 MAXIMUM TORQUE: ROTARY GIRAFFE-NECK HEAD ASSEMBLY (S)

WORKING POSITION	MAX. TORQUE (Nm)
Vertical (V)	300
Horizontal (H)	250
Angle (A)	200

2.35.2 CONFIGURATIONS



Head member type	*min. int. Ø*	*max. int. Ø*
CAREV 45 - Ø124	Ø30	Ø55
CAREV 70 - Ø134	Ø55	Ø70
CAREV 80 – Ø144	Ø69	Ø80

2.35.3 Installation of the tool

ADDITIONAL INFORMATION

✓ *Installing the tool: See page 61*

2.35.4 CAREV CHANGE-OVER

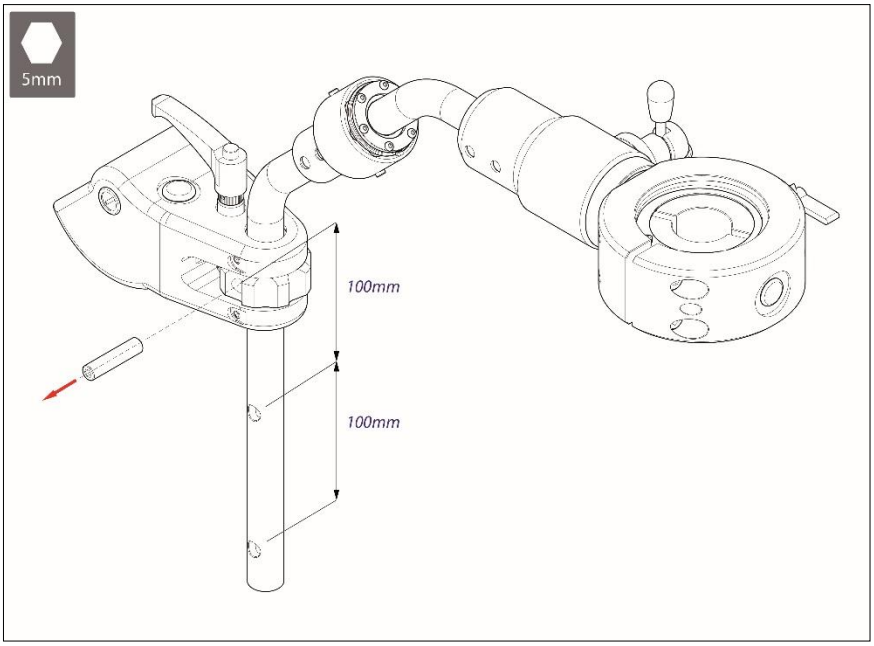
ADDITIONAL INFORMATION

✓ *CAREV changeover: see page 62*

2.35.5 Height adjustment

The bar height can be adjusted (3 positions, 100-mm increments) to the working conditions as follows:

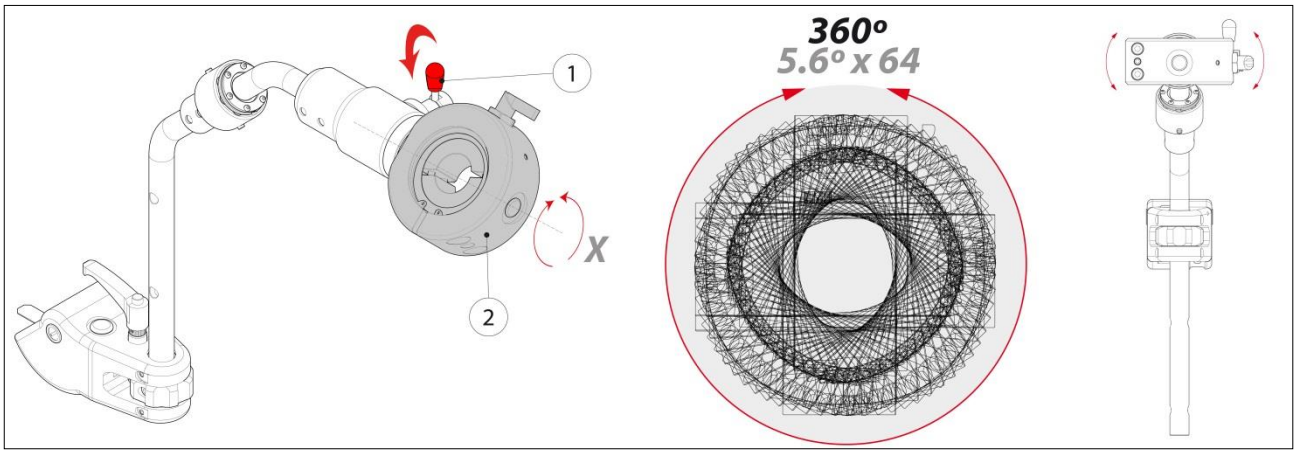
1. Remove the pin *(5-mm Allen key)*
2. Slide the bar upwards until one of the holes in the bar aligns with the pin housing.
3. Insert the pin *(5-mm Allen key).*



2.35.6 Movements and locking

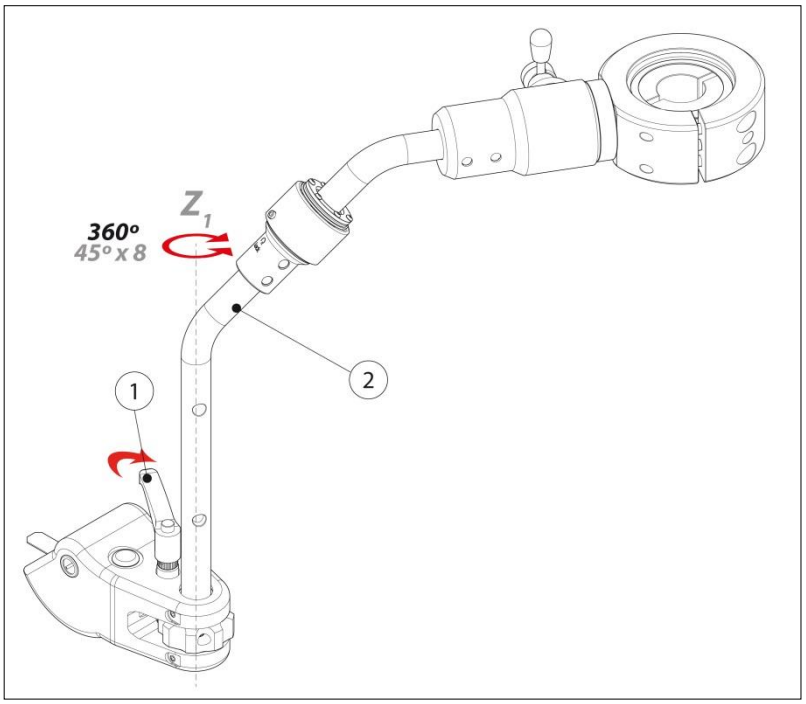
X: Rotates 360º. Can be locked in 64 positions

Releasing the lever (1) will free the moving part (2), giving it free movement on the X axis. If the lever (1) is returned to its initial position, the moving part (2) will be locked in the position selected.

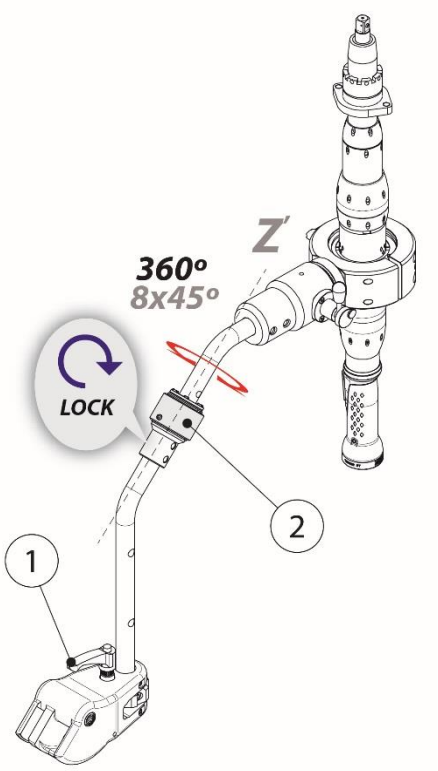


Z1: Rotates 360º. Can be locked in 8 positions

The lever (1) can be used to allow free movement on the Z_1 axis or to lock the moving part in one of the 8 available positions.



-Z': Rotates 360°. Lockable 8 x 45°.



