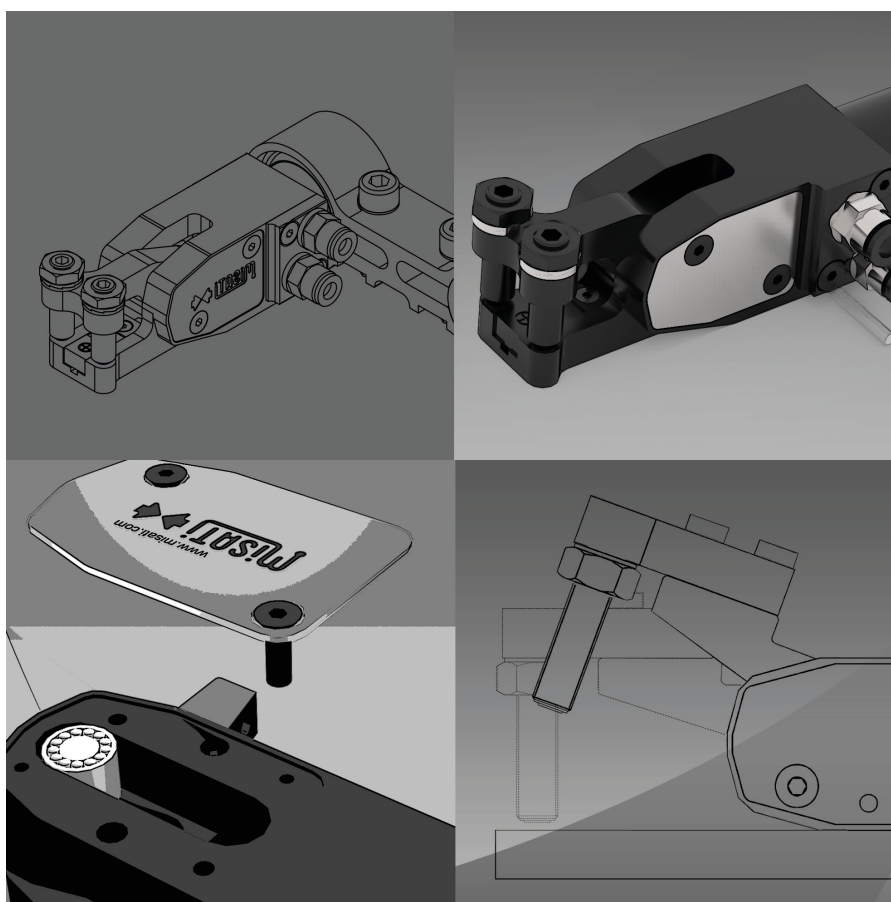


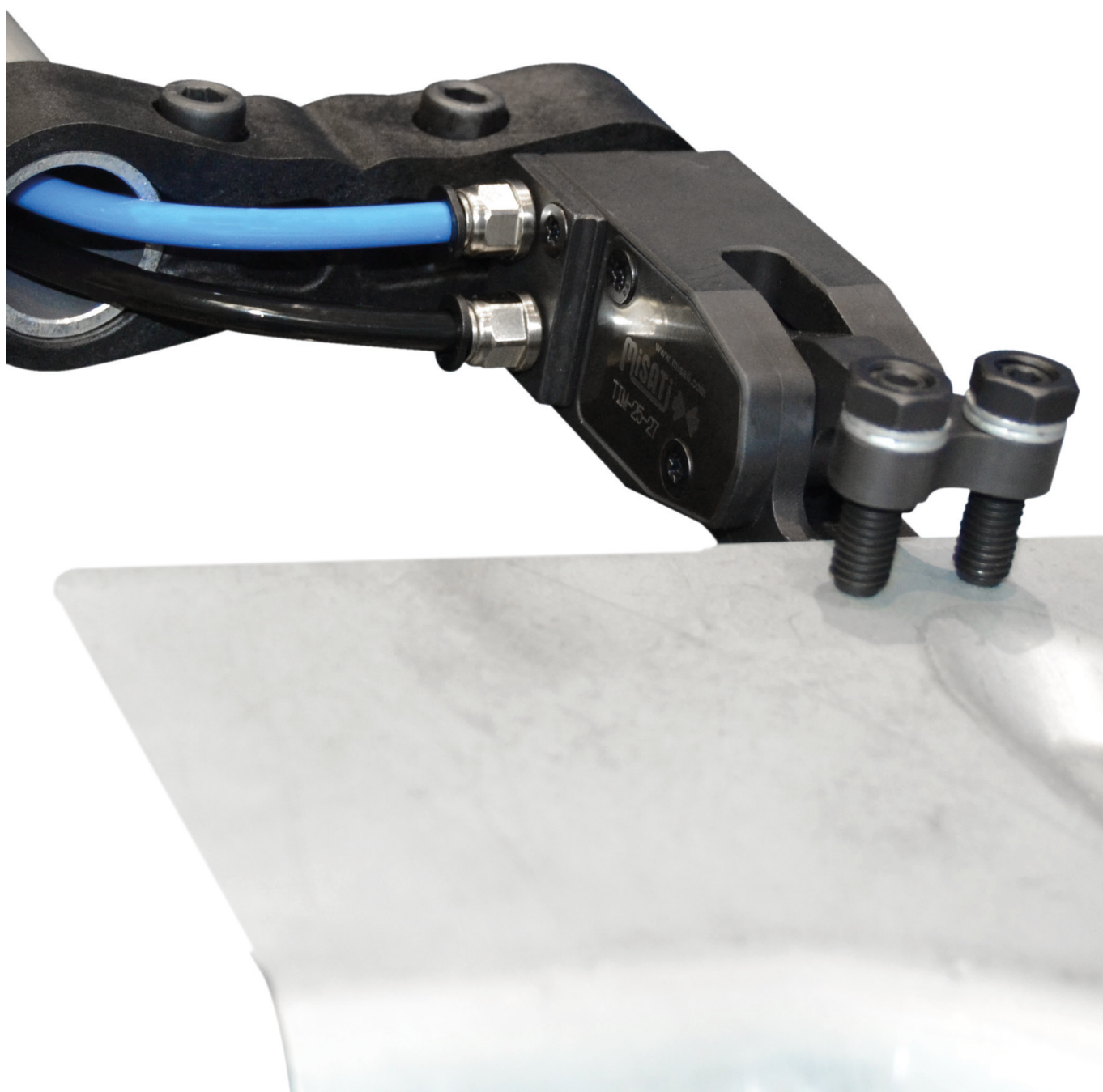


OPERATING INSTRUCTIONS FOR MINIPINCERS FOR TRANSFER PRESS





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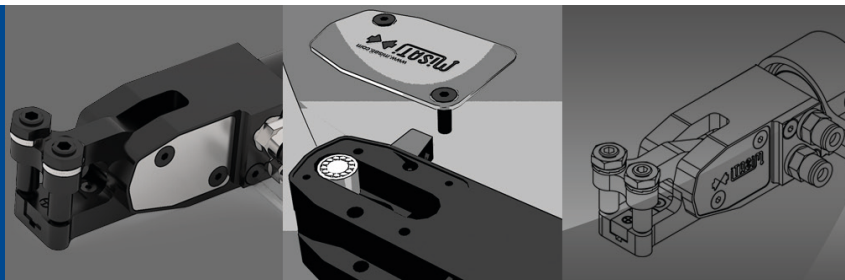
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Range:

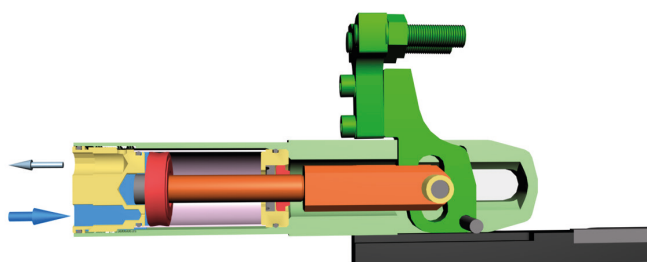
Which Minipincer Should I Use?



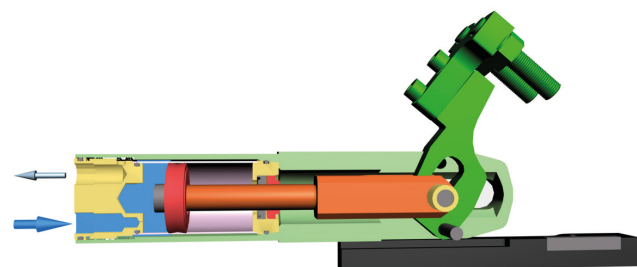
MISATI 

OPERATION PRINCIPLE	05
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OPERATION PRINCIPLE

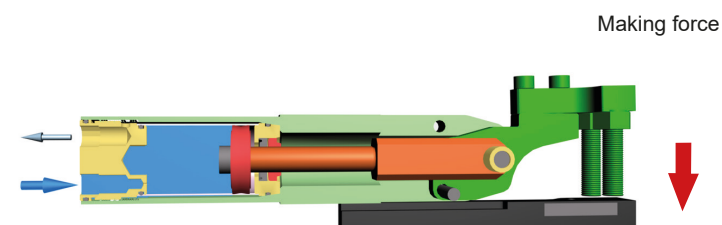


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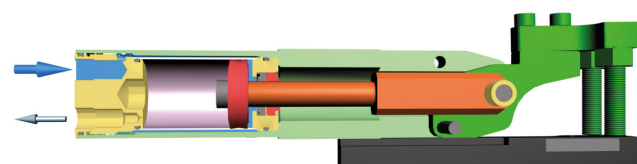


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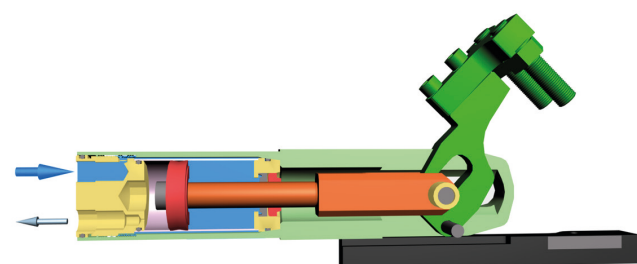
CLOSING MINIPINCERS



