INSTRUCTION MANUAL

3arm®

HEADMEMBER

ANNEX

SERIES 0

SERIES 3

SERIES 4

TECNOSPIRO MACHINE TOOL, S.L.U.
P.I Pla dels Vinyats I, s/n nau 1
08250 - Sant Joan de Vilatorrada. Barcelona - España
Telf. +34 938 76 43 59
E-mail: 3arm@3arm.net

ISO 9001
BUREAU VERITAS
Certification

TECNOSPIRO
MACHINE TOOL SLU

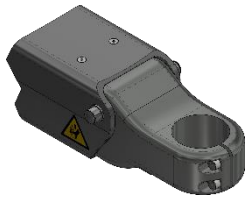
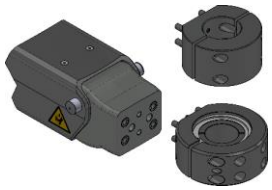
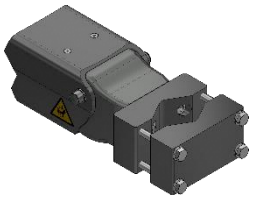
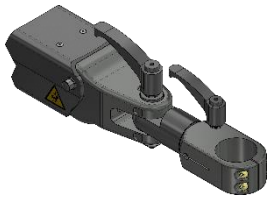
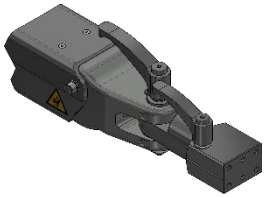
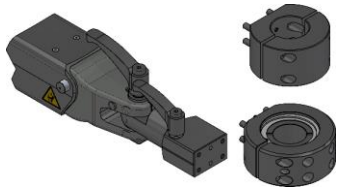
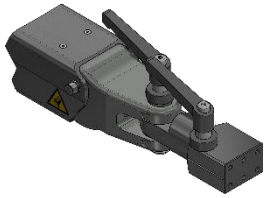
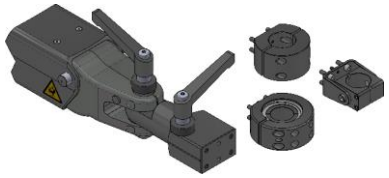
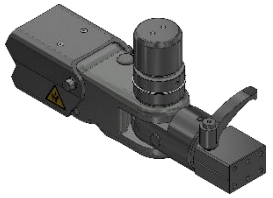
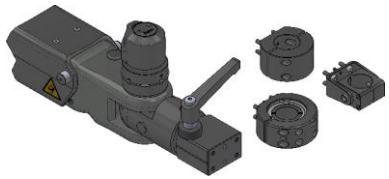
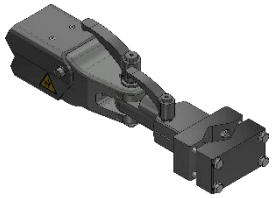
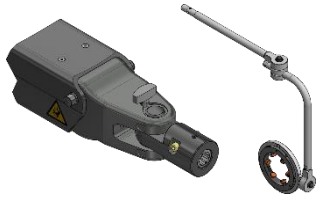
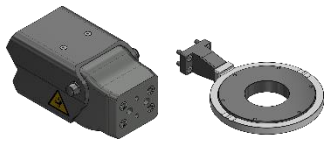
DESIGN & QUALITY
3arm
Made in Barcelona

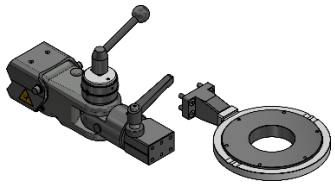
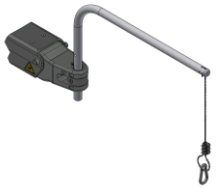
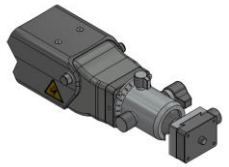
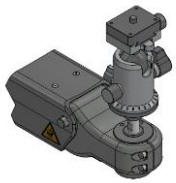
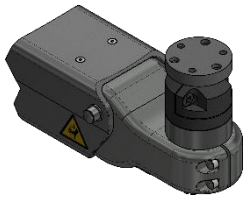
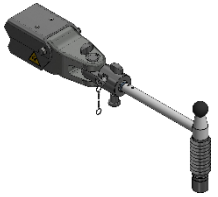
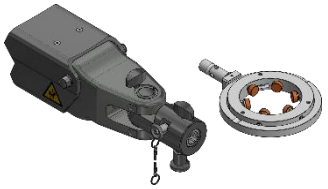
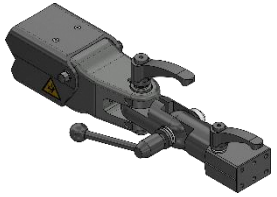
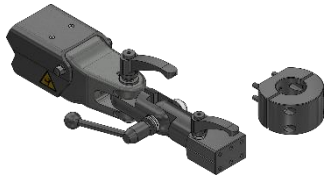
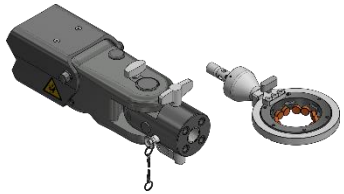
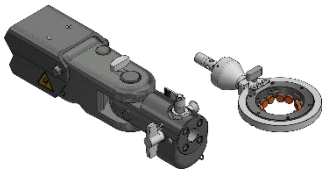
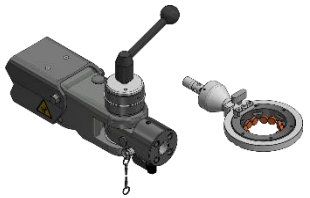
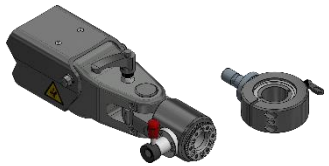
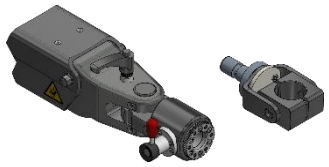
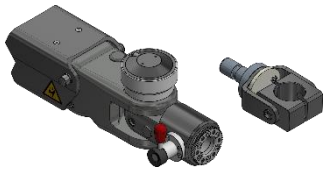
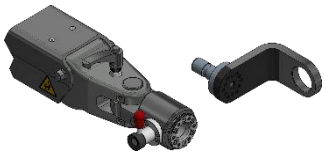
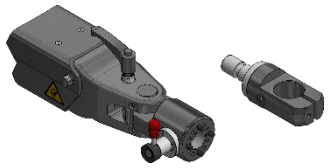
www.3arm.net

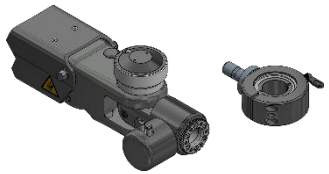
TABLE OF CONTENTS

Date of revision: 10/04/2025

1. HEAD DETAILS S0 - S3 - S4

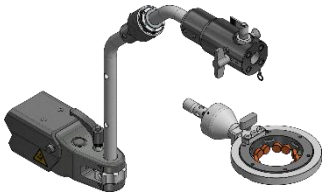
				
A - Vertical 0 kg **40100105**	**B** - Vertical flat 0 kg **MV306904**	**BA** - Vertical flat + Bush 0 kg **MV306904 + M3Dxxx04 (Fixed)** **MV306904 + M3Exxx04 (Rotary)** **MV306904 + MV3PUxxx (Custom)**	**C** - Vertical V-block 1 kg **MV301804**	**D** - Articulated rotative 1.5 kg **MV3019A4**
				
E - Articulated flat rotative 1.5 kg **MV302304**	**EA** - Articulated flat rotative + Bush 1.5 kg **MV302304 + M3Dxxx04 (Fixed)** **MV302304 + M3Exxx04 (Rotary)** **MV302304 + MV3PUxxx (Custom)**	**EB** – Articulated flat rotative reinf. (Base with As) 1.5 kg **MV30P504**	**EC** - Articulated flat rotative reinf. (Base with As) + Bush 1.5 kg **MV30P504 + M3Dxxx04 (Fixed)** **MV30P504 + M3Axxx04 (Tipping)** **MV30P504 + M3Exxx04 (Rotary)** **MV30P504 + MV3PUxxx (Custom)**	**ED** – Auto articulated flat rotative 2.8 kg **M3204700**
				
EE – Auto articulated flat rotative + Bush 2.8 kg **M3204700 + M3Dxxx04 (Fixed)** **M3204700 + M3Axxx04 (Tipping)** **M3204700 + M3Exxx04 (Rotary)** **M3204700 + MV3PUxxx (Custom)**	**F** - Articulated rotative V-block 2,7 kg **MV302504**	**GA** – Multitum 0.5 kg **MV3171C4 + MV3EExxx (Timco)** **MV3171C4 + MV3EFxxx (Timsand)** **MV3171C4 + MV3CUxxx (Custom)**	**HA** – Multiturn reinf. 1.4 kg **MV31E8A4 + MV3DAxxx (Timco ref.)** **MV31E8A4 + MV3DBxxx (Timsand ref.)** **MV31E8A4 + MV3FUxxx (Custom)**	**I** - Flat electromagnet 0 kg **MV306904 + MV3AM180 (Ø180R)** **MV306904 + MV3RM200 (Ø200RR)** **MV306904 + MV3RM245 (Ø245RR)**

				
J - Articulated rotative electromagnet 3 kg **M3323600 + MV3AM180 (Ø180R)** **M3323600+ MV3RM200 (Ø200RR)** **M3323600 + MV3RM245 (Ø245RR)**	**K** - Adjustable strap 2.5 kg **M3146500**	**KA –** Adjustable steel cable 2 kg **M3329800**	**L** - Adjustable manual ball joint with vertical adjustment 1,5 kg **M33122A0**	**LB** - Adjustable manual ball joint horizontal 1kg **M33126A0**
				
LD - Adjustable manual ball joint vertical 1.2 kg **M33124A0**	**LH** - Reinforced manual ball joint vertical 1.4 kg **M3312900**	**M** - Pressure support 1.5 kg **M3313700 + MV3NUxxx (Custom)**	**N** - Multiposition with quick-change 0.6 kg **MV31F5A4 + MV3MAxxx (Timco)** **MV31F5A4 + MV3PBxxx (Timsand)** **MV31F5A4 + MV3MUxxx (Custom)**	**P** – Double articulated flat rotative 2 kg **MV302404**
				
PA - Double articulated flat rotative + Bush 2 kg **MV302404 + M3Dxxx04 (Fixed)** **MV302404 + MV3PUxxx (Custom)**	**Q** – Multiposition reinf. with quick-change 1.6 kg **MV30D2A4 + MV3JAxxx (Timco ref.)** **MV30D2A4 + MV3JBxxx (Timsand ref.)** **MV30D2A4 + MV3JUxxx (Custom)**	**QA** - Multiposition reinf. security with quick-change 2 kg **M3147600 + MV3JAxxx (Timco ref.)** **M3147600 + MV3JBxxx (Timsand ref.)** **M3147600 + MV3JUxxx (Custom)**	**QB** - Multiposition reinf. with manual brake 2.4 kg **M3259000 + MV3JAxxx (Timco ref.)** **M3259000 + MV3JBxxx (Timsand ref.)** **M3259000 + MV3JUxxx (Custom)**	**R -** Manual revolving + Bush (angle tools) 1.2 kg **MV404404 + MVRxxx04 (Rotary)** **MV404404 + MV3RUxxx (Custom)**
				
RA – Manual revolving + bush (Inline tools) 1.2kg **MV404404 + MVBxxx04 (Tipping)** **MV404404 + MVRUxxx (Custom)**	**RAS** – Auto revolving + bush (Inline tools) 2.8 kg **M41007A0 + MVBxxx04 (Tipping)** **M41007A0 + MV3RU (Custom)**	**RB** – Manual revolving + Bush (pistol grip tools) 1.2 kg **MV404404 + MV3RUxxx (Custom)**	**RBS** – Auto revolving + Bush (pistol grip tools) 2.8 kg **M41007A0 + MV3RUxxx (Custom)**	**RC** – Manual revolving 4x90º + Bush 1.2kg **M3150900 + MV3RUxxx (Custom)**

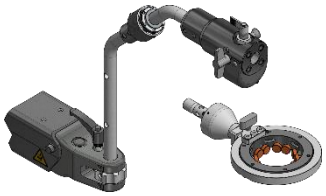


RS - Auto double revolving + Bush (angle tools) 3 kg
M4102000 + MVRxxx04 (Rotary)
M4102000 + MV3RUxxx (Custom)

SN – Giraffe multi-position 3.2 kg
MV30P704 + MV3MAxxx (Timco)
MV30P704 + MV3PBxxx (Timsand)
MV30P704 + MV3MUxxx (Custom)

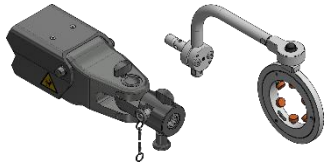


SQ -Giraffe multi-position reinf. 3.8 kg
MV30P804 + MV3JAxxx (Timco ref.)
MV30P804 + MV3JBxxx (Timsand ref.)
MV30P804 + MV3JUxxx (Custom)

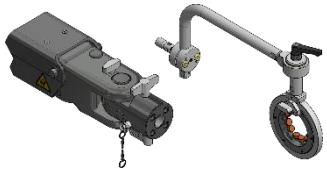


SQA -Giraffe multi-position reinf. security 4 kg
M3161600 + MV3JAxxx (Timco ref.)
M3161600 + MV3JBxxx (Timsand ref.)
M3161600 + MV3JUxxx (Custom)

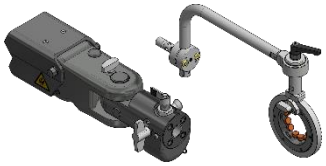
SR - Giraffe revolver + rotating flange 3.6 kg
MV30P604 + MVRxxx04 (Rotary)
MV30P604 + MVBxxx04 (Tipping)
MV30P604 + MV3RUxxx (Custom)



T - Multi-position with quick change 0.6 kg
MV31F5A4 + MV3LAxxx (Timco)
MV31F5A4 + MV3QBxxx (Timsand)
MV31F5A4 + MV3LUxxx (Custom)

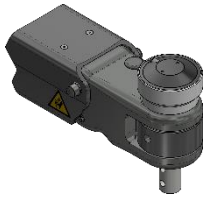


U - Multi-position reinf. with quick-change 1.6 kg
MV30D2A4 + MV3KCxxx (Timco ref.)
MV30D2A4 + MV3KBxxx (Timsand ref.)
MV30D2A4 + MV3KUxxx (Custom)



UA -Multi-position reinf. security with quick-change 2 kg
M3147600 + MV3KCxxx (Timco ref.)
M3147600 + MV3KBxxx (Timsand ref.)
M3147600 + MV3KUxxx (Custom)

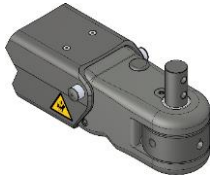
W - Vertical extension 1.5 kg
M3308900 + Extension 1000
M3308900 + Extension 500
M3308900 + Extension 250
M3308900 + MV3WUxxx (Custom)



WA - Auto vertical extension (high torque) 2.2 kg
M3283000 + Extension 1000
M3283000 + Extension 500
M3283000 + Extension 250
M3283000 + MV3WUxxx (Custom)

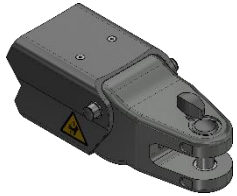
WB - Auto vertical extension (low torque) 1.8 kg
M3313900 + Extension 1000
M3313900 + Extension 500
M3313900 + Extension 250
M3313900 + MV3WUxxx (Custom)

WC – Manual vertical roof extension 2,2 kg
M3325200
M3325200+MV3WUxxx (Custom)

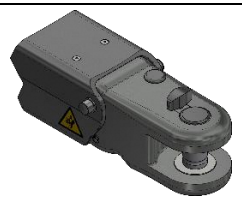


WD – Vertical roof extension 1,5 kg
M3360900
M3360900+Extension 1000
M3360900+ Extension 500
M3360900+ Extension 250
M3360900+ MV3WUxxx (Custom)

WE – Auto vertical roof extension 2,2 kg
M33214A0
M33214A0+Extension 1000
M33214A0+ Extension 500
M33214A0+ Extension 250
M33214A0+ MV3WUxxx (Custom)



Z - Fork 0.25 kg
MV309304

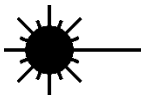


ZA - Reinforced fork 0.7 kg
M3125600

2. TOOLS

2.1 SYMBOLS AND ICONS

Throughout this manual you will see various symbols indicating the most suitable tool for that type of head.
Their meanings are summarised below:

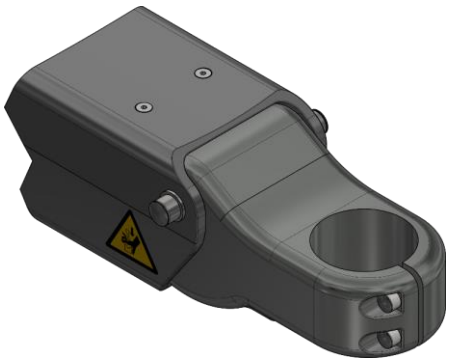
Nutrunner pistol		Sabre saw	
Straight impulse/impact		Scanner	
Impulse/impact pistol		Laser equipment	
Angle nutrunner		Pliers	
Straight nutrunner		Riveting gun	
Nutrunner with reaction bar		Spot welder	
Hydraulic torque wrenche		Stud welder	
Drill		Chipping hammer	
Magnetic drill		Blower	
Straight grinder		Polisher	
Angle grinder		Personalised	
Keyhole saw			

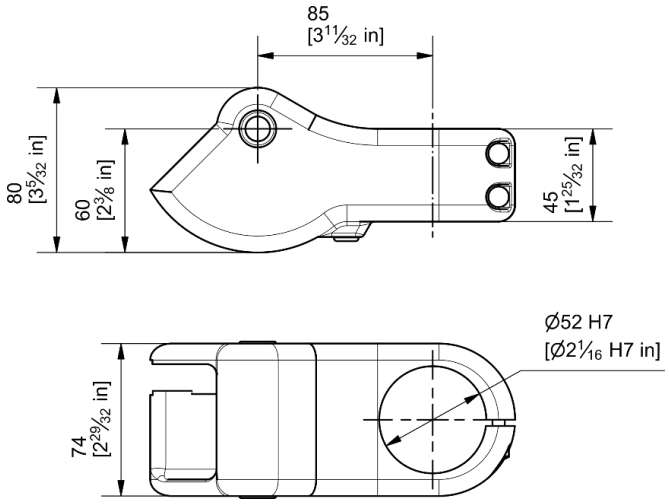
2.2 RECOMMENDED TOOLS FOR HEAD

3ARM - HEADMEMBERS	TORQUE & SCREWDRIVERS						MACHINING							OPTIC TOOLS		ASSEMBLY		Welding		OTHERS			
	Nutrunner Pistol	Straight impulse/ impact	Impulse/ impact pistol	Angle nutrunner	Straight nutrunner	Nutrunner with reaction rod	Hydraulic torque wrench	Drill	Magnetic drill	Straight grinder	Angle grinder	Keyhole saw	Sabre saw	Scanner	Laser equipment	Pliers	Rivet gun	Spot Welding	Stud Welding	Chipping hammer	Blower / Vacuum	Polisher	Custom
A					■																		■
B														■	■								■
BA		■		■				■											■				
C		■																					
D					■																		
E														■	■				■				■
EA		■		■	■			■															
EB														■	■				■				■
EC		■		■	■			■															
ED														■	■								■
USA				■	■																		
F		■																					
GA										■	■	■				■	■	■			■	■	
HA										■	■	■				■	■	■			■	■	
I									■														
J									■														
K													■			■		■		■	■		
L														■	■								
LB														■	■								
LD														■	■								
LH														■	■								
M																						■	
N		■	■		■	■		■		■		■				■	■	■	■			■	
P														■	■								■
PA																			■				
Q		■	■			■		■		■		■				■	■	■	■			■	
QA		■	■			■		■		■		■				■	■	■				■	
QB			■			■		■		■						■	■	■					
R				■																			
RA					■																		
RAS					■																		
RB	■																						
RBS	■																						
RC								■															
RS				■																			
SN	■	■	■			■		■		■						■	■	■					
SQ	■	■	■			■		■		■						■	■	■					
SQA	■		■			■		■		■						■	■	■					
SR				■																			
T	■		■			■	■	■		■	■	■				■	■	■				■	
U	■		■			■	■	■		■	■	■				■	■	■				■	
UA	■		■			■		■		■	■	■				■	■	■				■	
W																							■
WA																							■
WB																							■
WC																							■
WD																							■
WE																							■
Z																							■
ZA																							■

3. HEADS

3.1 VERTICAL - A
40100105





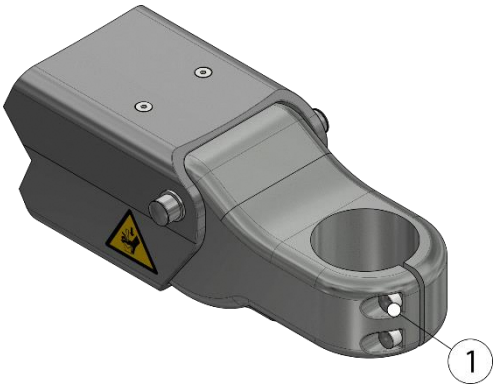
Maximum load: Maximum arm load

Maximum torque: 150Nm
Max. tool Ø: 52mm (Adaptable bushing)

MAXIMUM TORQUE (Nm)		
Arm	**Vertical**	**Horizontal**
S0	150	150
S3	150	150
S4	150	150

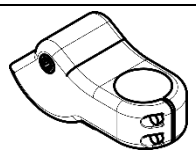
3.1.1 Installation and disassembly of the tool

1- Put the tool (or the adapter bushing) in the Ø52H7 and tighten the bolts (1) (Allen key 5mm)

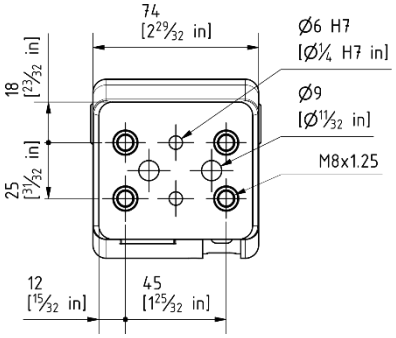


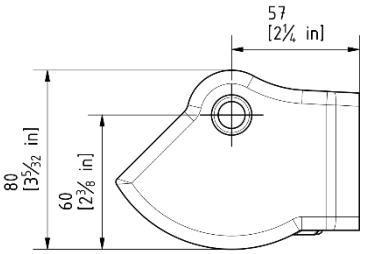
To disassemble the tool, remove the upper bolt (1) and thread in an M8 bolt (use a plate in the slot to release the tool). **Do not use excessive force, as it could damage the head.**

3.1.2 Spare parts

40100105	VERTICAL HEADMEMBER	

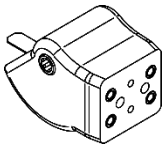
3.2 VERTICAL FLAT - B
MV306904





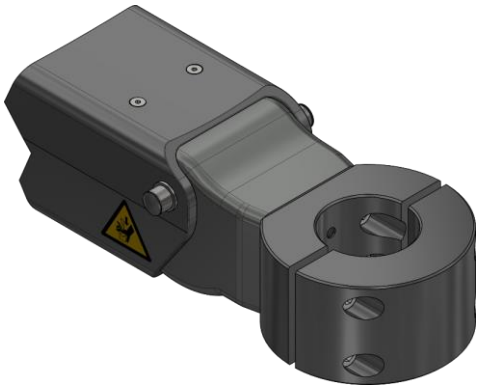
Maximum load: Maximum arm load

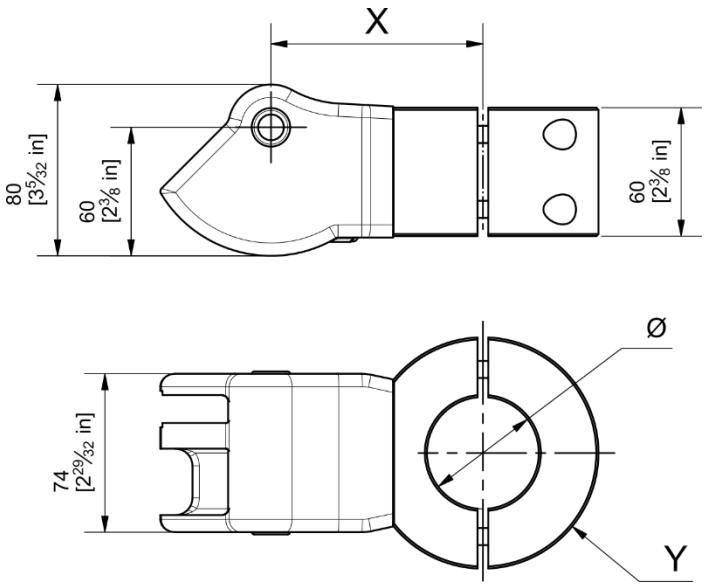
3.2.1 Spare parts

MV306904R	VERTICAL FLAT HEADMEMBER	

3.3 VERTICAL FLAT - BA
MV306904 + Bush

3.3.1 Fixed flange (M3Dxxx04)





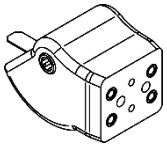
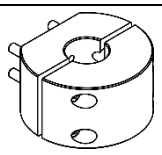
Maximum load: (35 - Headmember weight) kg.

Ø: Specific diameter on request.

Dimensions	Ømin (mm)	Ømax (mm)	X (mm)	Y (mm)
Fixed flange	15 *(19/32")*	65 *(2 9/16")*	99 *(3 57/64")*	Ø108 *(Ø2 1/4")*
	65 *(2 9/16")*	80 *(3 5/32")*	108.5 *(4 17/64")*	Ø124 *(Ø4 7/8")*

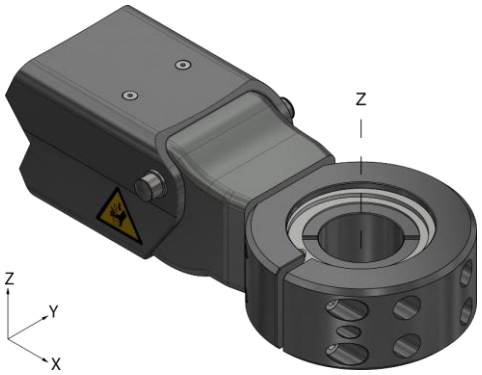
MAXIMUM TORQUE - Fixed flange (Nm)		
Arm	**Vertical**	**Horizontal**
S0	650	250
S3	650	250
S4	300	250

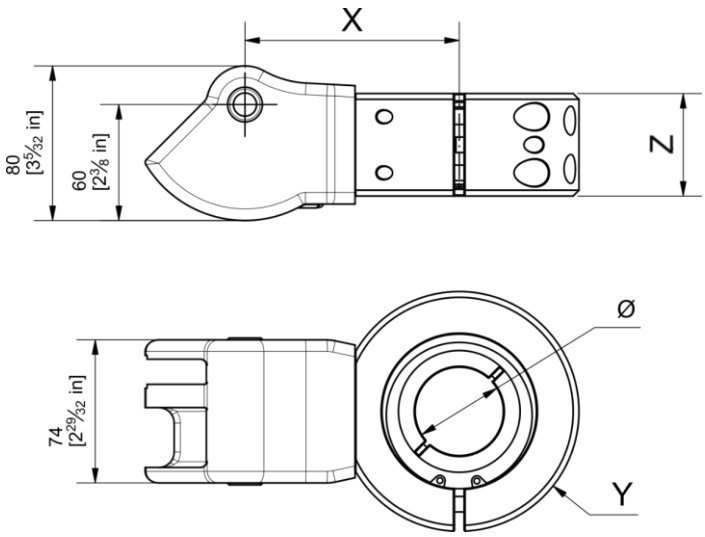
3.3.1.1 Spare parts

MV306904R	VERTICAL FLAT HEADMEMBER	
M3DXXX04[1]	RING ADAPTOR	

[1] XXX corresponds to the inner Ø in mm

3.3.1 Rotary flange (M3Exxx04)





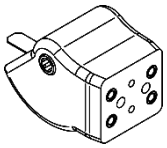
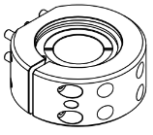
Maximum load: (35 - Headmember weight) kg.
Suitable for angled tools.

Z: Rotates 360º.

Dimensions – Rotary flange				
Ømin (mm)	**Ømax (mm)**	**X (mm)**	**Y (mm)**	**Z (mm)**
31 *(1 7/32")*	55 *(2 11/64")*	109 *(4 19/64")*	Ø124 *(Ø4 7/8")*	53 *(2 3/32")*
53 *(2 3/32")*	70 *(2 3/4")*	113*(4 29/64")*	Ø134 *(Ø5 9/32")*	63 *(2 31/64")*
69 *(2 23/32")*	80 *(3 5/32")*	118,5 *(4 43/64")*	Ø144 *(Ø5 43/64")*	65 *(2 9/16")*

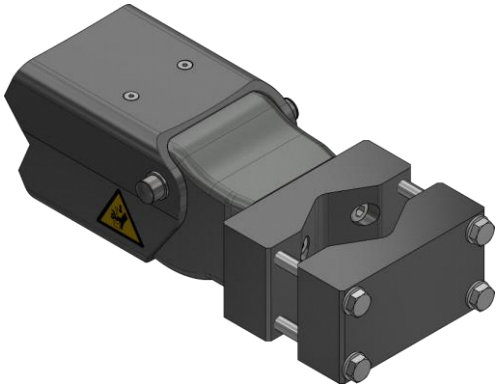
MAXIMUM TORQUE - Rotary flange (Nm)		
Arm	**Vertical**	**Horizontal**
S0	650	250
S3	650	250
S4	300	250

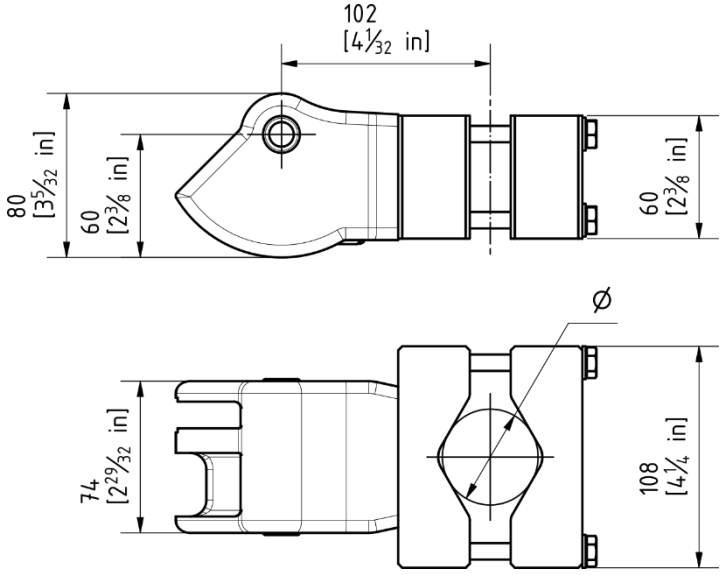
3.3.1.1 Spare parts

MV306904R	VERTICAL FLAT HEADMEMBER	
M3EXXX04[2]	ROTATIVE RING ADAPTOR	

[2] XXX corresponde al Ø interior en mm

3.4 VERTICAL V-BLOCK - C
MV301804

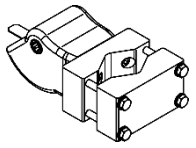
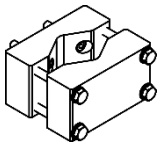




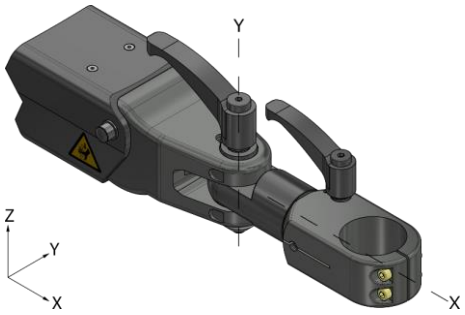
Maximum load: (35 - Headmember weight) kg.
Not suitable for torque tools

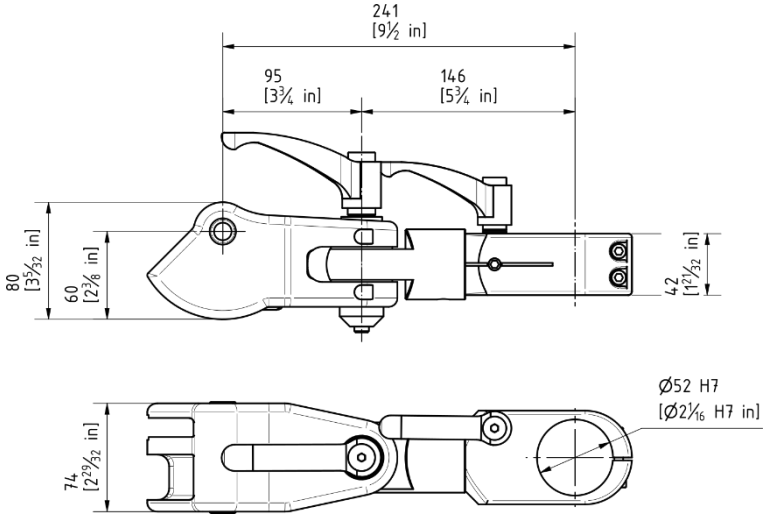
Cylindrical or irregularly shaped tools
$Ø_{min}$: 40 mm/ $Ø_{max}$. 80 mm

3.4.1 Spare parts

MV301804R	VERTICAL HEADMEMBER - AJUSTABLE DIAMETER	
M3325000R	SPARE CLAMPING VICES ASSY	

3.5 ARTICULATED ROTATIVE - D
MV3019A4





Maximum load: (35 - Headmember weight) kg.
Maximum torque: 120Nm

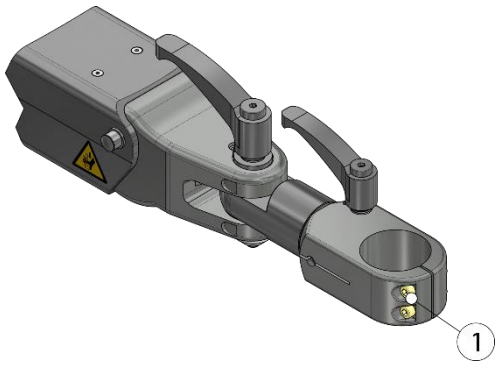
X: Rotates 360º. Manual locking in any position
Z: Rotates ±90º. Manual locking in any position

Max. tool diameter: 52mm (Adaptable bushing)

MAXIMUM TORQUE (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	120	120	120
S3	120	120	120
S4	120	120	120

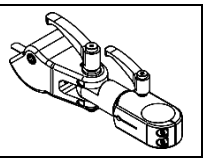
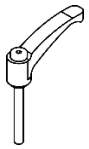
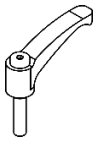
3.5.1 Installation and disassembly of the tool

1- Put the tool (or the adapter bushing) in the Ø52H7 and tighten the bolts (1) (Allen key 5mm)

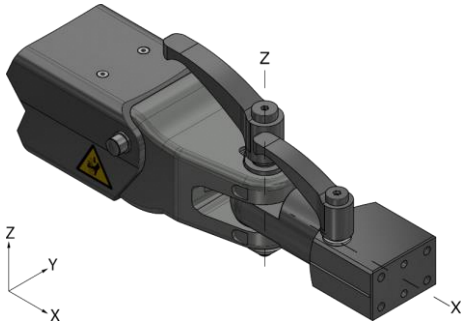


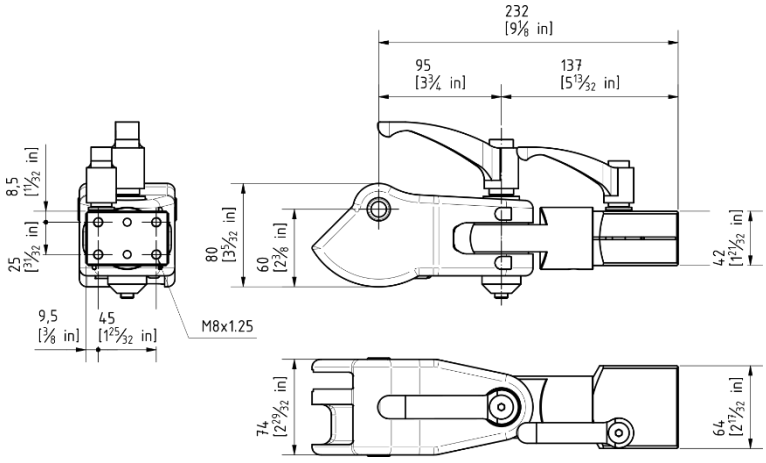
To disassemble the tool, remove the bolts (1) and thread them on the other side (use a plate in the slot to release the tool). **Do not use excessive force, as it could damage the head.**

3.5.2 Spare parts

MV3019A4	ORIENTABLE HEADMEMBER	
AC060576	HANDLE M10x80 [Z axis]	
AC060546	HANDLE M10x40 [X Axis]	

3.6 ARTICULATED FLAT ROTATIVE - E
MV302304

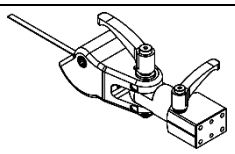
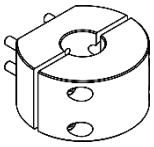
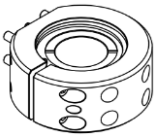
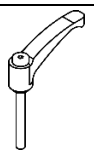
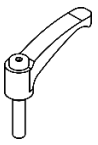




Maximum load: (35 - Headmember weight) kg.

X: Rotates 360º. Manual locking in any position
Z: Rotates ±90º. Manual locking in any position.

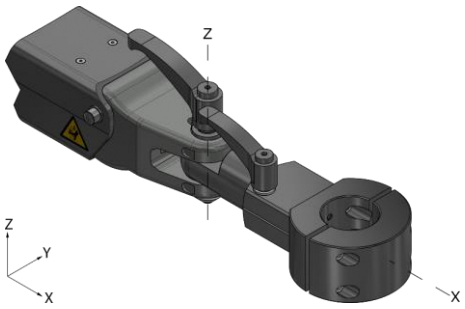
3.6.1 Spare parts

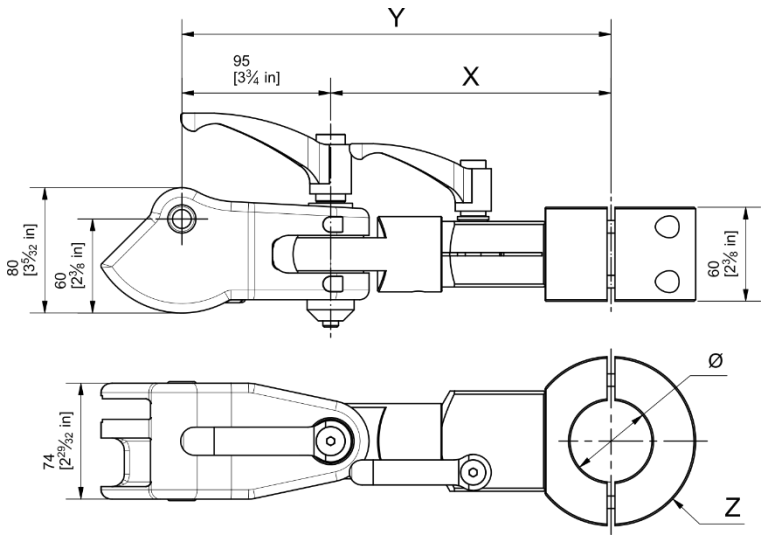
MV302304	ORIENTABLE FLAT HEADMEMBER	
M3DXXX04[3]	RING ADAPTOR	
M3EXXX04	ROTARY FLANGE	
AC060576	HANDLE M10x80 [Z axis]	
AC060546	HANDLE M10x40 [X Axis]	

[3] XXX corresponds to the inner Ø in mm

3.7 ARTICULATED FLAT ROTATIVE - EA MV302304 + Bush

3.7.1 Fixed flange (M3Dxxx04)





Maximum load: (35 - Headmember weight) kg.
Maximum torque: 120 Nm.

X: Rotates 360º. Manual locking in any position.
Z: Rotates ±90º. Manual locking in any position.

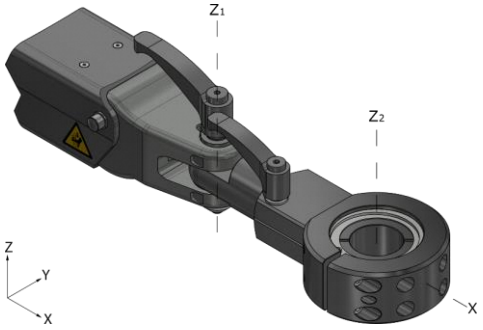
Ø: Specific diameter on request.