Z2: Rotates 360°. Can be locked in 8 45° positions

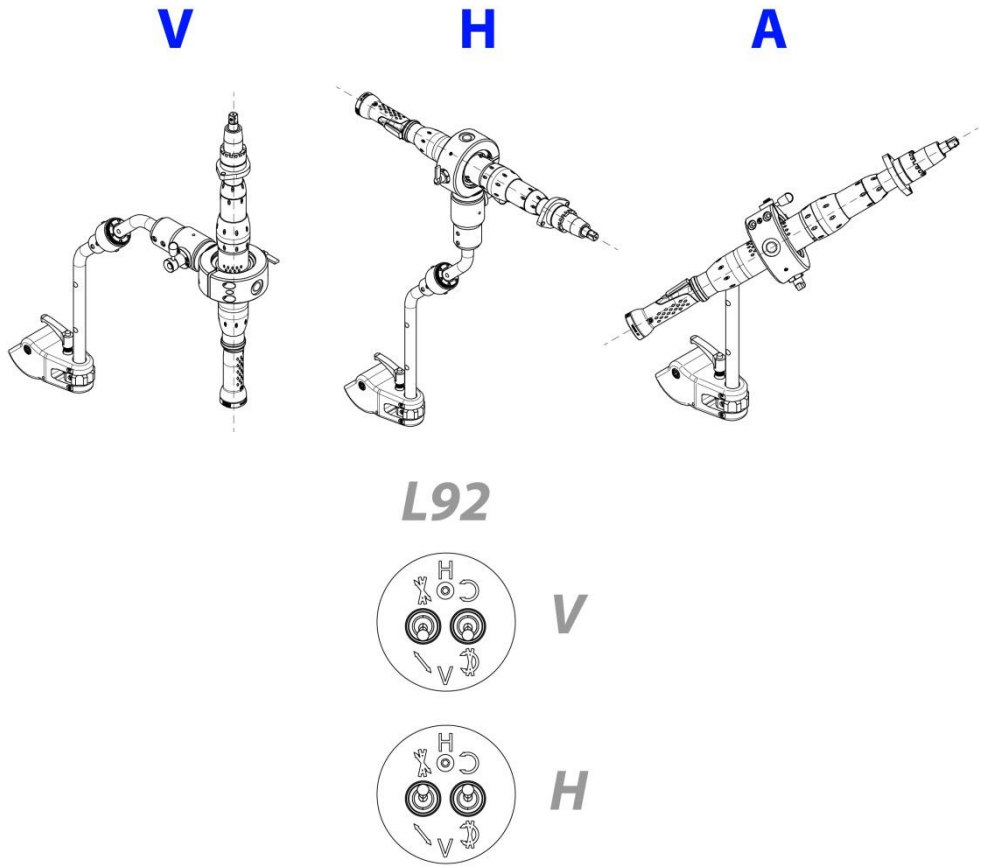
ADDITIONAL INFORMATION
✓ *Movements and locks: see page 63*

2.35.7 OPERATION

2.35.7.1 Arm locks

Depending on the working position, the V (vertical), H (horizontal) or A (angular) selectors should be positioned as shown in the image.

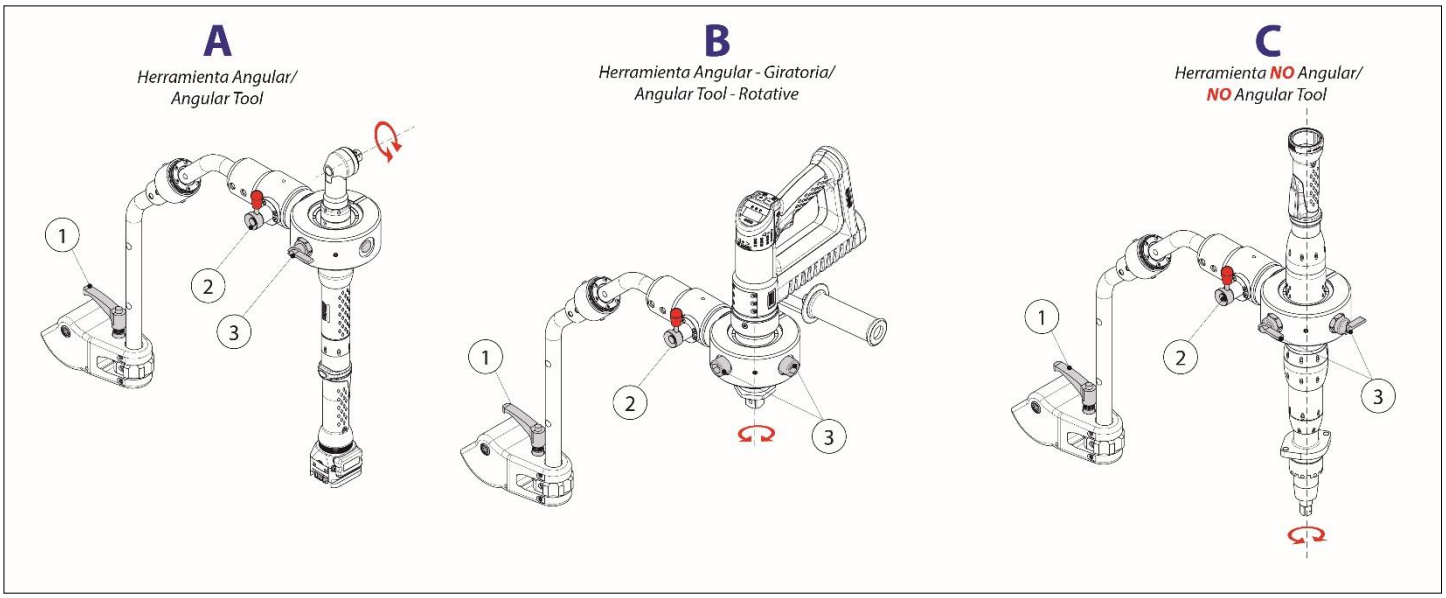
When working in A (angle), the selectors must be in the V (vertical) position if the position is overall more vertical than horizontal and H (horizontal) in the opposite situation.



2.35.7.2 *Head member locks*

Head member locks on the Handle (1), Small handle (2) and positioner (3) must be locked in accordance with the working position as shown in the following table.

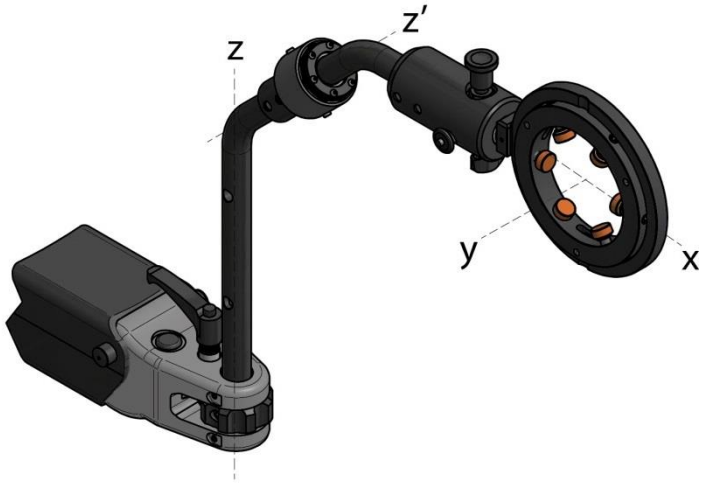
Working position (tool axis)→	***V***	***H***	***A***
Angular tool **(A)**	1	2	1, 2
Angular tool (rotary) **(B)**	1, 3	3	3, (1)
Non-angular tool **(C)**	1, 3	3	3, (1)

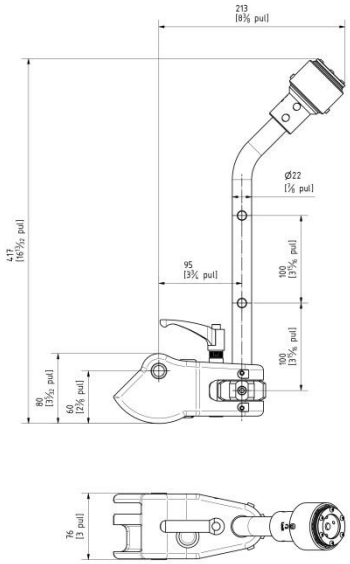


ATTENTION! Movement on the Z' axis must always be locked.