3

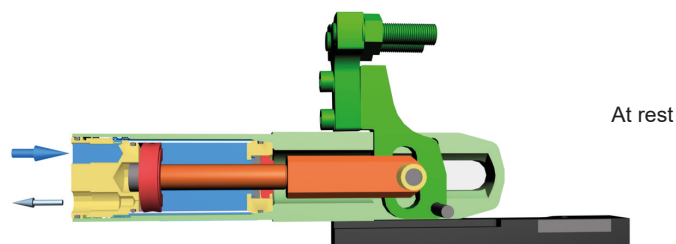


4



5

OPENING MINIPINCERS



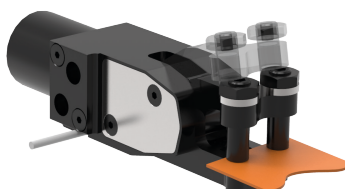
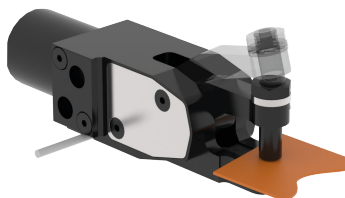
6

At rest

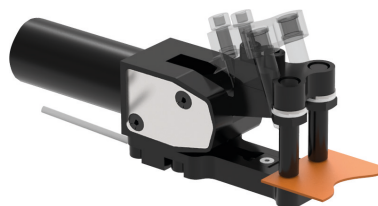
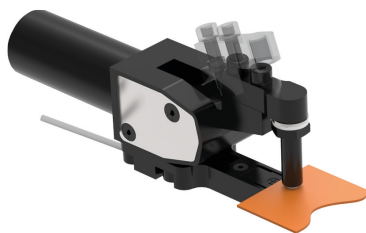
The Minipincers has a double effect pneumatic cylinder which transmits a turning movement to the clamping arm along the shaft. Thanks to the special shape of the oblong hole, the miniclamp makes a big force.

PINCERS FOR TRANSFERS

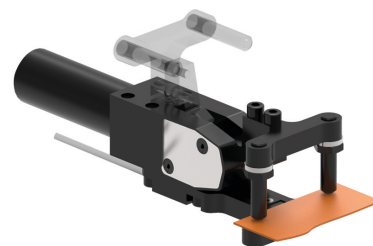
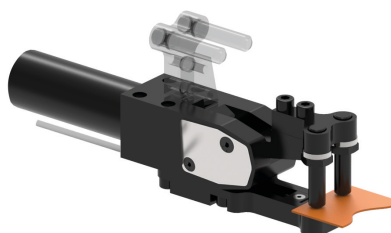
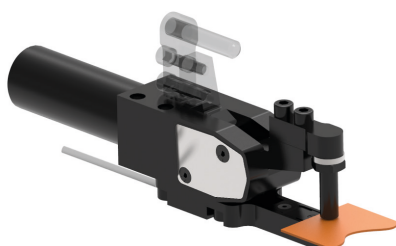
TYPE	PISTON	CLAMPING FORCE	OPENING	POSITION OF SHEET	MOVABLE ARM	WEIDTH (mm)
TIM2...	Ø25	180 daN	25°	HORIZONTAL	1	15, 27, 55



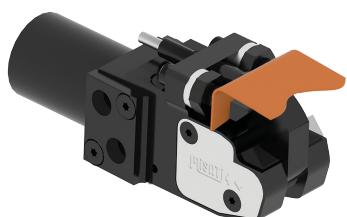
TIP...	Ø32	205 daN	20°	HORIZONTAL	1	20,40,70
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TI2...	Ø20 Ø32	103 daN 205 daN	90°, 45°	TRANSVERSE	1	15, 30, 60 20, 40, 70
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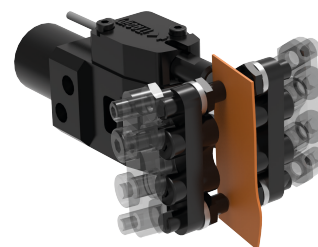
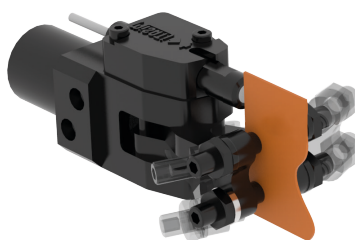
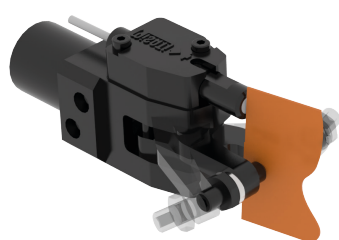


TLM...	Ø25 Ø32	434 daN 434 daN	50°	VERTICAL	1	10, 30
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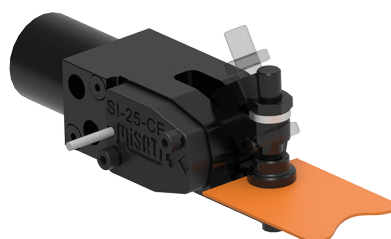
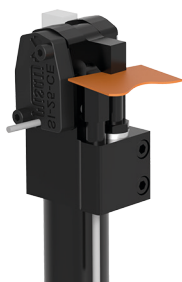
PINCERS FOR TRANSFERS

TYPE	PISTON	CLAMPING FORCE	OPENING	POSITION OF SHEET	MOVABLE ARM	WEIDTH (mm)
TCM2	Ø25	180 daN	12°+12° 22,5°+22,5°	TRANSVERSAL	2	15, 27, 55



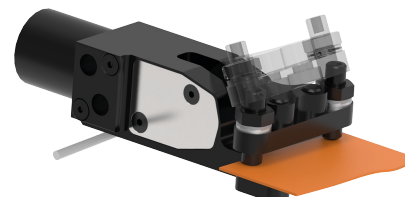
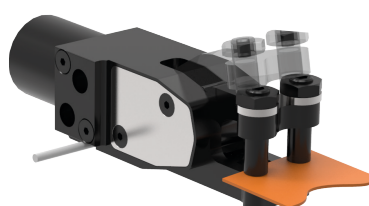
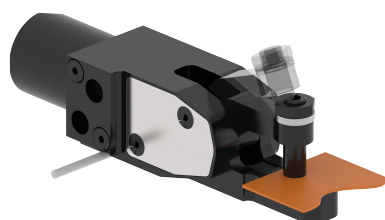
SHEET THICKNESS CONTROL

TLR3-20-CE	Ø20	336 daN	90°	HORIZONTAL	1	15
TIML-25-CE	Ø25	180 daN	25°			27

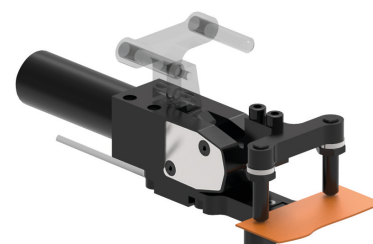
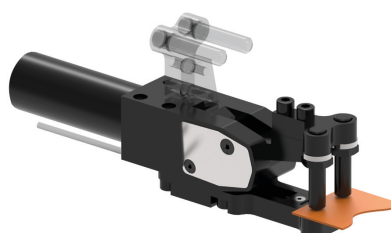
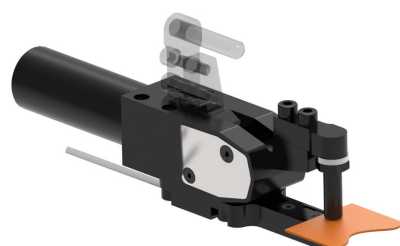


FASTENING OF CANTILEVER SHEETS

TIML2...	Ø25	180 daN	25°	HORIZONTAL	1	15, 27, 55
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TIL2...	Ø20 Ø32	103 daN 205 daN	90°, 45°	HORIZONTAL	1	15, 30, 60 20, 40, 70
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PINCERS FOR TRANSFERS

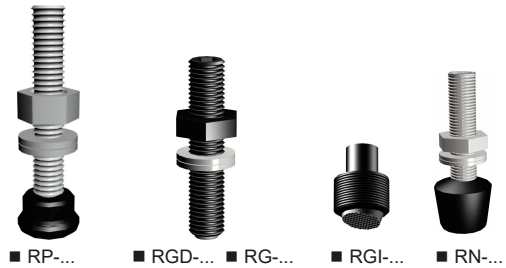
FLAT SURFACE:

■ RP-... ■ RGD-...



RIBBED SURFACE:

■ RG-... ■ RGI-...



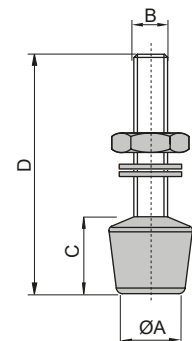
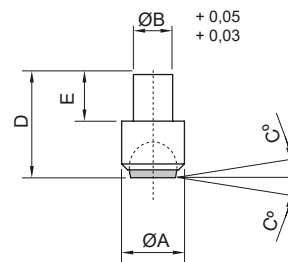
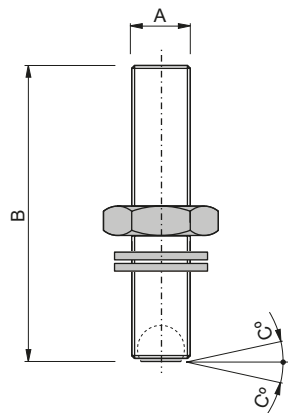
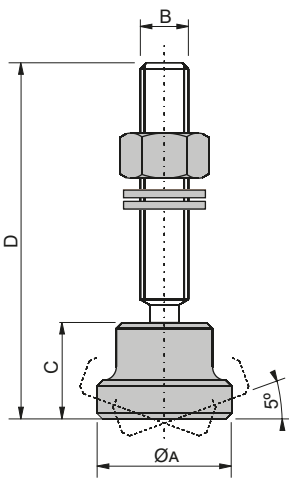
■ RP-... ■ RGD-... ■ RG-... ■ RGI-... ■ RN-...