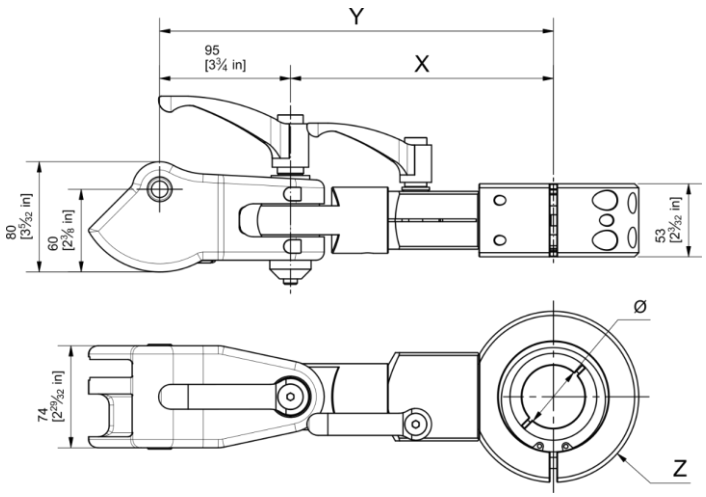
Dimensions	Ømin (mm)	Ømax (mm)	X (mm)	Y (mm)	Z (mm)
Fixed flange	15 *(19/32")*	65 *(2 9/16")*	179 *(7 3/64")*	274 *(10 25/32")*	Ø108 *(Ø2 1/4")*
	65 *(2 9/16")*	80 *(3 5/32")*	188.5 *(7 27/64")*	283.5 *(11 5/32")*	Ø124 *(Ø4 7/8")*

MAXIMUM TORQUE - Rotary flange (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	120	120	120
S3	120	120	120
S4	120	120	120

Spare parts [See Spare parts page 20].

3.7.1 Rotary flange (M3Exxx04)





Maximum load: (35 - Headmember weight) kg.
Suitable for angled tools.

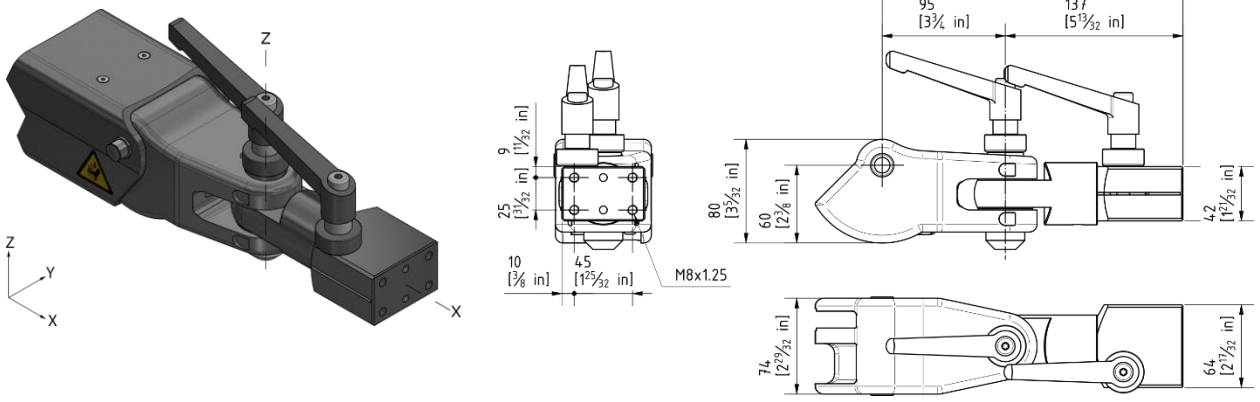
X: Rotates 360º. Manual locking in any position.
Z_1: Rotates ±90º. Manual locking in any position.
Z_2: Rotates 360º.

Dimensions – Rotary flange					
Ømin (mm)	**Ømax (mm)**	**X (mm)**	**Y (mm)**	**Z (mm)**	**A (mm)**
31 *(1 7/32″)*	55 *(2 11/64″)*	191 *(7 33/64″)*	286 *(11 17/64″)*	Ø124 *(Ø4 7/8″)*	53 *(2 3/32″)*
53 *(2 3/32″)*	70 *(2 3/4″)*	195 *(7 43/64″)*	290*(11 27/64″)*	Ø134 *(Ø5 9/32″)*	63 *(2 31/64″)*
69 *(2 23/32″)*	80 *(3 5/32″)*	200.5 *(7 57/64″)*	295.5 *(11 41/64″)*	Ø144 *(Ø5 43/64″)*	65 *(2 9/16″)*

MAXIMUM TORQUE – Rotary flange (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	120	120	120
S3	120	120	120
S4	120	120	120

Spare parts [See Spare parts page 20].

3.8 ARTICULATED FLAT ROTATIVE REINFORCED - EB
MV30P504

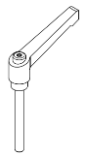
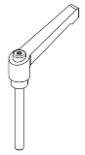


Maximum load: (35 - Headmember weight) kg.
Maximum torque: 120Nm.

X: Rotates 360º. Manual locking in any position.
Z: Rotates ±90º. Manual locking in any position.

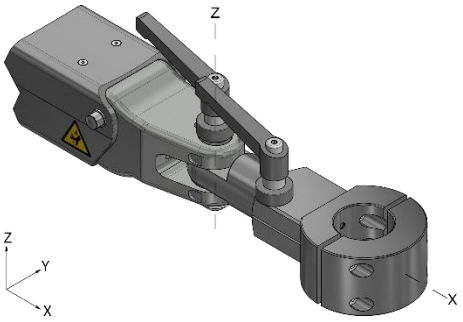
FLAT JOINTED EB - REINFORCED
- For applications where head locking is required - Larger, reinforced levers available - Suitable for torques up to 120 Nm - Equipped with linings for base axle (Z)

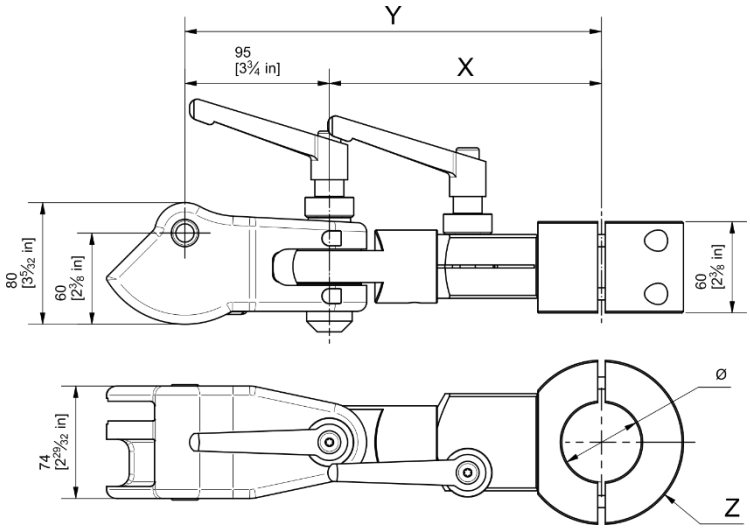
3.8.1 Spare parts

M3323800	HANDLE M10 (BASE)	
M3323900	HANDLE M10 (FORK)	
CM163200	TORQUE AMPLIFIER RING	

3.9 ARTICULATED FLAT ROTATIVE REINFORCED - EC
MV30P504 + Bush

3.9.1 Fixed flange (M3Dxxx04)





Maximum load: (35 - Headmember weight) kg.
Maximum torque: 120Nm.

X: Rotates 360º. Manual locking in any position
Z: Rotates ±90º. Manual locking in any position.

Ø: Specific diameter on request.

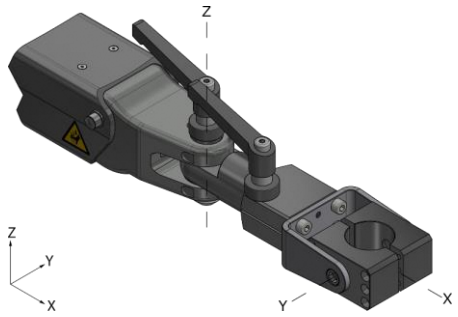
Dimensions	Ømin (mm)	Ømax (mm)	X (mm)	Y (mm)	Z (mm)
Fixed flange	15 *(19/32")*	65 *(2 9/16")*	179 *(7 3/64")*	274 *(10 25/32")*	Ø108 *(Ø2 1/4")*
	65 *(2 9/16")*	80 *(3 5/32")*	188.5 *(7 27/64")*	283.5 *(11 5/32")*	Ø124 *(Ø4 7/8")*

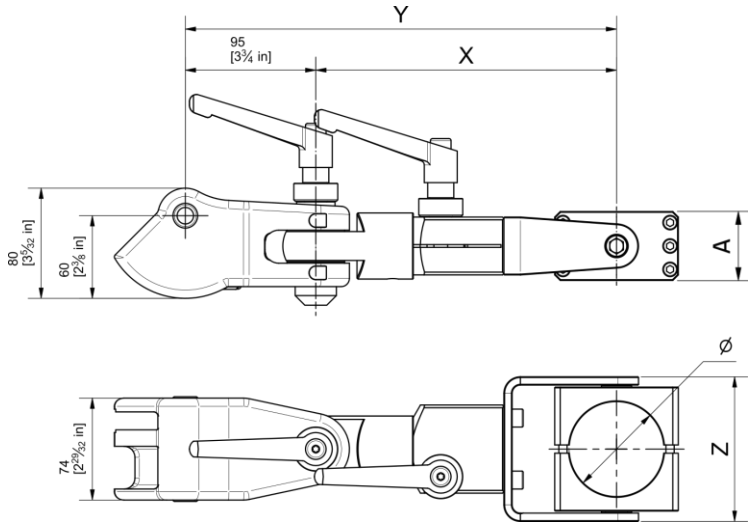
MAXIMUM TORQUE (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	120	120	120
S3	120	120	120
S4	120	120	120

ARTICULATED FLAT EC - REINFORCED
- For applications where head locking is required - Larger, reinforced levers available - Suitable for torques up to 120 Nm - Equipped with linings for base axle (Z)

Spare parts [See Spare parts page 27].

3.9.2 Swinging flange (M3Axxx04)





Maximum load: (35 - Headmember weight) kg.
Suitable for straight tools.

X: Rotates 360º. Manual locking in any position
Y: Rotates Xº (depending on the tool).
Z: Rotates ±90º. Manual locking in any position.

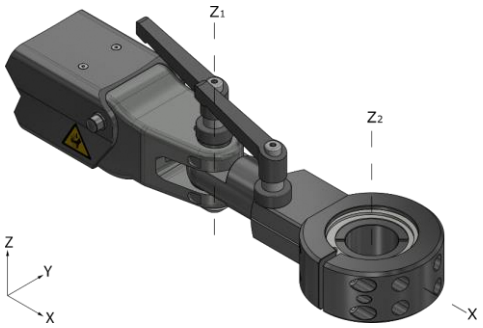
Dimensions – Swinging flange					
Ømin (mm)	**Ømax (mm)**	**X (mm)**	**Y (mm)**	**Z (mm)**	**A (mm)**
30 *(1 3/16″)*	49 *(2 59/64″)*	199 *(7 53/64″)*	294 *(11 37/64″)*	93 *(3 21/32″)*	40 *(1 37/64″)*
49 *(1 59/64″)*	59 *(2 21/64″)*	209*(8 15/64″)*	304 *(11 31/32″)*	103 *(4 1/16″)*	45 *(1 49/64″)*
59 *(2 21/64″)*	69 *(2 23/32″)*	219 *(8 5/8″)*	314 *(12 23/64″)*	113 *(4 29/64″)*	50 *(1 31/32″)*

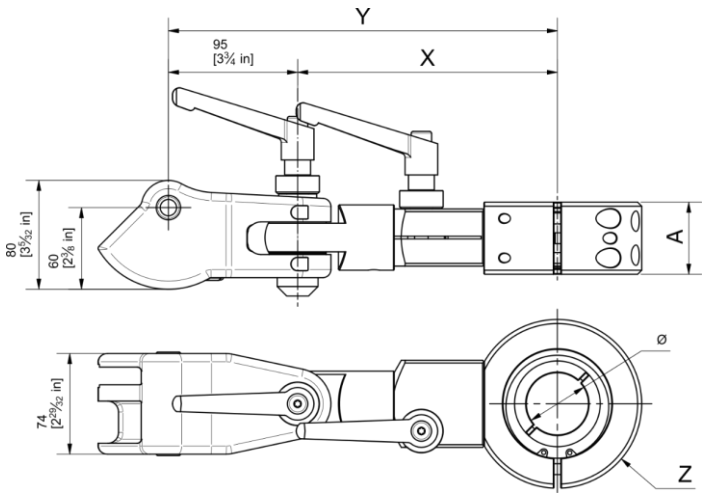
MAXIMUM TORQUE (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	120	120	120
S3	120	120	120
S4	120	120	120

ARTICULATED FLAT EC - REINFORCED
- For applications where head locking is required - Larger, reinforced levers available - Suitable for torques up to 120 Nm - Equipped with linings for base axle (Z)

Spare parts [See Spare parts page 27].

3.9.3 Rotary flange (M3Exxx04)





Maximum load: (35 - Headmember weight) kg.
Suitable for angled tools.

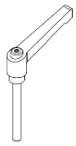
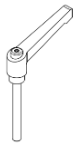
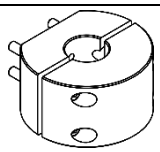
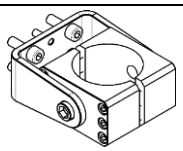
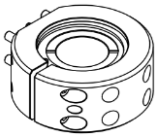
X: Rotates 360º. Manual locking in any position.
Z_1: Rotates ±90º. Manual locking in any position.
Z_2: Rotates 360º.

Dimensions – Rotary flange					
Ømin (mm)	**Ømax (mm)**	**X (mm)**	**Y (mm)**	**Z (mm)**	**A (mm)**
31 *(1 7/32″)*	55 *(2 11/64″)*	191 *(7 33/64″)*	286 *(11 17/64″)*	Ø124 *(Ø4 7/8″)*	53 *(2 3/32″)*
53 *(2 3/32″)*	70 *(2 3/4″)*	195 *(7 43/64″)*	290*(11 27/64″)*	Ø134 *(Ø5 9/32″)*	63 *(2 31/64″)*
69 *(2 23/32″)*	80 *(3 5/32″)*	200.5 *(7 57/64″)*	295.5 *(11 41/64″)*	Ø144 *(Ø5 43/64″)*	65 *(2 9/16″)*

MAXIMUM TORQUE – Rotary flange (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	120	120	120
S3	120	120	120
S4	120	120	120

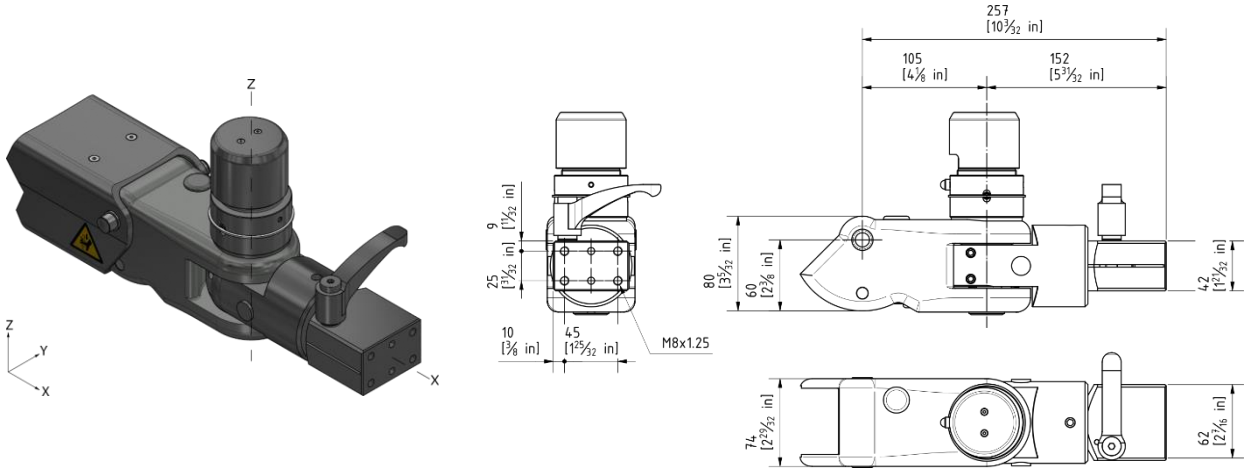
Spare parts [See Spare parts page 27].

3.9.4 Spare parts

M3323800	HANDLE M10 (BASE)	
M3323900	HANDLE M10 (FORK)	
CM163200	TORQUE AMPLIFIER RING	
M3DXXX04[4]	FIX RING ADAPTOR	
M3AXXX04	SWINGING FLANGE	
M3EXXX04	ROTATIVE FLANGE	

[4] XXX corresponds to the inner Ø in mm

3.10 AUTOMATIC ARTICULATED FLAT ROTATIVE - ED M3204700



Maximum load: (35 - Headmember weight) kg.

X: Rotates 360º. Manual locking in any position.
Z: Rotates ±90º. Pneumatic locking in any position.

3.10.1 Operation

The pneumatic lock (Z Axis) is activated/deactivated with the other radial arm locks:

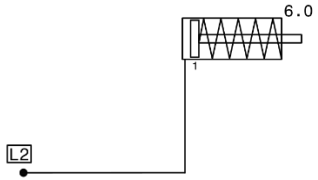
- If the arm is equipped with L22 locking, then via the radial locking selector switch

- If the arm is equipped with the L92 locking device, then it is activated via the tool.

For more information, please refer to the arm manual.

3.10.2 Pneumatic diagram

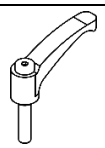
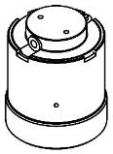
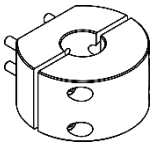
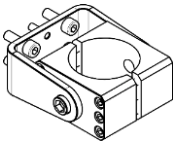
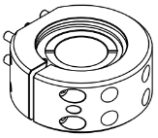
REF	QUANT	CODE	DESCRIPTION
6.0	1	MV405504	RADIAL ARM LOCK CYLINDER



DESCRIPTION	CODE
PNEUMATIC SCHEME - ED HEADMEMBER	PNEUS30008

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

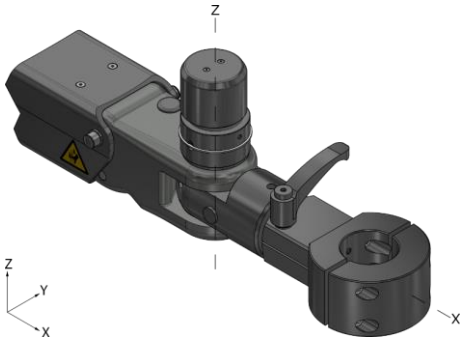
3.10.3 Spare parts

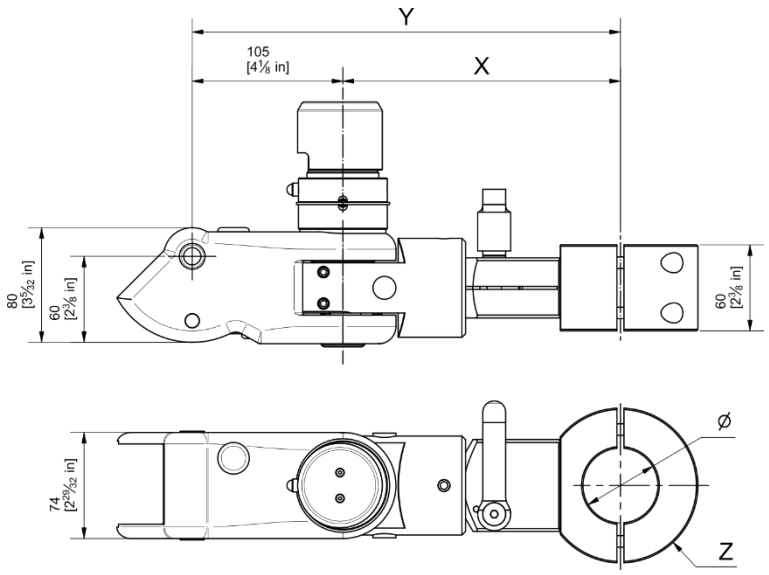
AC060546	HANDLE M10x40 [X Axis]	
MV405504	RADIAL ARM LOCKING CYLINDER	
MV4059A3	CYLINDER 42 COVER	
MV4064A4	RADIAL PADS L22-L92 SPARE KIT	
M3DXXX04[5]	RING ADAPTOR	
M3AXXX04	SWINGING FLANGE	
M3EXXX04	ROTATIVE FLANGE	

[5] XXX corresponds to the inner Ø in mm

3.11 AUTOMATIC ARTICULATED FLAT ROTATIVE - EE
M3204700 + Bush

3.11.1 Fixed flange (M3Dxxx04)





Maximum load: (35 - Headmember weight) kg.
Maximum torque: 100Nm

X: Rotates 360º. Manual locking in any position.
Z: Rotates ±90º. Pneumatic locking in any position.

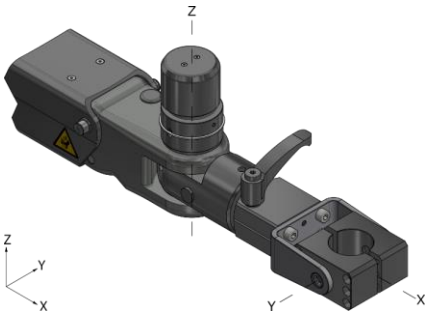
Ø: Specific diameter on request.

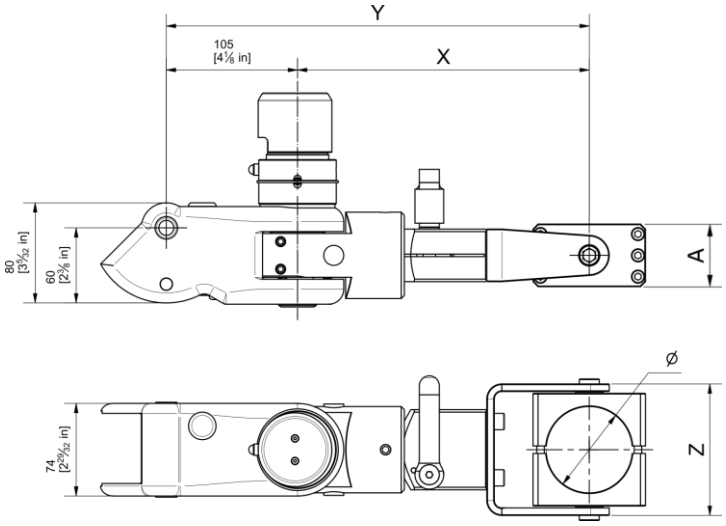
Dimensions	Ømin (mm)	Ømax (mm)	X (mm)	Y (mm)	Z (mm)
Fixed flange	15 *(19/32")*	65 *(2 9/16")*	194 *(7 41/64")*	299 *(11 49/64")*	Ø108 *(Ø2 1/4")*
	65 *(2 9/16")*	80 *(3 5/32")*	203.5 *(8 1/64")*	308.5 *(12 9/64")*	Ø124 *(Ø4 7/8")*

MAXIMUM TORQUE (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	100	100	100
S3	100	100	100
S4	100	100	100

For lock operation [See Operation page 28].
Spare parts [See Spare parts page 30].

3.11.2 Swinging flange (M3Axxx04)





Maximum load: (35 - Headmember weight) kg.
Suitable for straight tools.

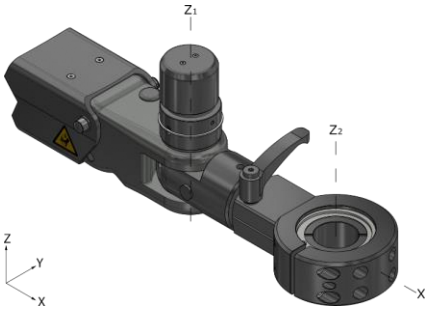
X: Rotates 360º. Manual locking in any position.
Y: Rotates Xº (depending on the tool).
Z: Rotates ±90º. Pneumatic locking in any position.

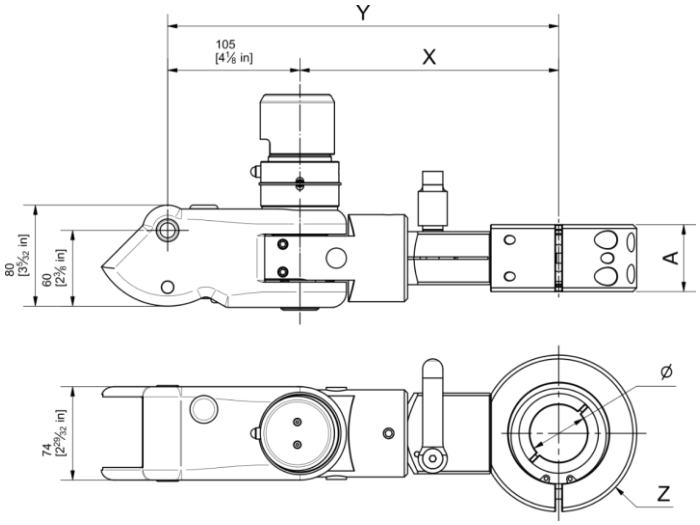
Dimensions – Swinging flange					
Ømin (mm)	**Ømax (mm)**	**X (mm)**	**Y (mm)**	**Z (mm)**	**A (mm)**
30 *(1 3/16″)*	49 *(2 59/64″)*	213.5 *(8 13/32″)*	318.5 *(12 35/64″)*	93 *(3 21/32″)*	40 *(1 37/64″)*
49 *(1 59/64″)*	59 *(2 21/64″)*	223.5 *(8 51/64″)*	328.5 *(12 15/16″)*	103 *(4 1/16″)*	45 *(1 49/64″)*
59 *(2 21/64″)*	69 *(2 23/32″)*	233.5 *(9 3/16″)*	338.5 *(13 21/64″)*	113 *(4 29/64″)*	50 *(1 31/32″)*

MAXIMUM TORQUE (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	100	100	100
S3	100	100	100
S4	100	100	100

For lock operation [See Operation page 28].
Spare parts [See Spare parts page 30].

3.11.3 Rotary flange (M3Exxx04)





Maximum load: (35 - Headmember weight) kg.
Suitable for straight tools.

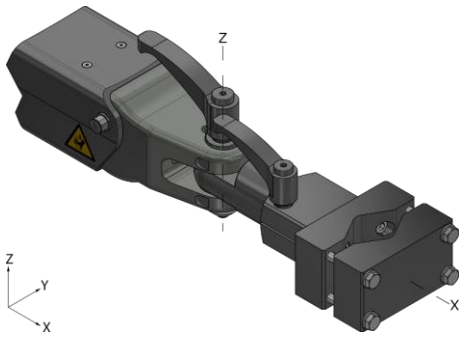
X: Rotates 360°. Manual locking in any position.
Z_1: Rotates ±90°. Pneumatic locking in any position.
Z_2: Rotates 360°.

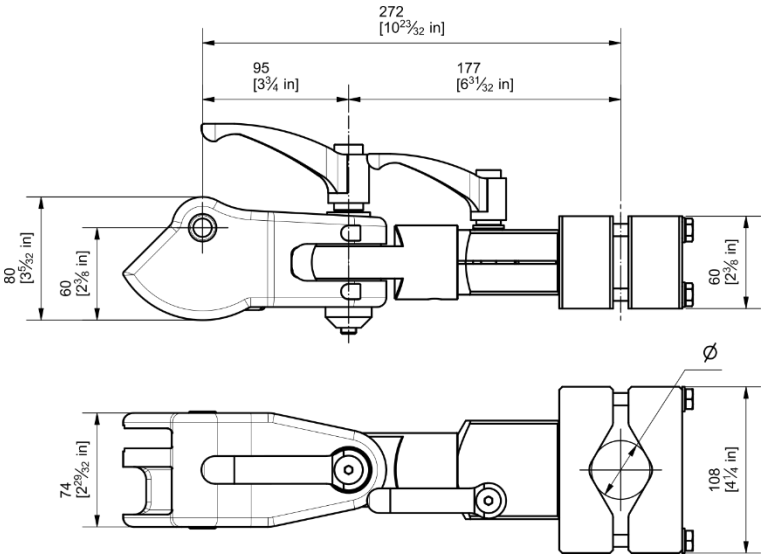
Dimensions – Swinging flange					
Ømin (mm)	**Ømax (mm)**	**X (mm)**	**Y (mm)**	**Z (mm)**	**A (mm)**
31 *(1 7/32″)*	55 *(2 11/64″)*	205.5 *(8 3/32″)*	310.5 *(12 7/32″)*	Ø124 *(Ø4 7/8″)*	53 *(2 3/32″)*
53 *(2 3/32″)*	70 *(2 3/4″)*	209.5 *(8 1/4″)*	314.5 *(12 3/8″)*	Ø134 *(Ø5 9/32″)*	63 *(2 31/64″)*
69 *(2 23/32″)*	80 *(3 5/32″)*	215 *(8 15/32″)*	320 *(12 19/32″)*	Ø144 *(Ø5 43/64″)*	65 *(2 9/16″)*

MAXIMUM TORQUE (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	100	100	100
S3	100	100	100
S4	100	100	100

For lock operation [See Operation page 28].
Spare parts [See Spare parts page 30].

3.12 ARTICULATED ROTATIVE V-BLOCK - F
MV302504



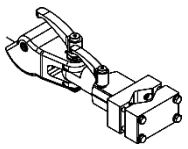
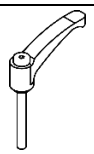
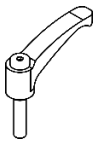
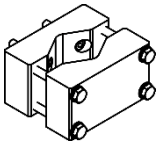


Not suitable for torque tools

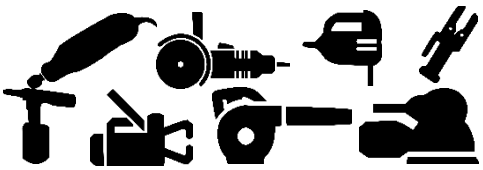
Cylindrical or irregularly shaped tools
$Ø_{min}$: 40 mm/ $Ø_{max}$: 80 mm

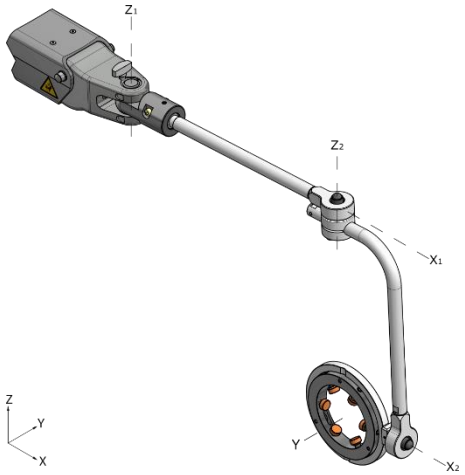
X: Rotates 360º. Manual locking in any position
Z: Rotates ±90º. Manual locking in any position

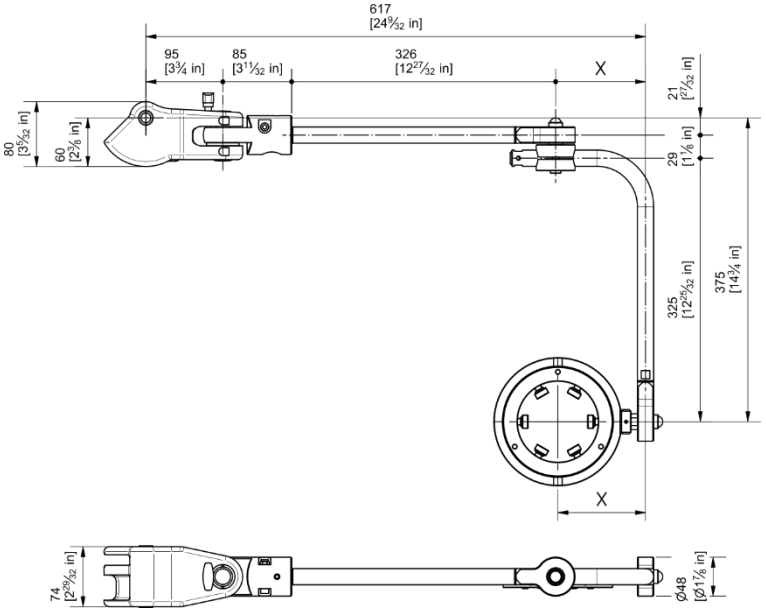
3.12.1 Spare parts

MV302504R	ORIENTABLE & ADJUSTABLE HEADMEMBER	
AC060576	HANDLE M10x80 [Axis Z]	
AC060546	HANDLE M10x40 [Axis X]	
M3325000R	SPARE CLAMPING VICES ASSY	

3.13 MULTITURN - GA
MV3171C4 + Handlebar







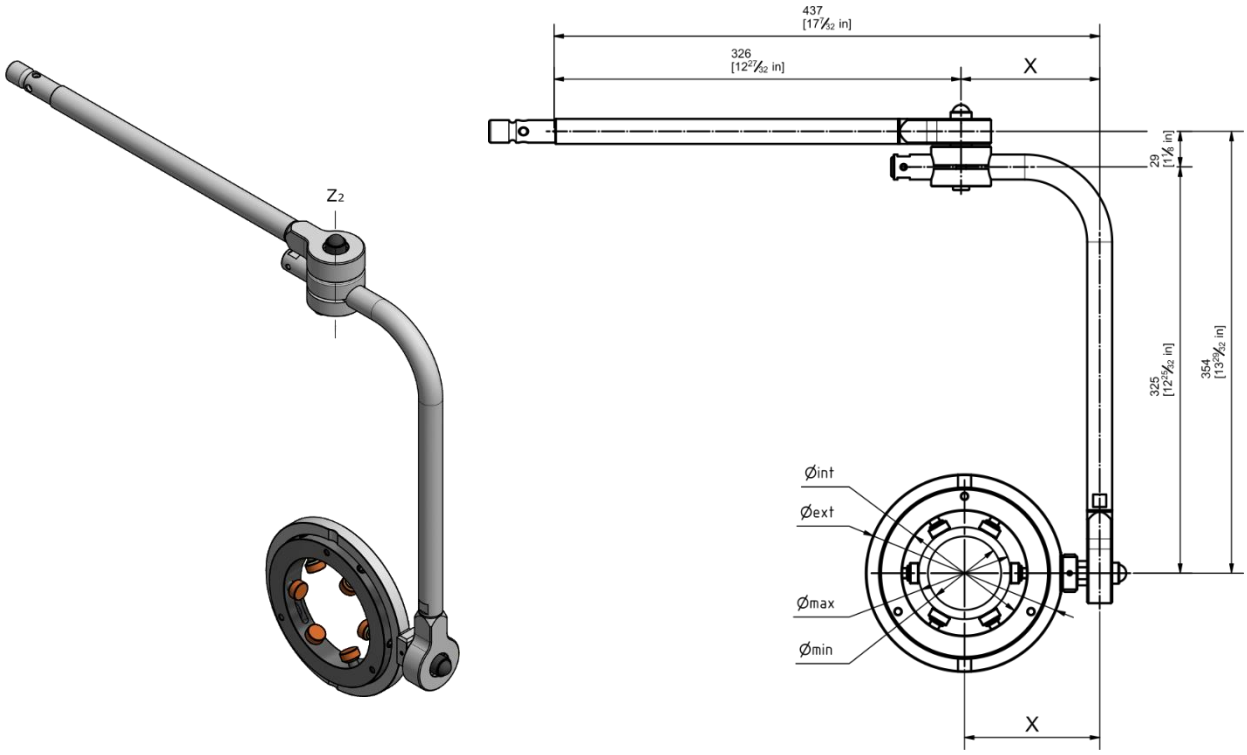
Maximum load: 10Kg/ 6kg[6]
Requires locks of (L50) or higher

Z_1: Rotates ±90º. Non-lockable.
Z_2: Rotates 360º. Non-lockable.
X1: Rotates 360º. Manual locking in 4 positions (4x90º).
X_2: Rotate 360º. Non-lockable.
Y: Rotates 360º. Non-lockable.

[6] Consider **6kg** max. load for applications with handlebar in conjunction with vibration tools (impact, impulse, etc.). For all other applications consider a maximum load of 10 kg.

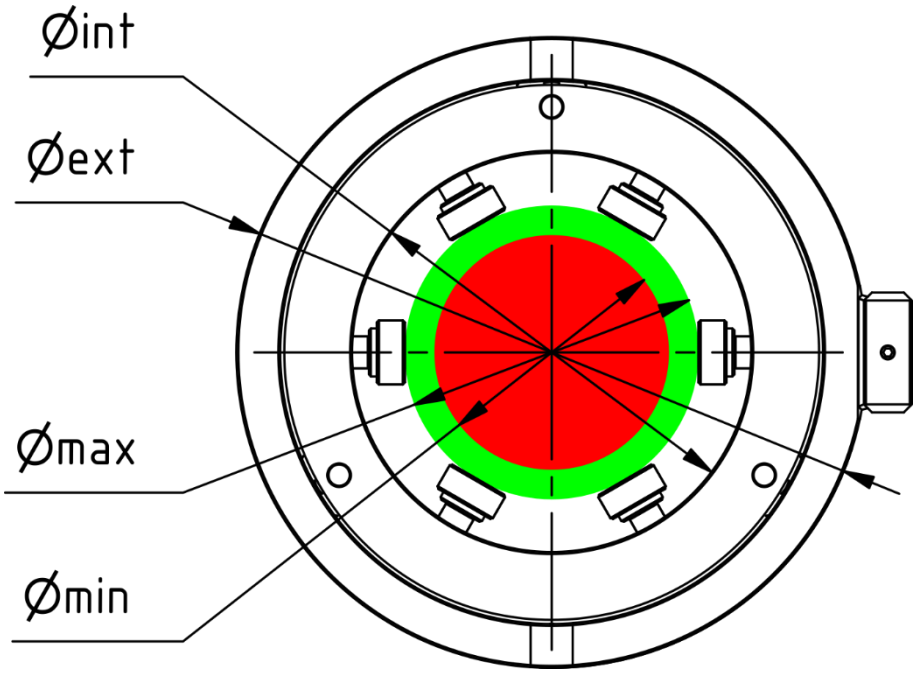
3.13.1 Handlebar Type A: TIMCO

Suitable for any type of tool. ***Ref: MV3EExxx (xxx = internal diameter in mm)***



- The X coordinate shall be as close as possible to the Z_2 Axis of rotation to ensure good tool balancing. Xmin = 110mm

3.13.1.1 TIMCO Dimensions



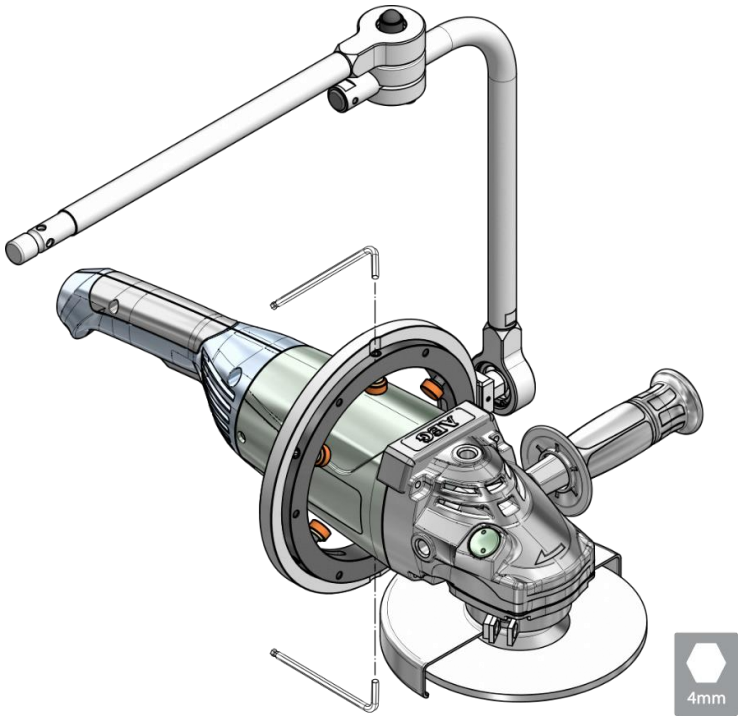
Øint		Øext		Ømin - Ømax tool	
mm	Inches	mm	Inches	mm	Inches
70	2 3/4"	128	5 3/64"	27-57	1 1/16" - 2 1/4"
80	3 5/32"	138	5 7/16"	35 - 67	1 3/8" - 2 41/64"
90	3 35/64"	148	5 53/64"	45 - 77	1 49/64" - 3 1/32"
100	3 15/16"	158	6 7/32"	55 - 87	2 11/64" - 3 27/64"
110	4 21/64"	168	6 39/64"	65 - 97	2 9/16" - 3 13/16"
120	4 23/32"	178	7 1/64"	75 - 107	2 61/64" - 4 7/32"
130	5 1/8"	188	7 13/32"	85 - 117	3 11/32" - 4 39/64"
140	5 33/64"	198	7 51/64"	95 - 127	3 47/64" - 5"
150	5 29/32"	208	8 3/13"	105 - 137	4 9/64" - 5 25/64"
160	6 19/64"	218	8 37/64"	115 - 147	4 17/32" - 5 25/32"
170	6 11/16"	228	8 31/32"	125 - 157	4 59/64" - 6 3/16"
180	7 3/32"	238	9 3/8"	135 - 167	5 5/16" - 6 37/64"

- The tool diameter must be in the green zone (between Ømin and Ømax).
- Maximum load 6 kg for applications with vibration tools (impact, impulse, etc.)
- For all other applications consider a maximum load of 10 kg.
- Other dimensions on request

3.13.1.2 *Assembly of the tool*

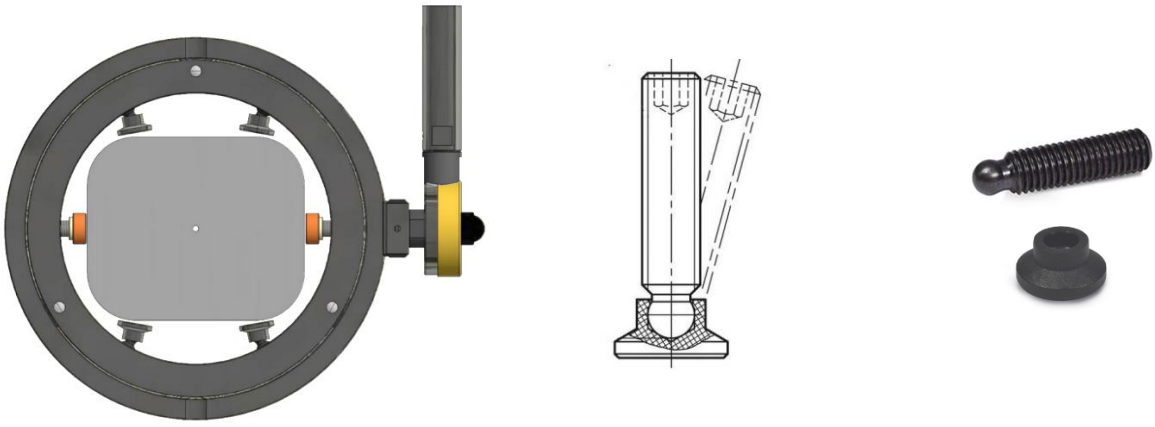
1- Place the tool in the ball head so that the weight is evenly balanced on both sides.