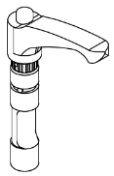
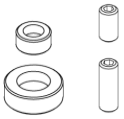
2.36 MULTIPOSITION (GIRAFFE-NECK) – SN MV30P704[47] + MV3MAXXX / MV3PBXXX /MV3MUXXX

Maximum load: 12 kg / 6 kg[48] | □½" [49]





-Z: Rotates 360°. Lockable 8 x 45°.
-Z': Rotates 360°. Lockable 8 x 45°.
-Y: Rotates 360º. Non-lockable
-X: Rotates 360º. Lockable 4x90º

CB004704	SECURING HANDLE ASSEMBLY *[Z axis$_1$]*	
MV31K703	SECURING HANDLE M8x25 (BRASS) *[X axis]*	
AC004046	POSITIONER GN 607.1-6-A-ST	
AC006406	POSITIONER K0641_02106030	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

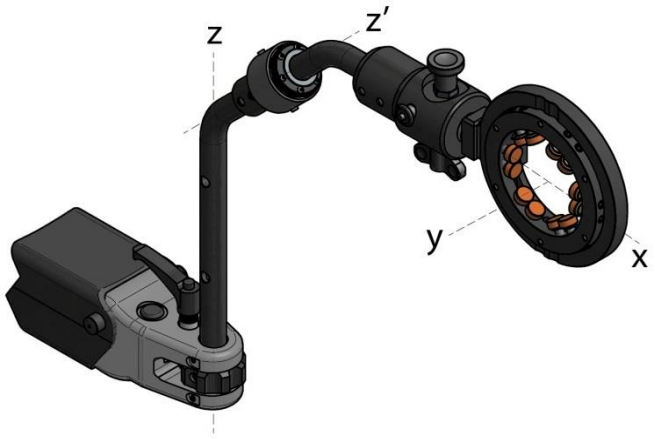
[47] See compatibility page 4
[48] Maximum load: **6 kg** for applications using the type-A grip bar (TIMCO) and vibration tools (impact, pulse, etc.). For other applications, or for applications using the type-B grip bar (TIMSAND), the maximum load is 12 kg.
[49] Square tool-head size recommended for this head assembly.

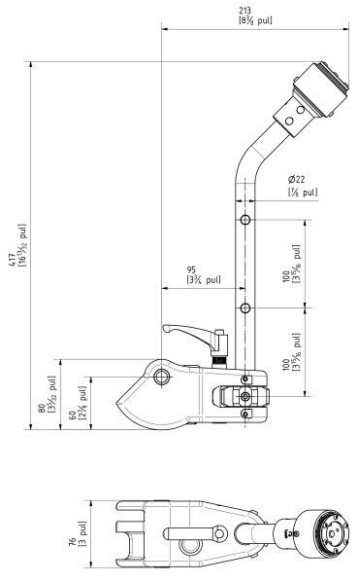
ADDITIONAL INFORMATION

- ✓ *TIMCO configurations: see page 18*
- ✓ *Installing the tool: See page 19*
- ✓ *TIMSAND configurations: see page 22*
- ✓ *Installing the tool: See page 24*
- ✓ *Assembly and adjustment: see page 47*
- ✓ *Height adjustment: see page 86*

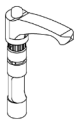
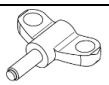
2.37 MULTIPOSITION (HEAVY DUTY, GIRAFFE-NECK) – SQ MV30P804[50] + MV3JAXXX/ MV3JBXXX /MV3JUXXX

Maximum load: 30 kg | □¾"[51]





-Z: Rotates 360°. Lockable 8 x 45°.
-Z': Rotates 360°. Lockable 8 x 45°.
-Y: Rotates 360º. Can be locked in any position
-X: Rotates 360º. Lockable 4x90º

CB004704	SECURING HANDLE ASSEMBLY *[Z axis]*	
AC004086	POSITIONER GN 607.1-8-A-ST	
MV31F605	M8 HANDLE SUB-ASSEMBLY *[X axis]*	
AC006426	POSITIONER K0641_02106040	
M3103200	STAINLESS-STEEL KNOB (TIMCOR) *[Y axis]*	

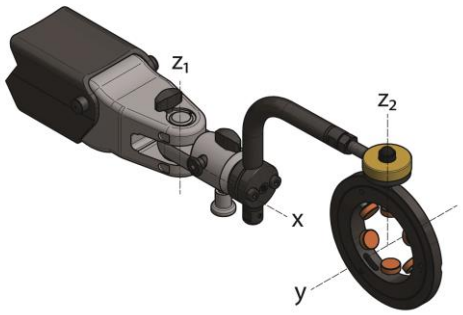
ADDITIONAL INFORMATION

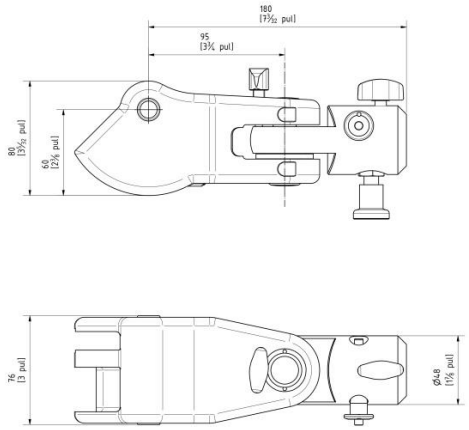
- ✓ *HEAVY-DUTY TIMCO configurations: see page 27*
- ✓ *Installing the tool: See page 19*
- ✓ *Assembly and adjustment: see page 53*
- ✓ *Height adjustment: see page 86*

[50] See compatibility page 4
[51] Square tool-head size recommended for this head assembly.

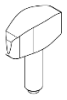
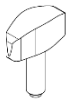
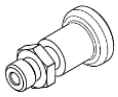
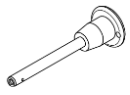
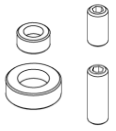
2.38 MULTIPOSITION – T
MV31F5A4[52] + MV3LAXXX / MV3QBXXX / MV3LUXXX

Maximum load: 12 kg / 6 kg[53] | □½" [54]
Requires locks (L50)





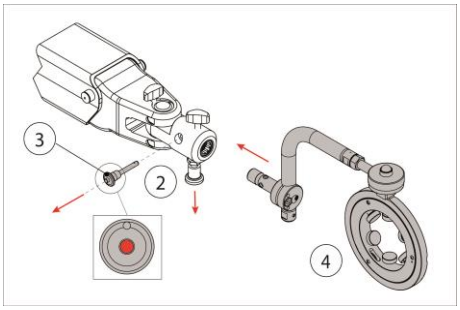
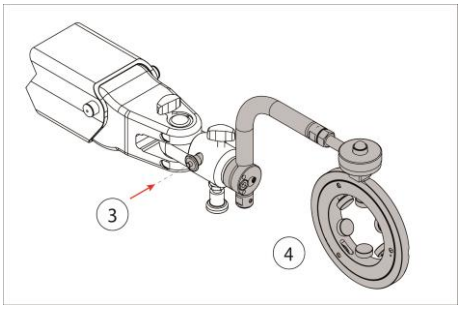
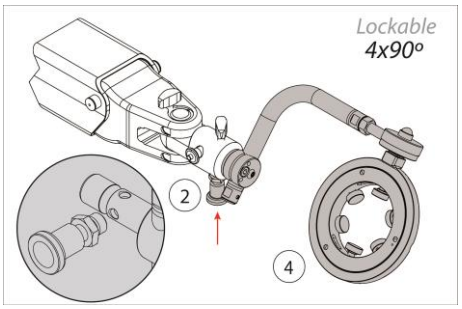
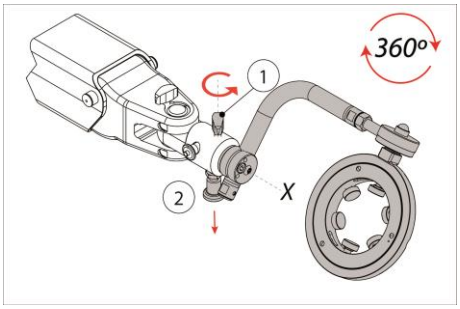
-Z_1: Rotates ±90º. Non-lockable
-X: Rotates 360º. Lockable 4x90º
-Z_2: Rotates 360º. Non-lockable
-Y: Rotates 360º. Non-lockable

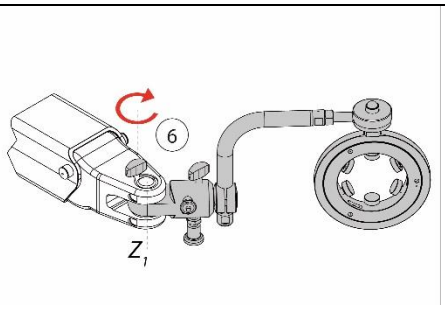
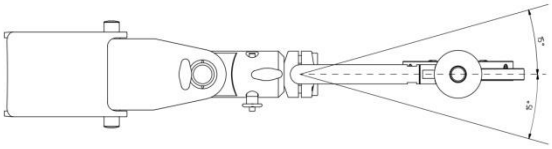
MV31J603	SECURING HANDLE M8x25 *[Z axis$_1$]*	
MV31K703	SECURING HANDLE M8x25 (BRASS) *[X axis]*	
AC004046	POSITIONER GN 607.1-6-A-ST	
AC006406	POSITIONER K0641_02106030	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

[52] See compatibility page 4
[53] Maximum load: **6 kg** for applications using the type-A grip bar (TIMCO) and vibration tools (impact, pulse, etc.). For other applications, or for applications using the type-B grip bar (TIMSAND), the maximum load is 12 kg.
[54] Square tool-head size recommended for this head assembly.