■ RP-...

■ RGD-... ■ RG-...

■ RGI-...

■ RN-...



Weight (kg)

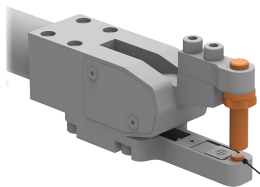
RP-08/D	0,030-0,034
RP-10/D	0,063-0,072
RGD-20	0,011
RGD-32	0,021
RG-20	0,012
RG-32	0,022
RG-20-30	0,01
RG-32-40	0,02
RGI-20	0,01
RGI-30	0,02
RN-08/D	0,030-0,034

► Bolts included

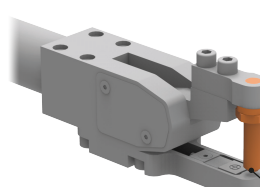
- **Material:** hardened steel & Delrin (RGD-...)
- **Material:** hardened steel (RP-..., RG-..., RGI-..., RN-...)
- **Material:** neoprene (RN-...)

■ For very delicate pieces, it is recommended to use the Flat Ball-Ended Screw RP-... or RGD-...

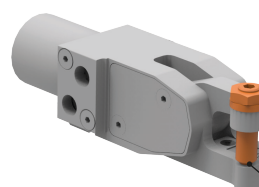
Examples of applications



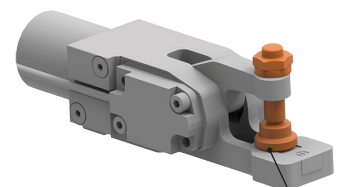
(1) RGI-...



RG-...



RGD-...



RP-...

RP						
TYPE	ØA	B	C			
RP-08/D	16	M8	9	48	63	
RP-10/D	20	M10	11	54	64	84

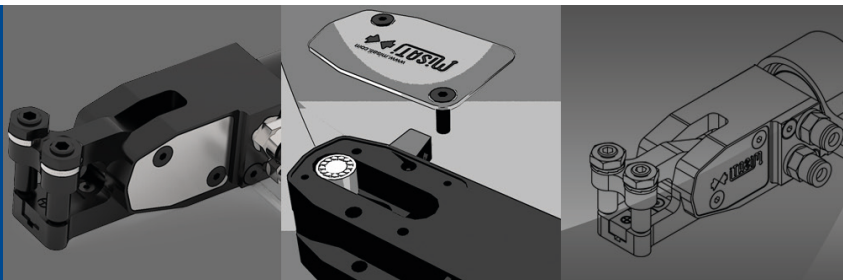
RGD				
TYPE	A	B	C	
RGD-20	M8	41,6	0	
RGD-32	M10	51,9	0	

RG				
TYPE	A	B	C	
RG-20	M8	40	9	
RG-32	M10	50	9	
RG-20-30	M8	30	9	
RG-32-40	M10	40	9	

RGI					
TYPE	A	ØB	C	D	E
RGI-20	8	5	9	12	6
RGI-32	M10	6	9	14	6

RN				
TYPE	A	B	C	D
RN-08/D	16	M8	18	63

Use



Misati ➡ ➡

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HOW TO ADJUST THE FORCE OF A MINIPINCR

TIPOS DE MINIPINZAS: TIM2..., TIP-..., TI2-..., TCM2-..., TIML2..., TIL2...

1 Open the pincer and place the sheet

- With the mobile arm open, you have to loosen the nuts that hold the ribbed ball-ended screws (orange colour).
- Turn the screws up until there is enough space to place a sheet between them and the lower gripper finger or the static arm of the minipincer.

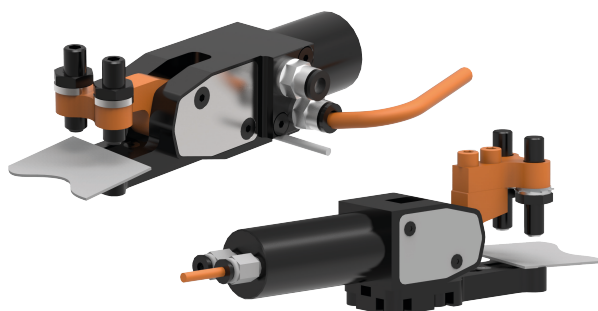
In case of using a minipincer with two moving arms, adjustment is done in the same way: one of the arms is considered as the static arm and the other as the moving arm.



2 Close the minipincer

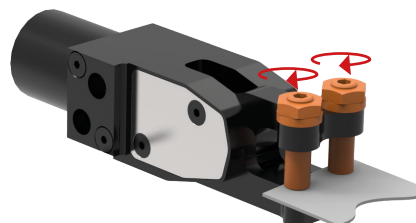
- Close the minipincer until it reaches the final position. In this position, the minipincer is non-reversible, i.e., it will not open unless any compressed air is injected in it.

To close the minipincer, you will need to inject some compressed air into the hole with a "+" mark on.



3 Bring screws down

- With the arm closed, bring both screws over to the sheet until they contact the sheet without pressure.



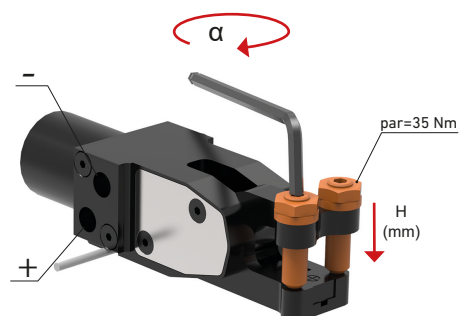
4 Adjust the force

- We will begin by deciding the force we'd like to obtain. This force should be enough to fasten the sheet correctly during the transfer process.
- Next, we will look for this value in the tables enclosed, taking the type of minipincer that we are using and the minimum working pressure into account.
- Take the sheet out carefully so that you don't turn the screws. Then, with an Allen key, turn the screws clockwise the value from the table, assembling high security washers at a 35 Nm torque. The turn can be measured in degrees (α) or in height (H), i.e. the number of millimeters that the screw is moving, as you think best.

For example:

If we usually work at a pressure of 6 bar that sometimes falls to 5 bar, then we will look for a force to work at 5 bar.

To close the minipincer, you will need to inject some compressed air into the hole with a "+" mark on.



HOW TO ADJUST THE FORCE OF A MINIPINCER

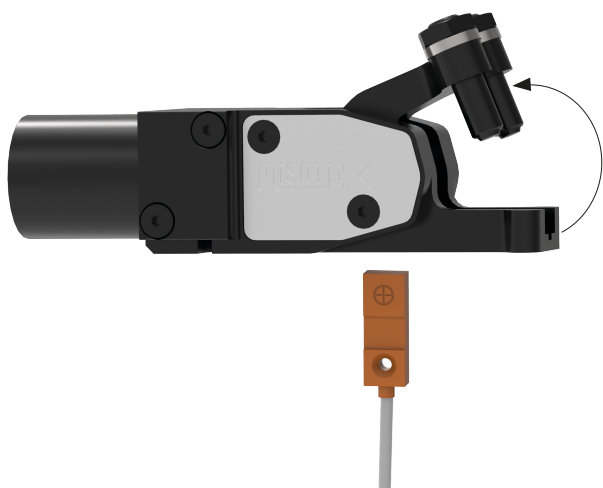
Recommended Force		TIM2 / TCM2/ TIML2 Ø25 MINIPINCERS			
		TURN SCREW (α)	H (mm)	FORCE (daN)	
Maximum Force		4 BAR	216°	0,75	110
			255°	0,88	130
		5 BAR	270°	0,94	140
			285°	1,00	160
		6 BAR	270°	0,94	150
			300°	1,04	175

	TI2 / TIL2 Ø20 MINIPINCERS			TIP / TI2 / TIL2 Ø32 MINIPINCERS		
	GIRO TORNILLO (α)	H (mm)	FUERZA (daN)	GIRO TORNILLO (α)	H (mm)	FUERZA (daN)
4 BAR	156°	0,54	60	225°	0,90	100
	180°	0,63	69	270°	1,10	136
5 BAR	196°	0,68	75	270°	1,10	135
	225°	0,78	86	315°	1,30	165
6 BAR	235°	0,81	90	315°	1,30	170
	270°	0,93	103	360°	1,50	205

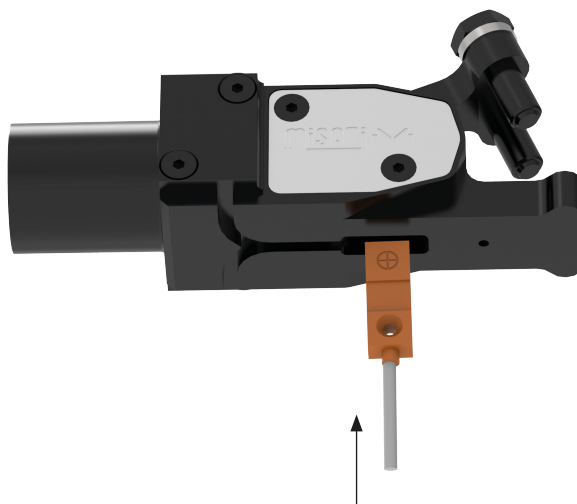
ASSEMBLY OF THE SHEET DETECTOR

TYPES OF MINIPINCERS: TIM2... , TCM2-..., TIML2...

1



2



3



4



CHANGE OF THE SENSOR

REFERENCES: ST-..., SI-..., SL...