2- Once you have the tool in place, you must match the notches on the outer ring with the head of the Allen bolt. The tool must be bolted in progressively by tightening opposite pairs of bolts (in the form of an "X").



In order to hold the tool in the correct way[7], Tecnospiro recommends the use of headless Allen bolts with ball tip for push pads. This component allows the tool to be fixed from all sides, adapting the pads to the surface of the tool.

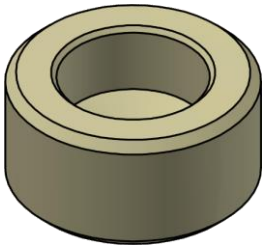
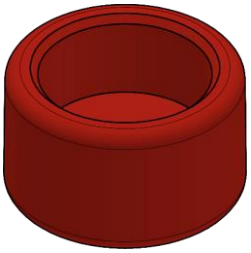
Clamping foot kit with headless bolts **(M3297600)**



[7] Optionally, a tailor-made adapter can be manufactured to obtain an optimum fit.

3.13.1.3 *Included accessories*

In addition to type A gimbal (TIMCO), two types of **end caps (nylon and rubber)** and **headless bolts (DIN-913 M8x25 and DIN-913 M8x20)** are included. (By default, it is supplied assembled with Nylon cap and DIN-913 M8x20 headless bolt).

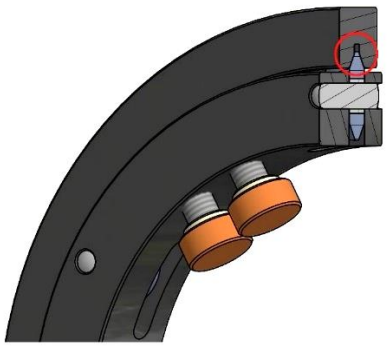
Nylon Cap MV31B803	**Rubber Cap MV31F303**
Material: Nylon Identifying colour: Translucent white Tightening level: High Level of Adaptation: Medium 	Material: Polyurethane Identifying colour: Red Tightening level: Medium Level of Adaptation: High 

Rubber caps (Polyurethane)**:**

- They should be used for applications with vibration (impact tools), or with fragile tools (plastic housings).
- The rubber caps must be fitted in conjunction with the Nylon caps, so the clearance for the tool will be reduced.

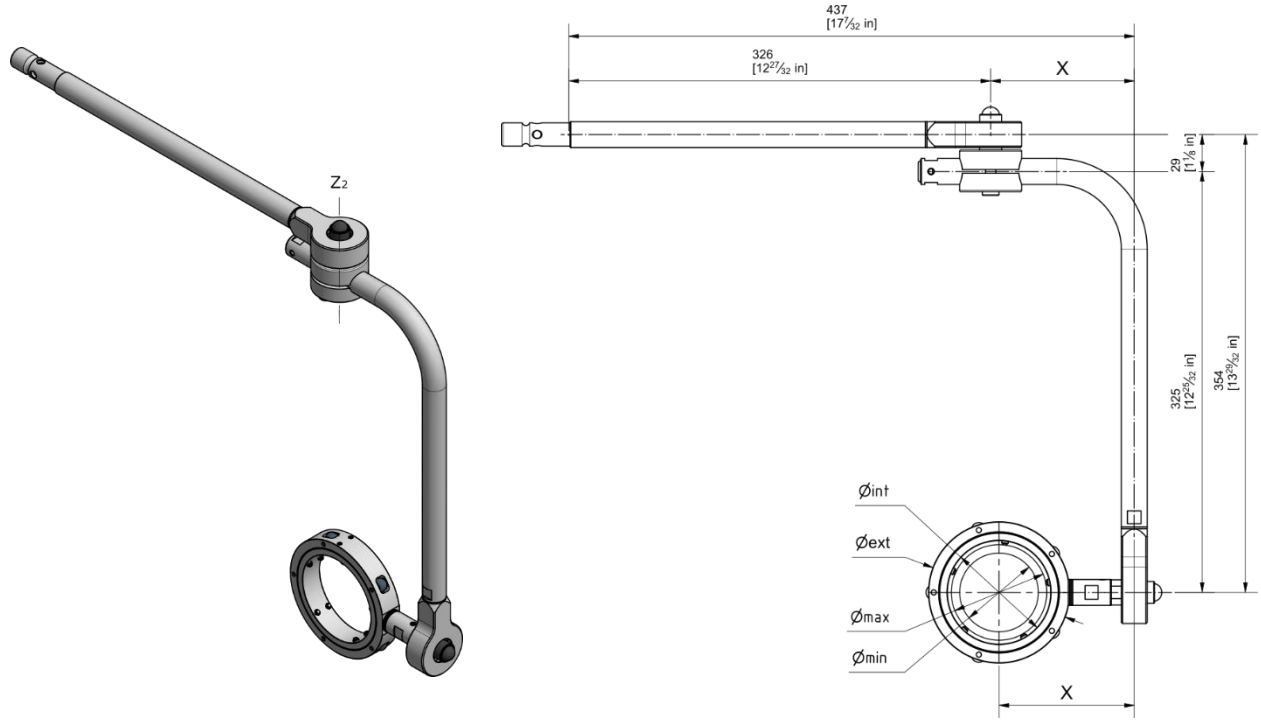
3.13.1.4 *Gimbals maintenance and cleaning*

To keep the rotating gimbal clean, Tecnospiro recommends periodically blowing air into the gimbal while rotating the inner ring.
The way to blow air inside the gimbals it is important, in order to remove dust accumulated in the groove. Dust and abrasive material could accumulate inside the groove and wear the gimbal tracks. To clean the gimbal, blow air into the gimbal as shown in the picture. The inner ring should be rotated while blowing air.



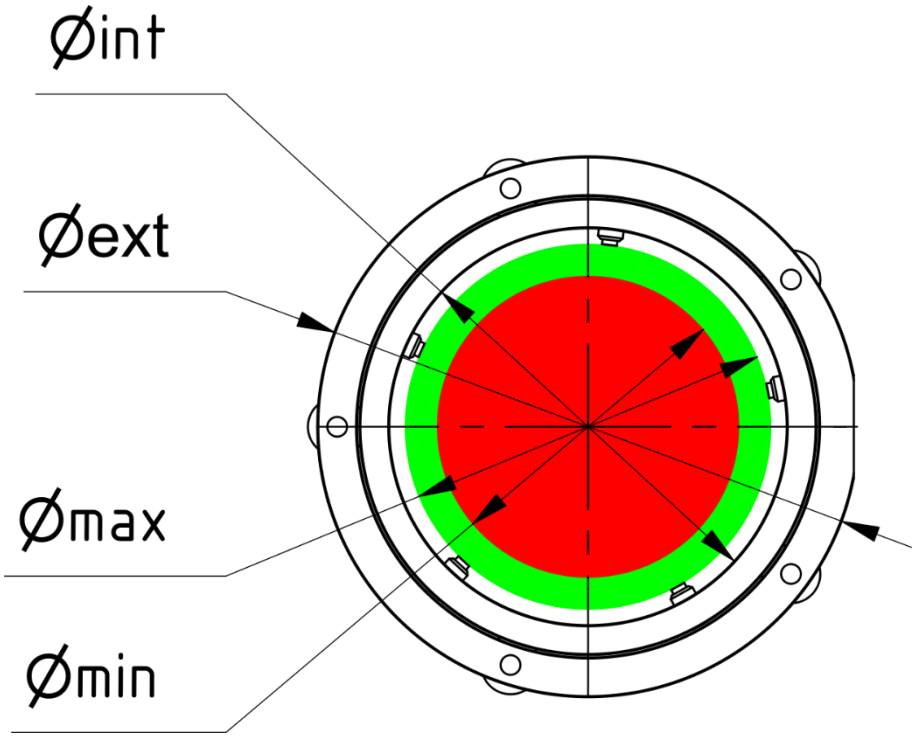
3.13.2 Handlebar Type B: TIMSAND

Suitable for tools with cylindrical clamping area.
Ref: MV3EFxxx (xxx = internal diameter in mm)



- The X coordinate shall be as close as possible to the Z_2 Axis of rotation to ensure good tool balancing. Xmin = 110mm

3.13.2.1 *Dimensions TIMSAND*



Øint.		Øext.		Ømin - Ømax tool	
mm	*Inches*	mm	*Inches*	mm	*Inches*
40	*1 37/64"*	69	*2 23/32"*	30 - 40	*1 3/16" - 1 37/64"*
50	*1 31/32"*	79	*3 7/64"*	40 - 50	*1 37/64" - 1 31/32"*
60	*2 23/64"*	89	*3 1/2"*	50 - 60	*1 31/32" - 2 23/64"*
70	*2 3/4"*	99	*3 57/64"*	60 - 70	*2 23/64" - 2 3/4"*
80	*3 5/32"*	109	*4 19/64"*	70 - 80	*2 3/4" - 3 5/32"*
90	*3 35/64"*	119	*4 11/16"*	80 - 90	*3 5/32" - 3 35/64"*
100	*3 15/16"*	129	*5 5/64"*	90 - 100	*3 35/64" - 3 15/16"*
110	*4 21/64"*	139	*5 15/32"*	100 - 110	*3 15/16" - 4 21/64"*
120	*4 23/32"*	149	*5 55/64"*	110 - 120	*4 21/64" - 4 23/32"*
130	*5 1/8"*	159	*6 17/64"*	120 - 130	*4 23/32" - 5 1/8"*

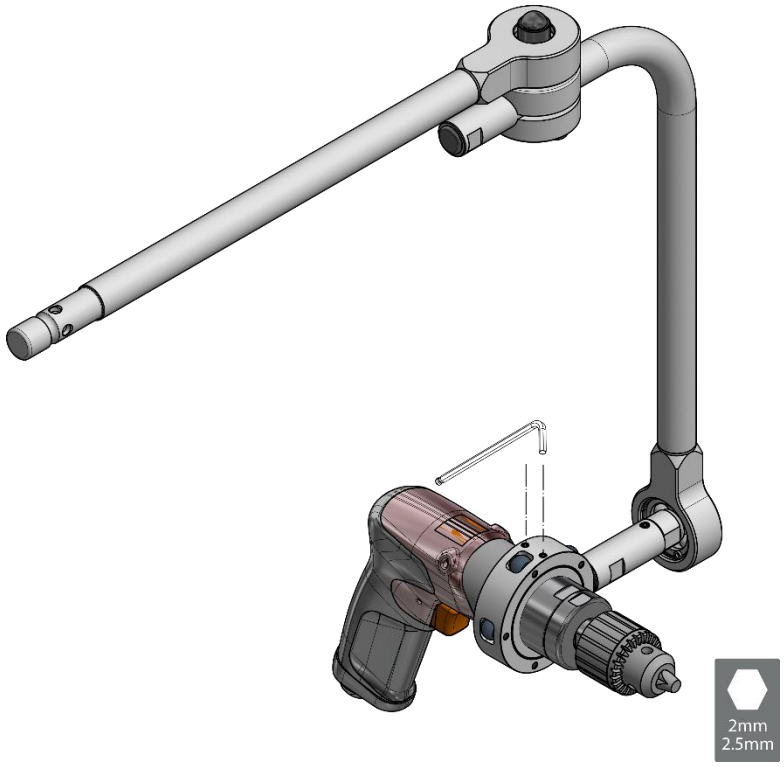
- The tool diameter must be in the green zone (between Ømin and Ømax).
- The use of a customised adapter bushing is recommended to ensure concentricity.
- Maximum load 6 kg for applications with vibration tools (impact, impulse, etc.)
- For all other applications consider a maximum load of 10 kg.
- Other dimensions on request.

3.13.2.2 *Assembly of the tool*

For the **installation of the tool on gimbal type B** follow the guidelines below.

1- Insert the tool into the gimbal. Align the holes on the outer face of the outer ring with the headless bolts holding the tool. Tighten / loosen these headless bolts to achieve the correct grip on the tool (Allen key 2.5mm).

2- Repeat the previous step to ensure that the tool is properly adjusted along its perimeter. Secure the headless bolts with medium-strength Loctite to prevent loosening.



3.13.2.3 *Included accessories*

In addition to type B gimbal (TIMSAND), ***nylon tipped headless bolts (M5x8)*** are included.

Depending on the type of tool, the Nylon studs may be replaced by metal studs to achieve a tighter-fitting diameter of the gimbal in relation to the tool.

For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

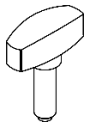
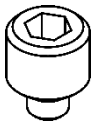
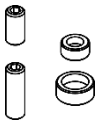
3.13.3 Handlebar installation and working positions

The head has 2 positions:
- 360° handlebar free rotation
- Handlebar locking in one of the four positions (4x90º).

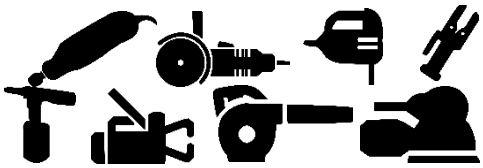
Follow the guidelines below for the **attachment and adjustment of the handlebar** (either type A or B).

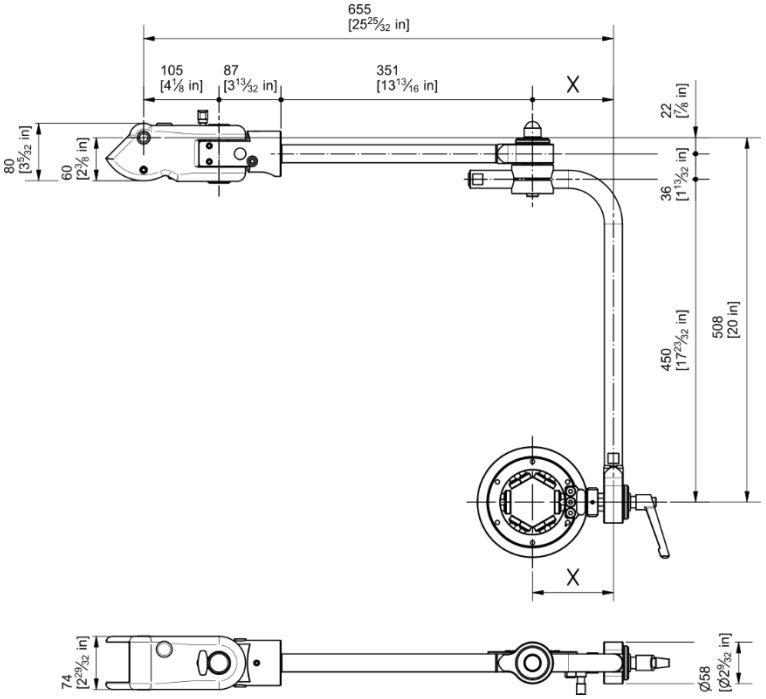
1- Remove the bolt (1) (Allen key 5mm) and the nut (2) (spanner 10mm).
2- Remove the headless bolt (3) (6mm Allen key).
3- Insert the handlebar (4) and fit the bolt (1) (Allen key 5mm) and the nut (2) (spanner 10mm) to fix the handlebar in place.
4- Tighten the threaded bolt (3) (6mm Allen key) to fix the handlebar in one of the 4 positions (4x90º). If not, the handlebar will be free on the X_1 axis (360°).

3.13.4 Spare parts

M3103300R	SECURING LEVER M8x24	
M3304100	POSITIONER	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

3.14 MULTITURN REINFORCED - HA
MV31E8A4 + Handlebar





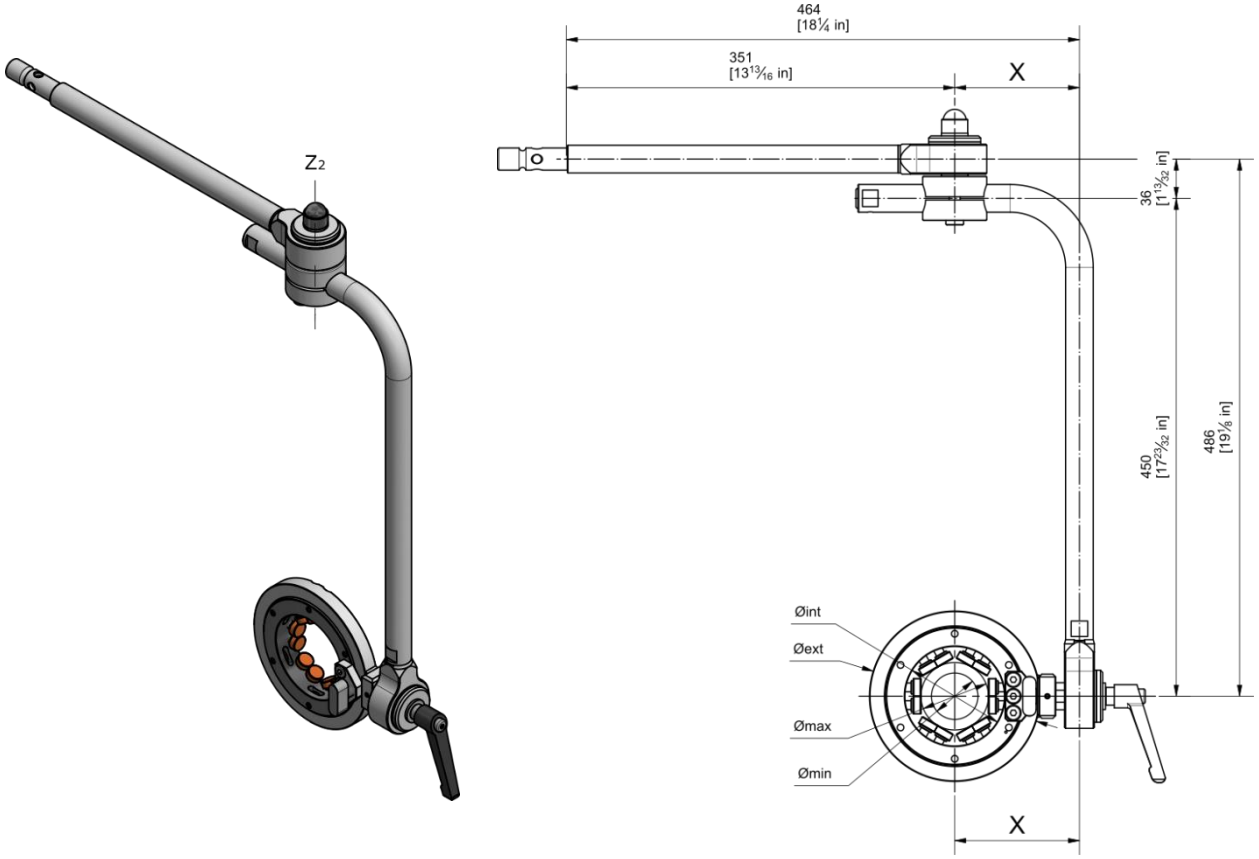
Maximum load: 32Kg | □¾"[8]
Requires locks of (L50) or higher

Z_1: Rotates ±90º. Non-lockable.
Z_2: Rotates 360º. Non-lockable.
X_1: Rotates 360º. Manual locking in 4 positions (4x90º).
X_2: Rotate 360º. Manual locking in any position.
Y: Rotates 360º. Adjustment of smoothness for rotation and position setting.

[8] Recommended tool square size for this head

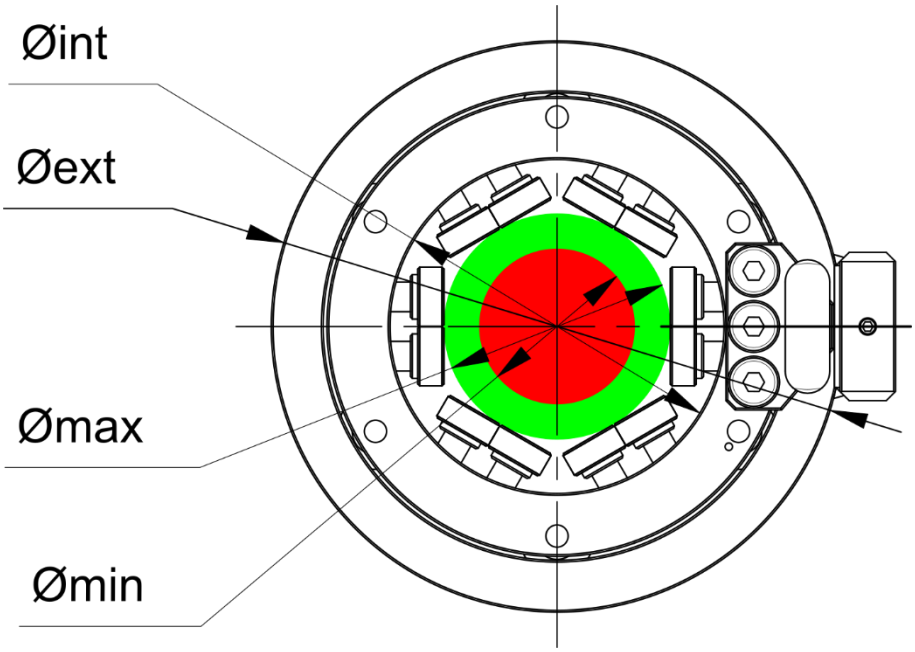
3.14.1 Handlebar Type A: REINFORCED TIMCO

Suitable for any type of tool. ***Ref: MV3DAxx (xxx = internal diameter in mm)***



- The X coordinate shall be as close as possible to the Z_2 Axis of rotation to ensure good tool balancing. Xmin = 110mm

3.14.1.1 *Dimensions of TIMCO REINFORCED*



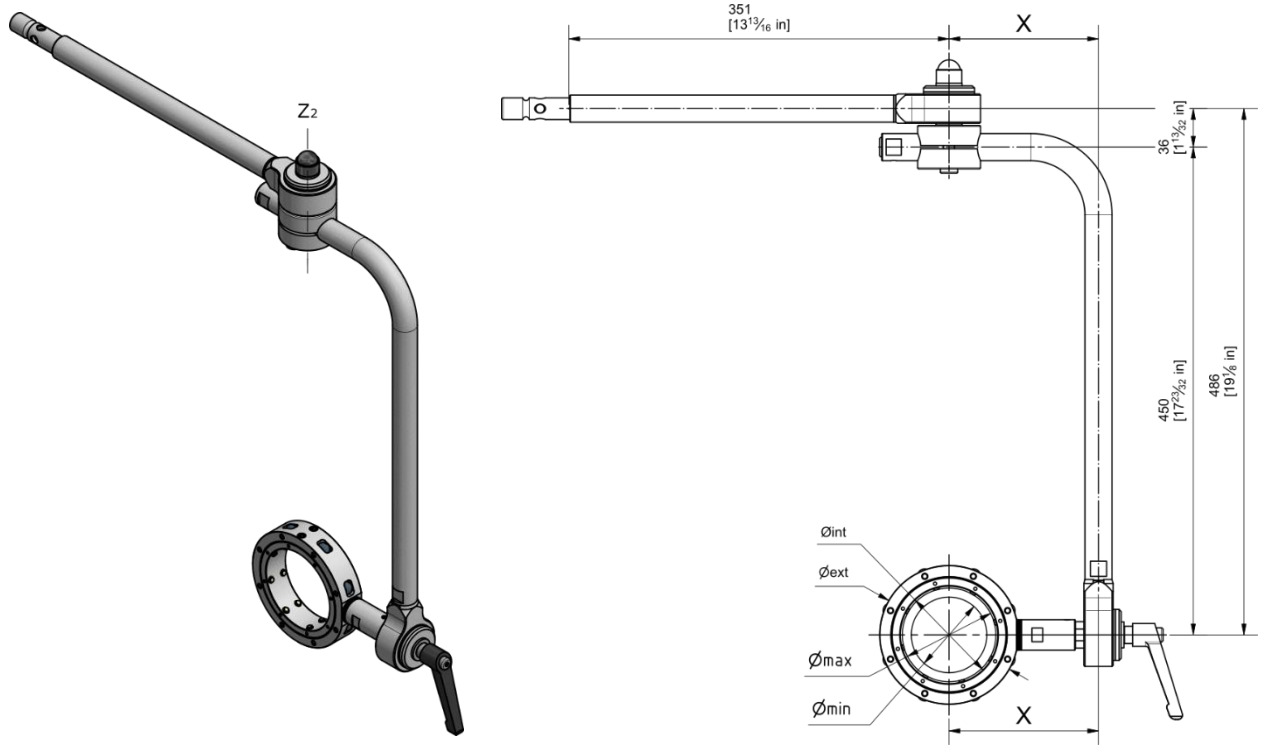
Øint		Øext		Ømin - Ømax tool	
mm	*Inches*	mm	*Inches*	mm	*Inches*
80	*3 5/32"*	144	*5 43/64"*	35 - 67	*1 3/8" - 2 41/64"*
90	*3 35/64"*	154	*6 1/16"*	45 - 73	*1 49/64" - 2 7/8"*
100	*3 15/16"*	164	*6 29/64"*	55 - 83	*2 11/64" - 3 17/64"*
110	*4 21/64"*	174	*6 27/32"*	65 - 93	*2 9/16" - 3 21/32"*
120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

- The tool diameter must be in the green zone (between Ømin and Ømax).
- Other dimensions on request

For fitting the tool [See Assembly of the tool page 38].
Included accessories [See Included accessories page 39].
For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

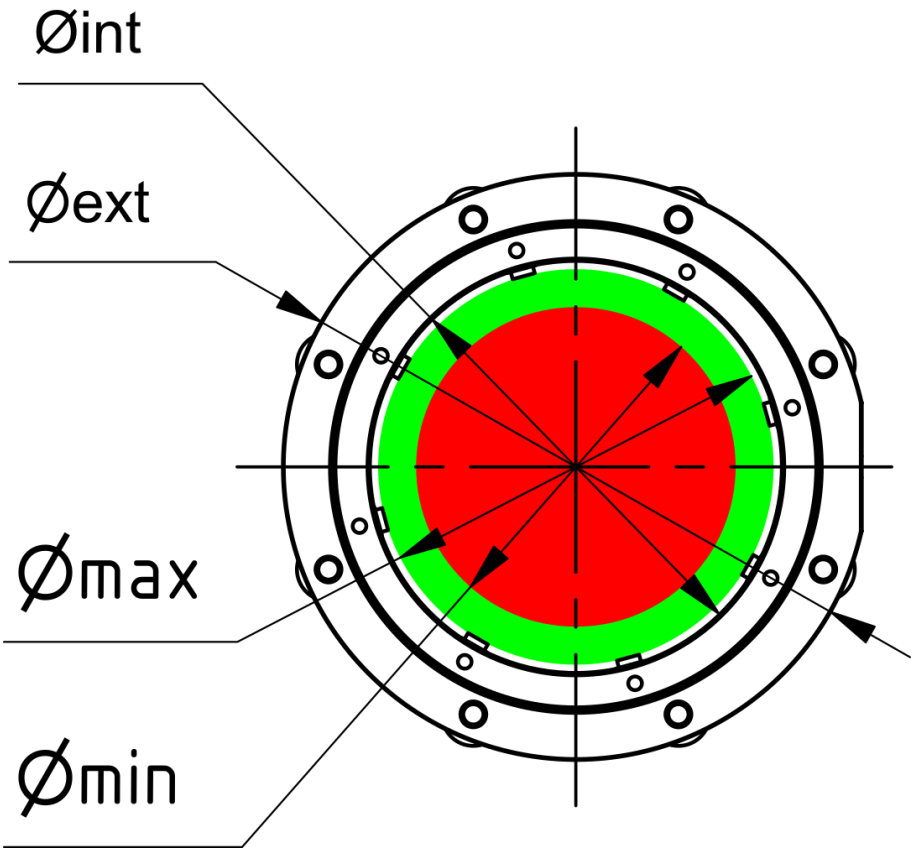
3.14.2 Handlebar Type B: TIMSAND REINFORCED

Suitable for tools with cylindrical clamping area.
Ref: MV3DBxxx (xxx = internal diameter in mm)



- The X coordinate shall be as close as possible to the Z_2 Axis of rotation to ensure good tool balancing. Xmin = 110mm

3.14.2.1 Dimensions TIMSAND reinforced



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

- The tool diameter must be in the green zone (between Ømin and Ømax).
- The use of a customised adapter bushing is recommended to ensure concentricity.
- Other dimensions on request

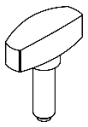
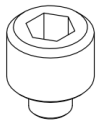
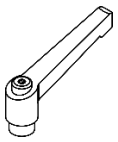
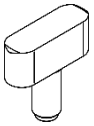
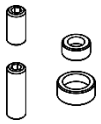
3.14.2.2 Included accessories

In addition to type B gimbal (TIMSAND), ***nylon tipped headless bolts (M8x8)*** are included.

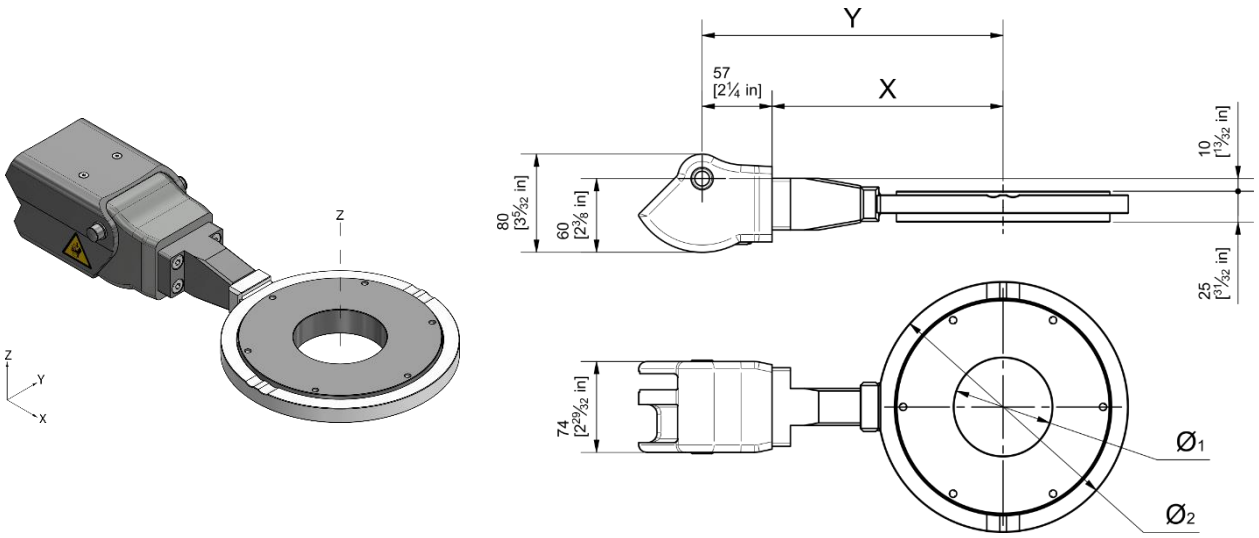
Depending on the type of tool, the Nylon studs may be replaced by metal studs to achieve a tighter-fitting diameter of the gimbal in relation to the tool.

For fitting the tool [See Assembly of the tool page 42].
For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

3.14.1 Spare parts

M3103300R	SECURING LEVER M8x24 STAINLESS STEEL	
M3279600	RETOUCHING	
CM166500	ZAMAK HANDLE M12	
M3103200R	TIMCO STAINLESS STEEL BRAKE RETOUCH	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

3.15 FLAT ELECTROMAGNET - I
MV306904 + MV3AM180 / MV3RM200 / MV3RM245



Maximum load: (35 - Headmember weight) kg*.

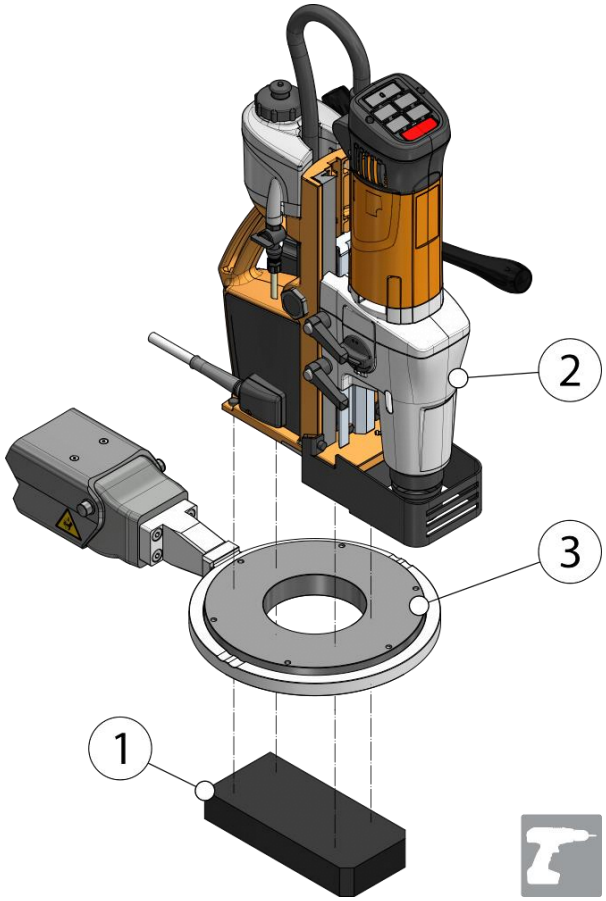
Z: Rotates 360º. non-lockable.

Dimensions				*Maximum load
X (mm)	Y (mm)	$Ø_1$ (mm)	$Ø_2$ (mm)	
172 *(6 49/64")*	229 *(9 1/64")*	Ø70 *(Ø2 3/4")*	Ø178 *(Ø7 1/64")*	12 Kg *(26.5 lbs)*
188 *(7 13/32")*	245 *(9 41/64")*	Ø80 *(Ø3 5/32")*	Ø204 *(Ø8 1/32")*	Arm maximum
208 *(8 3/16")*	265 *(10 7/16")*	Ø100 *(Ø3 15/16")*	Ø244 *(Ø9 39/64")*	Arm maximum

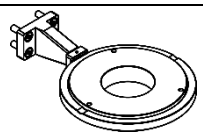
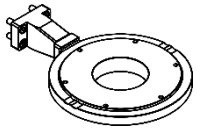
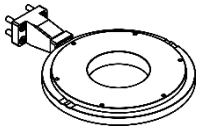
3.15.1 Assembly of the tool

To fit a drilling tool with a magnetic base you must:

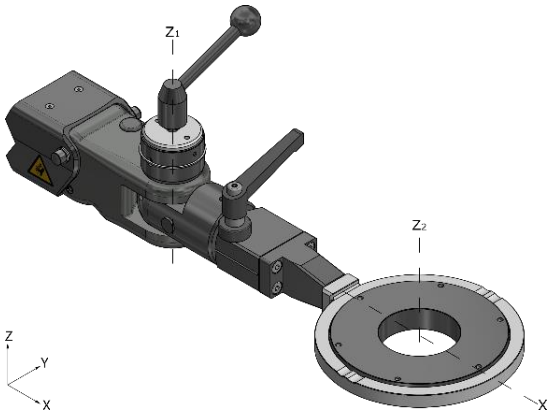
- Separate the magnetic base (1) from the rest of the tool (2).
- Drill holes in the gimbal head (3) to allow the passage of the bolts fitting the two parts of the tool (1 and 2).
- Join the two parts of the tool, leaving the gimbal (3) between them.

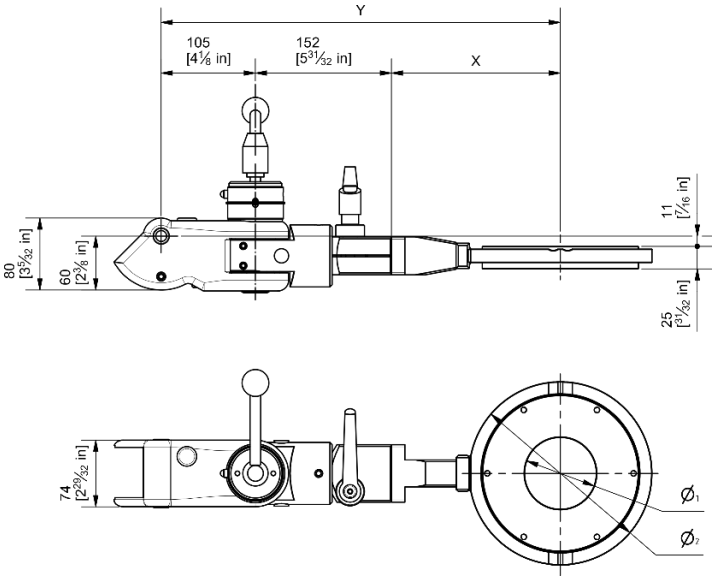


3.15.2 Spare parts

MV3AM180	ORIENTABLE PLATE Ø 180 Maximum load: 12 kg	
MV3RM200	ORIENTABLE PLATE Ø 200 Maximum load: maximum arm load	
MV3RM245	ORIENTABLE PLATE Ø 245 Maximum load: maximum arm load	

3.16 ROTATIVE ELECTROMAGNET - J
M3323600 + MV3AM180 / MV3RM200 / MV3RM245





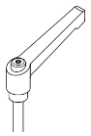
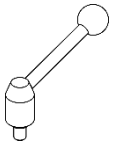
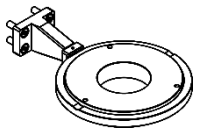
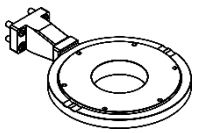
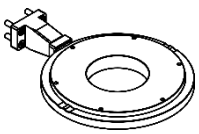
Maximum load: (35 - Headmember weight) kg*.

Z_1: Rotates ±80º. Manual locking in any position.
Z_2: Rotates 360º. Non-lockable.
X: Rotates 360º. Manual locking in any position.

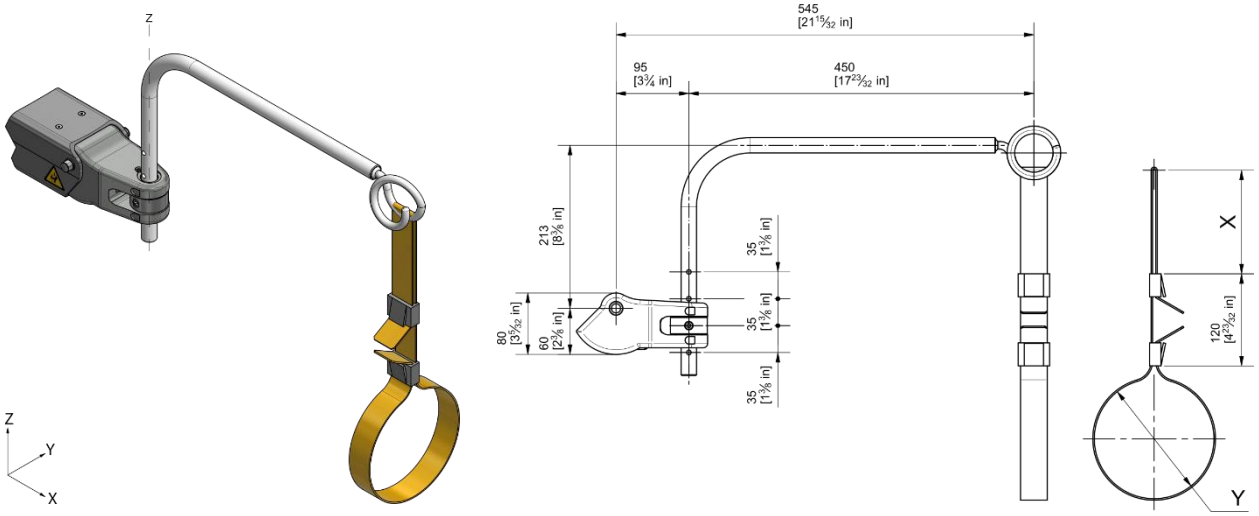
Dimensions				*Maximum load
X (mm)	Y (mm)	$Ø_1$ (mm)	$Ø_2$ (mm)	
172 *(6 49/64")*	429 *(16 57/64")*	Ø70 *(Ø2 3/4")*	Ø178 *(Ø7 1/64")*	12 Kg *(26.5 lbs)*
188 *(7 13/32")*	445 *(17 33/64")*	Ø80 *(Ø3 5/32")*	Ø204 *(Ø8 1/32")*	Arm maximum
208 *(8 3/16")*	465 *(18 5/16")*	Ø100 *(Ø3 15/16")*	Ø244 *(Ø9 39/64")*	Arm maximum

For fitting the tool [See Assembly of the tool page 42].