2.38.1 Installation and adjustment

To couple the grip bar to the head assembly, and to adjust the head assembly, follow the instructions below.

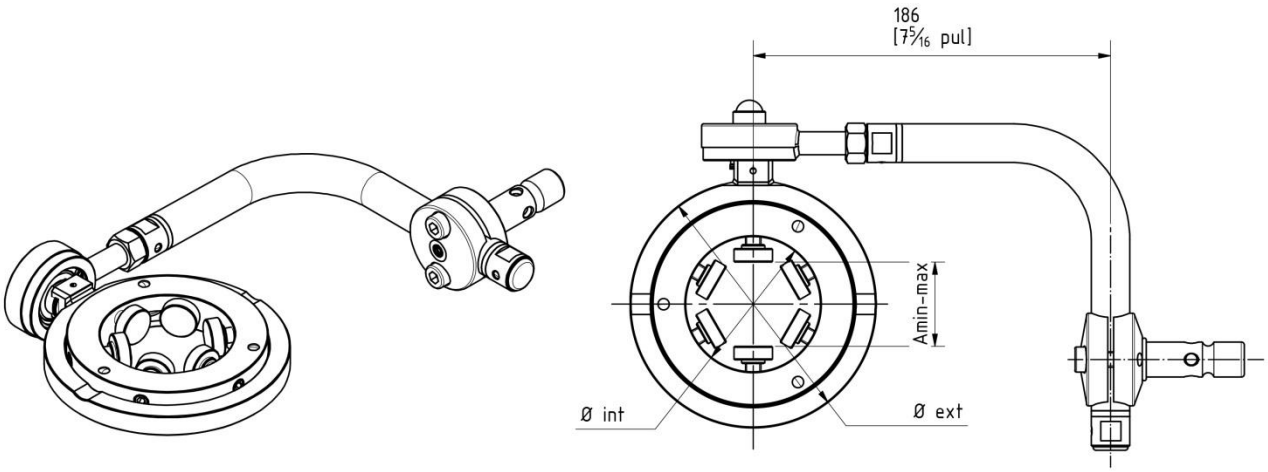
- Loosen knob (1). Retract positioner (2) applying a downward motion and a slight twist. Remove the positioner (3) by pressing the marked area then pulling it out. - Then insert the selected grip bar (4) into the head assembly.	
- Press the marked area of positioner (3) and insert it into the hole provided, stop pressing.	
- If you wish to immobilise grip bar (4), move positioner (2) upwards to align it with one of the eight indents in the shaft of bar to lock it.	
- If you wish to work with bar (4) free, leave positioner (2) retracted and screw/unscrew knob (1), to adjust the grip resistance.	

- The ease of movement can also be adjusted at z_1 screwing/unscrewing knob (6)	
- Maximum assembly and installation range ± 15°	

- Proceed in the reverse order to dismantle or uncouple the bar.

2.38.2 Type A bars: TIMCO

***Type A:** Suitable for any type of tool.*
Ref.: MV3LAxxx (xxx = internal diameter in mm)



Øint.		Øext.		Ø max.	
mm	*Inches*	mm	*Inches*	mm	*Inches*
70	*2 3/4″*	128	*5″*	50	2″
80	*3 1/8″*	138	*5 3/8″*	60	2 3/8″
90	*3 ½″*	148	*5 7/8″*	70	2 ¾ ″
100	*3 7/8″*	158	*6 ¼″*	80	3 1/8″
110	*4 3/8"*	168	*6 5/8″*	90	3 ½ ″
120	*4 ¾″*	178	*7″*	100	3 7/8″
130	*5 1/8″*	188	*7 3/8″*	110	4 3/8″
140	*5 ½″*	198	*7 ¾″*	120	4 ¾ ″
150	*5 7/8″*	208	*8 ¼ ″*	130	5 1/8″
160	*6 ¼ ″*	218	*8 5/8″*	140	5 ½ ″
170	*6 ¾ ″*	228	*9 ″*	150	5 7/8″
180	*7 1/8″*	238	*9 3/8″*	160	6 ¼ ″

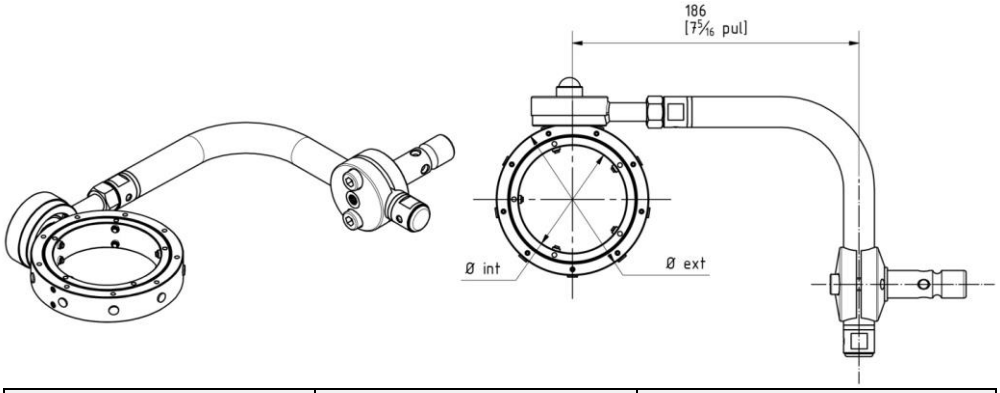
ADDITIONAL INFORMATION

- ✓ *Installing the tool: see page 19*
- ✓ *Maintenance and cleaning: See page 20*[55]

- Maximum load: 6 kg for applications using the type-A grip bar (TIMCO) and vibration tools (impact, pulse, etc.).
- Other dimensions upon request
- Extension pieces can be used to create various grip bar configurations. *See page. 112*

2.38.3 Type B bars: TIMSAND

***Type B:** Suitable for tools with a cylindrical contact area.*
Ref.: MV3QBxxx (xxx = internal diameter in mm)



Ø int.		Ø ext.		Ø max.	
mm	*Inches*	mm	*Inches*	mm	*Inches*
40	*1 5/8″*	69	*2 ¾″*	39	*1 ½“*
45	*1 ¾″*	74	*2 7/8″*	44	1 ¾″
50	*2″*	79	*3 1/8″*	49	1 7/8″
55	*2 1/8″*	84	*3 ¼″*	54	2 1/8″
60	*2 3/8″*	89	*3 ½″*	59	2 3/8″
65	*2 ½″*	94	*3 ¾″*	64	2 ½“
70	*2 ¾″*	99	*3 7/8″*	69	2 ¾″
75	*3″*	104	*4 1/8″*	74	2 7/8″
80	*3 1/8″*	109	*4 ¼″*	79	3 1/8″
85	*3 3/8″*	114	*4 ½″*	84	3 ¼″
90	*3 ½ “*	119	*4 5/8″*	89	3 ½"
95	*3 ¾ “*	124	*4 7/8″*	94	3 ¾“
100	*3 7/8″*	129	*5 1/8″*	99	3 7/8″
105	*4 1/8″*	134	*5 ¼ “*	104	4 1/8″
110	*4 3/8″*	139	*5 ½ “*	109	4 ¼″
115	*4 ½ “*	144	*5 5/8″*	114	4 ½″
120	*4 ¾ “*	149	*5 7/8″*	119	4 5/8″
125	*4 7/8″*	154	*6 1/8″*	124	4 7/8″
130	*5 1/8″*	159	*6 ¼ “*	129	5 1/8″

ADDITIONAL INFORMATION

- ✓ *Installing the tool: See page 24*
- ✓ *Maintenance and cleaning: See page 20*