Types of minipincers:
TIM2, TIP, TI2, TIL2, TIML2

REFERENCES

ST-01-R / ST-02-R / ST-04-R
ST-01N-R / ST-02N-R / ST-04N-R

Types of minipincers:
TLR, TLR3

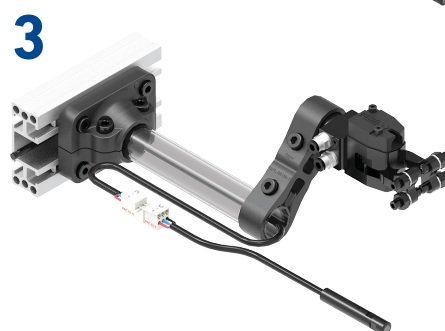
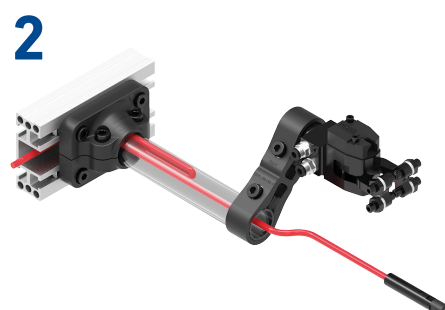
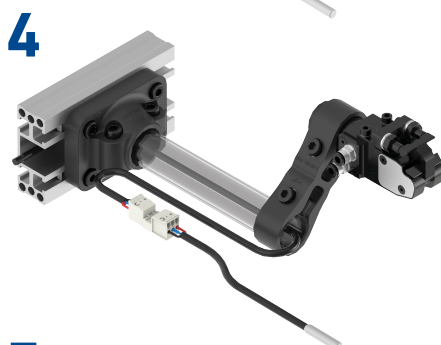
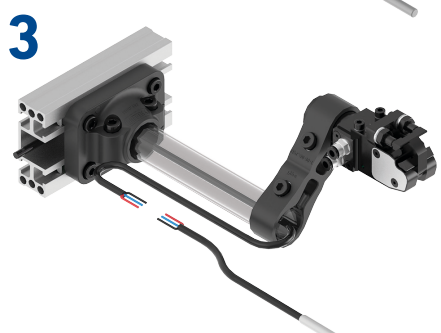
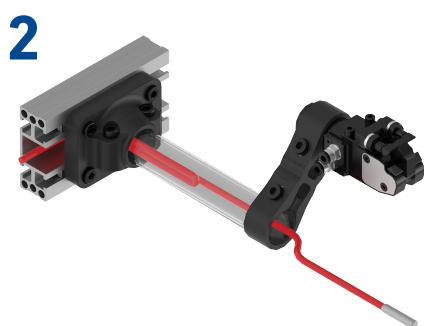
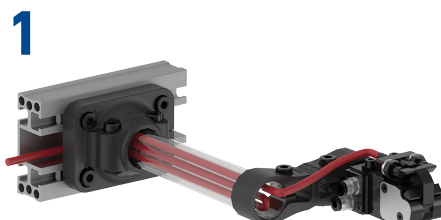
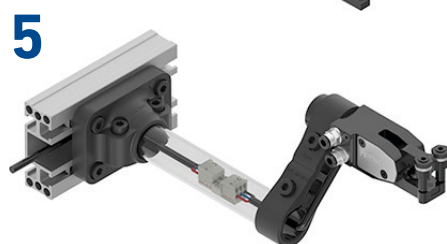
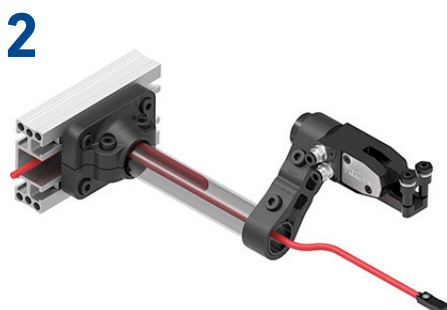
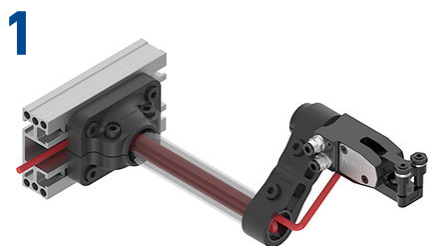
REFERENCES

SI-M08-C2-R / SI-M08-C2N-R

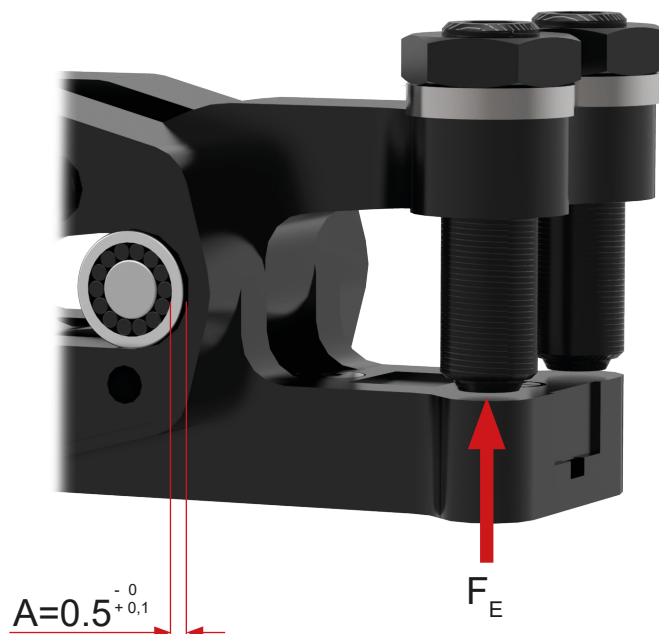
Types of minipincers:
TCM

REFERENCES

SL-20-R / SI-M08-C4-R
SL-20N-R / SI-M08-C4N-R



NON-REVERSIBLE MINIPINCERS



One of the main characteristics of our fastening element is its non-reversibility.

When the minipincer is making force and it's in a non-reversible position, no extern force F_E can turn the arm, even though air pressure is missing; this way, the clamping force achieved is kept.

In order to check if the minipincer is in a non-reversible position, we will first adjust the desired force according to the information on the back of this page. Next, dimension "A" has to be checked according to the drawing to guarantee the non-reversibility of the arm.

GUARANTEE



LIFE

MINIPINCERS are guaranteed by MISATI, S.L. for 7 YEARS against any manufacturing defect affecting their correct operation.

SCOPE

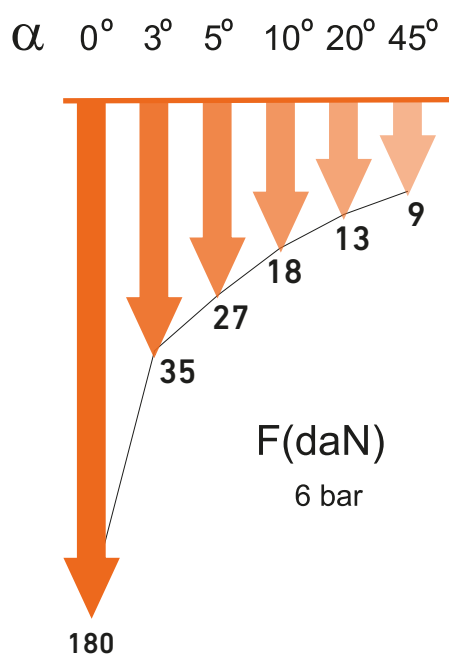
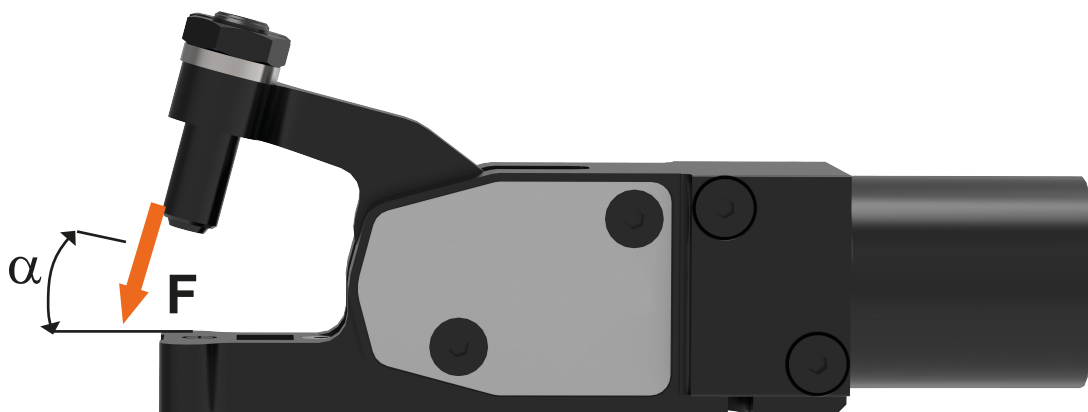
The guarantee covers all faulty parts and labour required for their repair in our workshops during the guarantee period.

GUARANTEE DOES NOT INCLUDE:

- Any possible damages occasioned by mishandling, inappropriate use, negligence, overloading or abandonment of the miniclamp, pressure increases, faulty installations and other external causes.
- Any repairs or adjustments carried out by people not connected with or expressly authorized by MISATI, S.L.
- Any parts prone to wear and tear.
- Damages caused by any machine downtime.