3.16.1 Spare parts

M3323800R	HANDLE M10	
M3323700	ADJUSTABLE HANDLE ASSY	
MV3AM180	ORIENTABLE PLATE Ø 180 Maximum load: 12 kg	
MV3RM200	ORIENTABLE PLATE Ø 200 Maximum load: maximum arm load	
MV3RM245	ORIENTABLE PLATE Ø 245 Maximum load: maximum arm load	

3.17 ADJUSTABLE STRAP - K
M3146500



Maximum load: (35 - Headmember weight) kg.

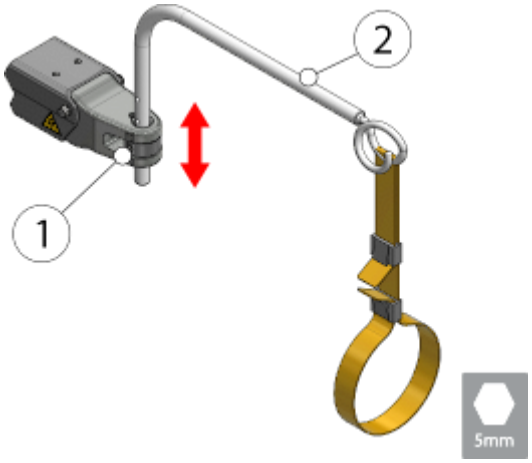
Z: Rotates 360º.

	X (mm)	Y (mm)
Dimensions	0 - 300 *(0 - 11 13/16")*	Ø0 - Ø225 *(Ø0 - Ø8 55/64")*

3.17.1 Height adjustment

The rod has 4 points for working height adjustment, spaced 35mm *(1 3/8") apart*. To adjust height:

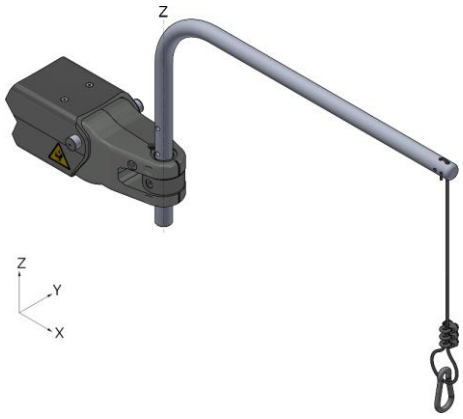
1- Remove the bolt (1) (5mm Allen key).
2- Move the rod (2) to the desired point and tighten the bolt (1) (Allen key 5mm).

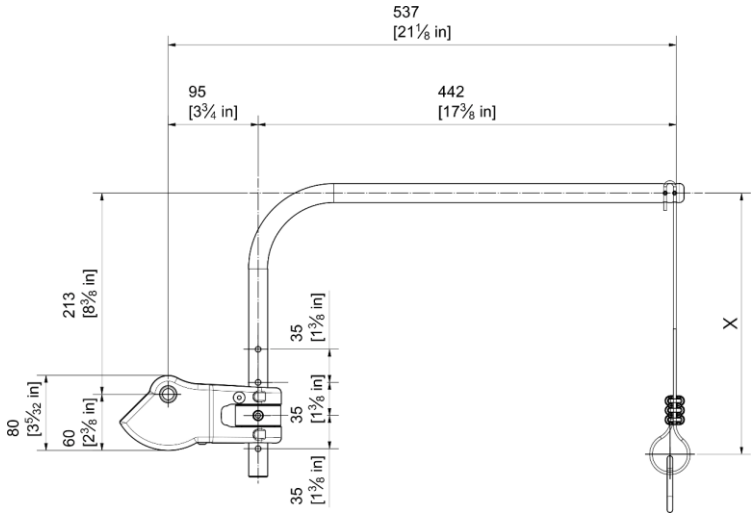


3.17.2 Spare parts

M3146400	FASTENING STRAP	

3.18 CABLE AJUSTABLE – KA
M3329800





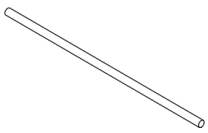
Maximum load: (35 - Headmember weight) kg.

Z: Rotates 360º.

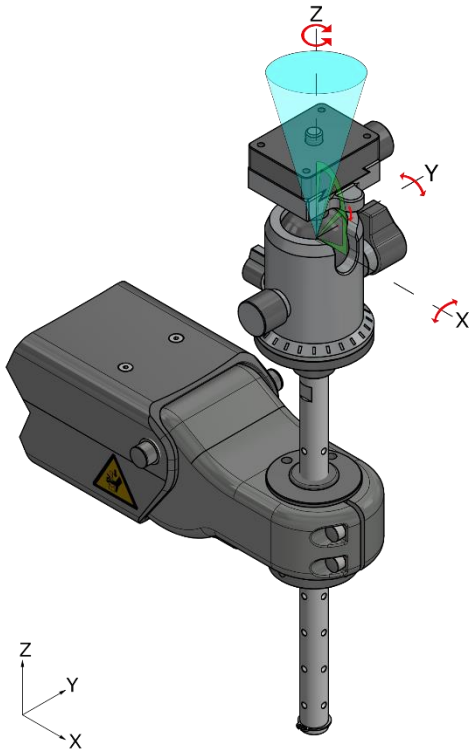
	X (mm)
Dimensions	0 - 200 *(0 - 7 27/32")*

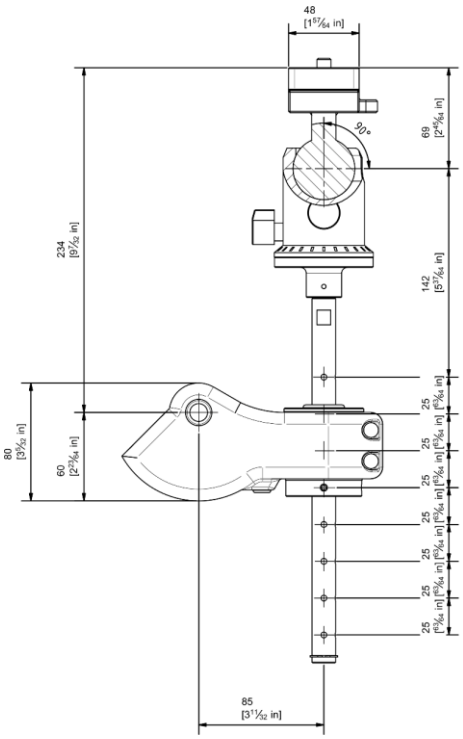
Para regular la altura de trabajo [Ver Height adjustment pág. 55].

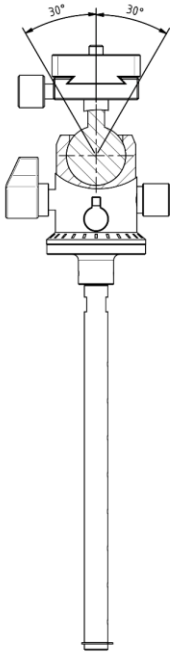
3.18.1 Spare parts

AC006116	STEEL WIRE Ø3	

3.19 ADJUSTABLE MANUAL BALL JOINT WITH VERTICAL ADJUSTMENT - L
M3312200





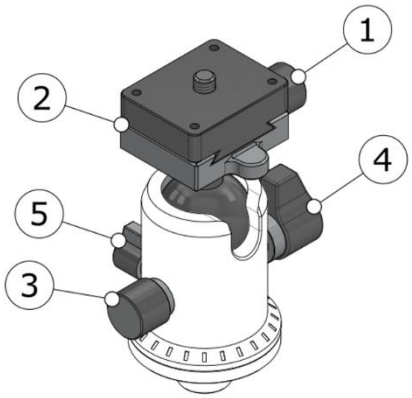


Maximum load: 30 kg.
Manual locking.

Z: Rotates 360º. Manual locking in any position.
XZ plane: ±90º. Manual locking in any position.
YZ plane: ±30º. Manual locking in any position.
Adjustable stroke up to 175mm in Z Axis.

3.19.1 Operation

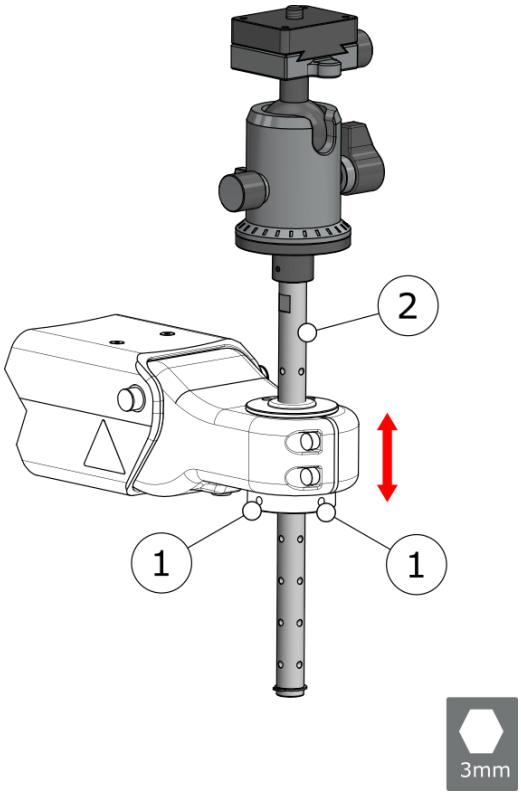
Turning the knob (1) will lock the movement of the bracket (2).
Turning the knob (3) will regulate the friction on the base (2) to adapt the smoothness of motion.
Turning the lever (4) will lock the rotation of the entire assembly.
Turning the lever (5) will lock the 360º adjustment of the base.



3.19.2 Height adjustment

To adapt the vertical run for the assembly:

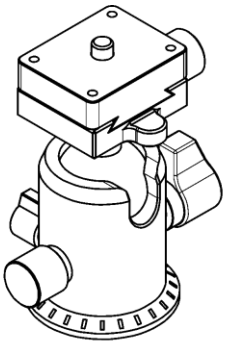
1- Loosen the headless bolts (1) (3mm Allen key).
2- Move the rod (2) to the desired position and re-tighten the bolts (1).

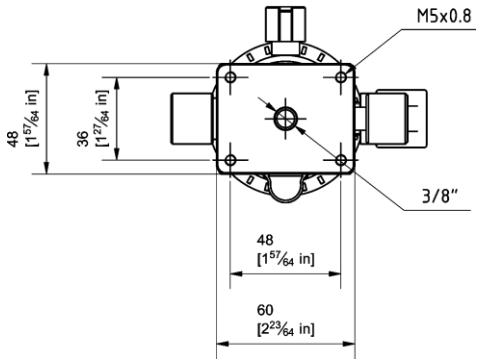


3.19.3 Grip ends

All variants of L-head offer two terminations for the attachment of the tool.

- End with four external anchor points (M5) for customized use.
- Termination with a single anchor point in the centre (3/8") for photography and other equipment.

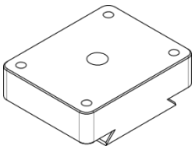
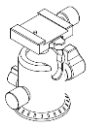




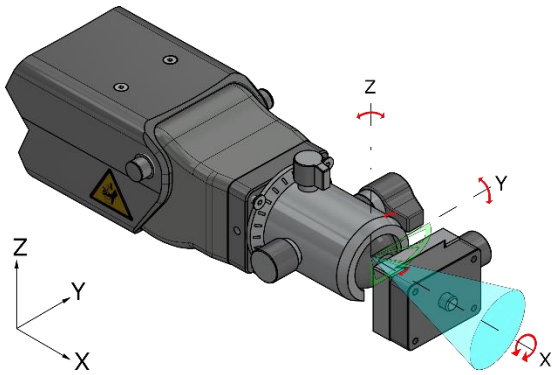
3.19.4 Addition of oil

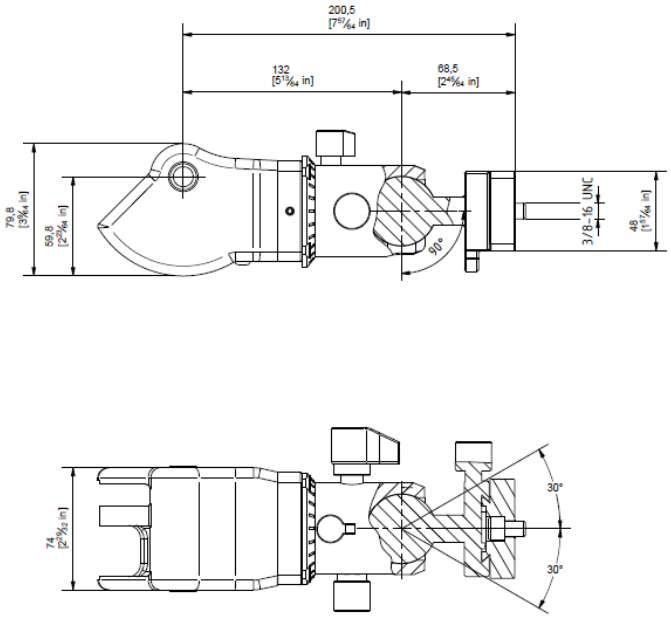
SAE 5-10 hydraulic oil should be used in cases where the system still does not function properly (does not lock) after the friction and rod adjustment has been carried out.

3.19.5 Spare parts

M3338500	UNION PLATE	
CM178800	HYDROSTATIC BALL JOINT	

3.20 ADJUSTABLE MANUAL BALL JOINT HORIZONTAL - LB M3312600



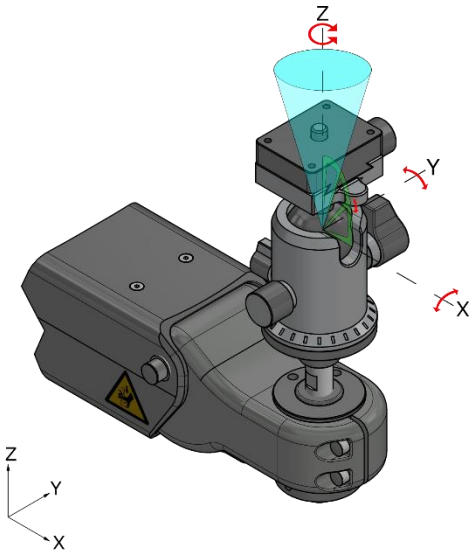


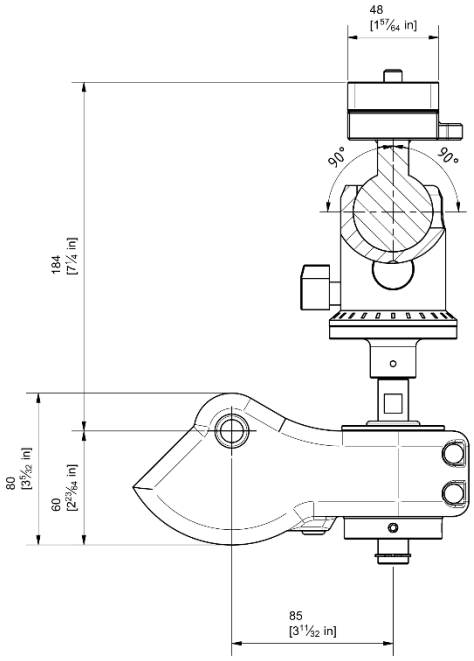
Maximum torque: 25Nm
Manual locking

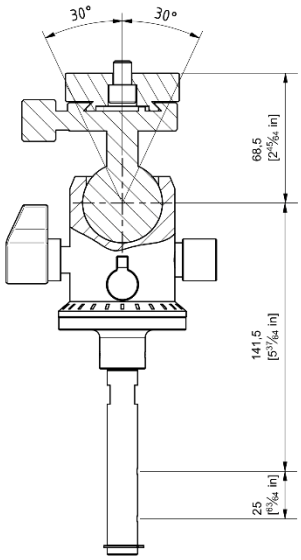
X: Rotates 360º. Manual locking in any position.
XZ plane: ±90º. Manual locking in any position.
XY plane: ±30º. Manual locking in any position.

For operation [See Operation page 58].
Different gripping termination [See Grip ends page 59].
Addition of oil [See Addition of oil page 59].
Spare parts [See Spare parts page 59].

3.21 ADJUSTABLE MANUAL BALL JOINT VERTICAL - LD M3312400





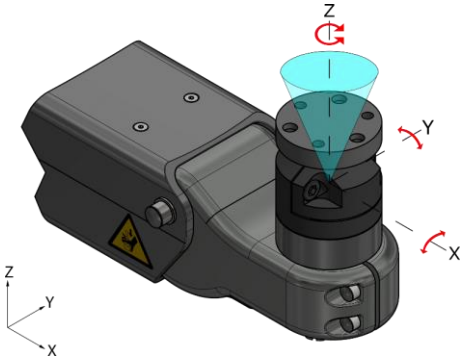


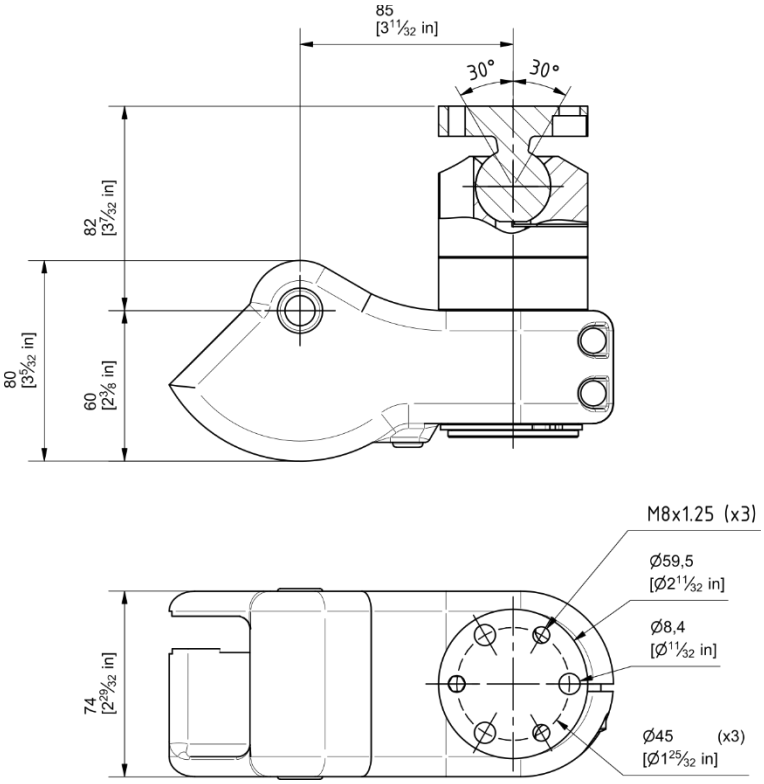
Maximum load: 30 kg.
Manual locking

Z: Rotates 360º. Manual locking in any position.
XZ plane: ±90º. Manual locking in any position.
YZ plane: ±30º. Manual locking in any position.

For operation [See Operation page 58].
For height adjustment [See Height adjustment page 58].
Different gripping termination [See Grip ends page 59].
Addition of oil [See Addition of oil page 59].
Spare parts [See Spare parts page 59].

3.22 REINFORCED MANUAL BALL JOINT VERTICAL - LH
M3312900



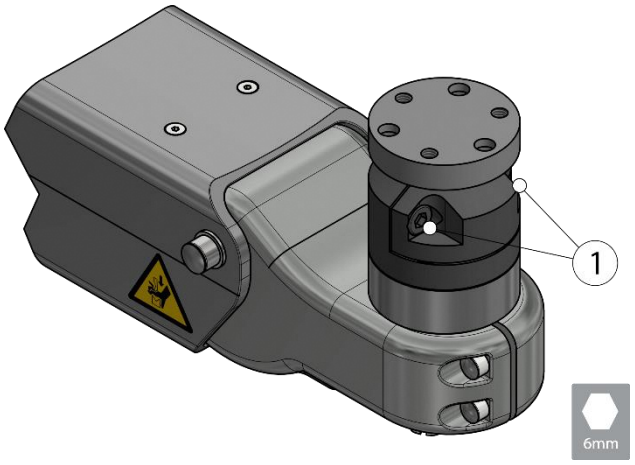


Maximum load: (35 - Headmember weight) kg.
Maximum Torque: 55Nm.

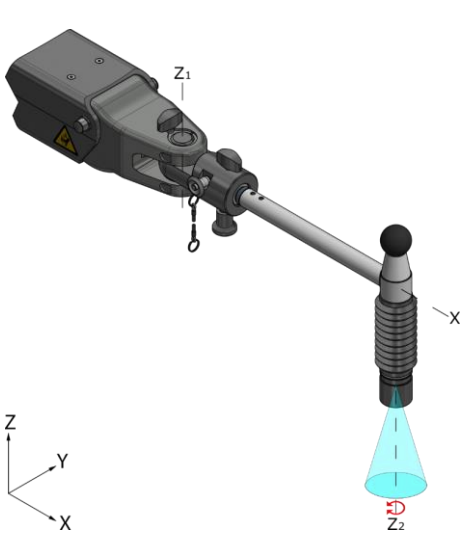
Z: Tilting ball ±30º x 360º. Manual locking in any position.
XZ plane: ±30º. Manual locking in any position.
YZ plane: ±30º. Manual locking in any position.

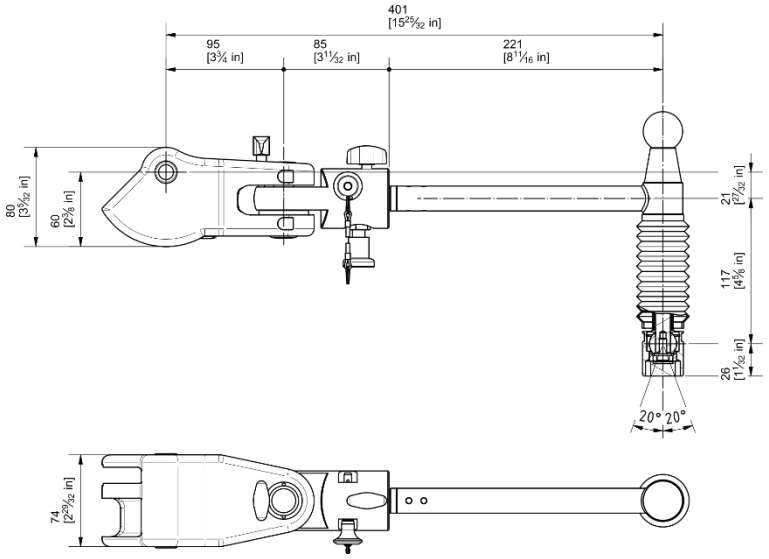
3.22.1 Operation

Tightening/loosening the bolts (1) (6mm Allen key) will regulate the friction on the base to adapt the smoothness of movement.



3.23 PRESSURE SUPPORT - M
M3313700





Maximum load: 12 kg.
Requires locking of the swinging arm[9].

Z_1: Rotates ±90°. Non-lockable.
Z_2: Rotates 360°. Non-lockable. Tilting ball ± 20°.
X: Rotates 360°. Manual locking in 4 positions (4x90°).

[9] Manual locking (Lx1) or pneumatic locking (Lx2).

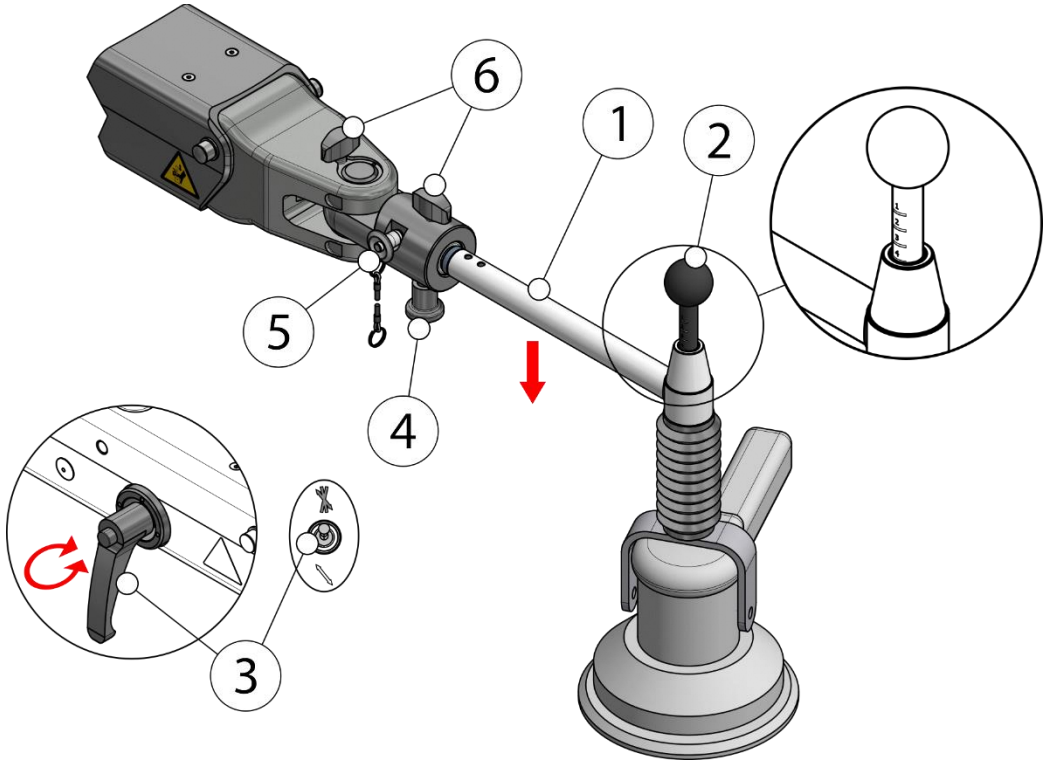
3.23.1 Operation

This head allows pressure to be applied to a surface (e.g. a surface to be polished). At the same time, thanks to the ball head (Z_2 movement), it can be adapted to the work surface (±20°).

The tool is gripped by means of a coupling plate which must be designed for each case (Consult your 3arm® dealer).

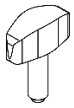
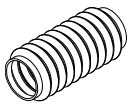
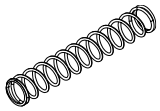
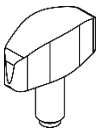
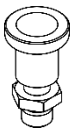
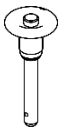
To use, once the tool is installed, follow the guidelines below:

1- Position the tool in working position (e.g. on a surface to be polished).
2- Apply pressure to the rod (1) of the head in the direction shown. As pressure is applied, the rod (2) will rise, with each mark is equivalent to approximately 0.8Kg.
3- Turn the lever or activate the selector (3) to lock the swinging movement of the arm. This will maintain pressure on the work surface at all times.

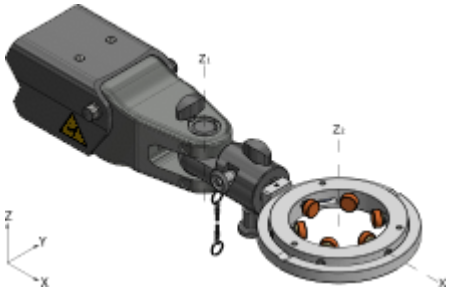


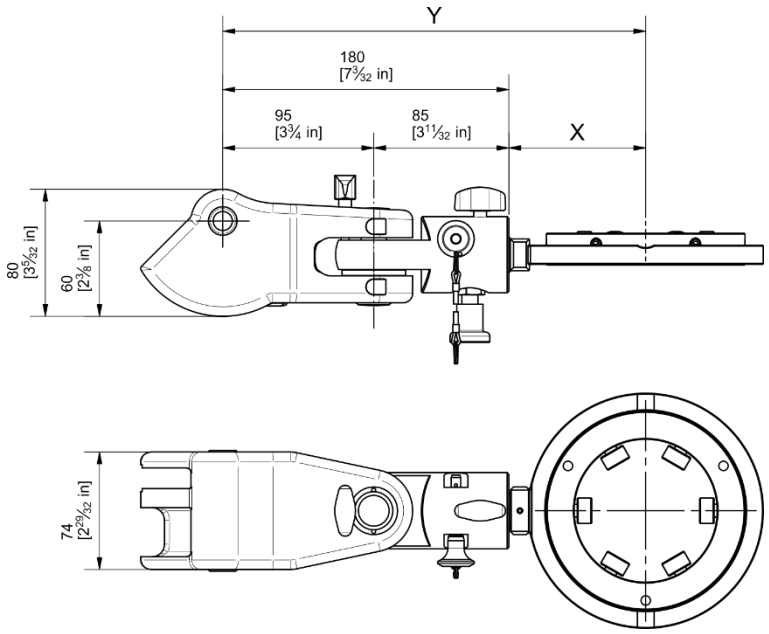
The positioner (4) releases/locks the X movement (360°, 4x90°)
To remove the rod, release the positioner (4) and remove the pin (5).
The friction can be adjusted using the adjustment knobs (6).

3.23.2 Spare parts

MV31J603R	SECURING HANDLE M8x24 [Axis Z_1]	
MV31T603	SPRING PRESSURE CAP	
AC006596	RUBBER BELLOWS	
MV31T703	BALL JOINT PRESSURE SUPPORT SPRING	
MV31K703R	SECURING LEVER M8X18.5 [Axis X]	
AC004046	POSITIONER	
CM125100	POSITIONER Ø6x30	

3.24 MULTIPOSITION WITH QUICK-CHANGE - N
MV31F5A4 + Handlebar





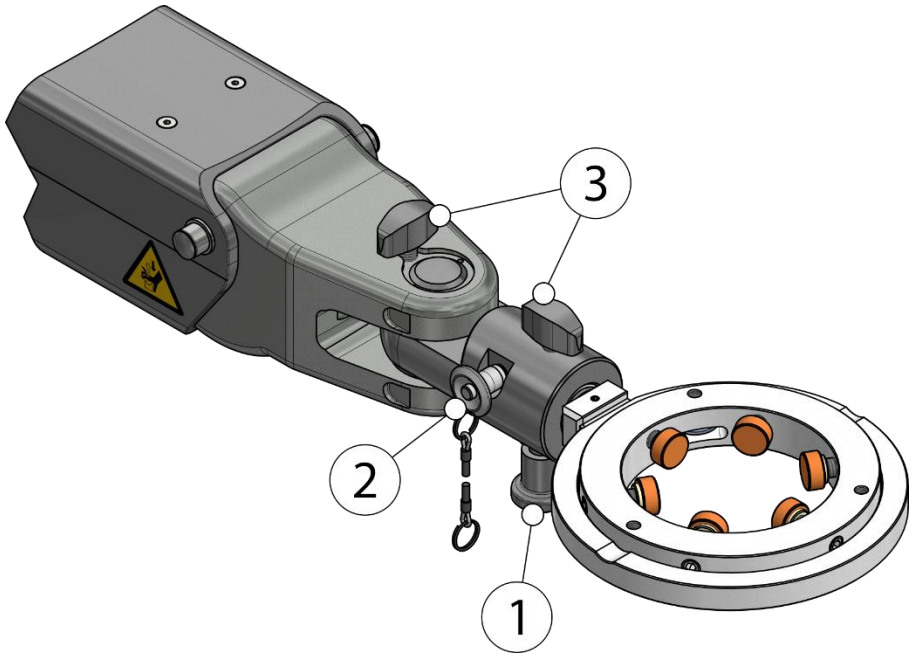
Maximum load: 10 kg / 6 kg[10] | □½"[11]

Z_1: Rotates ±90º. Non-lockable.
Z_2: Rotates 360º. Non-lockable.
X: Rotates 360º. Manual locking in 4 positions (4x90º).

[10] Consider **6kg** max. load for applications with Handlebar type A (TIMCO) when used with vibration tools (impact, impulse, etc.). For all other applications or for applications with B Handlebar type B (TIMSAND), consider 10 kg maximum load.
[11] Recommended tool square size for this head.

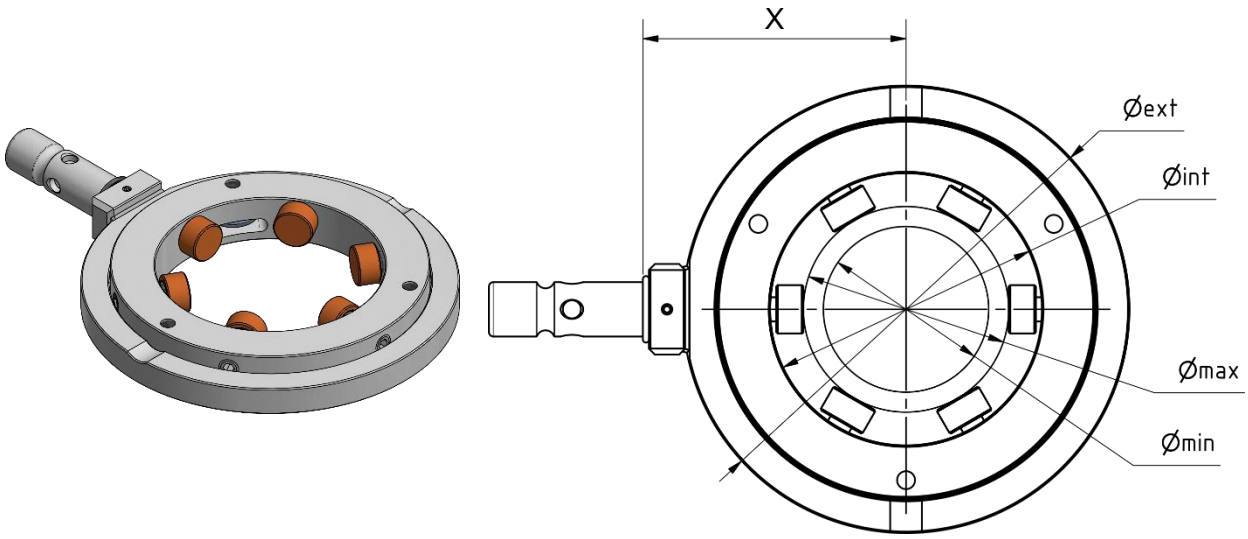
3.24.1 Movements and locking

The positioner (1) releases/locks the X movement (360°, 4x90°)
To remove the rod, release the positioner (1) and remove the pin (2).
The friction can be adjusted using the adjustment knobs (3).



3.24.2 Type A gimbals: TIMCO

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

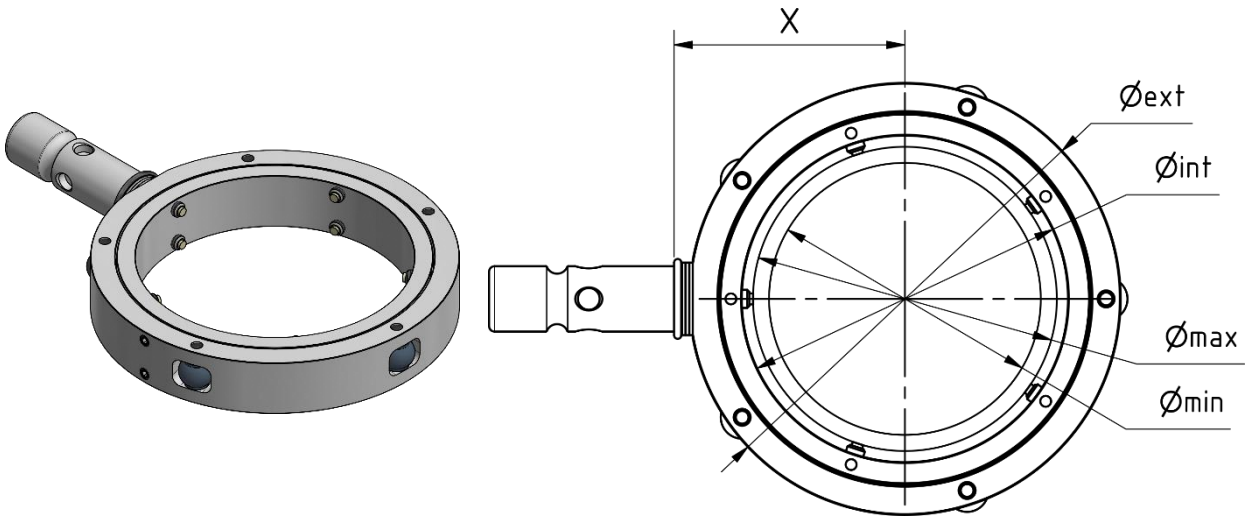


- Dimension X is approximately the external radius plus 12mm ($X = \frac{Øext}{2} + 12$)
- Maximum load 6 kg for applications with vibration tools (impact, impulse, etc.)
- For all other applications or for applications with B Handlebar type B (TIMSAND), consider 10 kg maximum load.
- Other dimensions on request

✓ TIMCO dimensions [See TIMCO Dimensions page 37].
✓ For fitting the tool [See Assembly of the tool page 38].
✓ Included accessories [See Included accessories page 39].
✓ For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

3.24.3 Type B gimbals: TIMSAND

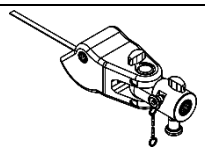
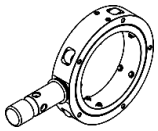
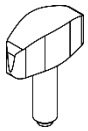
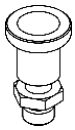
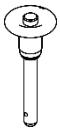
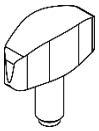
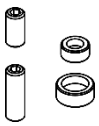
Suitable for tools with cylindrical clamping area.
Ref: MV3PBxxx (xxx = internal diameter in mm)



- Dimension X is approximately the external radius plus 3mm ($X = \frac{\emptyset ext}{2} + 3$)
- Maximum load 6 kg for applications with vibration tools (impact, impulse, etc.)
- For all other applications or for applications with B Handlebar type B (TIMSAND), consider 10 kg maximum load.
- Other dimensions on request

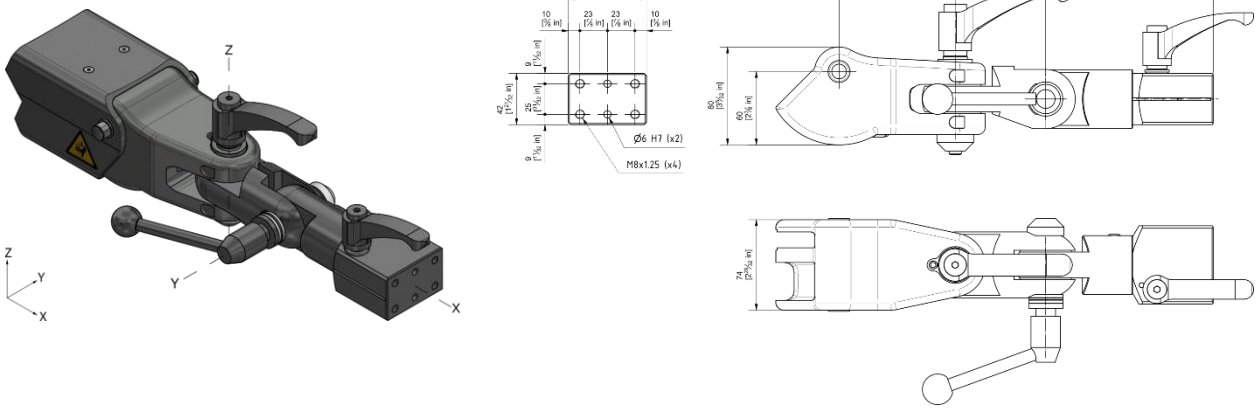
✓ TIMSAND dimensions [See Dimensions TIMSAND page 41].
✓ For fitting the tool [See Assembly of the tool page 42].
✓ Included accessories [See Included accessories page 42].
✓ For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

3.24.4 Spare parts

MV31F5A4R	HEADMEMBER Maximum load =12 kg	
MV3MAXXX[12]	GIMBAL TIMCO Maximum load = 12 Kg	
MV3PBXXX	GIMBAL TIMSAND Maximum load = 12 Kg	
MV31J603R	SECURING LEVER M8x24 [Axis Z_1]	
AC004046	POSITIONER GN 607.1-6-A-ST	
CM125100	POSITIONER	
MV31K703R	SECURING LEVER M8x18.5	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

[12] XXX corresponde al $Ø_{int}$ en mm

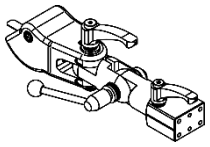
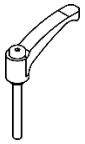
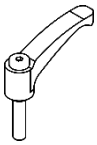
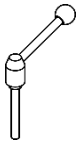
3.25 DOUBLE ARTICULATED FLAT ROTATIVE - P
MV302404



Maximum load: (35 - Headmember weight) kg.

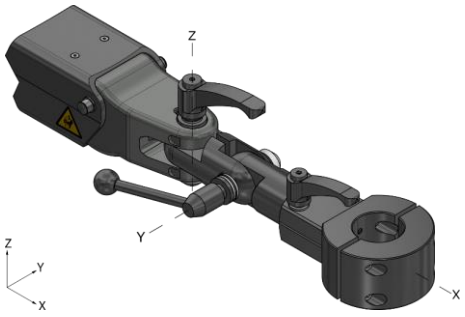
X: Rotates 360º. Manual locking in any position.
Y: Rotates ±90º. Manual locking in any position.
Z: Rotates ±90º. Manual locking in any position.