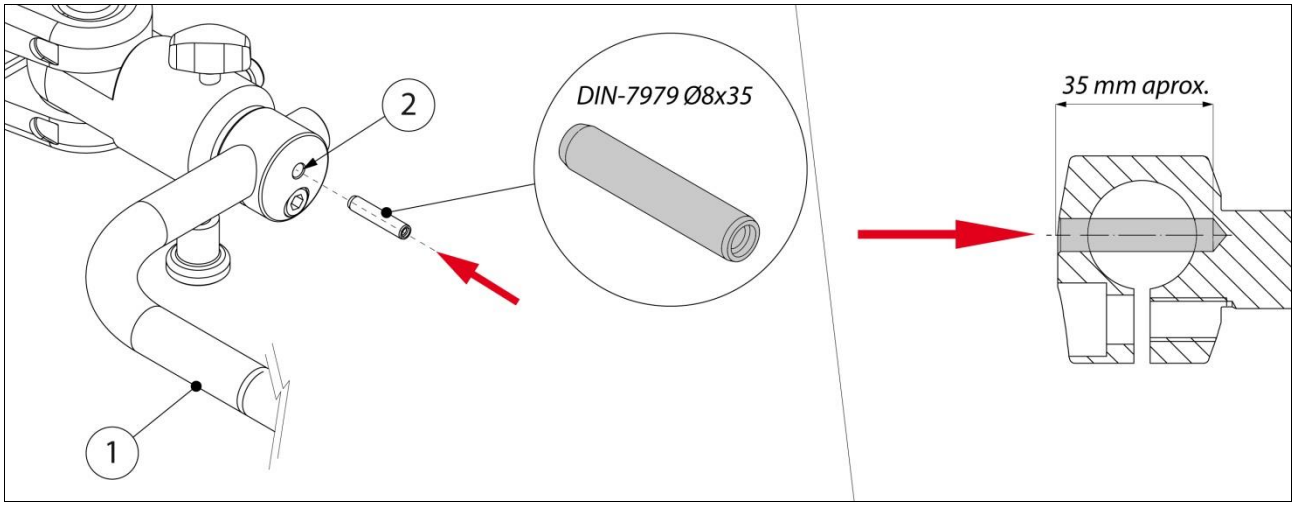
- Other dimensions upon request
- Extension pieces can be used to create various grip bar configurations. *See page. 112*

2.38.4 GRIP BAR ADJUSTMENT AND REINFORCEMENT

After adjusting the grip bar, secure it using the pins supplied (**DIN 7979, Ø 6 x 30** for stem and **DIN 6325, Ø 4 x 20** for couplings between bars) as follows:

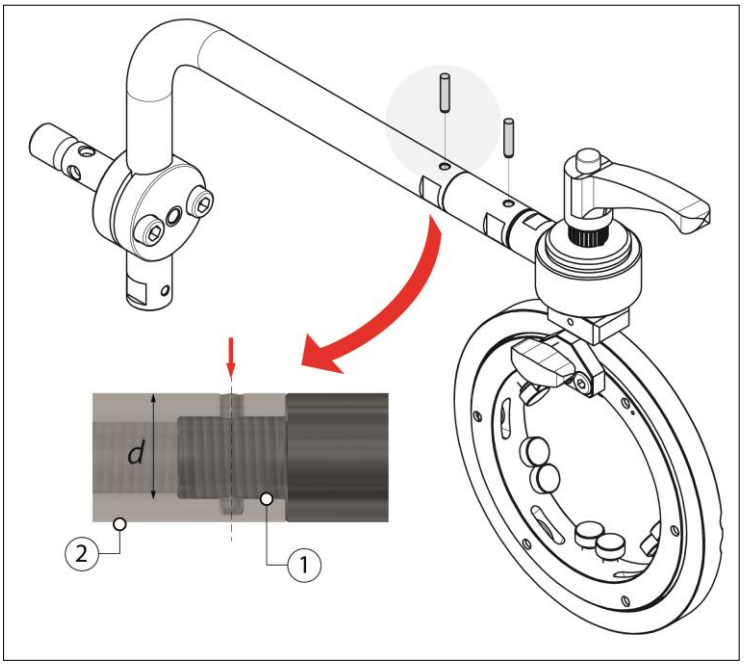
Pin **DIN 7979 Ø 6 x 30 (stem)**

1. Drill the grip bar (1) in the direction indicated, using the existing hole (2) as a guide. The hole should have a depth of '**d**' and should pass fully through the bar (1) (**d = 30 mm** approx.).
2. Insert the pin supplied (**DIN 7979, Ø 6 x 30**).



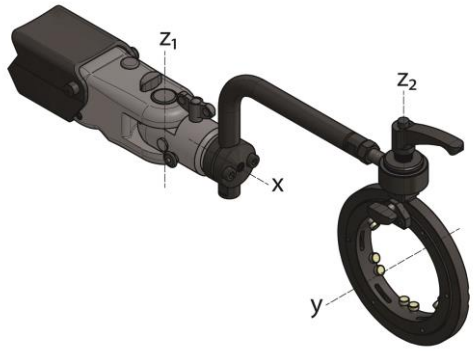
Pin **DIN 6325, Ø 4 x 20 (grip bar)**.

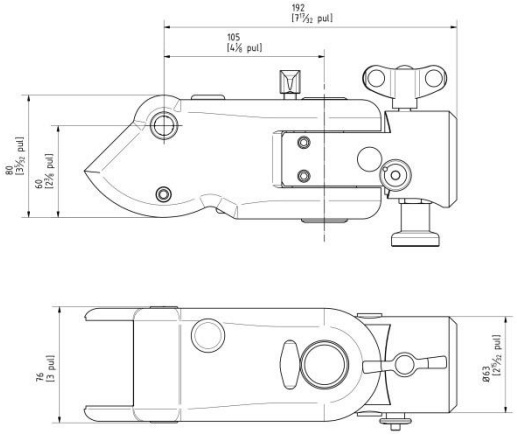
1. Drill the grip bar using the existing holes as a guide. The hole should have a depth of '**d**' and should pass fully through the inner spindle (1) without perforating the bar (2) (**d = 17 mm** approx.).
2. Insert the pins to secure the grip bar.
3. Repeat the operation on all bar couplings.



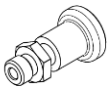
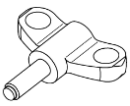
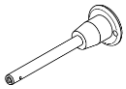
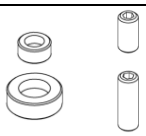
2.39 MULTIPOSITION (HEAVY-DUTY) – U
MV30D2A4[57] + MV3KAXXX / MV3KBXXX / MV3KUXXX

Maximum load: 30 kg | □¾"[58]
Requires locks (L50)





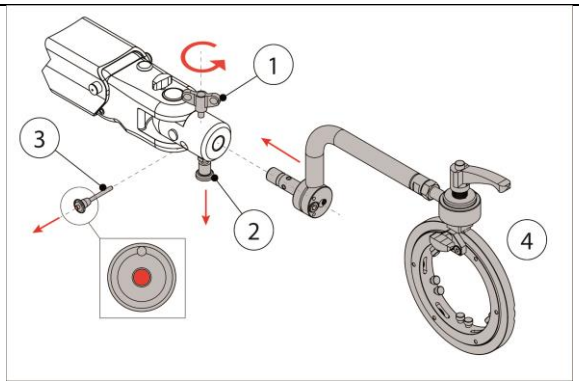
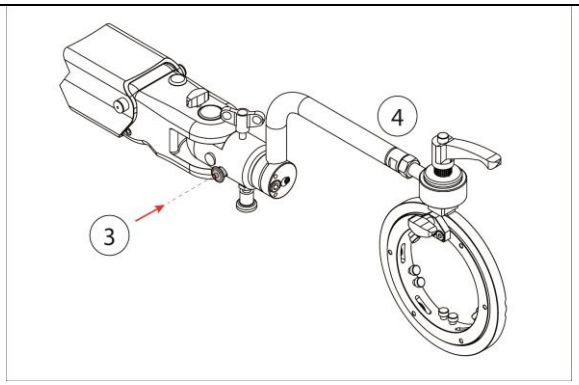
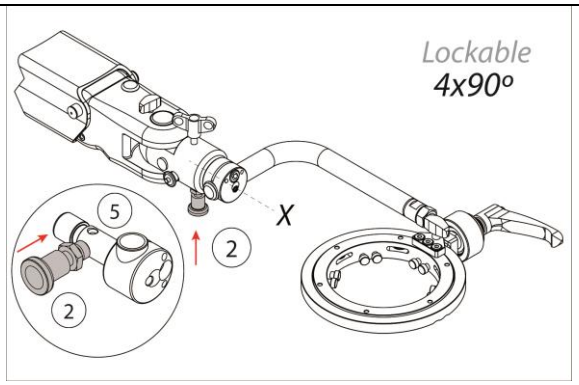
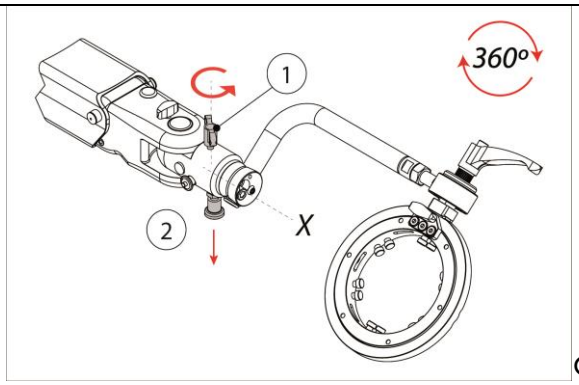
-Z_1: Rotates ±90º. Non-lockable
-X: Rotates 360º. Lockable 4x90º
-Z_2: Rotates 360º. Can be locked in any position
-Y: Rotates 360º. Can be locked in any position