FORCE / “ α ” ANGLE FOR TIM2, TCM2, TIML2 MINIPINCERS

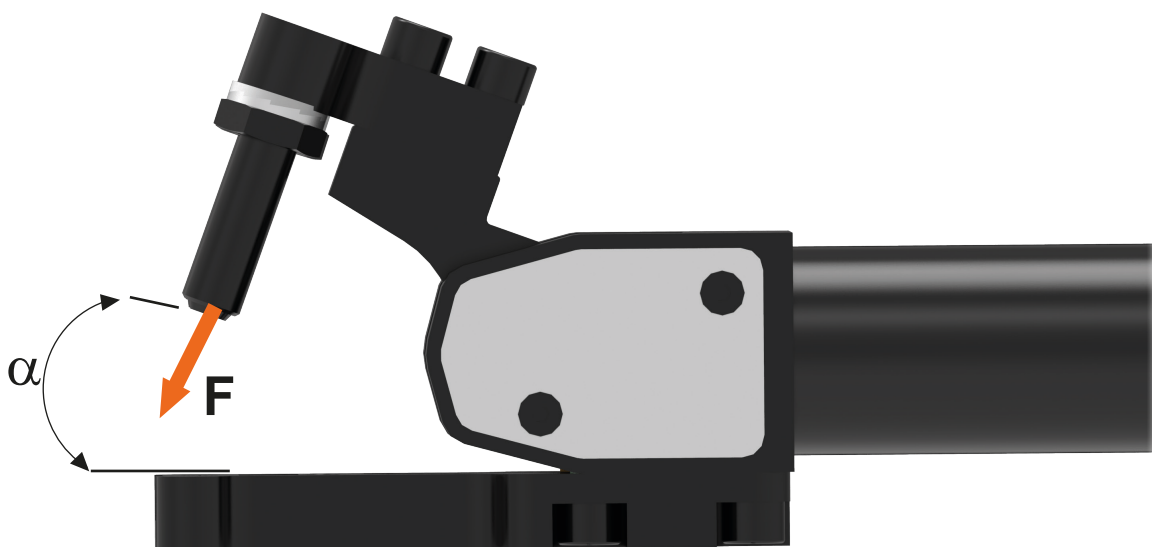
The mechanism of Misati Minipincers has been designed so that the holding force appears on the last degrees. For safety reasons, the force is minimal on any other angle.



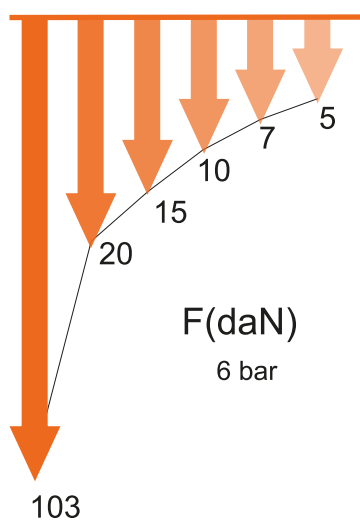
TIM2-25, TCM2-25, TIML2-25, TIML2...

FORCE / “ α ” ANGLE FOR TIP, TI AND TCL MINIPINCERS

The mechanism of Misati Minipincers has been designed so that the holding force appears on the last degrees. For safety reasons, the force is minimal on any other angle.

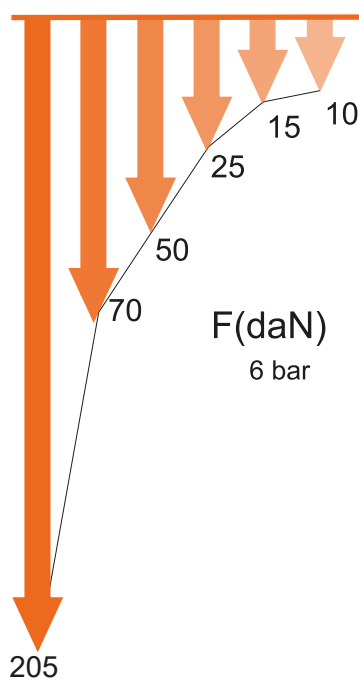


α 0° 3° 5° 10° 20° 45°



TI2-20, TIL2-20

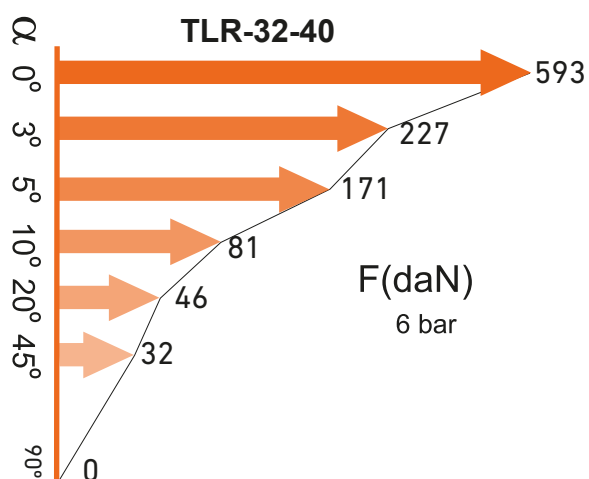
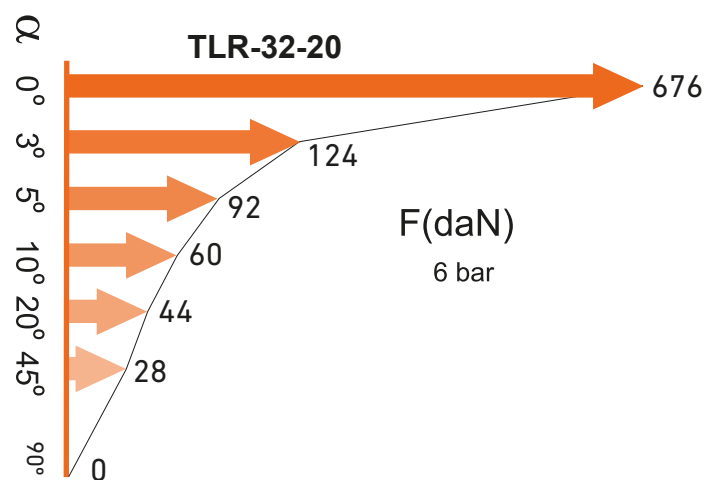
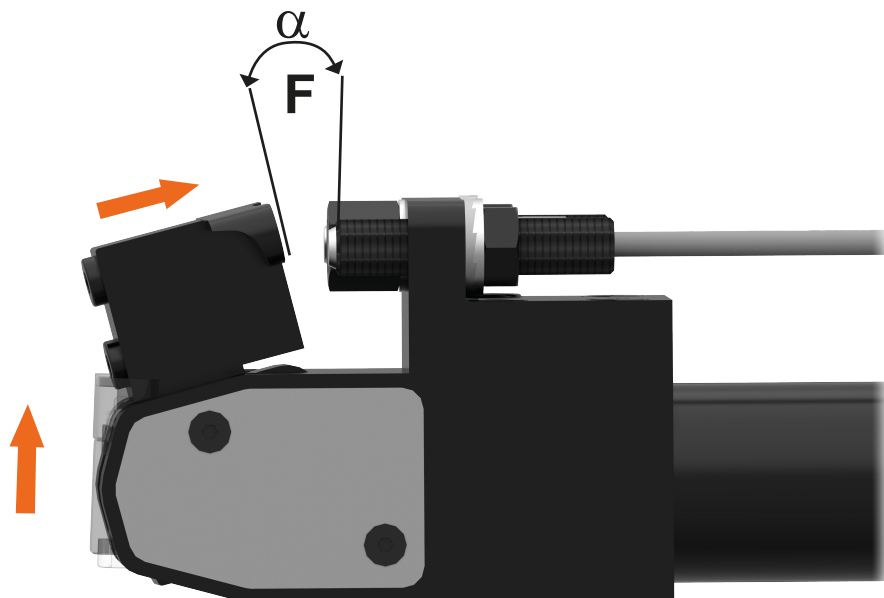
α 0° 3° 5° 10° 20° 45°



TIP-32, TI2-32, TIL2-32

FORCE / “ α ” ANGLE FOR TLR, TLR3 MINIPINCER

The mechanism of Misati Minipincers has been designed so that the holding force appears on the last degrees. For safety reasons, the force is minimal on any other angle.