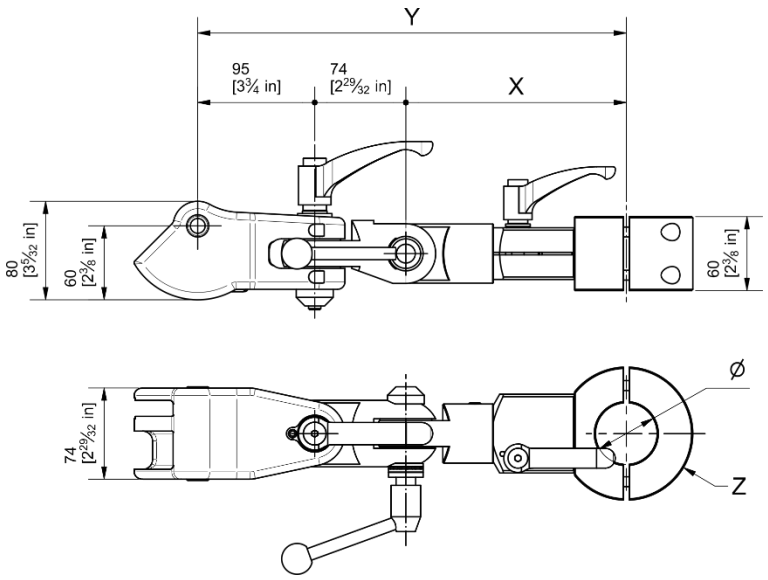
3.25.1 Spare parts

MV302404R	HEADMEMBER	
AC060576	HANDLE M10x80 [Axis Z]	
AC060546	HANDLE M10x40 [Axis X]	
M3343800	HANDLE M10x80 [Axis Y]	

3.26 DOUBLE ARTICULATED FLAT ROTATIVE - PA MV302404 + Bush

Fixed flange (M3Dxxx04)





Maximum load: (35 - Headmember weight) kg.
Maximum torque: 120 Nm.

X: Rotates 360º. Manual locking in any position.
Y: Rotates ±90º. Manual locking in any position.
Z: Rotates ±90º. Manual locking in any position.

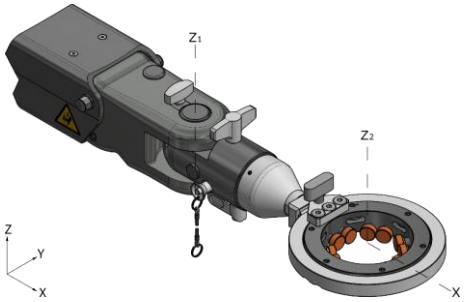
Ø: Specific diameter on request.

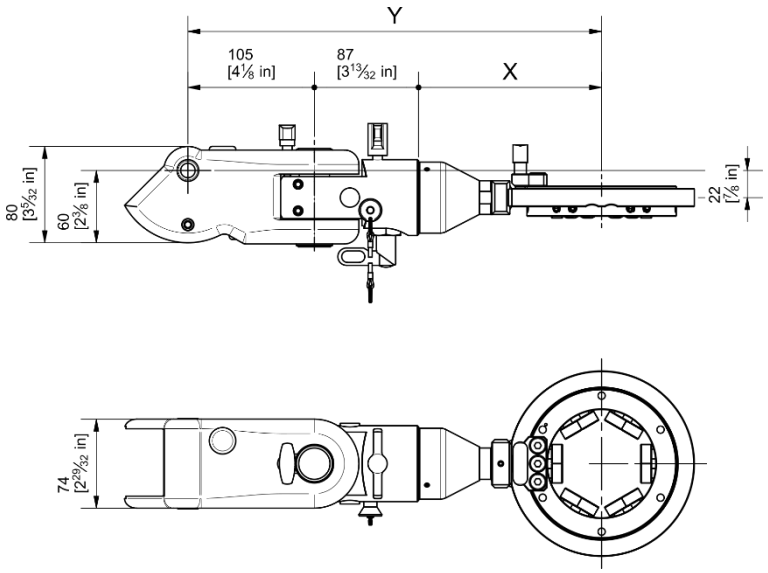
Dimensions	Ømin (mm)	Ømax (mm)	X (mm)	Y (mm)	Z (mm)
Fixed flange	15 *(19/32")*	65 *(2 9/16")*	179 *(7 3/64")*	348 *(13 45/64")*	Ø108 *(Ø2 1/4")*
	65 *(2 9/16")*	80 *(3 5/32")*	188.5 *(7 27/64")*	357.5 *(14 5/64")*	Ø124 *(Ø4 7/8")*

MAXIMUM TORQUE (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	100	100	100
S3	100	100	100
S4	100	100	100

Spare parts [See Spare parts page 71].

3.27 MULTIPOSITION REINFORCED WITH QUICK-CHANGE - Q
MV30D2A4 + Handlebar





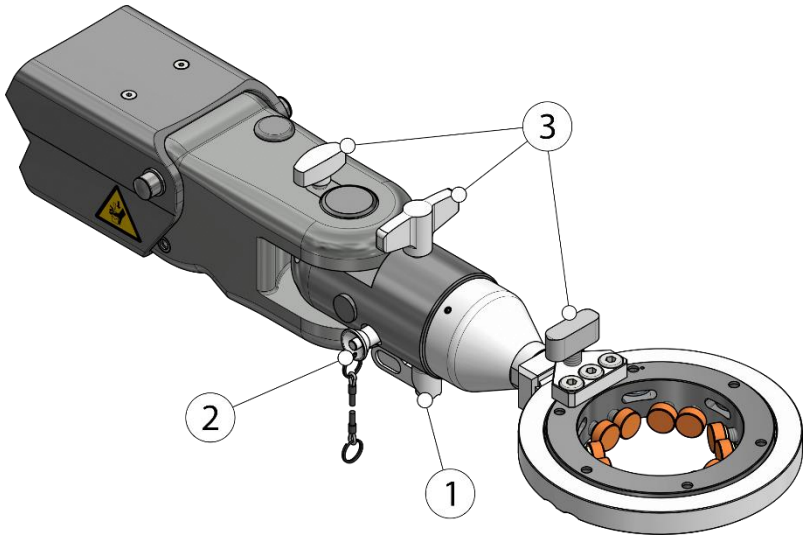
Maximum load: 30 kg | □¾"[13]

Z_1: Rotates ±80º. Non-lockable.
Z_2: Rotates 360º. Adjustment of smoothness for rotation and position setting.
X: Rotates 360º or 4x90º[14].

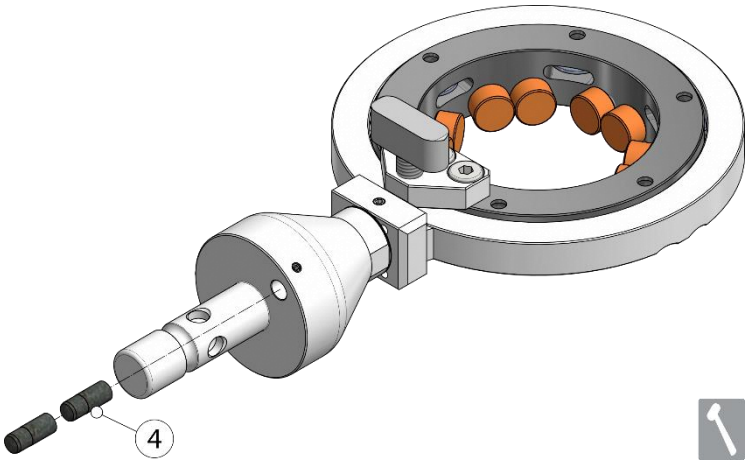
[13] Recommended tool square size for this head
[14] In the case of vertical/horizontal work, pins will be fitted which will only allow the 4 positions at 90°. In case of work at any 360° angle, the pins will not be fitted; the positioner does not allow vertical/horizontal work.

3.27.1 Operation

The positioner (1) releases/locks the X movement (360°, 4x90°)
To remove the rod, release the positioner (1) and remove the positioner (2).
The friction can be adjusted using the adjustment knobs (3).



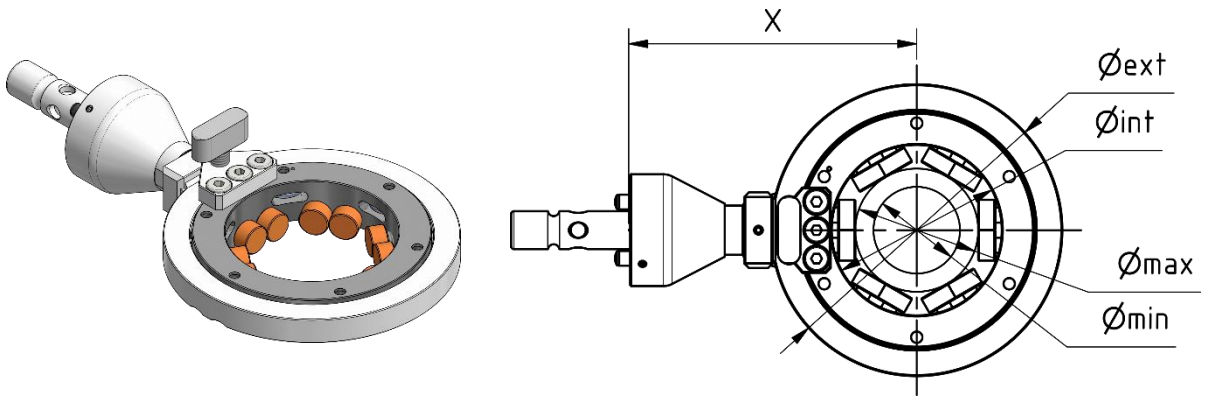
Due to the robustness of the positioner (1), vertical/horizontal work is not permitted.
In cases where you have to work only vertically/horizontally, the pins (4) supplied must be inserted into the holes in the handlebar (the machined end of the pin remains outside the handlebar).



To turn the handlebar with the pins fitted, leave the positioner (1) free, remove the positioner (2) and pull the handlebar back a little so that it can be turned.

3.27.2 Gimbal Type A: REINFORCED TIMCO

Suitable for any type of tool.
Ref: MV3JAxxx (xxx = internal diameter in mm)

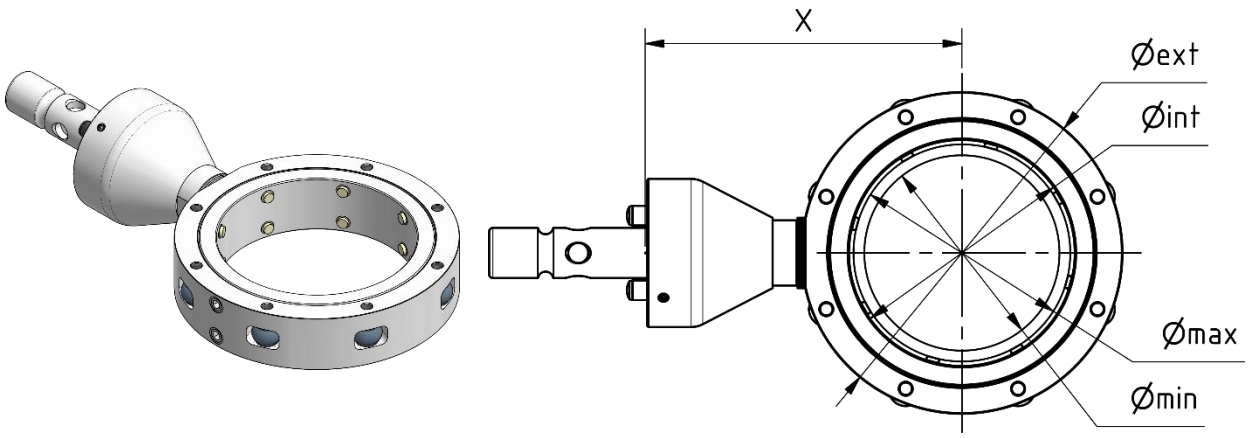


- Dimension X is approximately the external radius plus 76mm ($X = \frac{\emptyset ext}{2} + 76$)
- Maximum load 6 kg for applications with vibration tools (impact, impulse, etc.)
- Other dimensions on request

- ✓ TIMCO dimensions [See Dimensions of TIMCO page 47].
- ✓ For fitting the tool [See Assembly of the tool page 38].
- ✓ Included accessories [See Included accessories page 39].
- ✓ For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

3.27.3 Gimbal Type B: TIMSAND REINFORCED

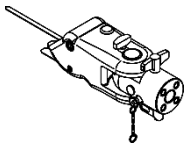
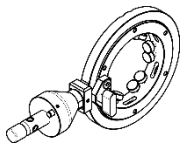
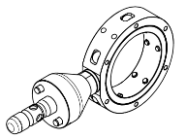
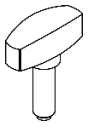
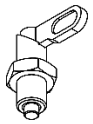
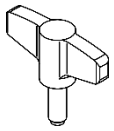
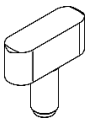
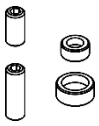
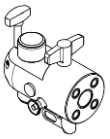
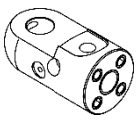
Suitable for any type of tool.
Ref: MV3JBxxx (xxx = internal diameter in mm)



- Dimension X is approximately the external radius plus 62mm ($X = \frac{Øext}{2} + 62$)
- Other dimensions on request

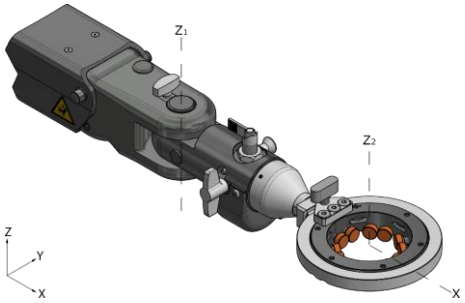
- ✓ TIMSAND dimensions [See Dimensions TIMSAND reinforced page 49].
- ✓ For fitting the tool [See Assembly of the tool page 42].
- ✓ Included accessories [See Included accessories page 42].
- ✓ For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

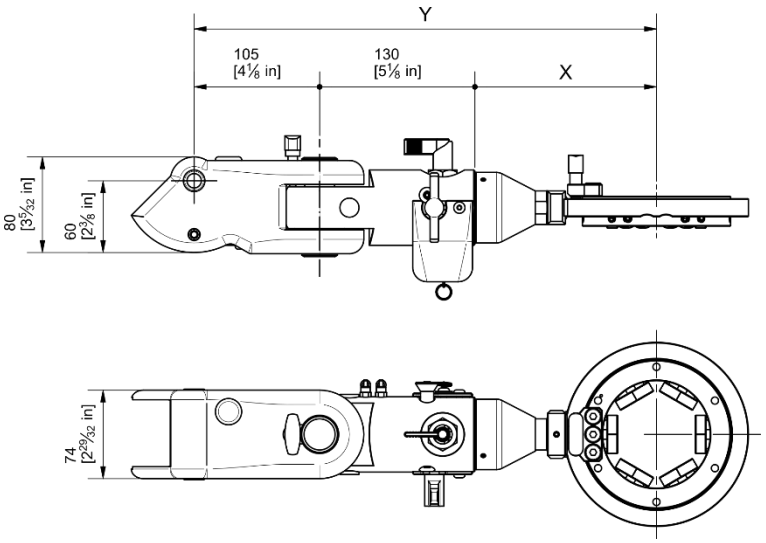
3.27.4 Spare parts

MV30D2A4R	HEADMEMBER Maximum load 30 Kg	
MV3JAXXX[15]	GIMBAL TIMCO Maximum load = 30 Kg	
MV3JBXXX	GIMBAL TIMSAND Maximum load = 30 kg	
M3103300R	SECURING LEVER M8x24 STAINLESS STEEL [Axis Z_1]	
M3360800	POSITIONER RETOUCHING M16x1.5	
M3103400R	LEVER M8 STAINLESS STEEL [Axis X]	
CM125000	POSITIONER Ø6x40	
M3103200R	TIMCO STAINLESS STEEL BRAKE RETOUCH [Axis Z_2]	
MV331104	REPLACEMENT STUDS AND CAPS KIT	
M3171600R	HEAD TILTING BASE Maximum load 30 kg	
M3279000	TILTING BASE REINFORCED WITH BUSHES	

[15] XXX corresponds to inner Ø in mm

3.28 MULTIPOSITION REINFORCED SECURITY WITH QUICK-CHANGE - QA
M3147600 + Handlebar





Requires Locks on the swinging arm (Lx2).
Maximum load: 30 kg | □¾" [16]

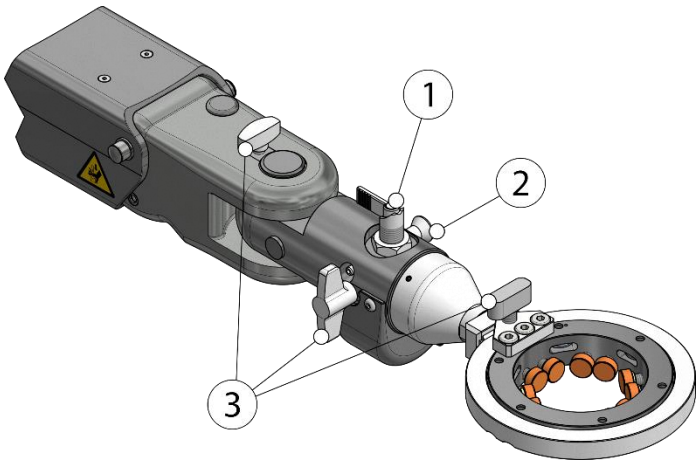
Z_1: Rotates ±80º. Non-lockable.
Z_2: Rotates 360º. Adjustment of smoothness for rotation and position setting.
X: Rotates 360º or 4x90º [17].

[16] Recommended tool square size for this head
[17] In the case of vertical/horizontal work, pins will be fitted which will only allow the 4 positions at 90°. In case of work at any 360° angle, the pins will not be fitted; the positioner does not allow vertical/horizontal work.

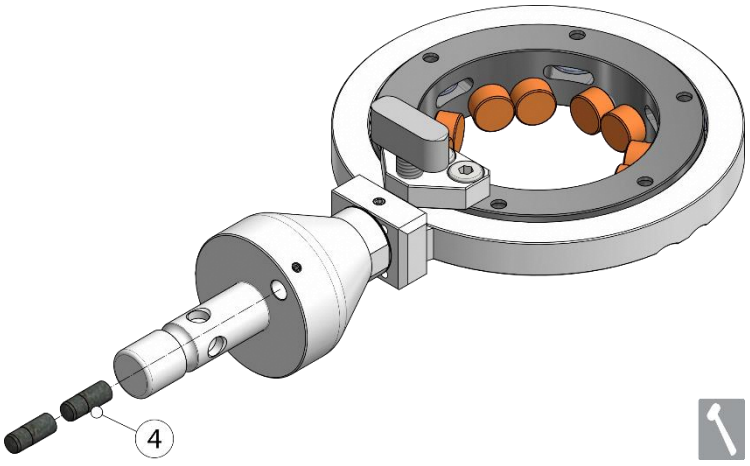
3.28.1 Movements and locking

The head is fitted with a safety system that locks the tilting arm when the tool is removed, thus preventing an accident.

The positioner (1) releases/locks the X movement (360°, 4x90°)
To remove the rod, release the positioner (1) and remove the positioner (2). When the handlebar is pulled out, the swinging arm will be locked to prevent a sudden upward movement.
When the handlebar is inserted, the pneumatic arm lock will be deactivated.
The friction can be adjusted using the adjustment knobs (3).



Due to the robustness of the positioner (1), vertical/horizontal work is not permitted.
In cases where you have to work only vertically/horizontally, the pins (4) supplied must be inserted into the holes in the handlebar (the machined end of the pin remains outside the handlebar).

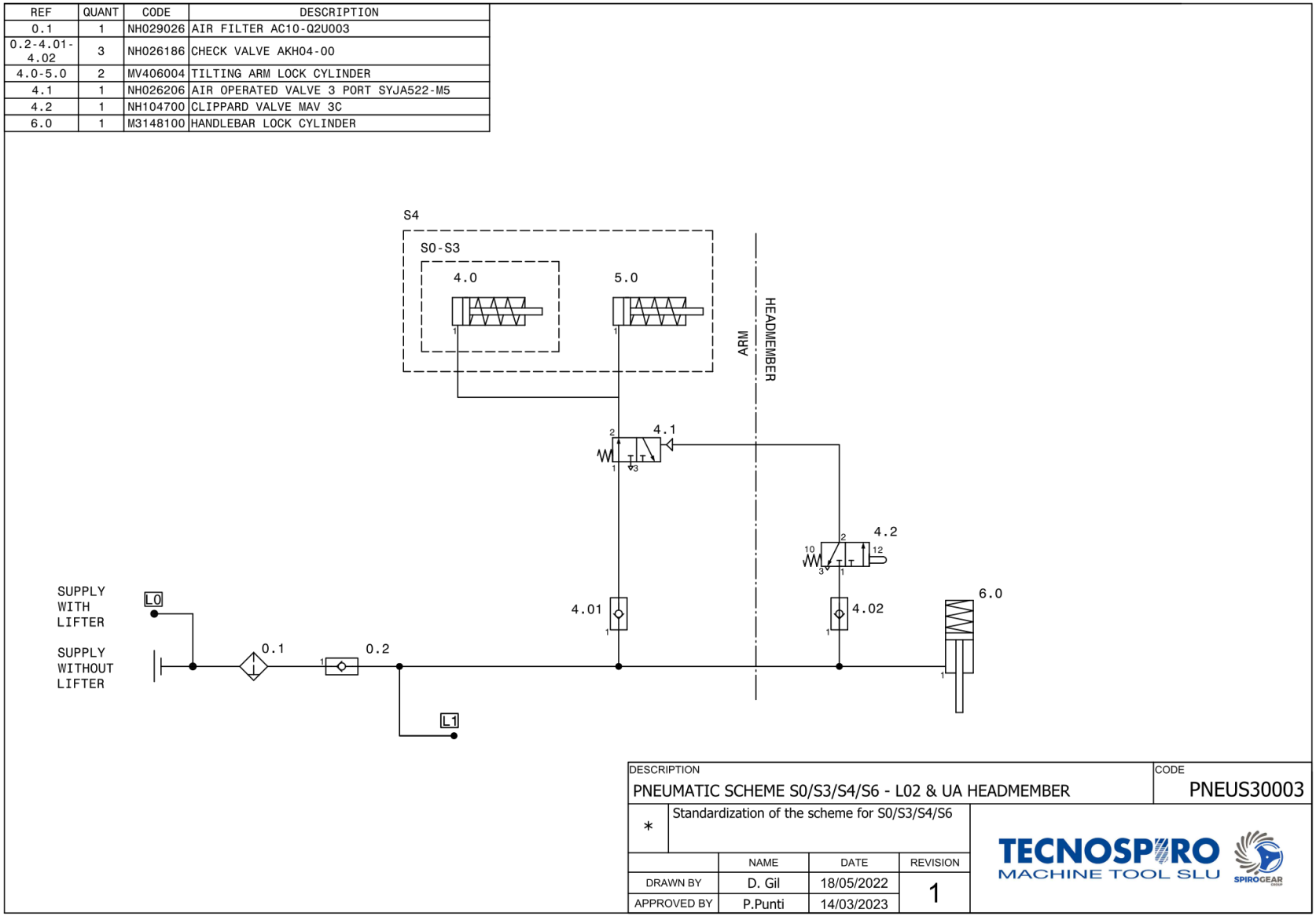


To turn the handlebar with the pins fitted, leave the positioner (1) free, remove the positioner (2) and pull the handlebar back a little so that it can be turned.

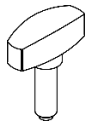
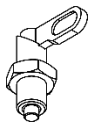
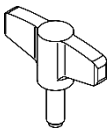
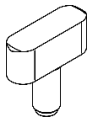
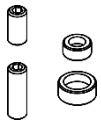
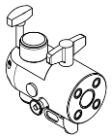
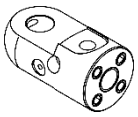
Gimbal type A: TIMCO [See Gimbal Type A: REINFORCED TIMCO page 75].
Gimbal type B: TIMSAND [See Gimbal Type B: TIMSAND REINFORCED page 76].

3.28.2 Pneumatic diagram

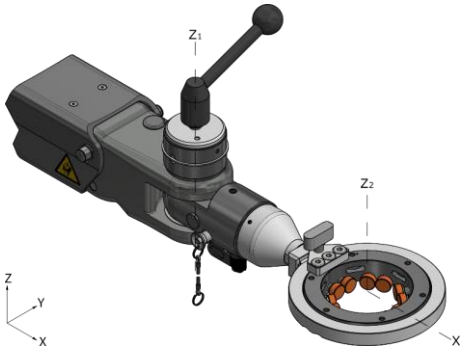
REF	QUANT	CODE	DESCRIPTION
0.1	1	NH029026	AIR FILTER AC10-Q2U003
0.2-4.01-4.02	3	NH026186	CHECK VALVE AKH04-00
4.0-5.0	2	MV406004	TILTING ARM LOCK CYLINDER
4.1	1	NH026206	AIR OPERATED VALVE 3 PORT SYJA522-M5
4.2	1	NH104700	CLIPPARD VALVE MAV 3C
6.0	1	M3148100	HANDLEBAR LOCK CYLINDER

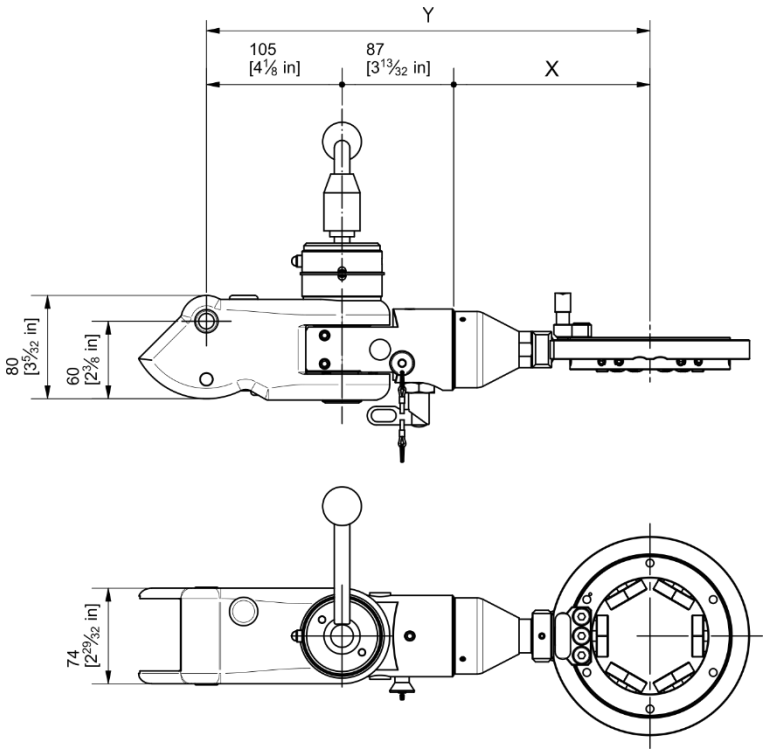


3.28.3 Spare parts

M3103300R	SECURING LEVER M8x24 STAINLESS STEEL [Axis Z_1]	
M3360800	POSITIONER RETOUCHING M16x1.5	
M3103400R	LEVER M8 STAINLESS STEEL [Axis X]	
CM125000	POSITIONER Ø6x40	
M3103200R	TIMCO STAINLESS STEEL BRAKE RETOUCH [Axis Z_2]	
MV331104	REPLACEMENT STUDS AND CAPS KIT	
M3171600R	HEAD TILTING BASE Maximum load 30 kg	
M3279000	TILTING BASE REINFORCED WITH BUSHES	

3.29 MULTIPOSITION REINFORCED WITH MANUAL BRAKE - QB M3259000 + Handlebar





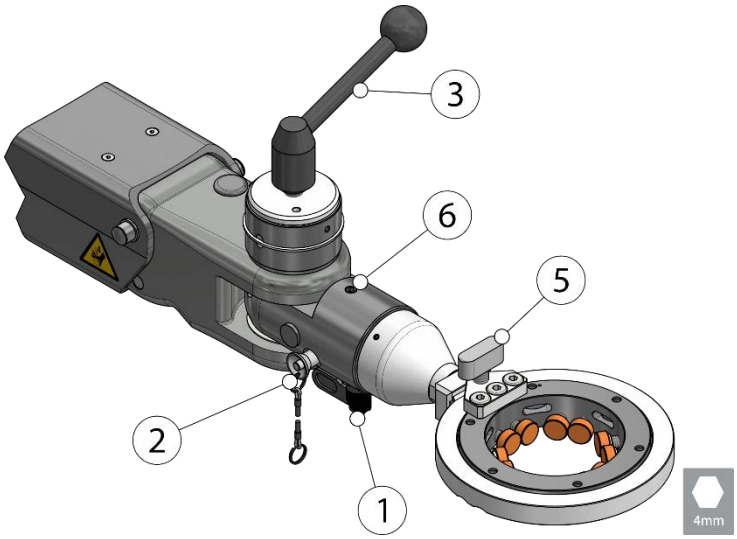
Maximum load: 30 kg | □¾"[18]

Z_1: Rotates ±90º. Manual locking in any position.
Z_2: Rotates 360º. Adjustment of smoothness for rotation and position setting.
X: Rotates 360º or 4x90º [19].

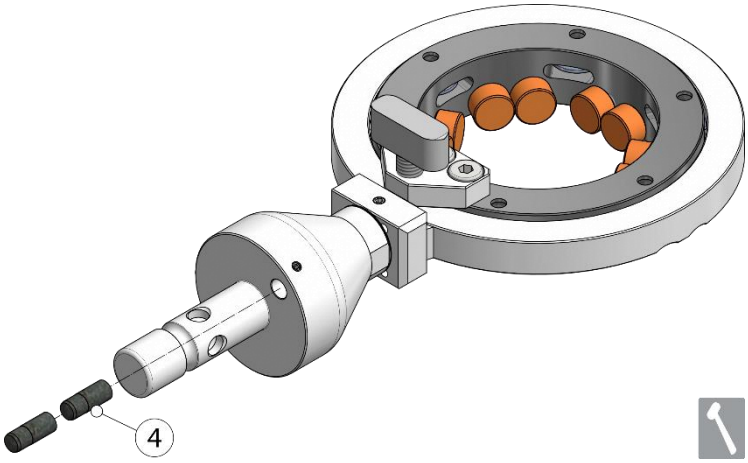
[18] Recommended tool square size for this head
[19] In the case of vertical/horizontal work, pins will be fitted which will only allow the 4 positions at 90°. In case of work at any 360° angle, the pins will not be fitted; the positioner does not allow vertical/horizontal work.

3.29.1 Operation

The positioner (1) releases/locks the X movement (360°, 4x90°)
To remove the rod, release the positioner (1) and remove the positioner (2).
The handle (3) is used to block movement on the Z_1axis.
Friction is adjusted using the adjustment knob (5).
Use headless bolt (6) (4mm Allen key) to adjust friction on the X Axis.



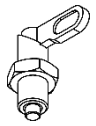
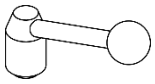
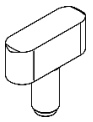
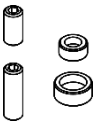
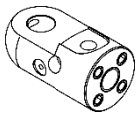
Due to the robustness of the positioner (1), vertical/horizontal work is not permitted.
In cases where you have to work only vertically/horizontally, the pins (4) supplied must be inserted into the holes in the handlebar (the machined end of the pin remains outside the handlebar).



To turn the handlebar with the pins fitted, leave the positioner (1) free, remove the positioner (2) and pull the handlebar back a little so that it can be turned.

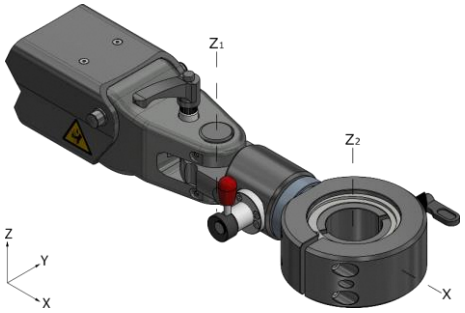
Gimbal type A: TIMCO [See Gimbal Type A: REINFORCED TIMCO page 75].
Gimbal type B: TIMSAND [See Gimbal Type B: TIMSAND REINFORCED page 76].

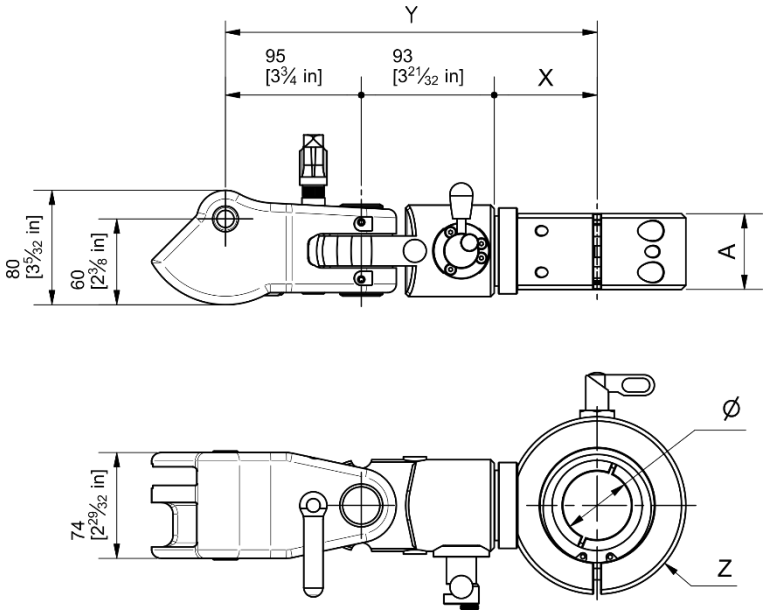
3.29.2 Spare parts

M3360800	POSITIONER RETOUCHING M16x1.5	
CM151500	HANDLE M12 [Axis Z_1]	
CM125000	POSITIONER Ø6x40	
M3103200R	TIMCO STAINLESS STEEL BRAKE RETOUCH [Axis Z_2]	
MV331104	REPLACEMENT STUDS AND CAPS KIT	
M3279000	TILTING BASE REINFORCED WITH BUSHES	

3.30 MANUAL REVOLVING - R
MV404404 + Bush

Rotary flange (MVRxxx04)





Requires L92 Locks[20].
Suitable for angled tools.

X: Rotates 360º. Manual locking in 64 positions (64x5.6º).
Z_1: Rotates 180º. Manual locking in 5 positions (5x45º).
Z_2: Rotates 360º. Manual locking in 8 positions (8x45º).

Dimensions					
Ømin (mm)	**Ømax (mm)**	**X (mm)**	**Y (mm)**	**Z (mm)**	**A (mm)**
31 *(1 7/32")*	55 *(2 11/64")*	72 *(2 53/64")*	260 *(10 15/64")*	Ø124 *(Ø4 7/8")*	53 *(2 3/32")*
53 *(2 3/32")*	70 *(2 3/4")*	76 *(2 63/64")*	264 *(10 25/64")*	Ø134 *(Ø5 9/32")*	63 *(2 31/64")*
69 *(2 23/32")*	80 *(3 5/32")*	81.5 *(3 13/64")*	269.5 *(10 39/64")*	Ø144 *(Ø5 43/64")*	65 *(2 9/16")*

MAXIMUM TORQUE - Rotating flange (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	300	250	200
S3	300	250	200
S4	300	250	200

[20] S0: The use of pneumatic locks (L92 / L92 + compensator) is highly recommended
S3: The use of pneumatic locks (L92 / L92 + compensator) is highly recommended
S4: Mandatory use of pneumatic locks (L92 / L92 + compensator)

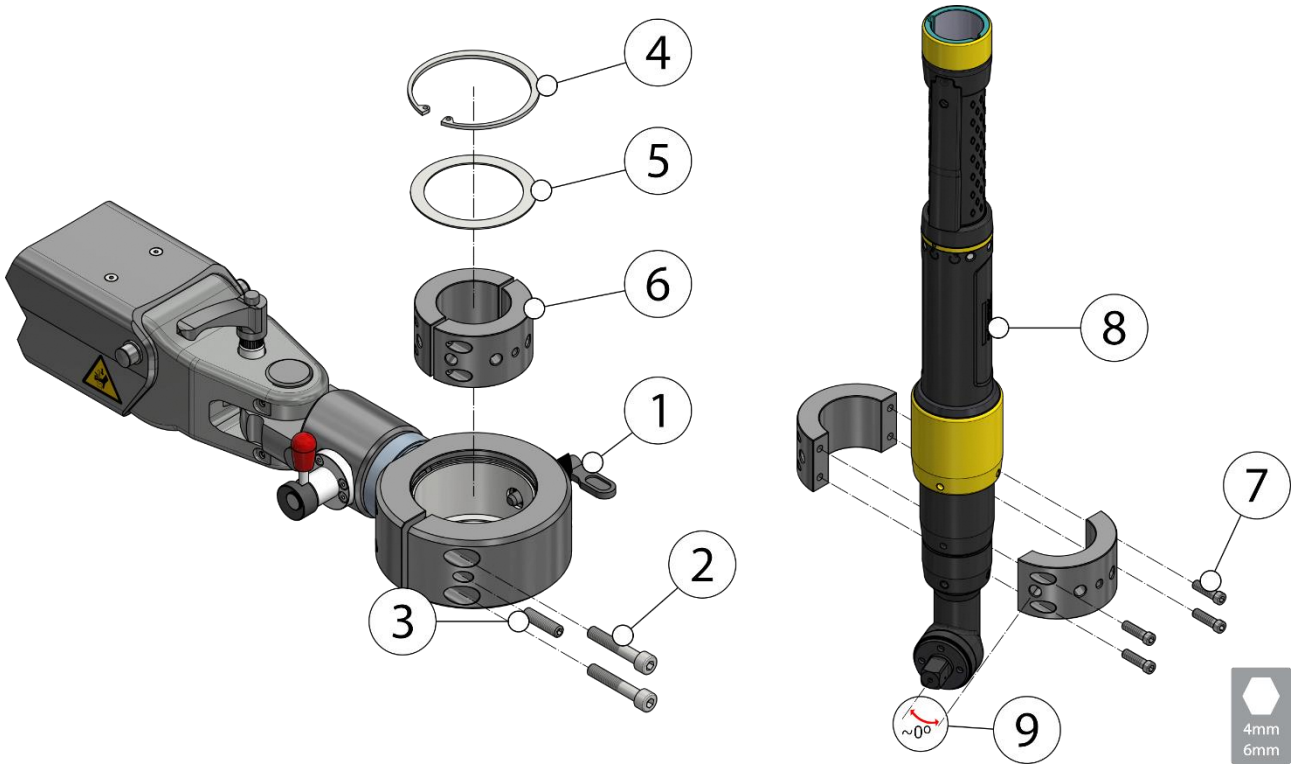
3.30.1 Installation of the tool

To attach the tool to the head, follow the steps below:

1. Unlock the positioner (1).
2. Remove the bolts (2) (6mm Allen key) and loosen the headless bolt (3) (4mm Allen key).
3. Remove the snap ring (4) and the axial disc (5).
4. Remove the inner ring (6) and open the two halves by removing the bolts (7) (4mm Allen key).
5. Attach the two halves of the inner ring (6) to the tool (8) at the clamping area. Tighten the fastening bolts (7) (4mm Allen key).

In the case of angled tools, the exit shaft of the tool must be aligned with one of the eight holes provided for locking (9).

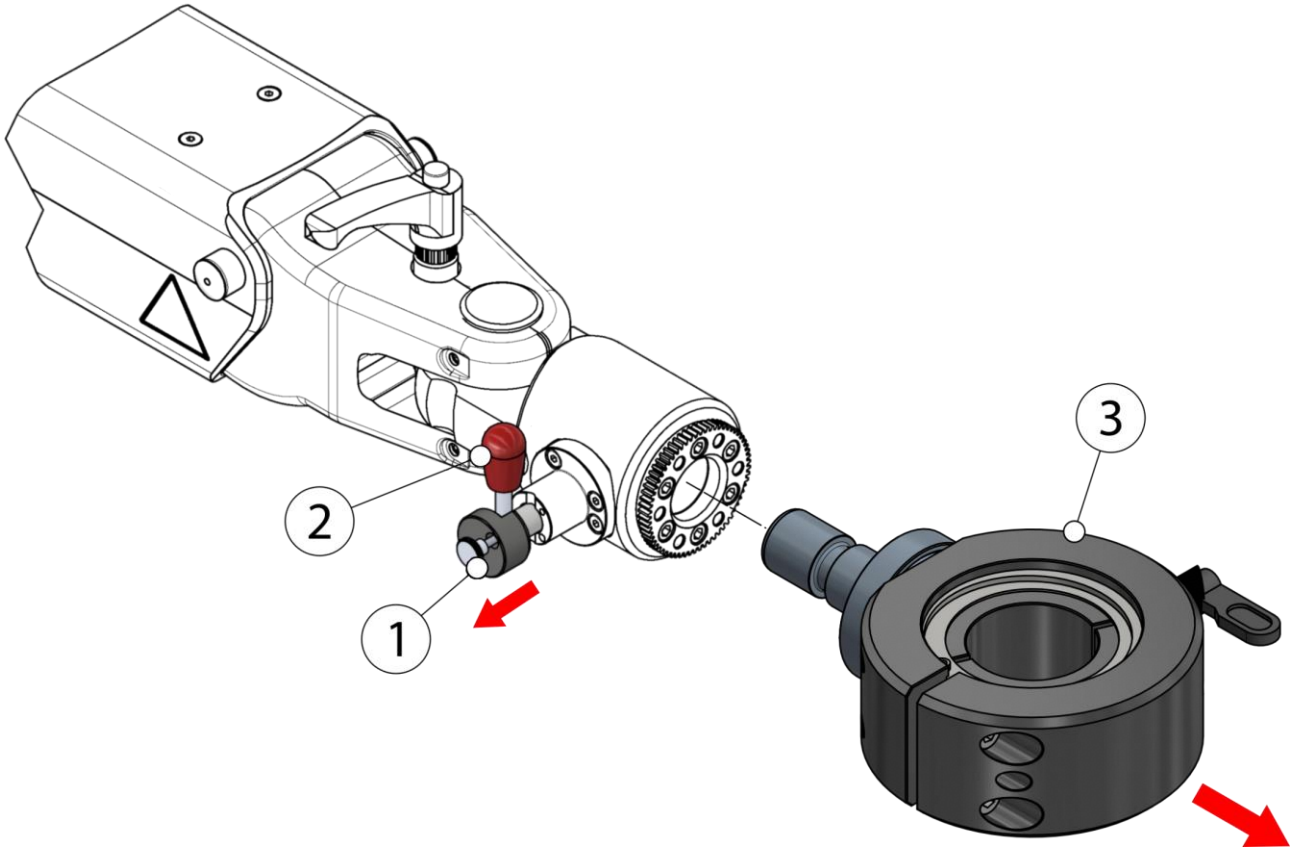
6. Position the tool assembly and the inner ring in its housing. Tightening the headless bolt (3) (4mm Allen key) may help if the inner ring with the tool does not fit into the housing (loosen the bolt once the tool has been inserted).
7. Fit the axial disc (5) and the snap ring (4).
8. Tighten the bolts (2) (6mm Allen key) until the tool turns smoothly. Tighten the headless bolt (3) (4mm Allen key) to reinforce the assembly.