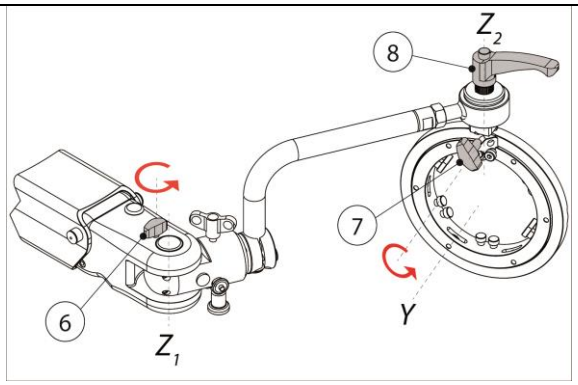
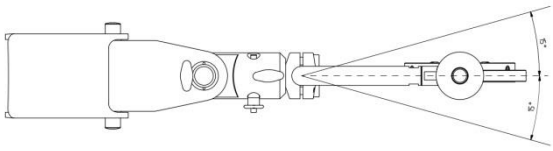
MV31J603	SECURING HANDLE M8x25 *[Z axis$_1$]*	
AC004086	POSITIONER GN 607.1-8-A-ST	
MV31F605	M8 HANDLE SUB-ASSEMBLY *[X axis]*	
AC006426	POSITIONER K0641_02106040	
M3103200	STAINLESS-STEEL BRAKE KNOB (TIMCOR) *[Y axis]*	
CM101000	LEVER (GN 300.5-92-M12-IS) *[Z_2 axis]*	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

[57] See compatibility page 4
[58] Square tool-head size recommended for this head assembly.

2.39.1 Installation and adjustment

To couple the grip bar to the head assembly, and to adjust the head assembly, follow the instructions below.

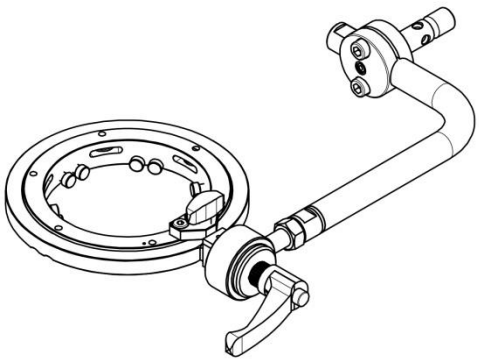
- Loosen knob (1). Retract positioner (2) applying a downward motion and a slight twist. Extract positioner (3) by pressing on the marked area and pulling it out. - Insert the selected bar (4) into the head member.	
-Press the marked area of positioner (3) and insert it into the hole provided, stop pressing. - Check that the positioner (3) is locked axially and that it prevents the grip bar (4) detaching.	
- If you wish to work with bar (4) fixed at X, move positioner (2) upwards to align it with one of the four indents in the shaft of bar (5) to lock it.	
- If you wish to work with bar (4) free at X, leave positioner (2) retracted and screw/unscrew knob (1), to adjust the grip resistance	

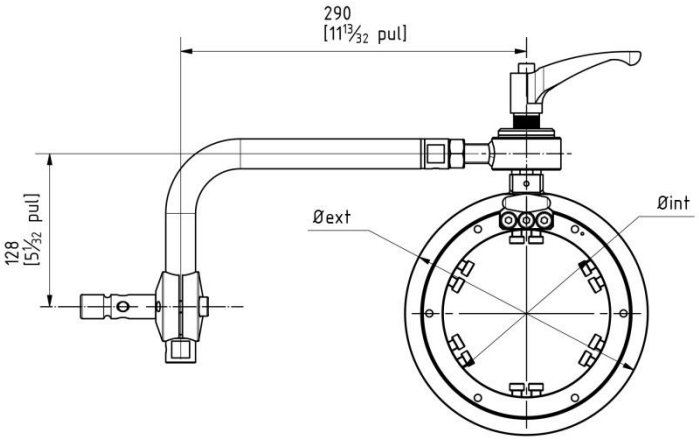
- The grip of movement can also be adjusted at Z_1 screwing/unscrewing knob (6), in the same way: - Use knob (7) to adjust the grip at Y - Using handle (8) can lock the movement at Z_2 in any position	
- Maximum assembly and installation range ± 15°	

Proceed in the reverse order to dismantle or uncouple the bar.

2.39.2 Type A bars: HEAVY-DUTY TIMCO

***Type A:** Suitable for any type of tool.*
Part No.: MV3KAxxx (xxx = internal diameter in mm)





Øint.		Øext.		Ø max.	
mm	*Inches*	mm	*Inches*	mm	*Inches*
80	*3 1/8″*	144	*5 5/8″*	55	*2 1/8″*
90	*3 ½ ″*	154	*6 1/8″*	65	*2 ½ ″*
100	*3 7/8″*	164	*6 ½″*	75	*3″*
110	*4 3/8″*	174	*6 7/8″*	85	*3 3/8″*
120	*4 ¾″*	184	*7 ¼″*	95	*3 ¾″*
130	*5 1/8″*	194	*7 5/8″*	105	*4 ¼″*
140	*5 ½″*	204	*8″*	115	*4 2/4″*
150	*5 7/8″*	214	*8 3/8″*	125	*4 7/8″*
160	*6 ¼ ″*	224	*8 7/8″*	135	*5 3/8″*
170	*6 ¾ ″*	234	*9 ¼ ″*	145	*5 ¾ ″*
180	*7 1/8″*	244	*9 5/8″*	155	*6 1/8″*

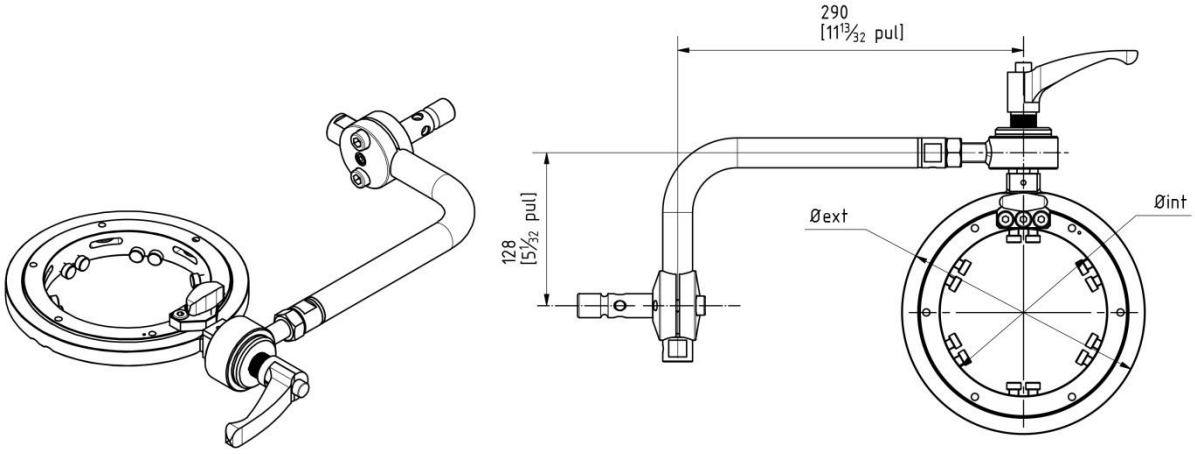
* Other dimensions upon request

ADDITIONAL INFORMATION

- ✓ *Installing the tool: See page 19*
- ✓ *Maintenance and cleaning: See page 20*

2.39.3 Type-B grip bars: TIMSAND (HEAVY-DUTY)

***Type B:** Suitable for any type of tool.*
Ref.: MV3KBxxx (xxx = internal diameter in mm)



Ø int.		Ø ext.		max. Ø	
mm	*Inches*	mm	*Inches*	mm	*Inches*
60	*2 3/8″*	98	*3 7/8″*	59	2 3/8″
70	*2 ¾″*	108	*4 ¼ ″*	69	2 ¾″
80	*3 1/8″*	118	*4 5/8″*	79	3 1/8″
90	*3 ½″*	128	*5″*	89	3 ½″
100	*3 7/8″*	138	*5 3/8″*	99	3 7/8″
110	*4 3/8"*	148	*5 7/8″*	109	4 ¼″
120	*4 ¾″*	158	*6 ¼″*	119	4 5/8″
130	*5 1/8″*	168	*6 5/8″*	129	5 1/8″
140	*5 ½″*	178	*7″*	139	5 ½″
150	*5 7/8 ″*	188	*7 3/8″*	149	5 7/8″