ADJUSTMENT OF THE LINEAR UNIT

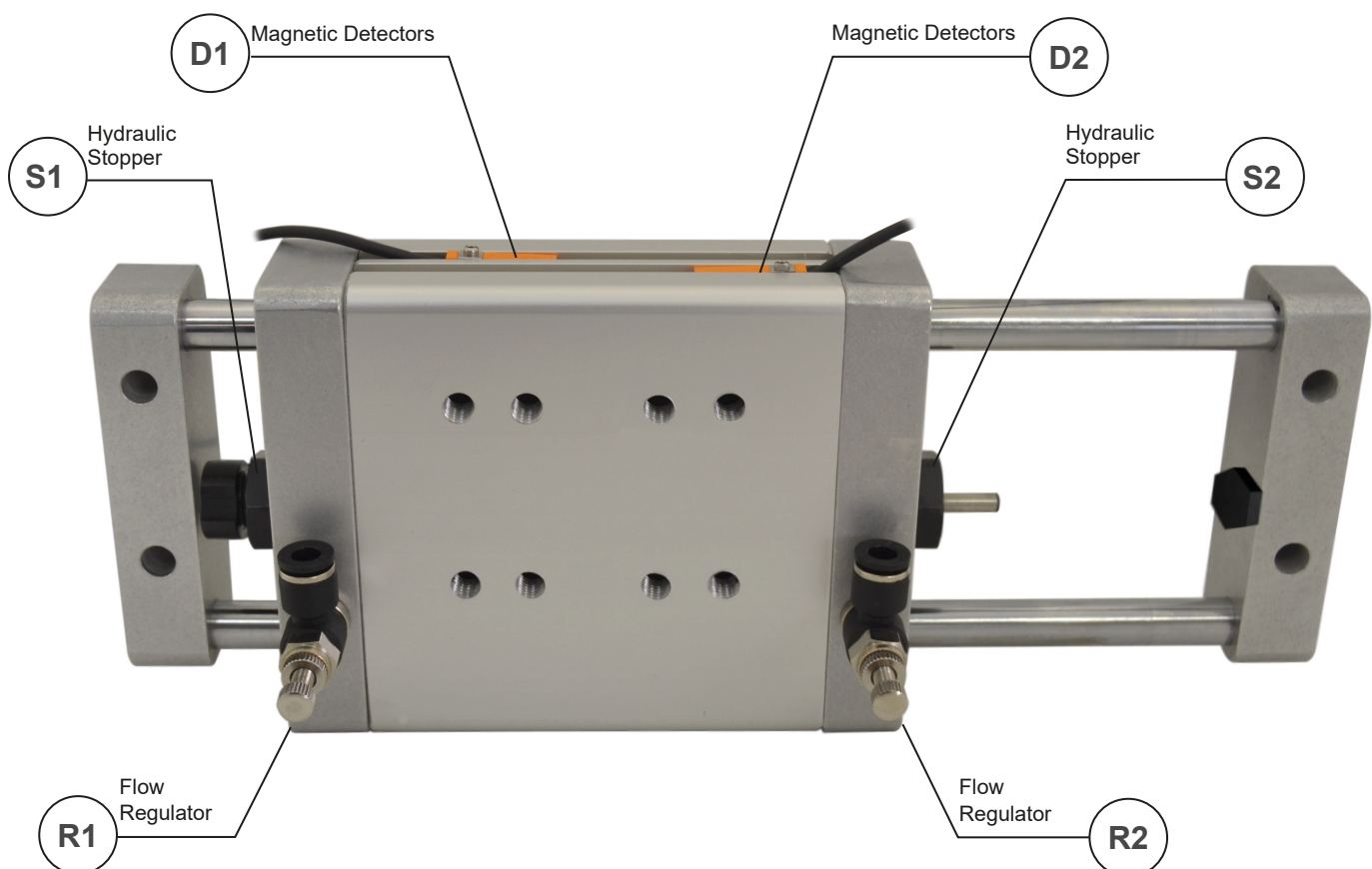
UL2-32-L

1. Detach hydraulic stoppers S1 & S2.
2. Unscrew stoppers and adjust the position of the stroke according to your needs. Distribute the remaining stroke on both sides.
3. Block nuts against the body of the Linear Unit.
4. Adjust the signal of each magnetic detector D1 & D2 in each end position.
5. Adjust displacement speed according to your needs with flow regulators R1 & R2.

IMPORTANT NOTE:

Once hydraulic stoppers S1 & S2 are adjusted, fix firmly the locking nuts.

It's recommended to use a thread locker such as *Loctite* to avoid its releasing with vibrations.



ADJUSTMENT OF THE TURNING UNIT

UG2-40-..., UG3-25-...

1. Loosen nuts of the hydraulic stoppers S1 & S2.
2. Unscrew hydraulic stoppers until the internal mechanical limit. In this position the turning angle is:

92° on UG2-40-90

182° para UG2-40-180 y UG3-25-180

3. Adjust the turning angle by inserting simultaneously hydraulic stoppers in and distributing the remaining angle on both sides. Within each complete turn (360°), the angle range will decrease:

10,75° on UG2-40

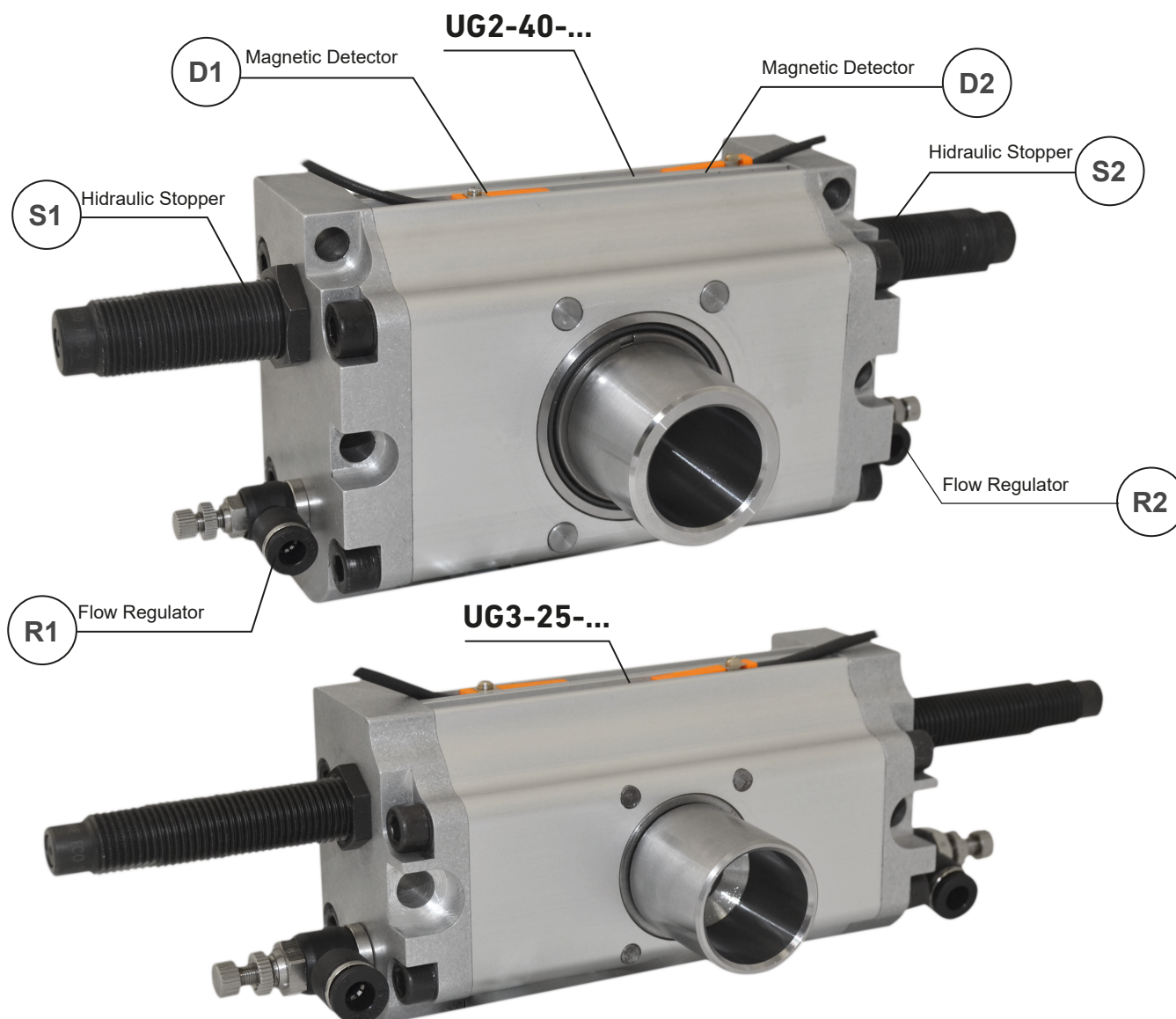
19° on UG3-25

4. Block nuts against the body of the Turning Unit.
5. Adjust the signal of each manetic detector D1 & D2 in each end position.
6. Adjust rotation speed according to your needs with flow regulators R1 & R2.

IMPORTANT NOTE:

Once hydraulic stoppers S1 & S2 are adjusted, fix firmly the locking nuts.

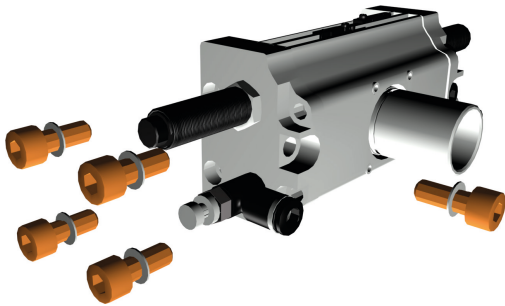
It's recommended to use a thread locker such as *Loctite* to avoid its releasing with vibration.



CHANGE OF THE HYDRAULIC STOPPER

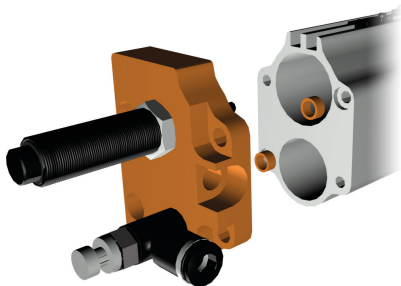
UG2-40-..., UG3-25-...

NOTA: En cada unidad de giro hay dos topes hidráulicos o amortiguadores, que se pueden sustituir de manera independiente.



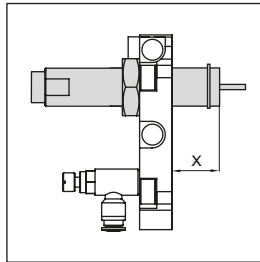
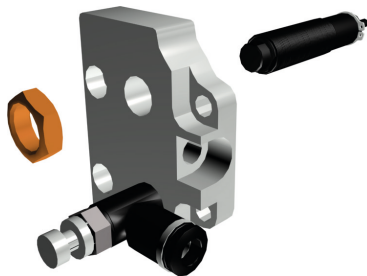
1

Unscrew the lateral cover.



2

Detach the lateral cover from the body, which is centered by centring guide bushings.



3

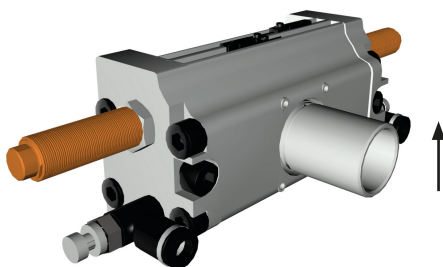
Loosen the nut of the stopper to replace.

"x" must be kept the same.



4

Take out the safety ring of the stopper to replace.