3.30.2 Flange change

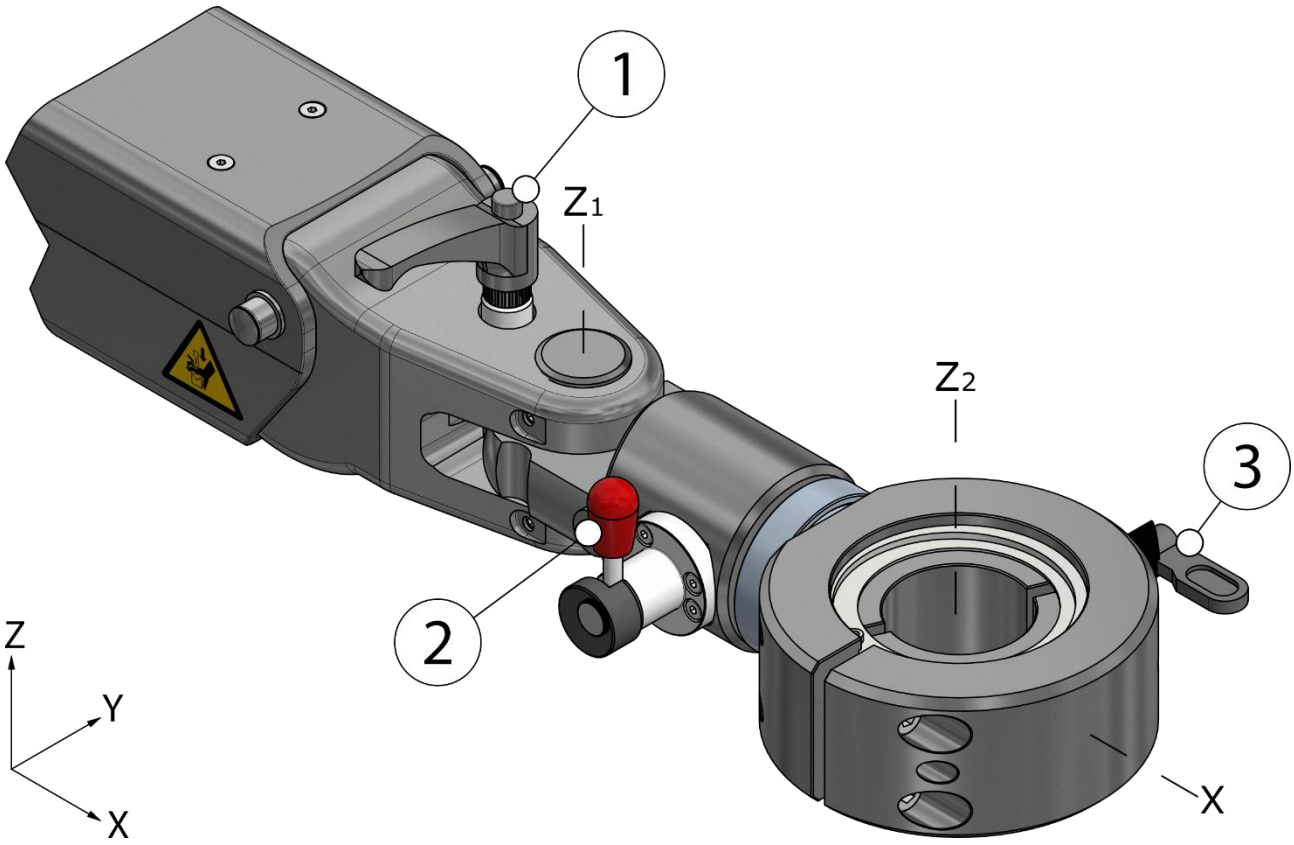
To change the moving part, follow the instructions below:

1. Unscrew the small wheel (1).
2. Pull the lever (2) outwards and hold it in that position.
3. Remove the flange (3) and release the lever (2).
4. Proceed in reverse order for coupling.



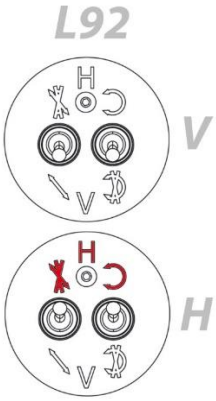
3.30.3 Movements and locking

The handle (1) releases/locks the Z_1 movement (180°, 5x45°).
The knob (2) releases/locks the X movement (360°, 64x5.6°).
The positioner (3) releases/locks the Z_2 movement (360°, 8x45°).



3.30.4 Operation

Depending on the working position, Vertical (V), Horizontal (H) or Angle (A) the selectors must be positioned as defined in the picture.



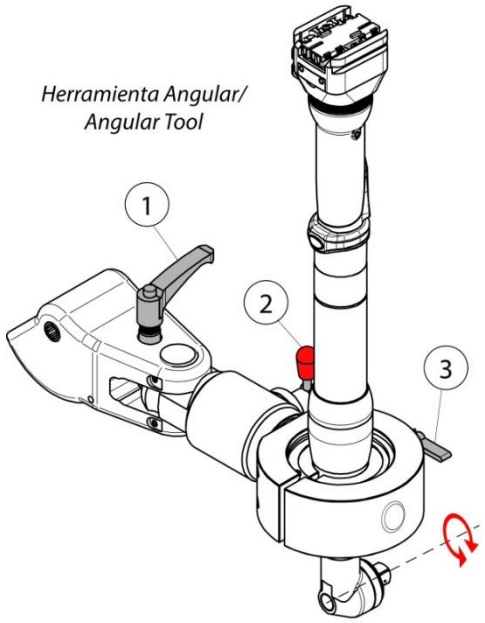
In case of pneumatic locking L92 + compensator, maintain the factory setting (all locked).

When working at A (angle), the selectors shall be set to V (vertical) if a more vertical than horizontal position prevails, and H (horizontal) otherwise.

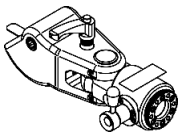
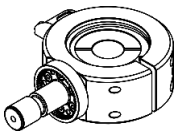
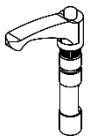
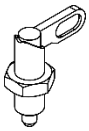
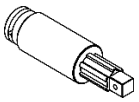
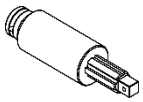
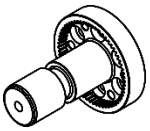
For more information, please refer to your 3Arm manual.

The head locks on handle (1), knob (2) and positioner (3) must be locked according to working position, as in the following table.

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



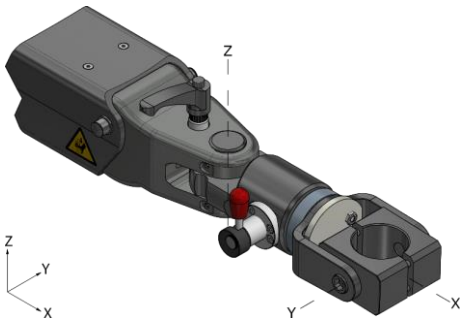
3.30.5 Spare parts

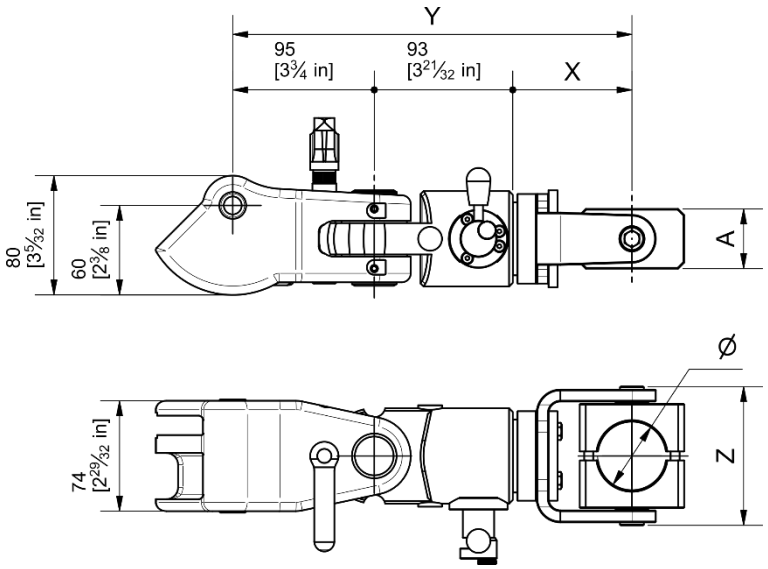
MV404404R	HEADMEMBER	
MVRXXX04[21]	TOOL SUPPORT ASSEMBLY "CAREV" = TOOL CHANGING	
CB004704	SECURING HANDLE ASSEMBLY [Axis Z_1]	
MV331205	REPLACEMENT ECCENTRIC GRIP ASSEMBLY KIT	
M3360700	POSITIONER M16x1.5	
MV328104	FLOATING SPINDLE T2140801/00 3/4" (Stroke: 45 mm/ 1.77" – Torque max.: 300Nm – □: ¾" – Weigh: 1.5Kg / 0.7lbs)	
MV328204	FLOATING SPINDLE T2141212/00 1/2" (Stroke: 40 mm/ 1.57" – Torque max.: 150 Nm – □: ½" – Weigh: 0.9 Kg / 0.4lbs)	
MV326905R	AXIS FLANGE	

[21] XXX corresponds to the inner Ø in mm

3.31 MANUAL REVOLVING - RA
MV404404 + Bush

Swinging flange (MVBxxx04)





Requires L92 Locks[22].
Suitable for Straight Tools.

X: Rotates 360°. Manual locking in 64 positions (64x5.6°).
Y: Rotate X° (depending on the tool).
Z: Rotates 180°. Manual locking 5 positions (5x45°).

Dimensions					
Ømin (mm)	**Ømax (mm)**	**X (mm)**	**Y (mm)**	**Z (mm)**	**A (mm)**
30 *(1 3/16")*	49 *(2 59/64")*	80 *(3 5/32")*	268 *(10 35/64")*	93 *(3 21/32")*	40 *(1 37/64")*
49 *(1 59/64")*	59 *(2 21/64")*	85 *(3 11/32")*	273 *(10 3/4")*	103 *(4 1/16")*	45 *(1 49/64")*
59 *(2 21/64")*	69 *(2 23/32")*	90 *(3 35/64")*	278 *(10 15/16")*	113 *(4 29/64")*	50 *(1 31/32")*

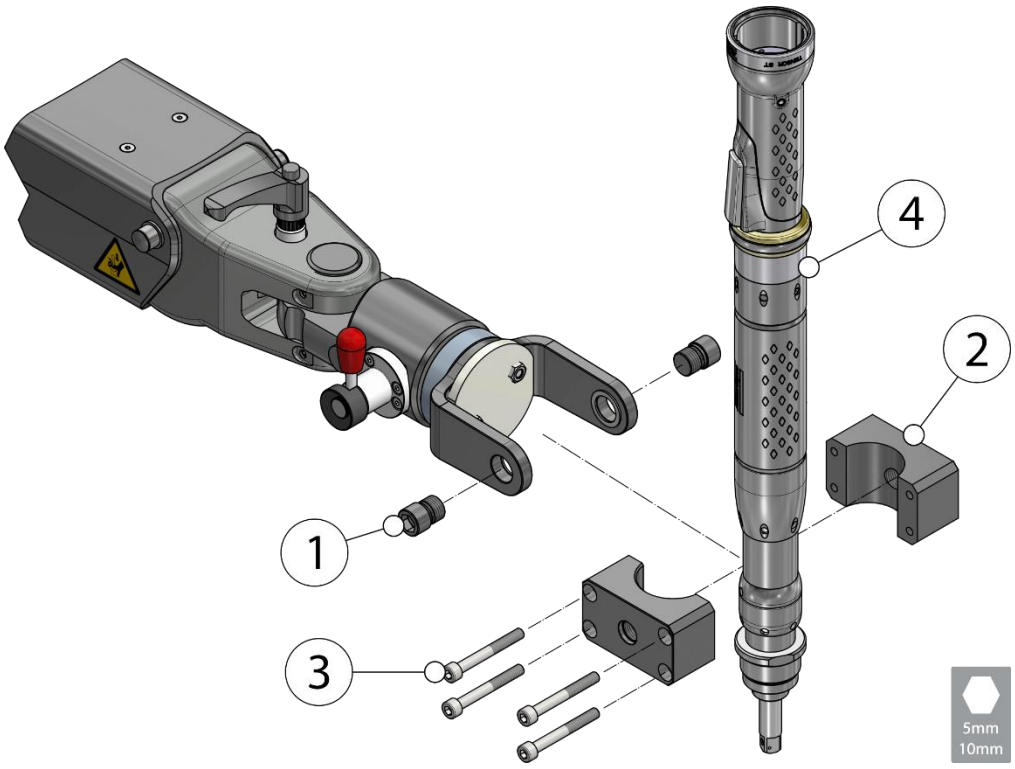
MAXIMUM TORQUE - Ball flange (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	300	250	200
S3	300	250	200
S4	300	250	200

[22] S0: The use of pneumatic locks (L92 / L92 + compensator) is highly recommended.
S3: The use of pneumatic locks (L92 / L92 + compensator) is highly recommended.
S4: The use of pneumatic locks (L92 / L92 + compensator) is mandatory.

3.31.1 Installation of the tool

To attach the tool to the head, follow the steps below:

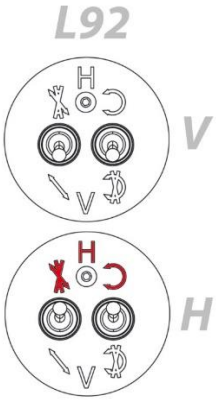
1. Remove the bolts (1) (10mm Allen key).
2. Remove the flange (2) from the rest of the head.
3. Loosen the bolts (3) (5mm Allen key) that join the two parts of the flange (2).
4. Attach the two flange halves (2) to the tool (4) at the clamping area. Tighten the fastening bolts (3) (5mm Allen key).
5. Install the tool (4) by tightening the bolts (1) (10mm Allen key).



For flange replacement [See Flange change page 87].
To view movements [See Movements and locking page 88].

3.31.2 Operation

Depending on the working position, Vertical (V), Horizontal (H) or Angle (A) the selectors must be positioned as defined in the picture.



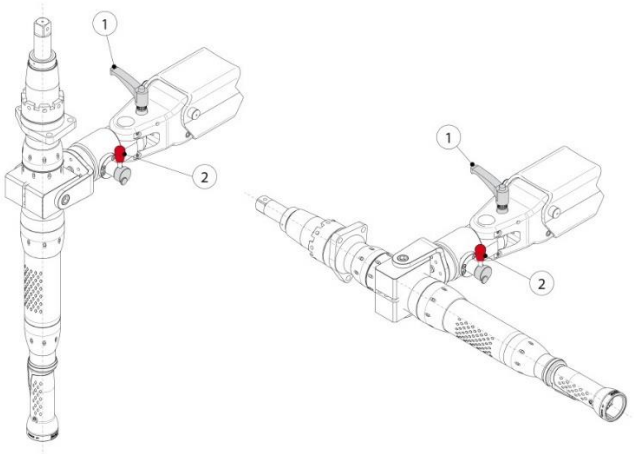
In case of pneumatic locking L92 + compensator, maintain the factory setting (all locked).

When working at A (angle), the selectors shall be set to V (vertical) if a more vertical than horizontal position prevails, and H (horizontal) otherwise.

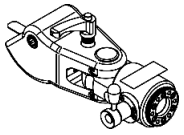
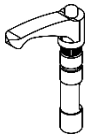
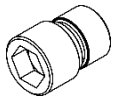
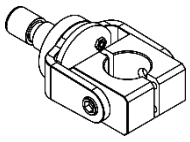
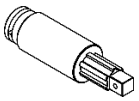
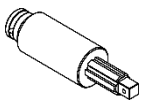
For more information, please refer to your 3Arm manual.

The head locks on Handle (1) and Handlebar (2) must be locked according to the working position, as in the following table.

Working position (Straight Tool)	***V***	***H***	***A***
Mandatory	1		
Optional	2	2	1 and/or 2



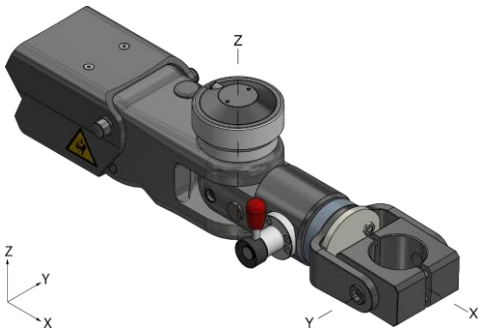
3.31.3 Spare parts

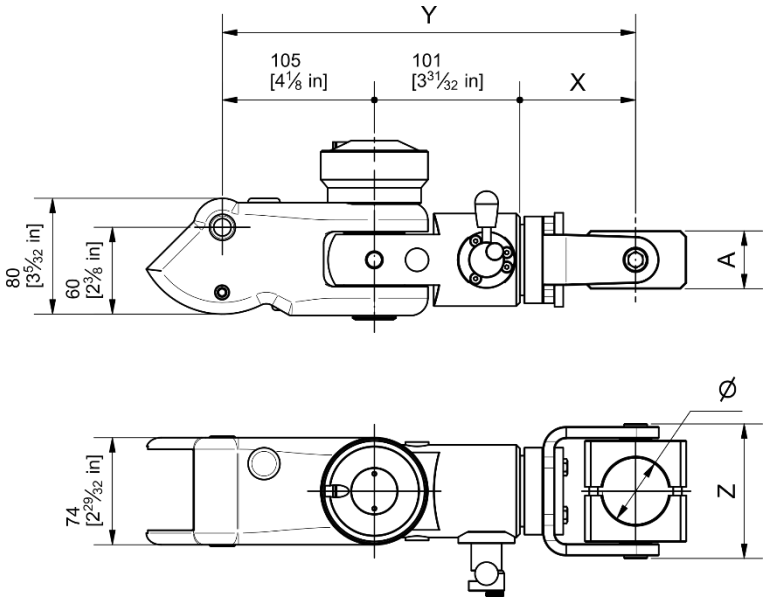
MV404404R	HEADMEMBER	
CB004704	SECURING HANDLE ASSEMBLY [Axis Z_1]	
MV331205	REPLACEMENT ECCENTRIC GRIP ASSEMBLY KIT	
MV32A003	SCREW SWING REVOLVER	
MVBXXX04[23]	TOOL SUPPORT	
MV328104	FLOATING SPINDLE T2140801/00 3/4" (Stroke: 45 mm/ 1.77" – Torque max.: 300Nm – □: ¾" – Weigh: 1.5Kg / 0.7lbs)	
MV328204	FLOATING SPINDLE T2141212/00 1/2" (Stroke: 40 mm/ 1.57" – Torque max.: 150 Nm – □: ½" – Weigh: 0.9 Kg / 0.4lbs)	

[23] XXX corresponds to the inner Ø in mm

3.32 AUTOMATIC REVOLVING - RAS
M41007A0 + Bush

Swinging flange (MVBxxx04)





Requires L92 Locks.
Suitable for Straight Tools.

X: Rotates 360º. Manual locking in 64 positions (64x5.6º).
Z: Rotates 180º. 32-position pneumatic locking (32x5.6º).
Y: Rotate Xº (depending on the tool).

Dimensions					
Ømin (mm)	**Ømax (mm)**	**X (mm)**	**Y (mm)**	**Z (mm)**	**A (mm)**
30 *(1 3/16")*	49 *(2 59/64")*	80 *(3 5/32")*	286 *(11 17/64")*	93 *(3 21/32")*	40 *(1 37/64")*
49 *(1 59/64")*	59 *(2 21/64")*	85 *(3 11/32")*	291 *(11 29/64")*	103 *(4 1/16")*	45 *(1 49/64")*
59 *(2 21/64")*	69 *(2 23/32")*	90 *(3 35/64")*	296 *(11 21/32")*	113 *(4 29/64")*	50 *(1 31/32")*

MAXIMUM TORQUE - Ball flange (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	300	250	250
S3	300	250	250
S4	300	250	250

To install the tool [See Installation of the tool page 92].
For flange replacement [See Flange change page 87].
To view movements [See Movements and locking page 88].

3.32.1 Operation

The pneumatic lock (Z Axis) is activated/deactivated with the other radial arm locks:

- If the arm is equipped with L22 locking, then via the radial locking selector switch 

- If the arm is equipped with the L92 locking device, then it is activated via the tool.

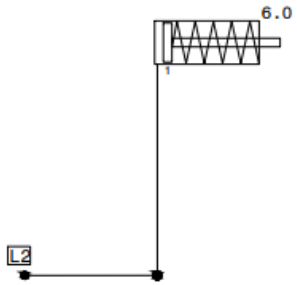
For more information, please refer to the arm manual.

3.32.2 Pneumatic diagram

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

NOTE:

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

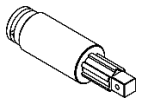
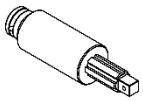
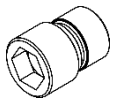
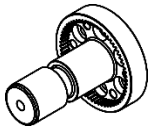


DESCRIPTION	CODE
PNEUMATIC SCHEME - SINGLE RS HEADMEMBER	PNEUS30009

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

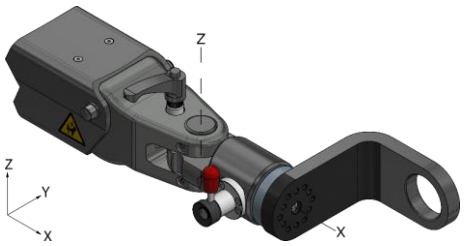
TECNOSPIRO MACHINE TOOL SLU SPIROGEAR

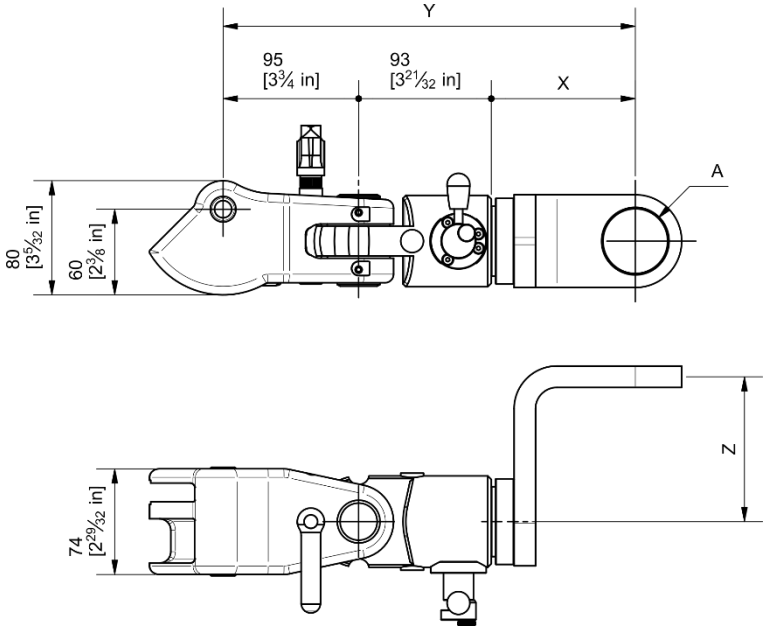
3.32.3 Spare parts

NH135300	O-RING Ø62x2	
M31400A0	REVOLVER PISTON	
MV331205	ECCENTRIC GRIP ASSEMBLY REPLACEMENT KIT	
MV328104	FLOATING SPINDLE T2140801/00 3/4" (Stroke: 45 mm/ 1.77" – Torque max.: 300Nm – □: ¾" – Weigh: 1.5Kg / 0.7lbs)	
MV328204	FLOATING SPINDLE T2141212/00 1/2" (Stroke: 40 mm/ 1.57" – Torque max.: 150 Nm – □: ½" – Weigh: 0.9 Kg / 0.4lbs)	
MV32A003	SCREW SWING REVOLVER	
MV326905R	AXIS FLANGE	

3.33 MANUAL REVOLVING - RB
MV404404 + Bush

Flange (MV3RUxxx)





Requires L92 Locks[24].
Suitable for pistol type tools.

X: Rotates 360º. Manual locking in 64 positions (64x5.6º).
Z: Rotates 180º. Manual locking 5 positions (5x45º).

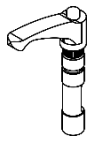
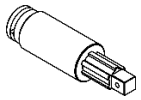
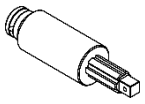
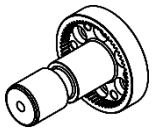
The X, Y, Z dimensions will depend directly on the chosen tool. Dimension A shall correspond to the scoring on the tool.

MAXIMUM TORQUE - Flange (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	300	250	200
S3	300	250	200
S4	300	250	200

For flange replacement [See Flange change page 87].
To view movements [See Movements and locking page 88].
To see operation [See Operation page 93].

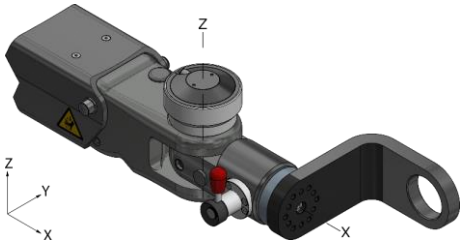
[24] S0: The use of pneumatic locks (L92 / L92 + compensator) is highly recommended.
S3: The use of pneumatic locks (L92 / L92 + compensator) is highly recommended.
S4: The use of pneumatic locks (L92 / L92 + compensator) is mandatory.

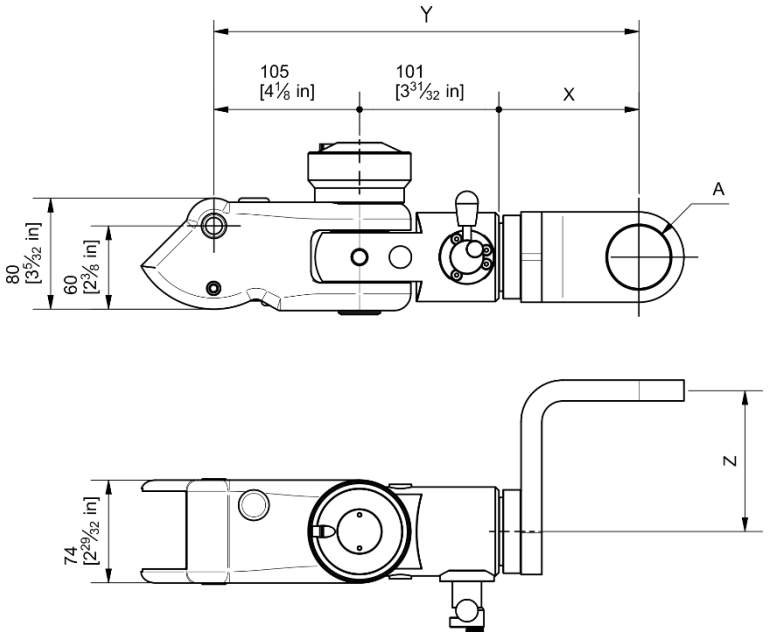
3.33.1 Spare parts

CB004704	SECURING HANDLE ASSEMBLY [Axis Z_1]	
MV331205	ECCENTRIC GRIP ASSEMBLY REPLACEMENT KIT	
MV328104	FLOATING SPINDLE T2140801/00 3/4" (Stroke: 45 mm/ 1.77" – Torque max.: 300Nm – □: ¾" – Weigh: 1.5Kg / 0.7lbs)	
MV328204	FLOATING SPINDLE T2141212/00 1/2" (Stroke: 40 mm/ 1.57" – Torque max.: 150 Nm – □: ½" – Weigh: 0.9 Kg / 0.4lbs)	
MV326905R	AXIS FLAGNE	

3.34 AUTOMATIC REVOLVING - RBS
M41007A0 + Bush

Flange (MV3RUxxx)





Requires L92 Locks.
Suitable for pistol type tools.

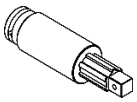
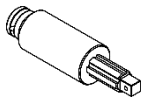
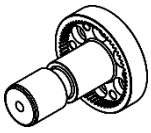
X: Rotates 360º. Manual locking in 64 positions (64x5.6º).
Z: Rotates 180º. Pneumatic locking in 32 positions (32x5.6º).

The X, Y, Z dimensions will depend directly on the chosen tool. Dimension A shall correspond to the scoring on the tool.

MAXIMUM TORQUE - Ball flange (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	300	250	250
S3	300	250	250
S4	300	250	250

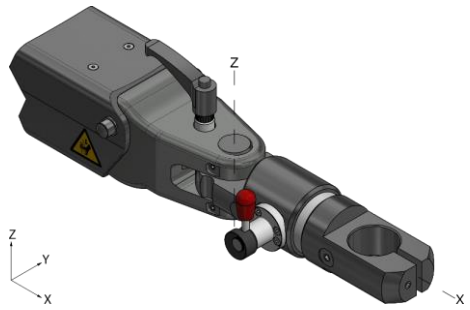
For flange replacement [See Flange change page 87].
To view movements [See Movements and locking page 88].
To see operation [See Operation page 96].
To see the pneumatic diagram [See Pneumatic diagram page 97].

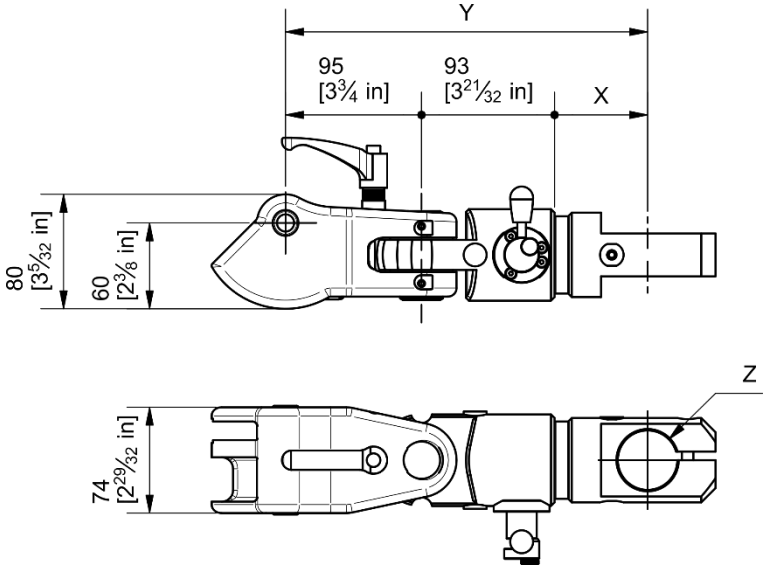
3.34.1 Spare parts

NH135300	O-RING Ø62x2	
M31400A0	REVOLVER PISTON	
MV331205	ECCENTRIC GRIP ASSEMBLY REPLACEMENT KIT	
MV328104	FLOATING SPINDLE T2140801/00 3/4" (Stroke: 45 mm/ 1.77" – Torque max.: 300Nm – □: ¾" – Weigh: 1.5Kg / 0.7lbs)	
MV328204	FLOATING SPINDLE T2141212/00 1/2" (Stroke: 40 mm/ 1.57" – Torque max.: 150 Nm – □: ½" – Weigh: 0.9 Kg / 0.4lbs)	
MV326905R	AXIS FLANGE	

3.35 MANUAL REVOLVING 4x90º - RC
M3150900 + Bush

Flange (MV3RUxxx)





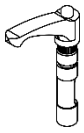
Valid only for Series 3.

X: Rotates 360º. Manual locking in 4 positions (4x90º)
Z: Rotates 180º. Manual locking in 5 positions (5x45º)

The X, Y, Z dimensions will depend directly on the chosen tool.

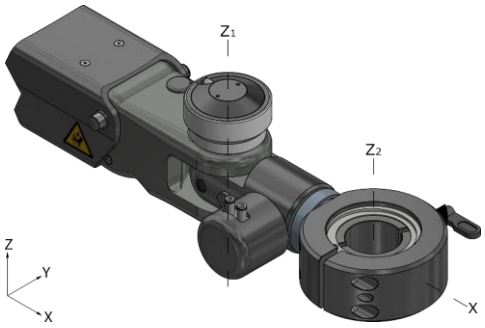
For flange replacement [See Flange change page 87].
To view movements [See Movements and locking page 88].
To see operation [See Operation page 93].

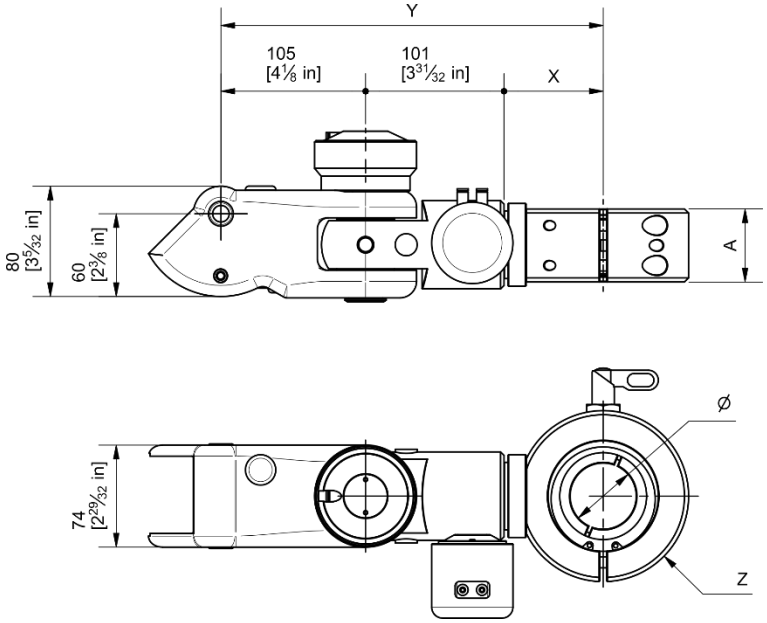
3.35.1 Spare parts

CB004704	SECURING HANDLE ASSEMBLY [Axis Z_1]	
MV331205	ECCENTRIC GRIP ASSEMBLY REPLACEMENT KIT	

3.36 AUTOMATIC DOUBLE REVOLVING - RS
M4102000 + Bush

Rotary flange (MVRxxx04)





Requires L92 Locks.
Suitable for angled tools.

X: Rotates 360º. Pneumatic locking in 64 positions (64x5.6º).
Z_1: Rotates 180º. Pneumatic locking in 32 positions (32x5.6º).
Z_2: Rotates 360º. Manual locking in 8 positions (8x45º).

Dimensions					
Ømin (mm)	**Ømax (mm)**	**X (mm)**	**Y (mm)**	**Z (mm)**	**A (mm)**
31 *(1 7/32")*	55 *(2 11/64")*	72 *(2 53/64")*	278 *(10 15/16")*	Ø124 *(Ø4 7/8")*	53 *(2 3/32")*
53 *(2 3/32")*	70 *(2 3/4")*	76 *(2 63/64")*	282 *(11 7/64")*	Ø134 *(Ø5 9/32")*	63 *(2 31/64")*
69 *(2 23/32")*	80 *(3 5/32")*	81.5 *(3 13/64")*	287.5 *(11 5/16")*	Ø144 *(Ø5 43/64")*	65 *(2 9/16")*

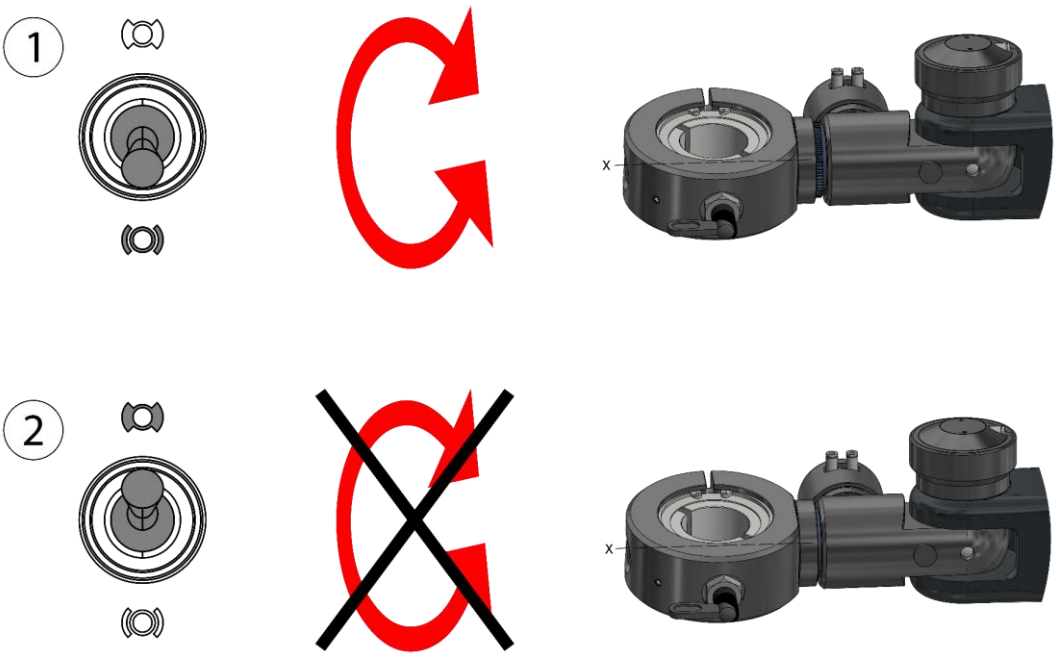
MAXIMUM TORQUE - Rotating flange (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	300	250	250
S3	300	250	250
S4	300	250	250

3.36.1 Operation

The RS head incorporates two automatic locks on the head rotation (Z_1 Axis and X Axis). Through the mandatory use of a pneumatic locking system L92, when you operate your tool, the whole arm including the head will be locked instantly.

However, the **X Axis** locking has an additional selector with which you can release or lock the tool:

- Position (1): Tool free[25].
- Position (2): Tool locked.



To install the tool [See Installation of the tool page 86].
For flange replacement [See Flange change page 87].

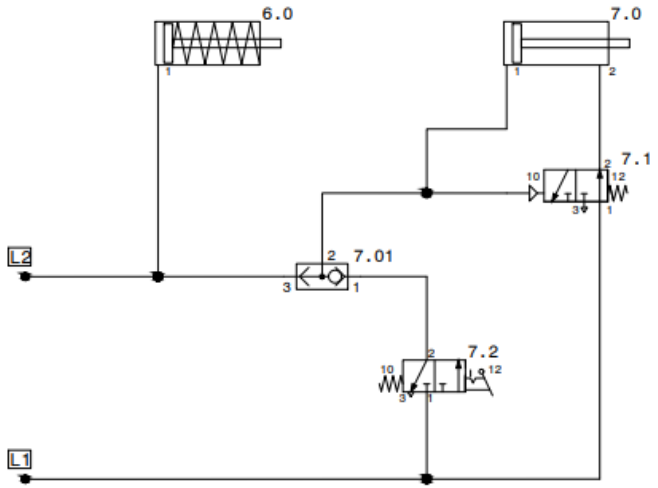
[25] When the tool is activated, the locking device is also activated.