* Other dimensions upon request

ADDITIONAL INFORMATION

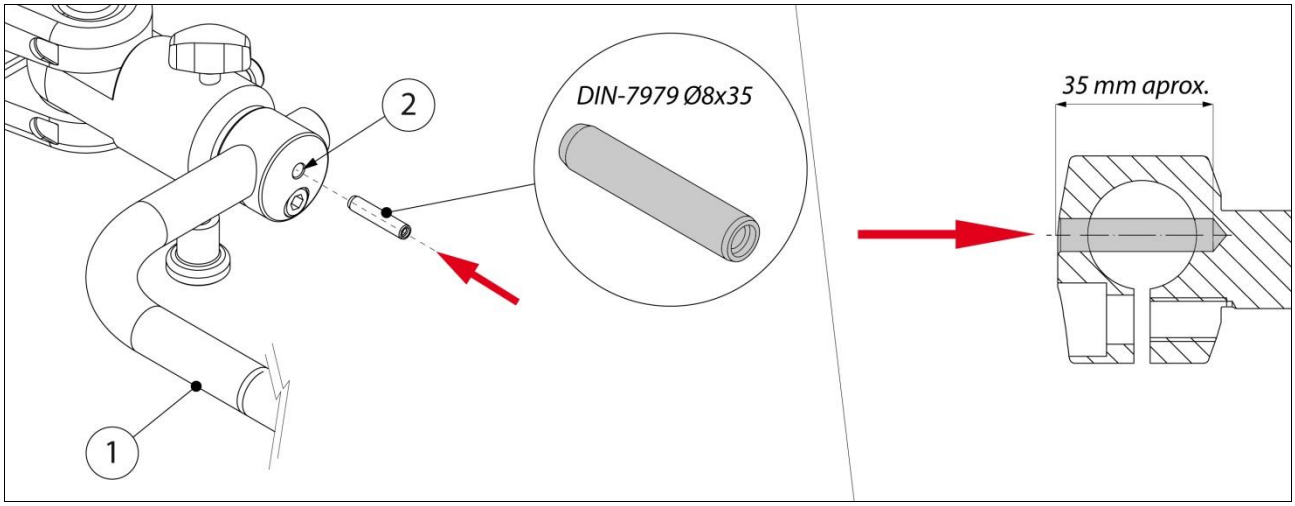
- ✓ *Installing the tool: See page 24*
- ✓ *Maintenance and cleaning: See page 20*

2.39.4 GRIP BAR ADJUSTMENT AND REINFORCEMENT

After adjusting the grip bar, secure it using the pins supplied (**DIN 7979, Ø 8 x 35** for stem and **DIN 6325, Ø 5 x 24** for couplings between bars) as follows:

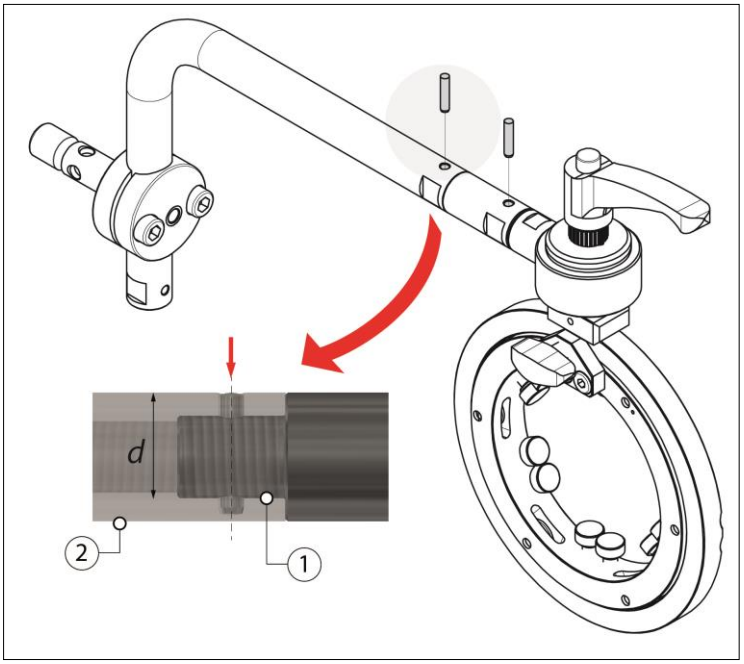
Pin **DIN 7979 Ø 8 x 35 (stem)**

3. Drill the grip bar (1) in the direction indicated, using the existing hole (2) as a guide. The hole should have a depth of '**d**' and should pass fully through the bar (1) (**d = 35 mm** approx.).
4. Insert the pin supplied (**DIN 7979, Ø 8 x 35**).



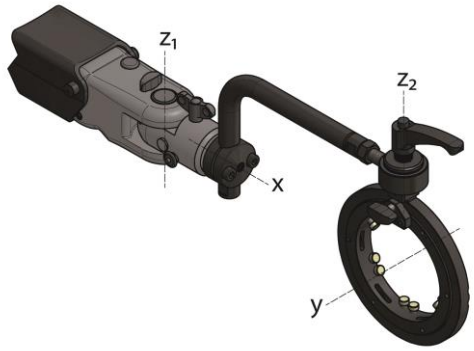
Pin (**DIN 6325, Ø 5 x 24; grip bar)**.

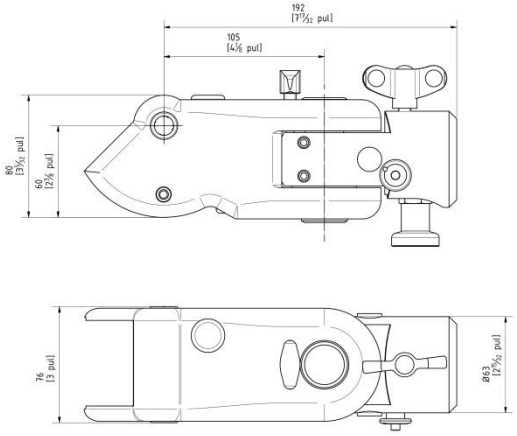
1. Drill the grip bar using the existing holes as a guide. The hole should have a depth of '**d**' and pass fully through the inner spindle (1) without perforating the bar (2) (**d = 20.5 mm** approx.).
2. Insert the pins to secure the grip bar.
3. Repeat the operation on all bar couplings.



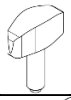
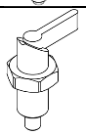
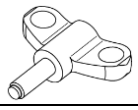
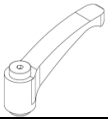
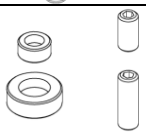
2.40 MULTIPOSITION (HEAVY-DUTY, WITH METAL KNOBS) – UH M3155100[59] + MV3KAXXX / MV3KBXXX / MV3KUXXX

Maximum load: 30 kg | □¾"[60]
Requires locks (L50)





-Z_1: Rotates ±90º. Non-lockable
-X: Rotates 360º. Lockable 4x90º
-Z_2: Rotates 360º. Can be locked in any position
-Y: Rotates 360º. Can be locked in any position

M3155400	SECURING HANDLE M8x25 *[Z axis$_1$]*	
AC006016	POSITIONER (ELESA GN612-8-M16x1.5-AK)	
M3103400	M8 STAINLESS-STEEL KNOB SUBASSEMBLY *[X axis]*	
AC006426	POSITIONER K0641_02106040	
M3103200	STAINLESS-STEEL BRAKE KNOB (TIMCOR) *[Y axis]*	
CM101000	LEVER (GN 300.5-92-M12-IS) *[Z_2 axis]*	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

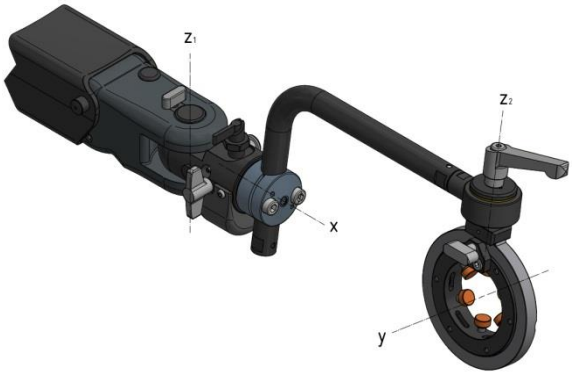
[59] See compatibility page 4
[60] Square tool-head size recommended for this head assembly.