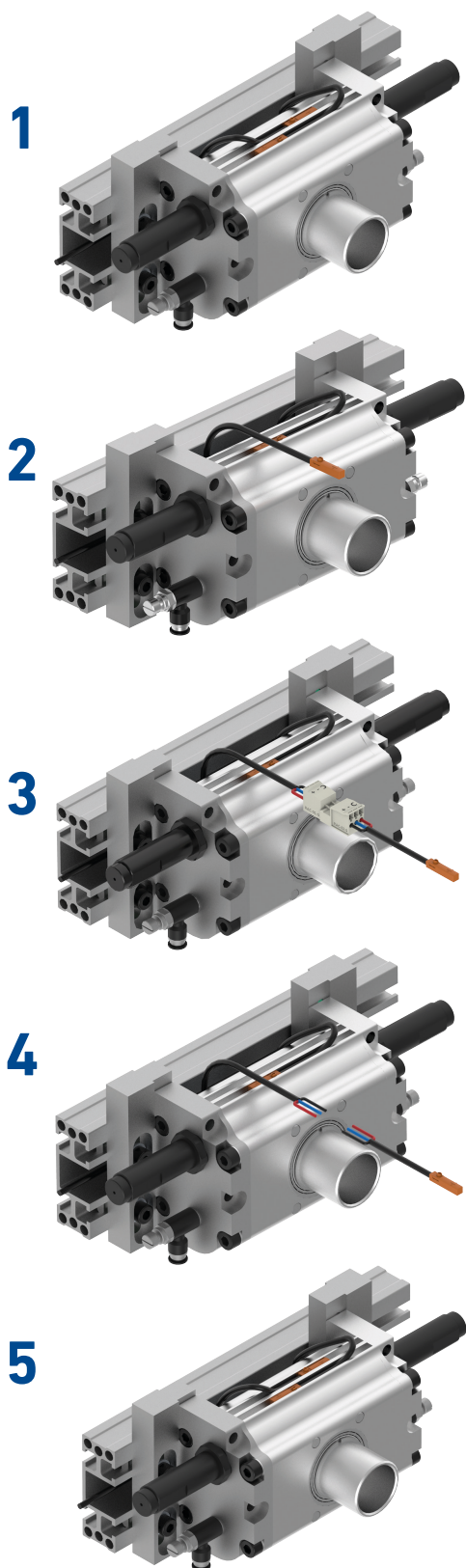


5

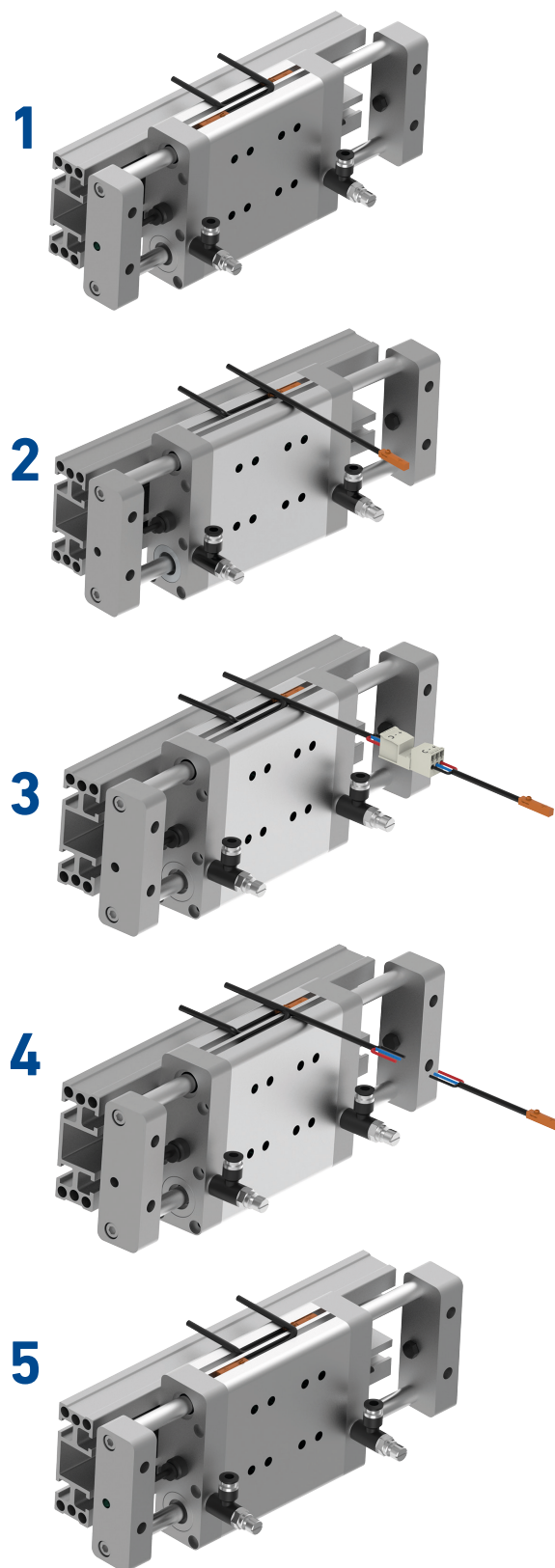
Assemble all the elements the other way round.

INSTRUCTIONS: CHANGE OF THE SENSOR APPLIED ON UG... & UL2...

UG2-40-..., UG3-25-...



UL2-32-L



Maintenance



FORCE MECHANISM	24
PNEUMATIC CYLINDER	25
MECHANICAL KIT	26-27
PNEUMATIC KIT	28
CHANGE OF THE ARM	29

MAINTENANCE: FORCE MECHANISM

To guarantee a long life for our minipincers, it is essential to make a preventive maintenance, depending on the aggressiveness of the environment.

1

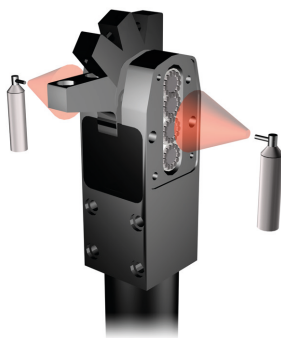
1 DISMANTLING

Dismantle both lateral covers.

2

2 CLEANING BLOWING

In order to free any foreign particle, project compressed air in all directions on the hole and in different positions of the arm.

3

3 LUBRICATION

Spray on the hole with a lubricant for bearings in different positions of the arm.

4

4 ASSEMBLY

Put both covers on the clamp.

MAINTENANCE: PNEUMATIC CYLINDER

Please, read carefully the following advices for a correct maintenance of the pneumatic cylinder.

1. AIR TREATMENT

It is recommended to use compressed air (filtered) prepared for preventing any dust particles, oil or water from damaging the internal components of the minipincers.

After the compression, air is pre-filtered, dehydrated by cold drying (pressure dew point + 2°C) and cleaned through very fine filters. Bigger particles than 40 µm should be removed with some specific filters.

2. GREASE FOR PNEUMATIC ELEMENTS

Our standard miniclamps use Klübersynth AR 34-402 grease. This adhesive lubricating grease can be used with a wide piston speed range. Other advantages are the low breakaway torque, even after longer periods of standstill and the low tendency to the stick-slip during slow piston speeds.

In case of high-temperature special applications (EE-xx9), Viton O-rings are lubricated with Barrierta L55/1 high-temperature long-term grease.

Both types of greases are from Klüber Lubrications (www.klueber.com). For further information, please contact the manufacturer directly.

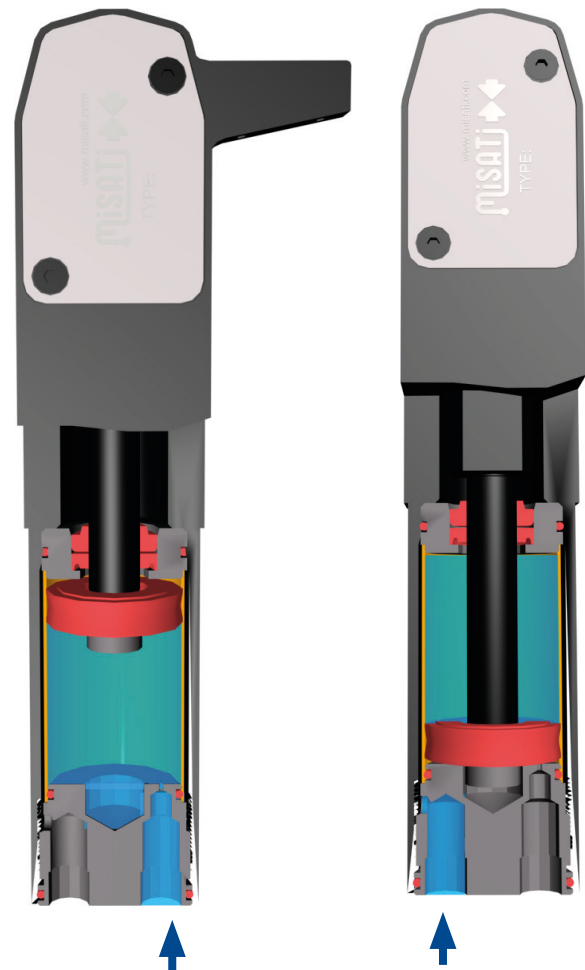
Misati supplies each spare Pneumatic Kit (KJ-20 & 32...) with the enough quantity of grease to change the elements correctly.

Use ethanol to clean the pneumatic sealing elements.

3. AIR EQUIPMENT LUBRICATION

Compressed air can be lubricated or unlubricated. In case of using lubricated air, oil must be mineral or synthetic to prevent any incompatibilities with the grease used with the pneumatic seals.

If you begin using unlubricated air and then you change to use lubricated air, seals can dry up and crack, and so the miniclamp will lose air tightness.