3.36.2 Pneumatic diagram

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

NOTE:

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

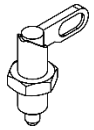
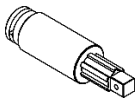
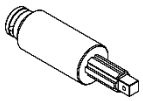
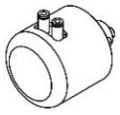
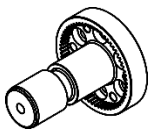


DESCRIPTION	CODE
PNEUMATIC SCHEME - DUAL RS HEADMEMBER	PNEUS30010

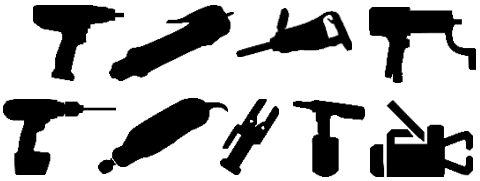
		NAME	DATE	REVISION
*	Standardization of the scheme.			
	DRAWN BY	D. Gil	18/05/2022	2
	APPROVED BY	D. Gil	09/01/2024	

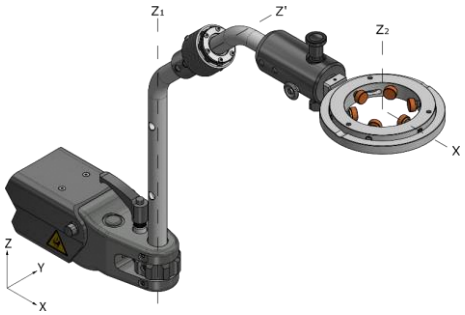
TECNOSPIRO MACHINE TOOL SLU SPIROGEAR

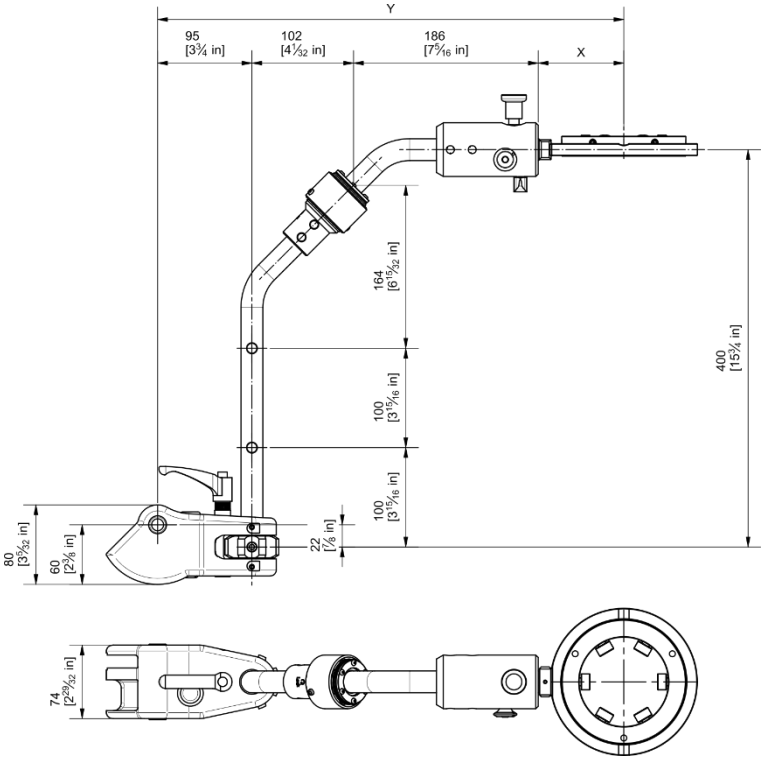
3.36.3 Spare parts

NH135300	O-RING Ø62x2	
M31400A0	REVOLVER PISTON	
M3360700	POSITIONER M16x1.5	
MV328104	FLOATING SPINDLE T2140801/00 3/4" (Stroke: 45 mm/ 1.77" – Torque max.: 300Nm – □: ¾" – Weigh: 1.5Kg / 0.7lbs)	
MV328204	FLOATING SPINDLE T2141212/00 1/2" (Stroke: 40 mm/ 1.57" – Torque max.: 150 Nm – □: ½" – Weigh: 0.9 Kg / 0.4lbs)	
M3196200R	ECCENTRIC RS LOCK ASSEMBLY	
MV326905R	AXIS FLANGE	

3.37 GIRAFFE MULTIPOSITION - SN MV30P704 + Handlebar







Maximum load: 10 kg / 6 kg[26] | □½" [27]

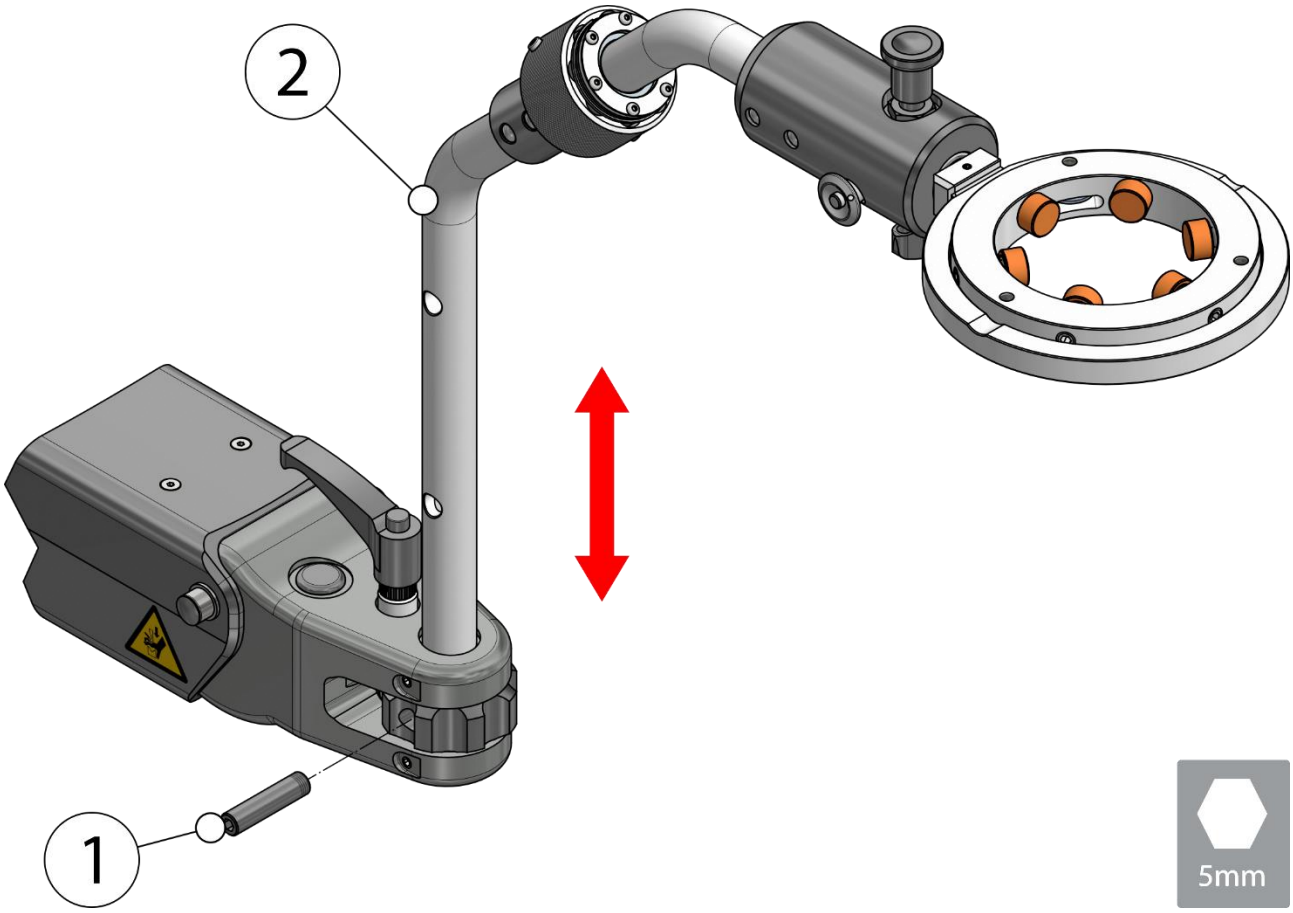
Z_1: Rotates 360º. Manual locking in 8 positions (8x45º).
Z': Rotates 360º. Manual locking in 8 positions (8x45º).
Z_2: Rotates 360º. Non-lockable.
X: Rotates 360º. Manual locking in 4 positions (4x90º).

[26] Consider **6kg** max. load for applications with Handlebar type A (TIMCO) when used with vibration tools (impact, impulse, etc.). For all other applications or for applications with B Handlebar type B (TIMSAND), consider 10 kg maximum load.
[27] Recommended tool square size for this head

3.37.1 Height adjustment

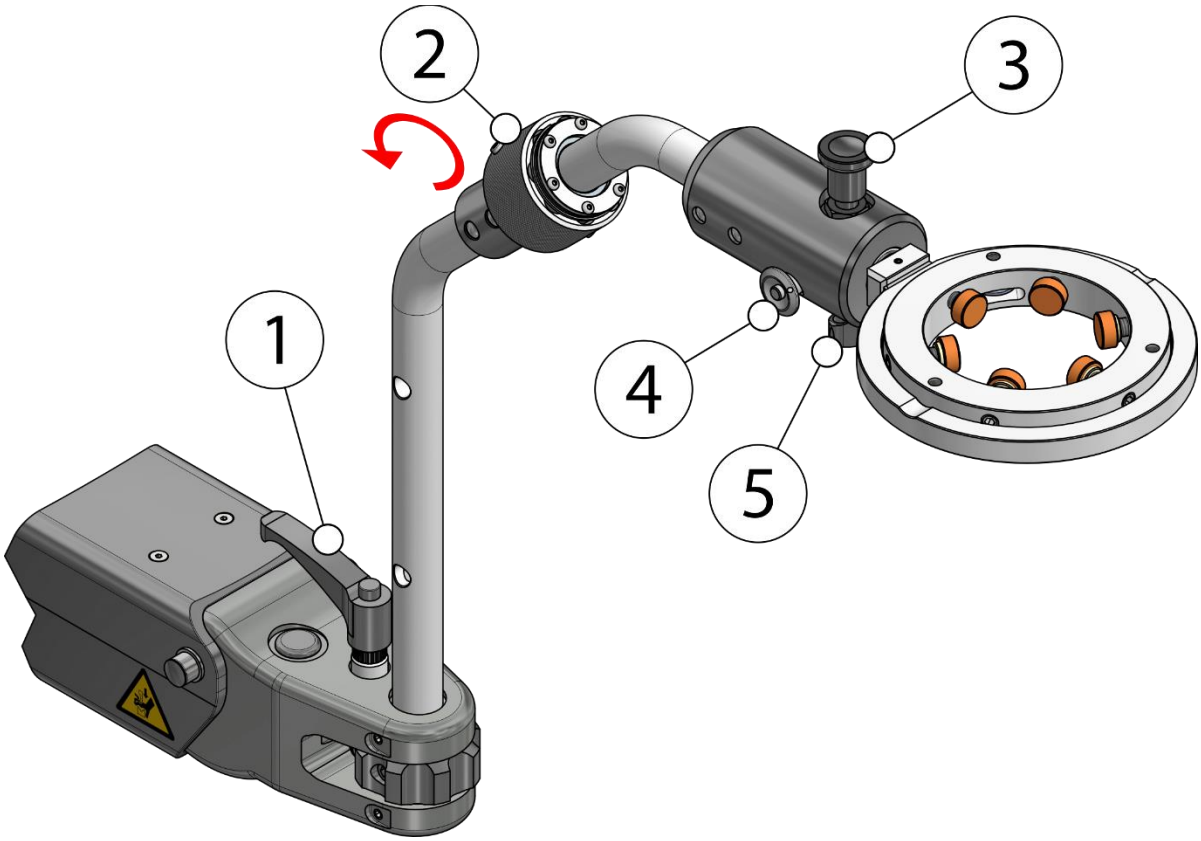
The height of the rod can be adjusted (3 positions 100mm apart) to suit the working conditions, to do that:

1- Remove the pin (1) (5 mm Allen key).
2- Move the rod (2) vertically until the holes in the rod are aligned with the housing of the pin (1).
3- Re-insert the pin (1) (5mm Allen key) in its original position.



3.37.2 Movements and locking

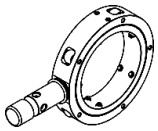
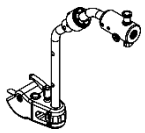
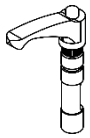
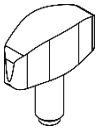
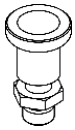
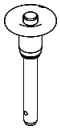
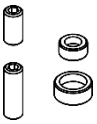
Hand (1) releases/locks the Z_1 movement (360°, 8x45°).
Rotate the chuck (2) to release/lock the Z' movement (360°, 8x45°).
The positioner (3) releases/locks the X movement (360°, 4x90°).
To remove the rod, release the positioner (3) and pull out the pin (4).
Using the adjustment knob (5) the X-friction can be adjusted.



TIMCO type handlebar [See Type A gimbals: TIMCO page 68].
- ✓ TIMCO dimensions [See TIMCO Dimensions page 37].
- ✓ For fitting the tool [See Assembly of the tool page 38].
- ✓ Included accessories [See Included accessories page 39].
- ✓ For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

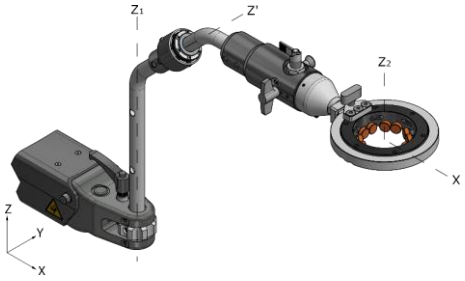
TIMSAND Type Handlebar [See Type B gimbals: TIMSAND page 69].
- ✓ TIMSAND dimensions [See Dimensions TIMSAND page 41].
- ✓ For fitting the tool [See Assembly of the tool page 42].
- ✓ Included accessories [See Included accessories page 42].
- ✓ For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

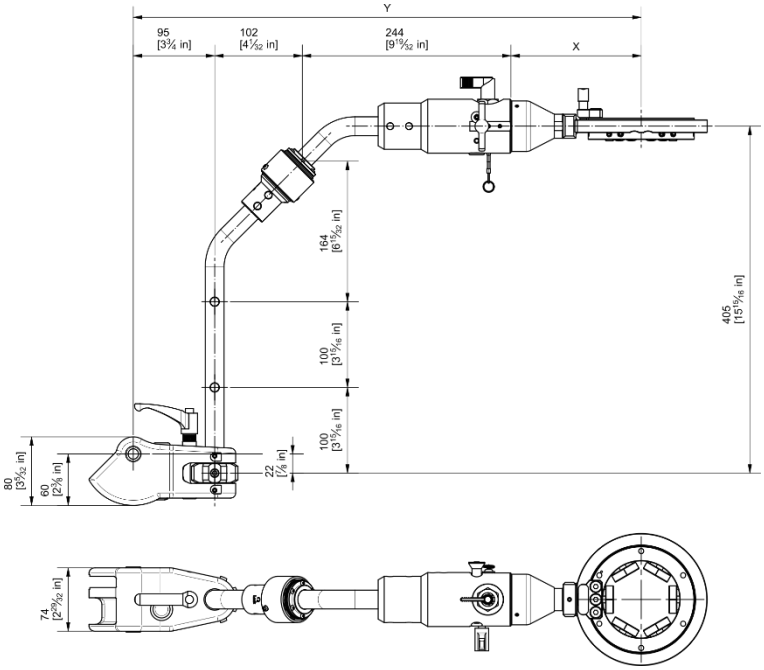
3.37.3 Spare parts

MV3MAXXX[28]	GIMBAL TIMCO Maximum load = 12 Kg	
MV3PBXXX	GIMBAL TIMSAND Maximum load = 12 Kg	
MV30P704R	GIRAFFE MULTIPOSITION HEADMEMBER Maximum load 12 Kg	
CB004704	SECURING HANDLE ASSEMBLY [Axis Z_1]	
MV31K703R	SECURING LEVER M8x18.5	
AC004046	POSITIONER GN 607.1-6-A-ST	
CM125100	POSITIONER Ø6x30	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

[28] XXX corresponds to the inner Ø in mm

3.38 GIRAFFE MULTIPOSITION REINFORCED - SQ MV30P804 + Handlebar





Maximum load: 30 kg | □¾"[29]

Z_1: Rotates 360º. Manual locking in 8 positions (8x45º).
Z': Rotates 360º. Manual locking in 8 positions (8x45º).
Z_2: Rotates 360º. Adjustment of smoothness for rotation and position setting.
X: Rotates 360º. Manual locking in 4 positions (4x90º).

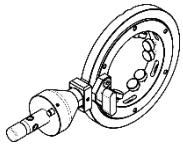
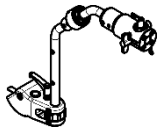
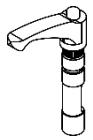
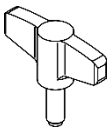
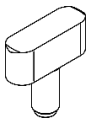
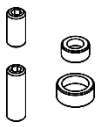
For height adjustment [See Height adjustment page 109].
To view movements [See Movements and locking page 110].

TIMCO type Handlebar [See Gimbal Type A: REINFORCED TIMCO page 75].
- ✓ TIMCO dimensions [See Dimensions of TIMCO page 47].
- ✓ For fitting the tool [See Assembly of the tool page 38].
- ✓ Included accessories [See Included accessories page 39].
- ✓ For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

TIMSAND Type Handlebar [See Gimbal Type B: TIMSAND REINFORCED page 76].
- ✓ TIMSAND dimensions [See Dimensions TIMSAND reinforced page 49].
- ✓ For fitting the tool [See Assembly of the tool page 42].
- ✓ Included accessories [See Included accessories page 42].
- ✓ For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

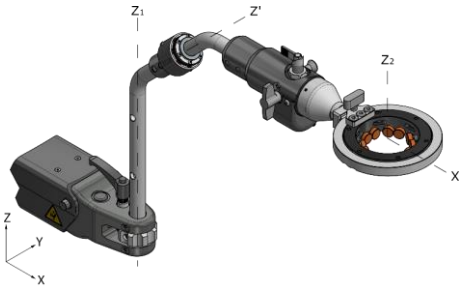
[29] Recommended tool square size for this head

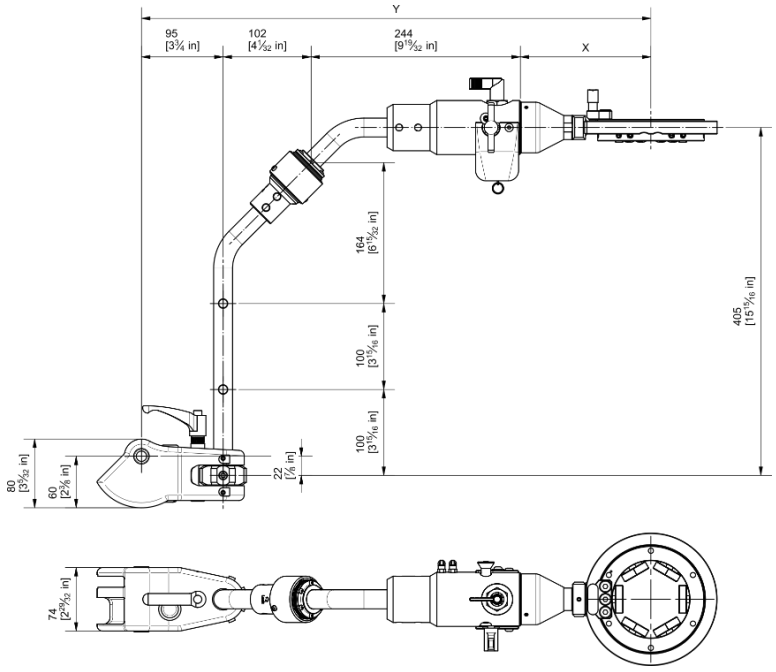
3.38.1 Spare parts

MV3JAXXX[30]	GIMBAL TIMCO Maximum load = 30 kg	
MV30P804R	GIRAFFE MULTIPOSITION HEADMEMBER Maximum load 30 kg	
CB004704	SECURING HANDLE ASSEMBLY [Axis Z_1]	
M3103400R	LEVER M8 [Axis X]	
CM125000	POSITIONER Ø6x40	
M3103200R	TIMCO STAINLESS STEEL LEVER RETOUCH [Axis Y]	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

[30] XXX corresponds to the inner Ø in mm

3.39 GIRAFFE MULTIPOSITION REINFORCED SECURITY - SQA M3161600 + Handlebars





Requires Locks on the swinging arm (Lx2)[31]
Maximum load: 30 kg | □¾"[32]

Z_1: Rotates 360º. Manual locking in 8 positions (8x45º).
Z': Rotates ±180º. Manual locking in 8 positions (8x45º).
Z_2: Rotates 360º. Adjustment of smoothness for rotation and position setting.
X: Rotates 360º. Manual locking in 4 positions (4x90º).

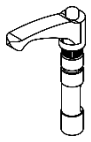
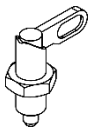
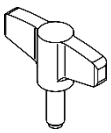
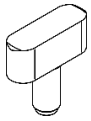
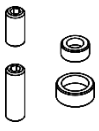
[31] The head is fitted with a safety system that locks the swinging arm when the tool is withdrawn, thus preventing an accident.
[32] Recommended tool square size for this head.

For height adjustment [See Height adjustment page 109].
To view movements [See Movements and locking page 110].
Pneumatic diagram [See Pneumatic diagram page 80].

TIMCO type Handlebar [See Gimbal Type A: REINFORCED TIMCO page 75].
- ✓ TIMCO dimensions [See Dimensions of TIMCO page 47].
- ✓ For fitting the tool [See Assembly of the tool page 38].
- ✓ Included accessories [See Included accessories page 39].
- ✓ For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

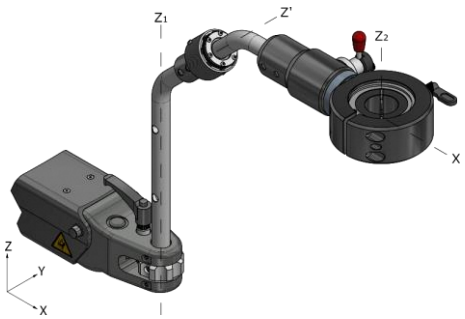
TIMSAND Type Handlebar [See Gimbal Type B: TIMSAND REINFORCED page 76].
- ✓ TIMSAND dimensions [See Dimensions TIMSAND reinforced page 49].
- ✓ For fitting the tool [See Assembly of the tool page 42].
- ✓ Included accessories [See Included accessories page 42].
- ✓ For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

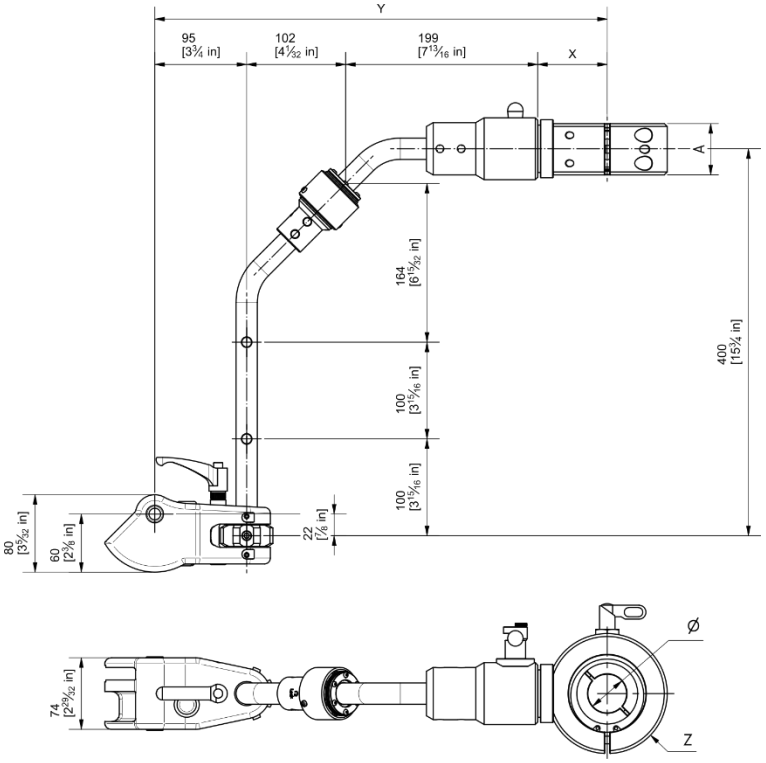
3.39.1 Spare parts

CB004704	SECURING HANDLE ASSEMBLY [Axis Z_1]	
M3360800	POSITIONER RETOUCHING M16x1.5	
M3103400R	LEVER M8 [Axis X]	
CM125000	POSITIONER Ø6x40	
M3103200R	TIMCO STAINLESS STEEL LEVER RETOUCH [Axis Y]	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

3.40 GIRAFFE REVOLVING - SR
MV30P604 + Bush

Rotary flange (MVRxxx04)





Requires L92 Locks[33].
Suitable for angled tools.
Maximum load: 30 kg | □¾"[34]

Z_1: Rotates 360º. Manual locking in 8 positions (8x45º).
Z_1': Rotates 360º. Manual locking in 8 positions (8x45º).
Z_2: Rotates 360º. Manual locking in 8 positions (8x45º).
X: Rotates 360º. Manual locking in 64 positions (64x5.6º).

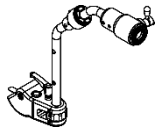
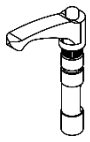
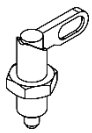
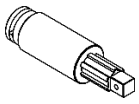
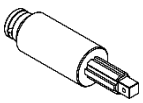
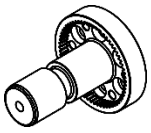
Dimensions					
Ømin (mm)	**Ømax (mm)**	**X (mm)**	**Y (mm)**	**Z (mm)**	**A (mm)**
31 *(1 7/32")*	55 *(2 11/64")*	72 *(2 53/64")*	468 *(18 27/64")*	Ø124 *(Ø4 7/8")*	53 *(2 3/32")*
53 *(2 3/32")*	70 *(2 3/4")*	76 *(2 63/64")*	472 *(18 37/64")*	Ø134 *(Ø5 9/32")*	63 *(2 31/64")*
69 *(2 23/32")*	80 *(3 5/32")*	81.5 *(3 13/64")*	477.5 *(18 51/64")*	Ø144 *(Ø5 43/64")*	65 *(2 9/16")*

MAXIMUM TORQUE - Rotating flange (Nm)			
Arm	**Vertical**	**Horizontal**	**Angle**
S0	300	250	200
S3	300	250	200
S4	300	250	200

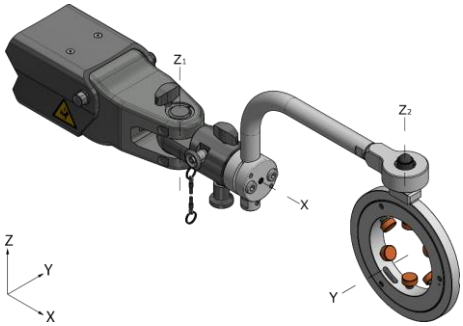
[33] S0: The use of pneumatic locks (L92 / L92 + compensator) is highly recommended
S3: The use of pneumatic locks (L92 / L92 + compensator) is highly recommended
S4: Mandatory use of pneumatic locks (L92 / L92 + compensator)
[34] Recommended tool square size for this head

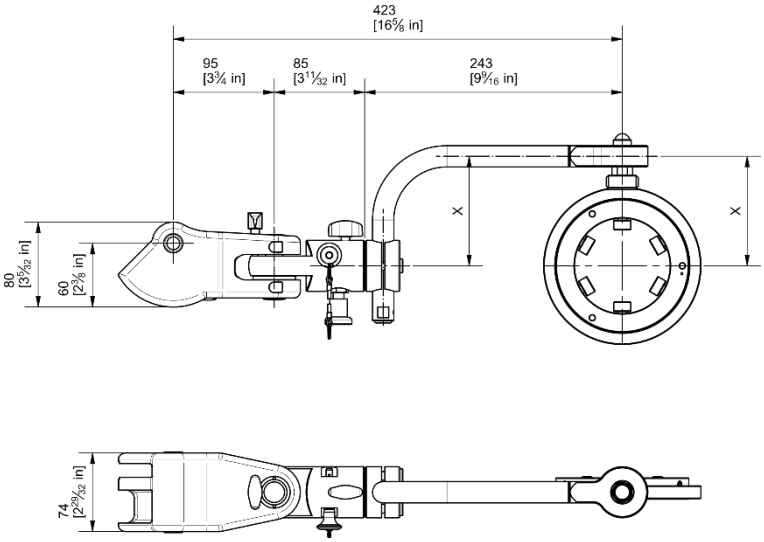
For height adjustment [See Height adjustment page 109].
To view movements [See Movements and locking page 110].
To install the tool [See Installation of the tool page 86].
For flange replacement [See Flange change page 87].
To see the flange movements [See Movements and locking page 88].
To see operation [See Operation page 89].

3.40.1 Spare parts

MV30P604R	GIRAFFE REVOLVER HEADMEMBER	
CB004704	SECURING HANDLE ASSEMBLY [Axis Z_1]	
MV331205	ECCENTRIC GRIP ASSEMBLY REPLACEMENT KIT	
M3360700	POSITIONER M16x1.5	
MV328104	FLOATING SPINDLE T2140801/00 3/4" (Stroke: 45 mm/ 1.77" – Torque max.: 300Nm – □: ¾" – Weigh: 1.5Kg / 0.7lbs)	
MV328204	FLOATING SPINDLE T2141212/00 1/2" (Stroke: 40 mm/ 1.57" – Torque max.: 150 Nm – □: ½" – Weigh: 0.9 Kg / 0.4lbs)	
MV326905R	AXIS FLANGE	

3.41 MULTIPOSITION WITH QUICK-CHANGE - T
MV31F5A4 + Handlebar





Maximum load: 10 kg / 6 kg[35] | □½"[36]
Requires Locks (L50).

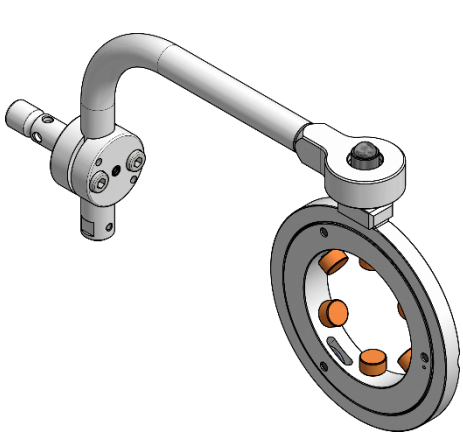
Z_1: Rotates ±90º. Non-lockable.
Z_2: Rotates 360º. Non-lockable.
X: Rotates 360º. Manual locking in 4 positions (4x90º).
Y: Rotates 360º. Non-lockable.

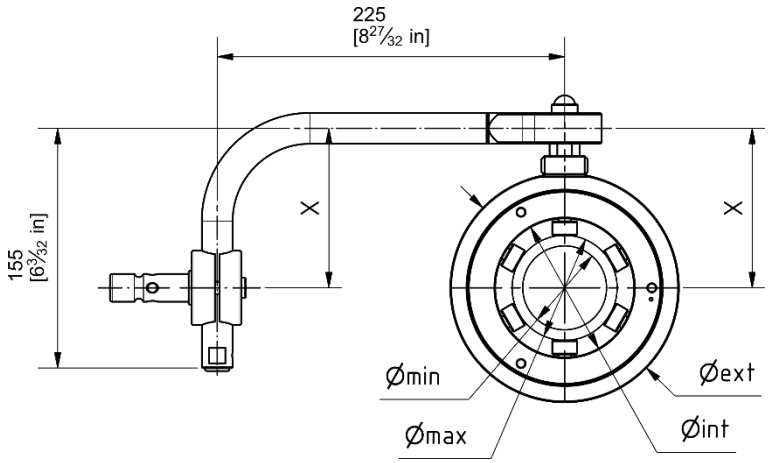
To view movements [See Movements and locking page67].

[35] Consider **6kg** max. load for applications with Handlebar type A (TIMCO) when used with vibration tools (impact, impulse, etc.). For all other applications or for applications with B Handlebar type B (TIMSAND), consider 10 kg maximum load.
[36] Recommended tool square size for this head.

3.41.1 Type A gimbals: TIMCO

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



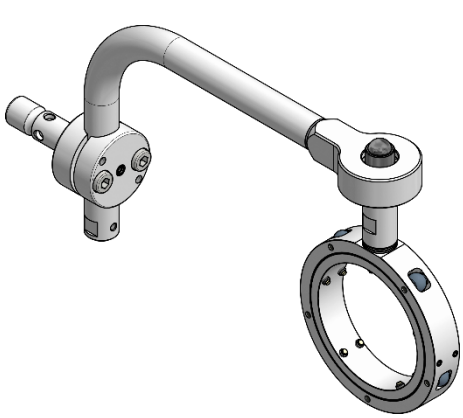


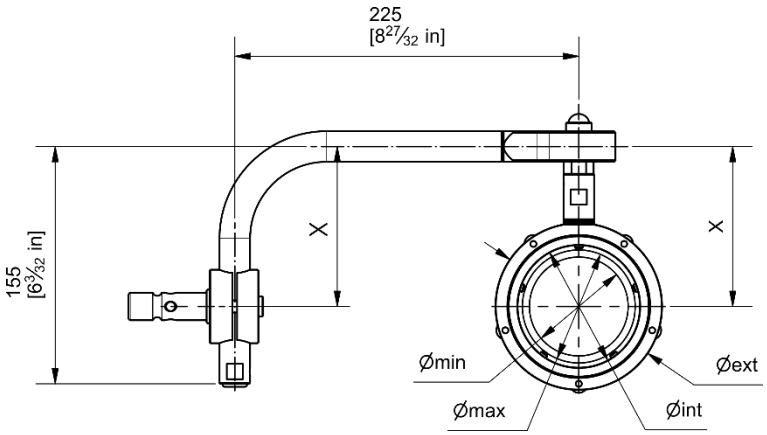
- The X dimension shall be as close as possible to the X axis of rotation to ensure good balancing of the tool.
- Maximum load 6 kg for applications with vibration tools (impact, impulse, etc.).
- For all other applications or for applications with B Handlebar type B (TIMSAND), consider 10 kg maximum load.
- Other dimensions on request.

- ✓ TIMCO dimensions [See TIMCO Dimensions page 37].
- ✓ For fitting the tool [See Assembly of the tool page 38].
- ✓ Included accessories [See Included accessories page 39].
- ✓ For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

3.41.2 Type B gimbals: TIMSAND

Suitable for tools with cylindrical clamping area.
Ref: MV3QBxxx (xxx = internal diameter in mm)





- The X dimension shall be as close as possible to the X axis of rotation to ensure good balancing of the tool.
- Maximum load 6 kg for applications with vibration tools (impact, impulse, etc.).
- For all other applications or for applications with B Handlebar type B (TIMSAND), consider 10 kg maximum load.
- Other dimensions on request.

- ✓ TIMSAND dimensions [See Dimensions TIMSAND page 41].
- ✓ For fitting the tool [See Assembly of the tool page 42].
- ✓ Included accessories [See Included accessories page 42].
- ✓ For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

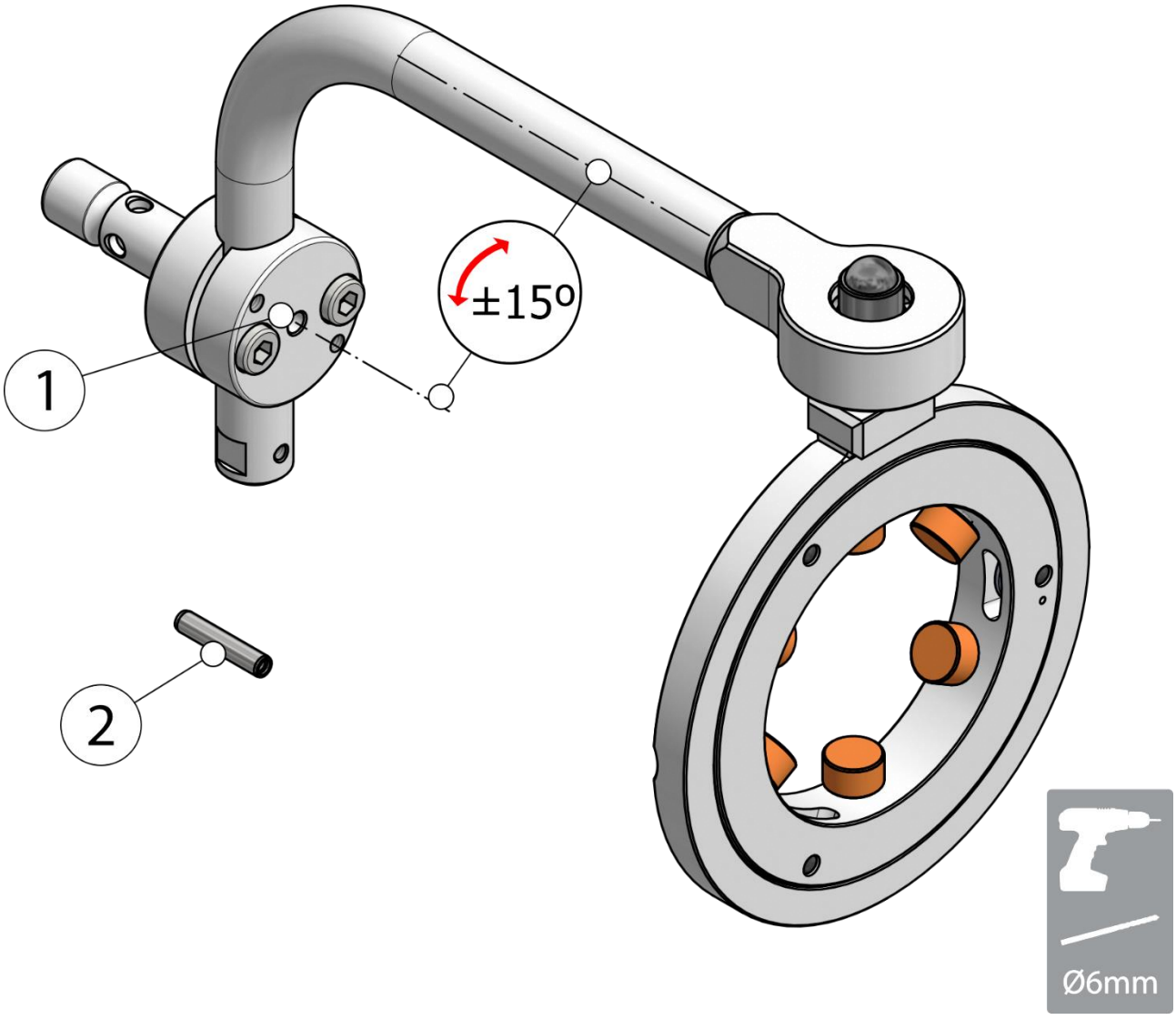
3.41.3 Handlebar adjustment and reinforcement

Once the handlebar adjustment has been completed, it can be secured by using a **DIN 7979 Ø6x30**[37] pin to reinforce the retaining cylinder. To adjust height:

Ensure that the angle between the retaining cylinder and the rod does not exceed ±15º.

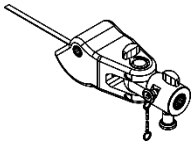
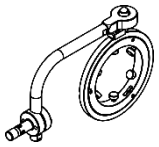
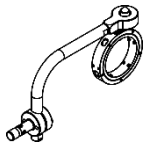
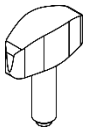
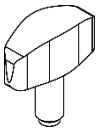
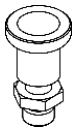
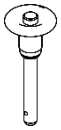
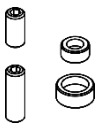
1- Drill the handlebar using the existing hole in the retaining cylinder (1) as a guide (Drill bit Ø6mm)[38]. The hole should be approximately 30mm deep[39] (drill through the entire rod).

2- Insert the pin (2) into the drilled hole.



[37] In the head bars U and UA, the pin shall be a DIN 7979 Ø8x36
[38] On the U and UA head bars, the drill bit shall be Ø8
[39] On the U and UA head bars, the depth shall be approximately 35mm

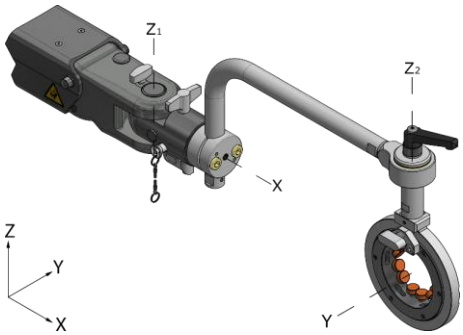
3.41.4 Spare parts

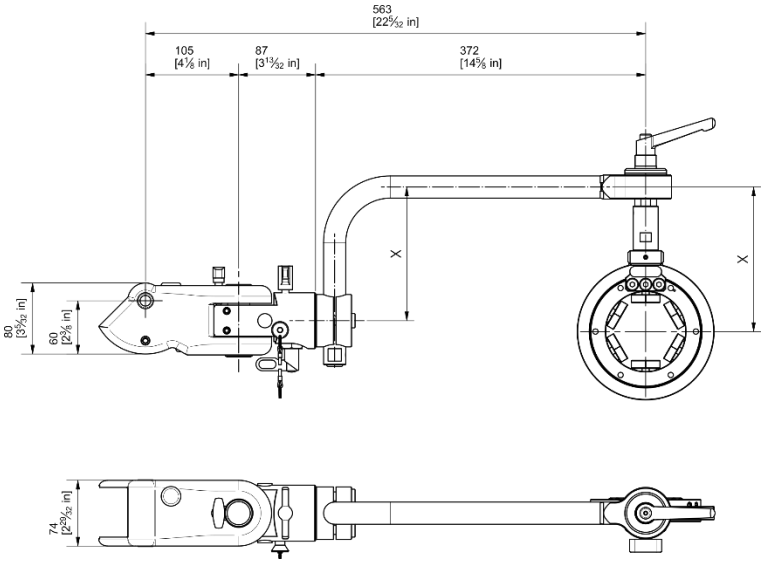
MV31F5A4R	HEADMEMBER Maximum load =12 kg	
MV3LAXXX[40]	GIMBAL TIMCO Maximum load = 12 Kg	
MV3QBXXX	GIMBAL TIMSAND Maximum load = 12 Kg	
MV31J603R	SECURING LEVER M8x24 [Axis Z_1]	
MV31K703R	SECURING LEVER M8x18.5	
AC004046	POSITIONER GN 607.1-6-A-ST	
CM125100	POSITIONER Ø6x30	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

[40] XXX corresponde al Ø en mm

3.42 MULTIPOSICION REINFORCED WITH QUICK-CHANGE - U

MV30D2A4 + Handlebar





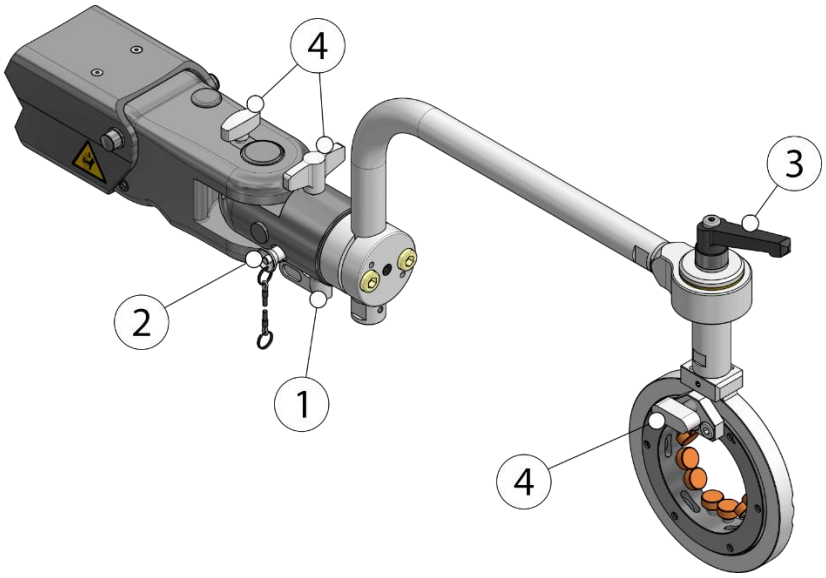
Max. load 30 kg | □ ¾"[41]
Requires Locks (L50).