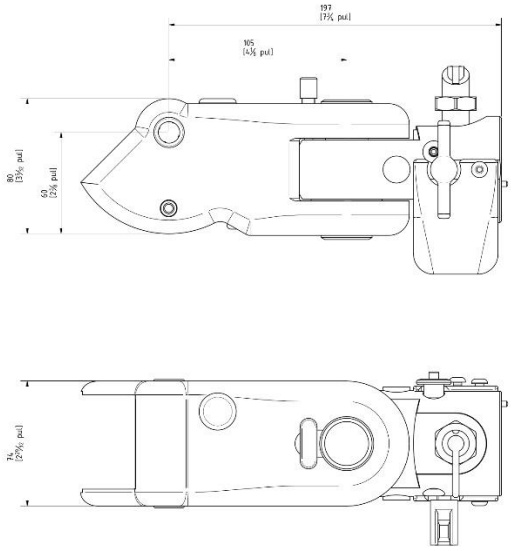
ADDITIONAL INFORMATION

- ✓ *HEAVY-DUTY TIMCO configurations: see page 27*
- ✓ *Installing the tool: See page 19*
- ✓ *HEAVY-DUTY TIMSAND configurations: see page 27*
- ✓ *Installing the tool: See page 24*
- ✓ *Maintenance and cleaning: See page 20*
- ✓ *Assembly and adjustment: see page 101*
- ✓ *Adjusting and reinforcing the grip bar: see page 105*

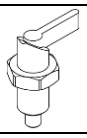
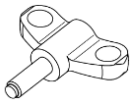
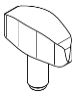
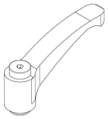
2.41 MULTIPOSITION (HEAVY-DUTY, SAFETY) – UA M3147600[61] + MV3KAXXX

Maximum load: 30 kg | □¾"[62]
Requires locks (L50)

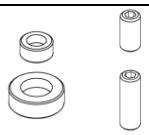




-Z_1: Rotates ±90º. Non-lockable
-X: Rotates 360º. Lockable 4x90º
-Z_2: Rotates 360º. Can be locked in any position
-Y: Rotates 360º. Can be locked in any position

MV31J603	SECURING HANDLE M8x25 *[Z axis$_1$]*	
AC006016	POSITIONER (ELESA GN612-8-M16x1.5-AK)	
M3103400	M8 HANDLE SUB-ASSEMBLY *[X axis]*	
AC006346	POSITIONER K0641_02106040	
M3103200	STAINLESS-STEEL BRAKE KNOB (TIMCOR) *[Y axis]*	
CM101000	LEVER (GN 300.5-92-M12-IS) *[Z_2 axis]*	

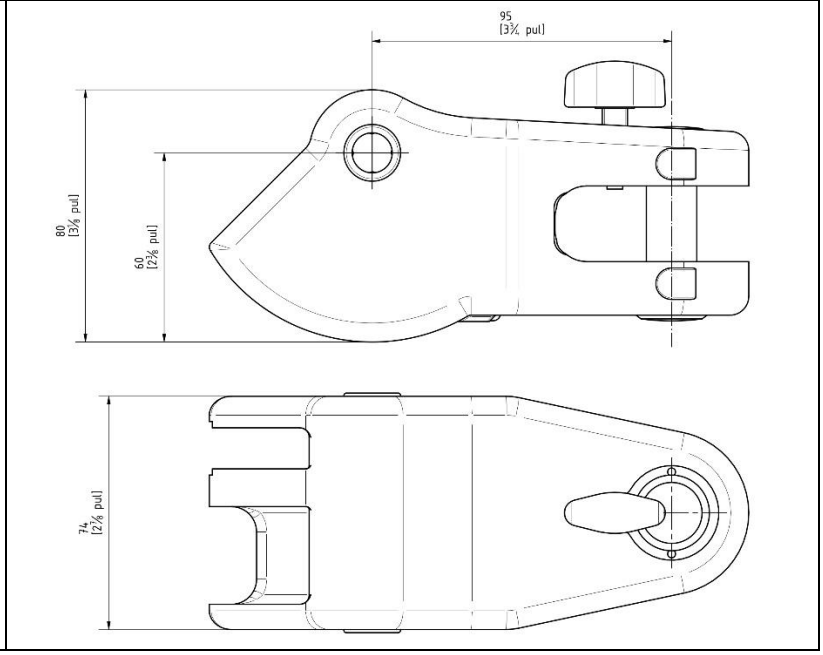
[61] See compatibility page 4
[62] Square tool-head size recommended for this head assembly.

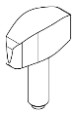
MV331104	REPLACEMENT STUDS AND CAPS KIT	

Head assembly (multiposition, heavy-duty): safety

- The UA head assembly is equipped with a safety system that locks the swing arm when the tool is removed, thereby preventing potential accidents.

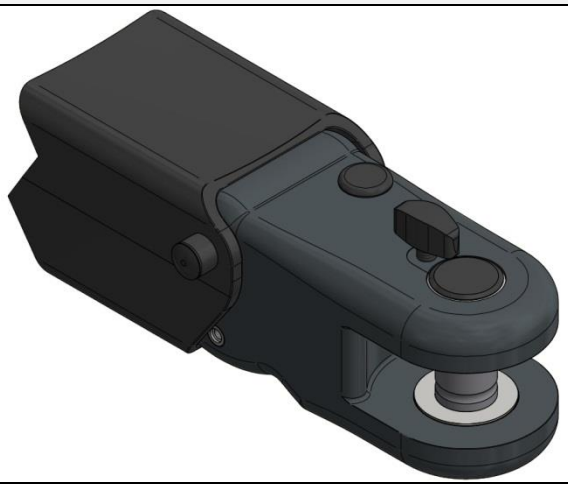
2.42 FORK – Z MV309304[63]

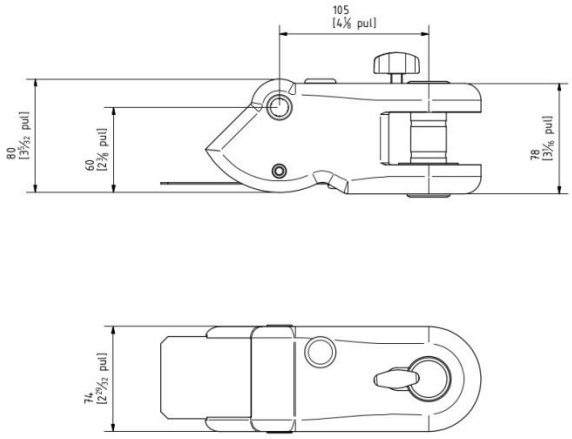


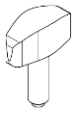
MV31J603	SECURING HANDLE M8x25	

[63] See compatibility page 4

2.43 FORK (HEAVY-DUTY) – ZA M3125600[64]



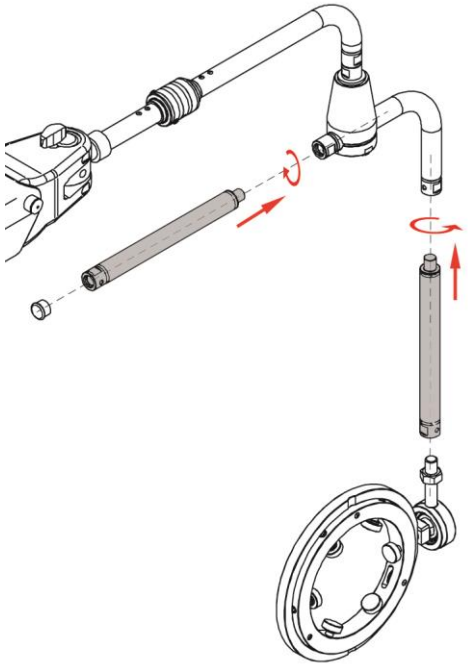


MV31J603	SECURING HANDLE M8x25	

[64] See compatibility page 4

3. EXTENSION PIECES FOR HANDLES

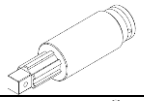
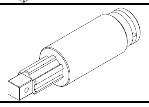
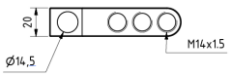
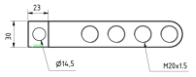
Extension pieces increase the dimensions of the handle and therefore the working area of its 3arm® arm.



HANDLES (12 KG)		*HANDLES (12-30 KG)*	
CODE	***Length***	***CODE***	***Length***
MV31F003	30mm	-	-
MV31C903	50mm	-	-
MV31E105	100mm	***MV31L803***	100mm
MV31E005	200mm	***MV31L805***	200mm

- Extension pieces for grip bars up to 12 kg may be used on the following head assemblies: G, T
- Extension pieces for grip bars between 12 and 30 kg may be used on the following head assemblies: H, U, UH, UA

4. ACCESSORIES

MV328104	THREADED COMPENSATOR T2140801/00 3/4 " *stroke: 45 mm / 1.77 ″ – max. torque: 300 Nm* *square head: ¾ ″ – weight: 1.5 kg / 0.7 lb)*	
MV328204	THREADED COMPENSATOR T2141212/00 1/2 " *stroke: 40 mm / 1.57 ″ – max. torque: 150 Nm* *square head: ½ ″ – weight: 0.9 kg / 0.4 lb)*	
MV3172A3	BALANCER (TIMCO CDG) *3 x M14 x 1.5 + Ø 14.5 □23 x 20*	
MV31S203	HEAVY-DUTY BALANCER (TIMCO CDG) *4 x M20 x 1.5 + Ø 14.5 □30 x 23*	
MV31P603	BALANCER (TIMCO M20-M14 CDG) *4 x M20 x 1.5 + Ø 20.5 □30 x 30*	

NOTES

DATE	DESCRIPTION