MECHANICAL KIT

TIM2, TIP, TI2, TLR, TCM, TIML2, TIL2

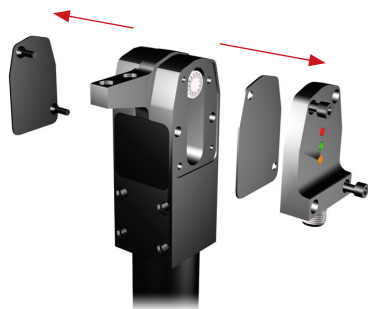
 Dismantling the Mechanical Kit

 Assembling the Mechanical Kit

1

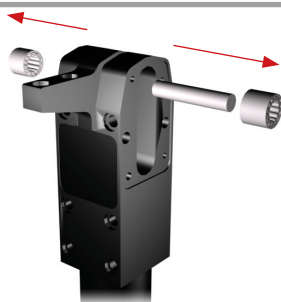
Dismantle both lateral covers

Allen keys 2,5 y 3



2

Take bearings & bolt out



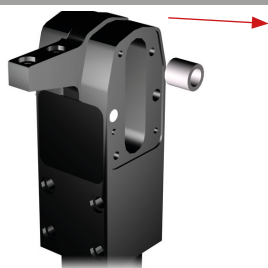
3

Push the shaft down to the end



4

Take the internal bushing out of the arm



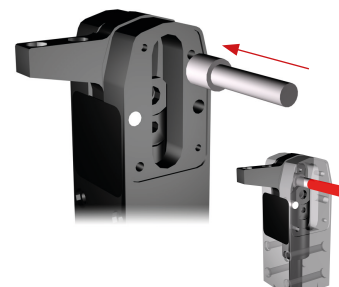
5

Push the shaft up to the halfway of the oblong hole of the body



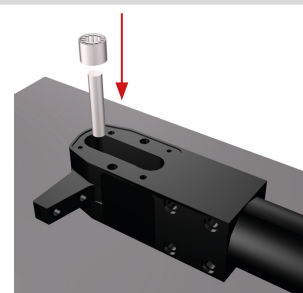
6

Assemble the internal bushing of the arm with the help of the bolt.



7

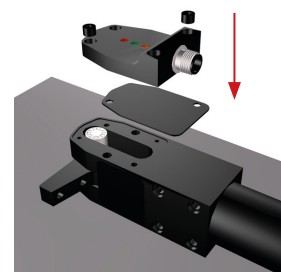
Lay the minipincer down horizontally and place the shaft and bearings in it



8

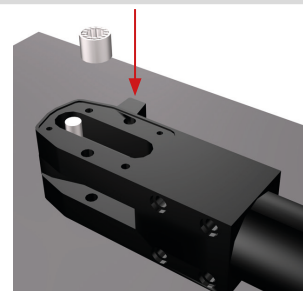
Put the Bakelite cover & sensor, or lateral cover, on the clamp

Allen keys



9

Turn the minipincer and place the bearing in



10

Put the lateral cover on the pincer

Allen keys 2,5



PNEUMATIC KIT

TIM2,TIP, TI2, TLR, TCM, TIML2,TIL2

-  Dismantling the Pneumatic Kit
 Assembling the Pneumatic Kit

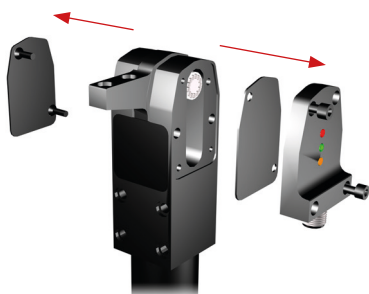


The Pneumatic Kit of TCP & TCG clamps must be changed in MISATI workshops.

1

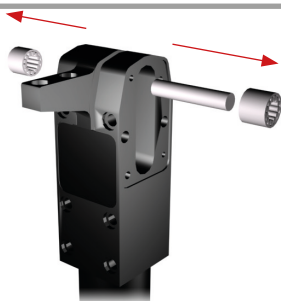
Dismantle both lateral covers

Allen keys 2,5 y 3



2

Take bearings & bolt out



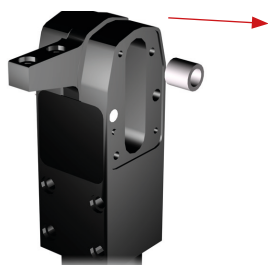
3

Push the shaft down to the end



4

Take the internal bushing out of the arm



5

Unscrew the head with the help of two Allen screws

Allen key & spanne



6

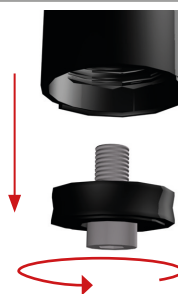
Take the head and the cylinder bush out



7

Unscrew the piston & take it out

Allen key



8

With the arm straight, push down with an Allen key to take the shaft & guide out

Allen key



9

Replace the used guide with the new one



10

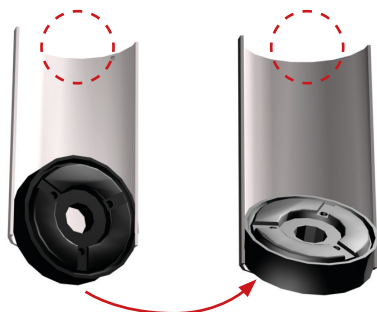
Replace the two seals of the head



PNEUMATIC KIT FOR MINIPINCERS TIM2,TIP, TI2, TLR, TCM, TIML2,TIL2

11

Place the piston & the cylinder bush according to the drawing



12

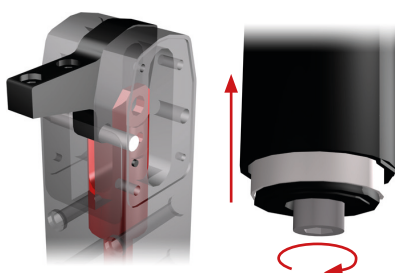
Prepare the shaft, guide cylinder bush & piston according to the drawing



13

Approach the shaft to the arm and tighten the screw

Allen key



14

Screw the head in with the help of two Allen screws

Spanner



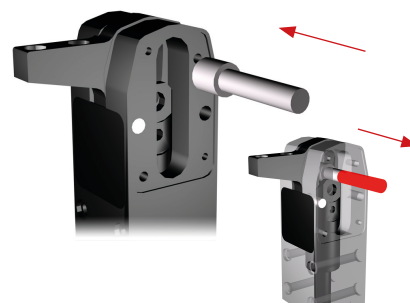
15

Push the shaft up to the halfway of the oblong hole of the body



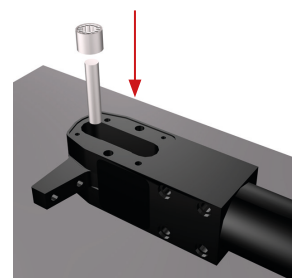
16

Assemble the internal bushing of the arm with the help of the bolt



17

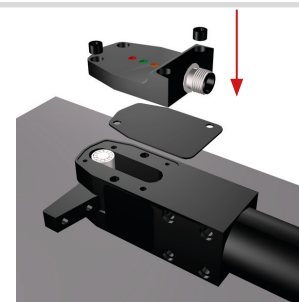
Lay the minipincer down horizontally and place the shaft and bearings in it



18

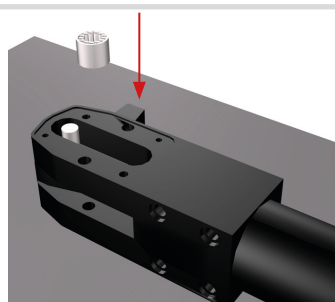
Put the Bakelite cover & sensor, or lateral cover, on the clamp

Allen key 3



19

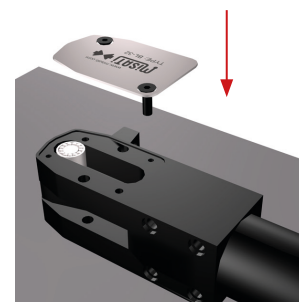
Turn the clamp and place the bearing in



20

Put the lateral cover on the clamp

Allen key 2,5



CHANGE OF THE ARM TIM2,TIP, TI2, TLR, TCM, TIML2,TIL2

Dismantling the arm

Assembling the arm

1

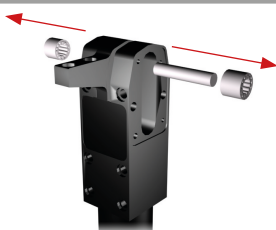
Dismantle both lateral covers

Allen keys 2,5 & 3



2

Take bearings & bolt out



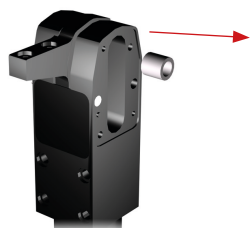
3

Push the shaft down to the end



4

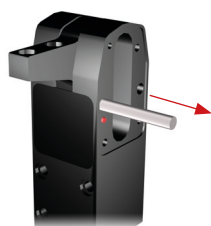
Take the internal bushing out of the arm



5

Take the bolt out

Centre punch & hammer



6

Take the arm out



7

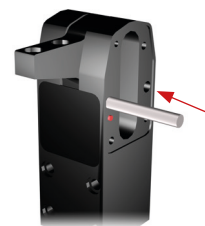
Assemble the arm



8

Assemble the bolt

Centre punch & hammer



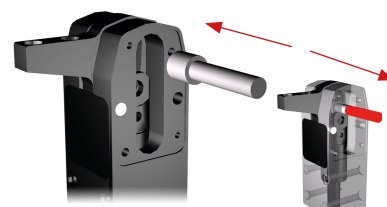
9

Put the shaft up to the halfway of the oblong hole of the body



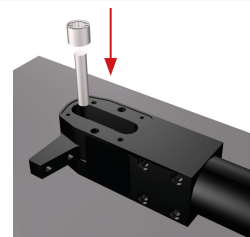
10

Assemble the internal bushing of the arm with the help of the bolt



11

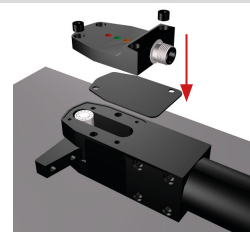
Lay the clamp down horizontally and place the shaft and bearings in it



12

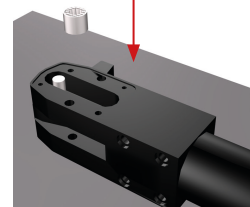
Put the Bakelite cover & sensor, or lateral cover, on the clamp

Allen key 3



13

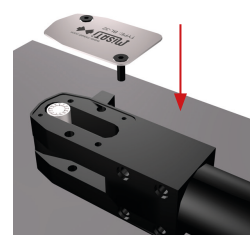
Turn the clamp and place the bearing in



14

Put the lateral cover on the clamp

Allen key 2,5



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