Z_1: Rotates ±80º. Non-lockable.
Z_2: Rotates 360º. Manual locking in any position.
X: Rotates 360º. Manual locking in 4 positions (4x90º).
Y: Rotates 360º. Adjustment of smoothness for rotation and position setting.

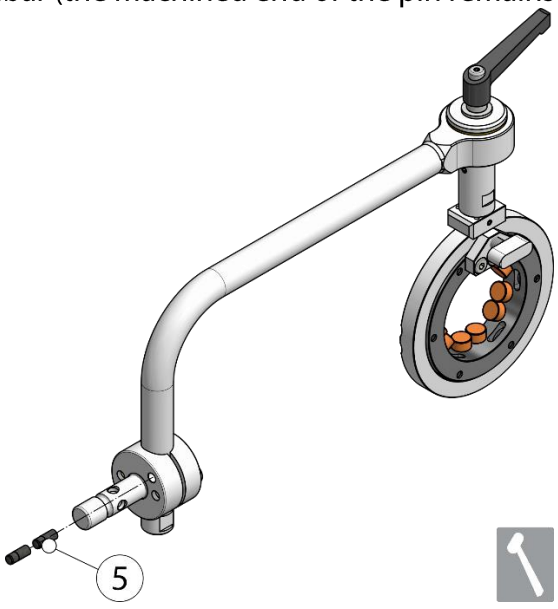
[41] Recommended tool square size for this head.

3.42.1 Movements and locking

The positioner (1) releases/locks the X movement (360°, 4x90°).
To remove the rod, release the positioner (1) and remove the pin (2).
Handlebar (3) releases/locks the movement in Z_2
The friction can be adjusted using the adjustment knobs (4).



Due to the robustness of the positioner (1), vertical/horizontal work is not permitted.
In cases where you have to work only vertically/horizontally, the pins (5) supplied must be inserted into the holes in the handlebar (the machined end of the pin remains outside the handlebar).

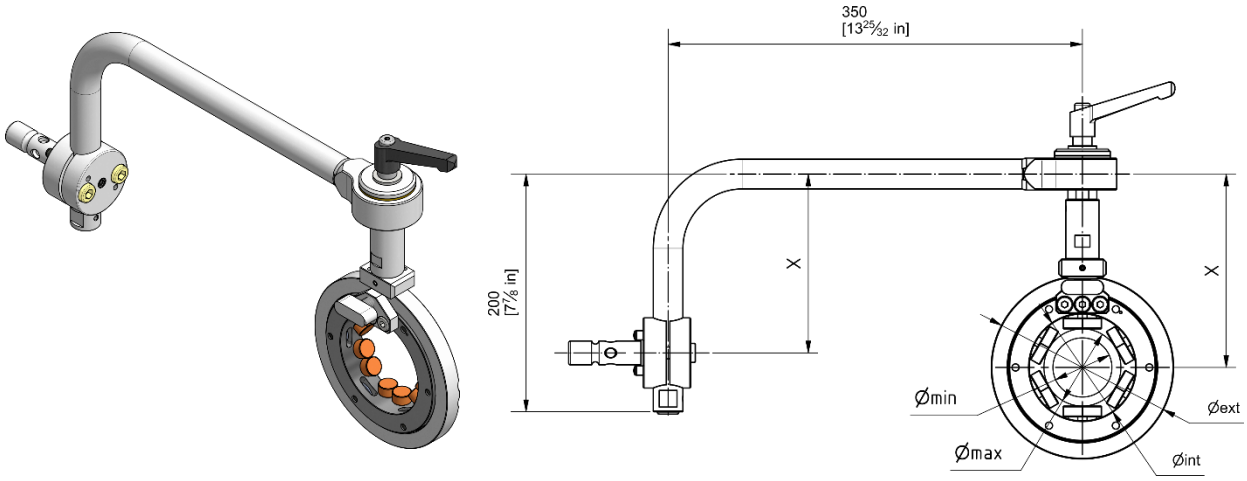


To turn the handlebar with the pins fitted, leave the positioner (1) free, remove the positioner (2) and pull the handlebar back a little so that it can be turned.

To reinforce the rod [See Handlebar adjustment and reinforcement page 121].

3.42.2 Handlebar Type A: REINFORCED TIMCO

Suitable for any type of tool.
Ref: MV3KCxxx (xxx = internal diameter in mm)

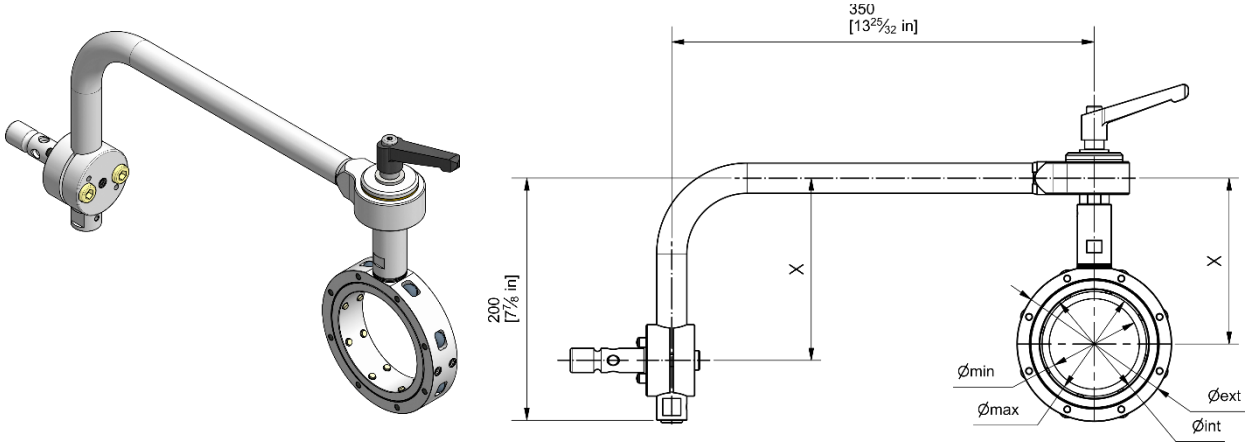


- The X dimension shall be as close as possible to the X axis of rotation to ensure good balancing of the tool.
- Other dimensions on request

- ✓ TIMCO dimensions [See Dimensions of TIMCO page 47].
- ✓ For fitting the tool [See Assembly of the tool page 38].
- ✓ Included accessories [See Included accessories page 39].
- ✓ For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

3.42.3 Handlebar Type B: TIMSAND REINFORCED

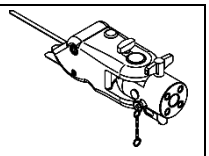
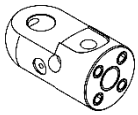
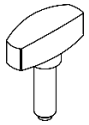
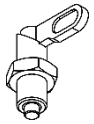
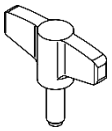
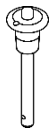
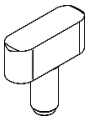
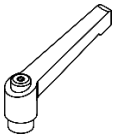
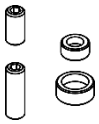
Suitable for any type of tool.
Ref: MV3KBxxx (xxx = internal diameter in mm)



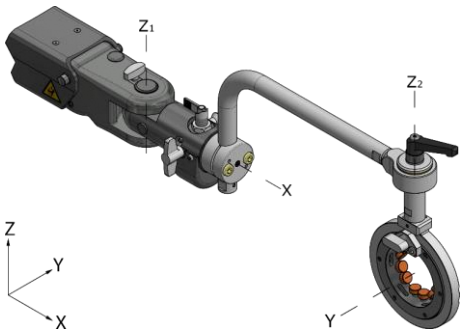
- The X dimension shall be as close as possible to the X axis of rotation to ensure good balancing of the tool.
- Other dimensions on request.

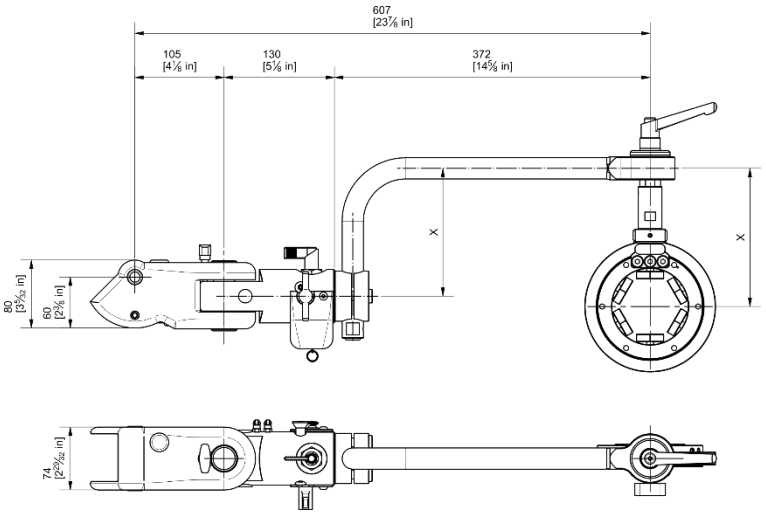
- ✓ TIMSAND dimensions [See Dimensions TIMSAND reinforced page 49].
- ✓ For fitting the tool [See Assembly of the tool page 42].
- ✓ Included accessories [See Included accessories page 42].
- ✓ For maintenance and cleaning [See Gimbals maintenance and cleaning page 39].

3.42.4 Spare parts

MV30D2A4R	HEADMEMBER Maximum load 30 Kg	
M3171600R	HEAD TILTING BASE Maximum load 30 kg	
M3279000	TILTING BASE REINFORCED WITH BUSHES	
M3103300R	SECURING LEVER M8x24 STAINLESS STEEL [Axis Z_1]	
M3360800	POSITIONER RETOUCHING M16x1.5	
M3103400R	LEVER M8 STAINLESS STEEL [Axis X]	
CM125000	POSITIONER Ø6x40	
M3103200R	TIMCO STAINLESS STEEL BRAKE RETOUCH [Axis Y]	
CM166500	LEVER M12 [Axis Z_2]	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

3.43 MULTIPOSITION REINFORCED SECURITY WITH QUICK-CHANGE - UA M3147600 + Handlebar





Requires Locks on the swinging arm (Lx2).
Maximum load: 30 kg | □¾"[42]

Z_1: Rotates ±80º. Non-lockable.
Z_2: Rotates 360º. Manual locking in any position.
X: Rotates 360º. Manual locking in 4 positions (4x90º).
Y: Rotates 360º. Adjustment of smoothness for rotation and position setting.

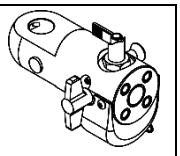
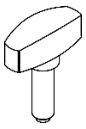
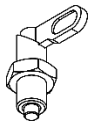
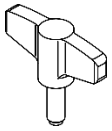
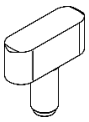
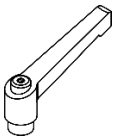
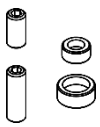
The head is fitted with a safety system that locks the swinging arm when the tool is removed, thus preventing an accident.

To view movements [See Movements and locking page 124].
To see the pneumatic diagram [See Pneumatic diagram page 80].

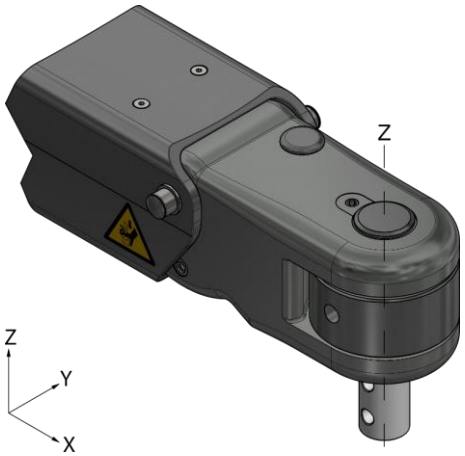
To reinforce the rod [See Handlebar adjustment and reinforcement page 121].
Gimbal type A: TIMCO [See Handlebar Type A: REINFORCED TIMCO page 125].
Gimbal type B: TIMSAND [See Handlebar Type B: TIMSAND REINFORCED page 126].

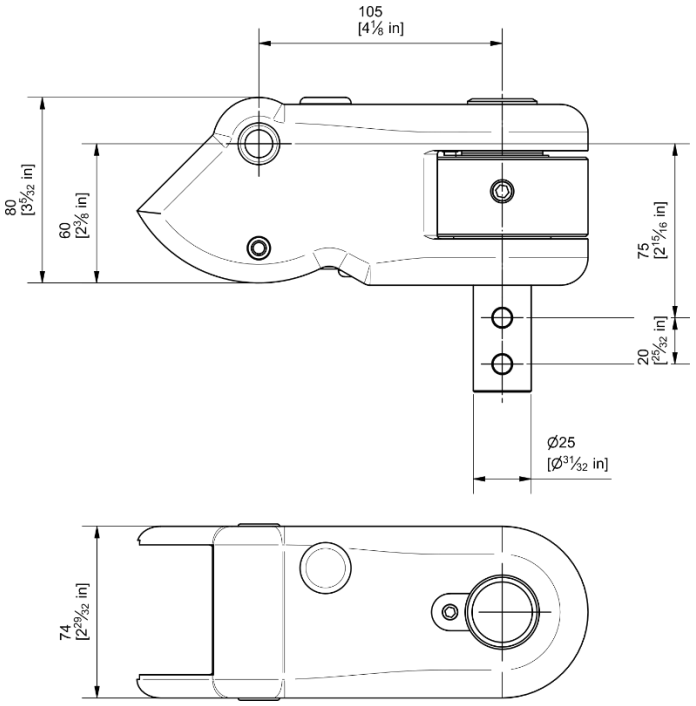
[42] Recommended tool square size for this head.

3.43.1 Spare parts

M3272700	HEAD TILTING BASE	
M3103300R	SECURING LEVER M8x24 STAINLESS STEEL [Axis Z_1]	
M3360800	POSITIONER RETOUCHING M16x1.5	
M3103400R	LEVER SUBSET M8 STAINLESS STEEL [Axis X]	
CM125000	POSITIONER Ø6x40	
M3103200R	TIMCO STAINLESS STEEL BRAKE RETOUCH [Axis Y]	
CM166500	LEVER M12 [Axis Z_2]	
MV331104	REPLACEMENT STUDS AND CAPS KIT	

3.44 VERTICAL EXTENSION - W
M3308900 + Extension



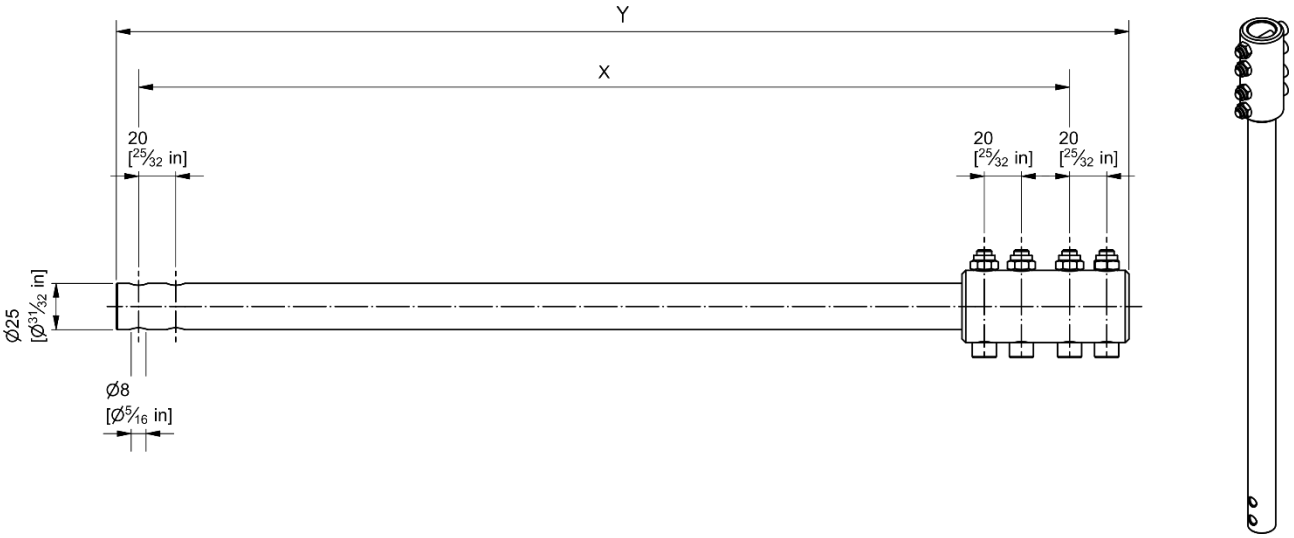


Maximum load: (35 - Headmember weight) kg.

Z: Rotates 360º. Non-lockable.

3.44.1 Extensions

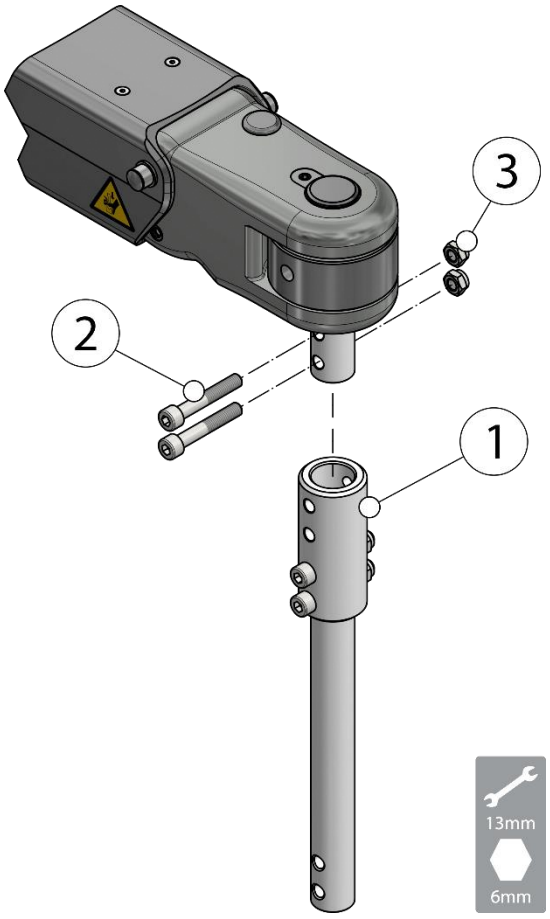
There are 3 extensions to lengthen the vertical axis:



Dimensions	X (mm)	Y (mm)
Extension 250	252 *(9 59/64")*	296 *(11 21/32")*
Extension 500	502 *(19 49/64")*	546 *(21 1/2")*
Extension 1000	1002 *(39 29/64")*	1046 *(41 3/16")*

3.44.2 Installation

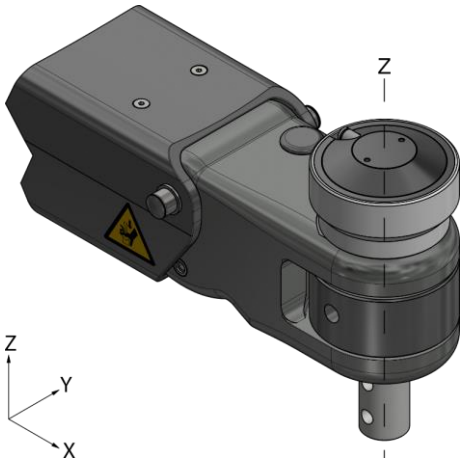
1- Insert the extension (1) into the head by matching the holes.
2- Fit and tighten the bolts (2) (6mm Allen key) and nuts (3) (13mm spanner).

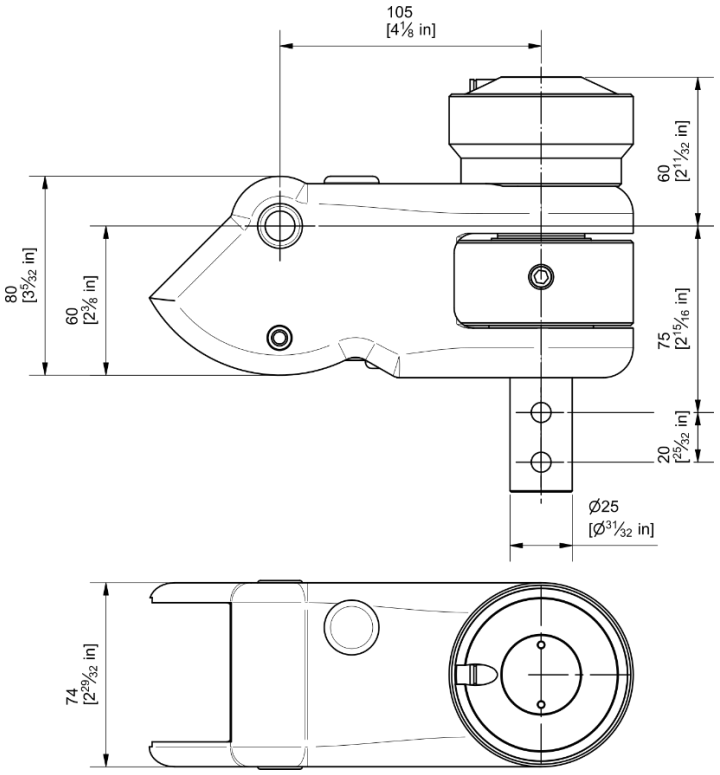


Multiple extensions may be used to cover longer distances.

On request, the tilting base of any of the other heads can be installed with its corresponding handlebar or flange.

3.45 AUTOMATIC VERTICAL EXTENSION - WA
M3283000 + Extension





Maximum load: (35 - Headmember weight) kg.
Maximum torque: 300 Nm.

Z: Rotates 360º. Pneumatic locking in 64 positions (5.6º).

Extensions [See Extensions page 130].
To install the extension [See Installation page 131].
Pneumatic diagram [See Pneumatic diagram page 97].

3.45.1 Operation

The pneumatic lock (Z Axis) is activated/deactivated with the other radial arm locks:

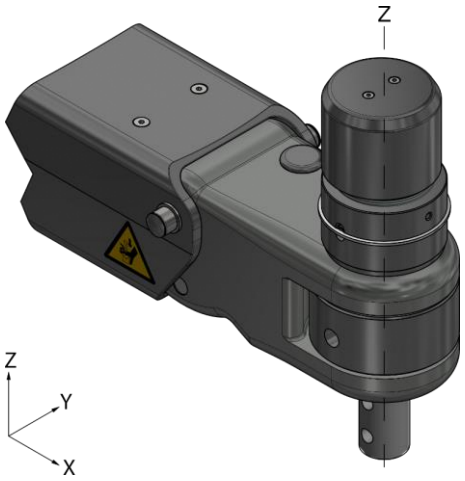
- If the arm is equipped with L22 locking, then via the radial locking selector switch
- If the arm is equipped with the L92 locking device, then it is activated via the tool.

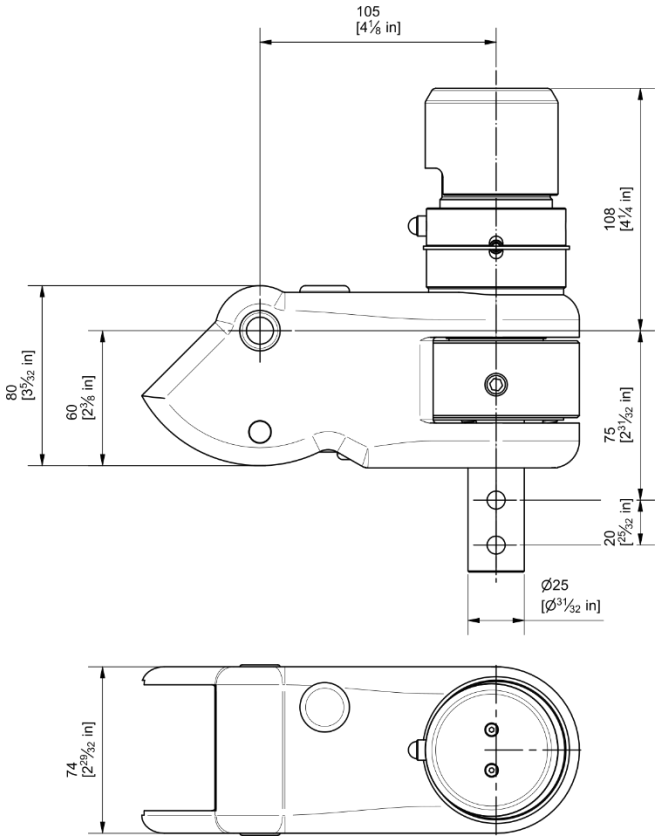
For more information, please refer to the arm manual.

3.45.2 Spare parts

NH135300	O-RING Ø62x2	
M31400A0	REVOLVER PISTON	

3.46 AUTOMATIC VERTICAL EXTENSION - WB
M3313900 + Extension



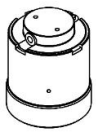


Maximum load: (35 - Headmember weight) kg.
Maximum torque: 100 Nm.

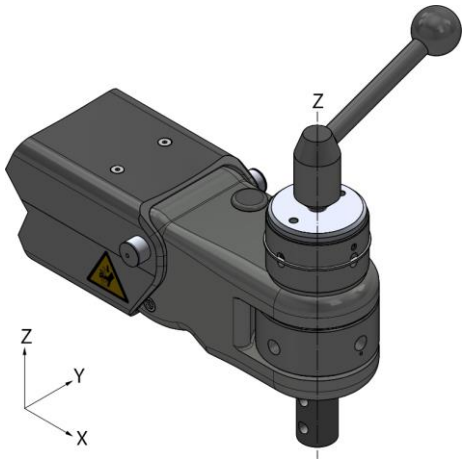
Z: Rotates 360º. Pneumatic locking in any position.

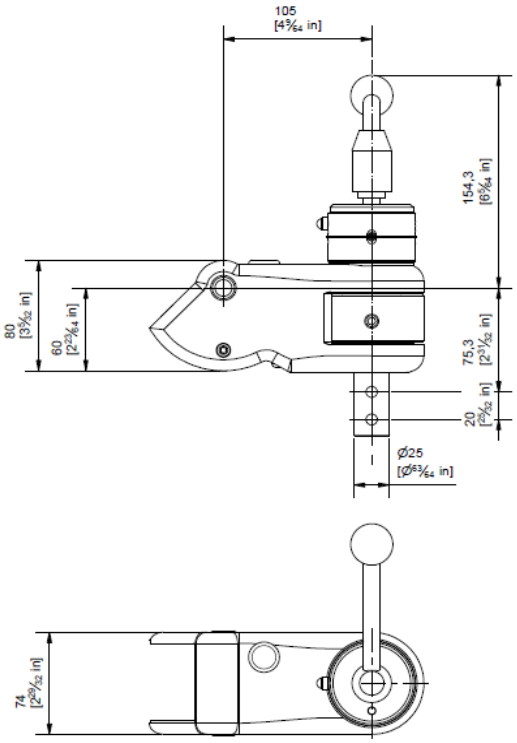
Extensions [See Extensions page 130].
To install the extension [See Installation page 131].
To see operation [See Operation page 132].
Pneumatic diagram [See Pneumatic diagram page 97].

3.46.1 Spare parts

MV405504	RADIAL ARM LOCKING CYLINDER	
MV4059A3	CYLINDER COVER 42	
MV4064A4	RADIAL PAD L22-L92 SPARE KIT	

3.47 MANUAL VERTICAL EXTENSION – WC
M3325200 + Extension



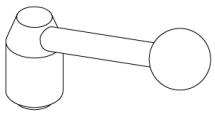
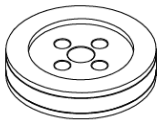


Maximum load: (35 - Headmember weight) kg.
Maximum torque: 100 Nm.

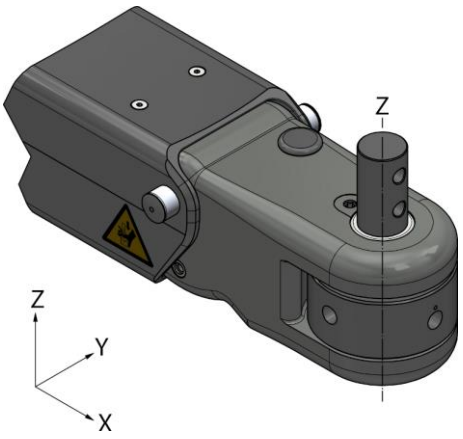
Z: Rotates 360º. Manual locking in any position.

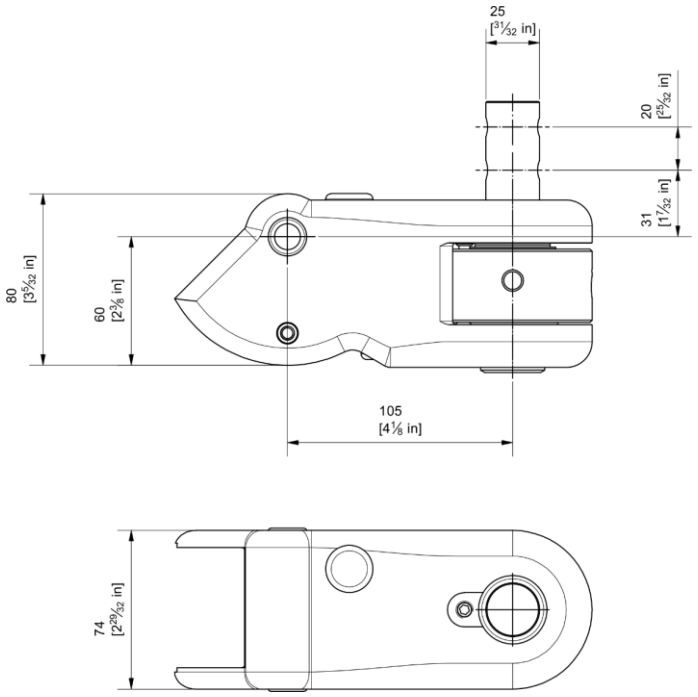
Extensions [See Extensions page 130].
To install the extension [See Installation page 131].
To see operation [See Operation page 132].

3.47.1 Spare parts

M3323700	ADJUSTABLE HANDLE	
MV4064A4	BRAKE DISC	

3.48 VERTICAL ROOF EXTENSION - WD
M3360900 + Extension



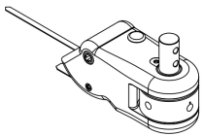


Maximum load: (35 - Headmember weight) kg.

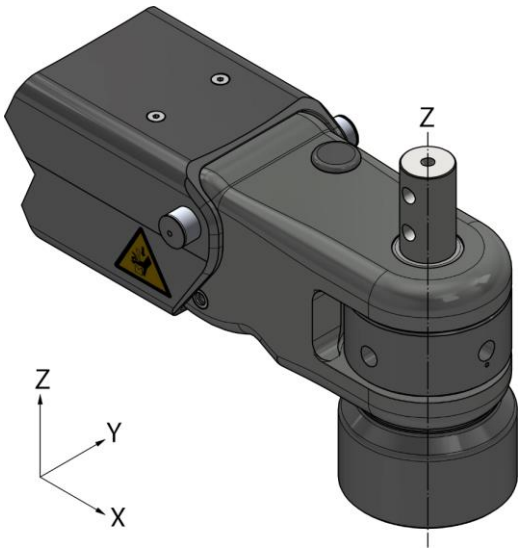
Z: Rotates 360º. Non-lockable.

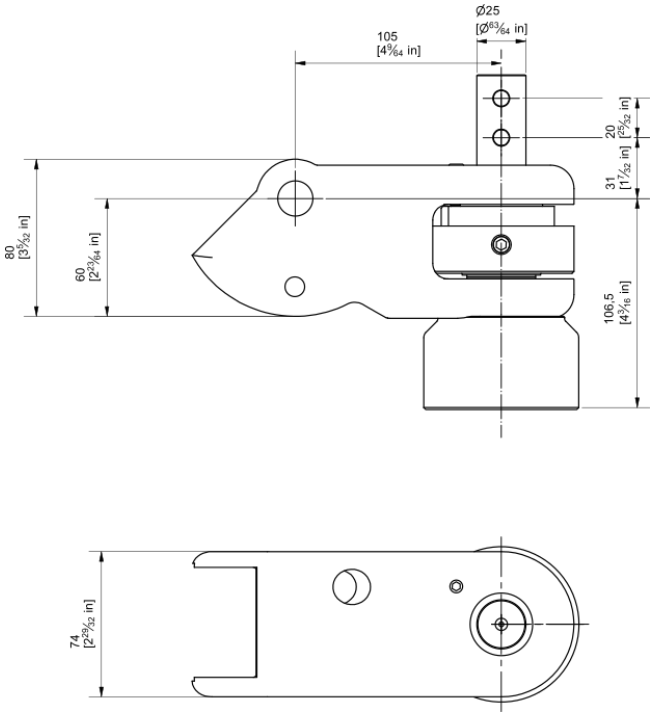
Extensions [See Extensions page 130].
To install the extension [See Installation page 131].

3.48.1 Spare parts

M3360900R	HEADMEMBER	

3.49 ROOF AUTOMATIC VERTICAL EXTENSION - WE M33214A0 + Extension





Maximum load: (35 - Headmember weight) kg.
Maximum torque: 100 Nm.

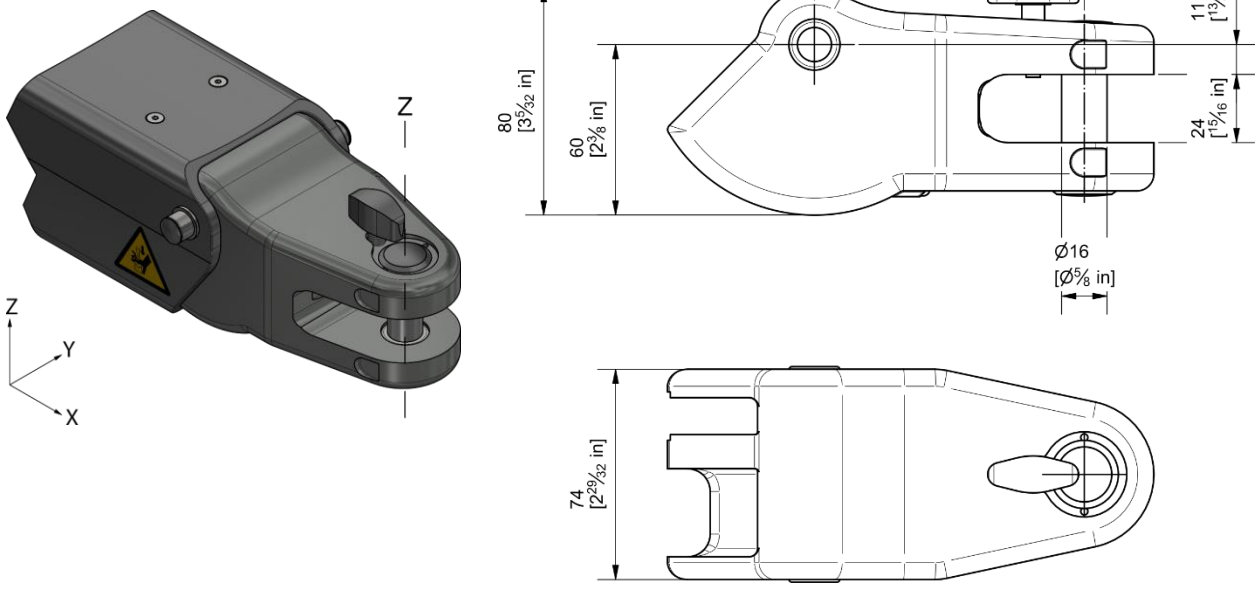
Z: Rotates 360º. Pneumatic locking in 64 positions (64x5.6º).

Extensions [See Extensions page 130].
To install the extension [See Installation page 131].
To see operation [See Operation page 132].
Pneumatic diagram [See Pneumatic diagram page 97].

3.49.1 Spare parts

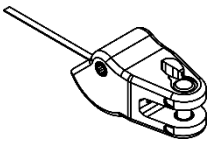
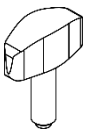
NH020666	O-RING Ø67x2	
M31400A0	REVOLVER PISTON	

3.50 FORK - Z
MV309304

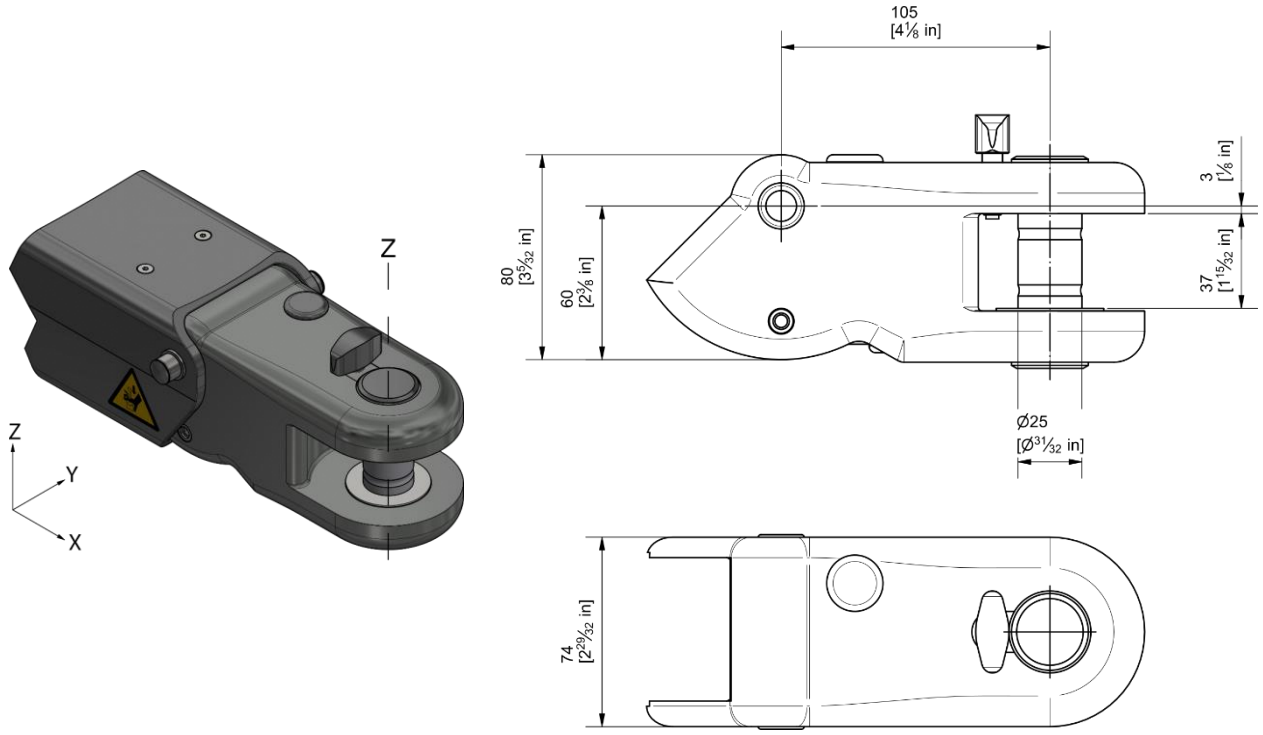


Maximum load: 12 kg.

3.50.1 Spare parts

MV309304R	HEADMEMBER	
MV31J603R	SECURING HANDLE M8x24	

3.51 REINFORCED FORK - ZA
M3125600



Maximum load: (35 - Headmember weight) kg.

3.51.1 Spare parts

MV31J603R	FIXING LEVER M8x24