

serie

TA



Made in Italy

Sistemi di foratura
Sistemi di foratura
Sistemi di foratura

Edition 0820

Operation and maintenance manual

TABLE OF CONTENTS

1. GENERAL NOTES	page 2
1.1 Symbols used in the manual	page 4
2. IDENTIFICATION	page 5
2.1 Manufacturer identification	page 5
2.2 Angle head identification	page 5
3. GENERAL DESCRIPTION	page 6
3.1 Intended use	page 7
3.2 Forbidden use	page 7
4. SAFETY NORMS	page 8
5. TECHNICAL SPECIFICATIONS	page 9
6. PACKAGING-HANDLING-STORING	page 10
6.1 Receipt / Unpacking	page 10
6.2 Storing	page 11
7. MACHINE CONNECTIONS	page 12
7.1 Stop-block	page 12
7.2 Connection to the cooling unit	page 15
8. ADJUSTMENT	page 16
8.1 Taper DIN 2080 ANSI B5.18	page 16
8.2 Taper DIN 69871-MAS403-ANSI B5.50-HSK	page 18
8.3 TRIBLOCK antirotation system	page 20
8.4 TA... series angle head adjustments	page 22
8.5 TAV series... head adjustments	page 23
8.6 Precautions when fitting the head to the machine	page 25
9. USE	page 26
9.1 Fitting tools on the head	page 27
9.2 Spindle DIN69063 (HSK)	page 28
9.3 Placement into service	page 28
10. MAINTENANCE	page 29
10.1 Cleaning	page 29
10.2 Lubrication	page 30
10.3 Battery replacement	page 30
10.4 Troubleshooting	page 31
10.4 Scrapping	page 31
11. SPARE PARTS	page 32
12. WARRANTY	page 32
13. DECLARATION OF INCORPORATION	page 33
14. O.M.G. PRODUCTION	page 34

Congratulations for having chosen an **O.M.G. S.r.l.** angle head series '**TA**'. The aim of these operating instructions is to help you become acquainted with your angle head unit. We advise you read them and keep them for future reference. The angle heads manufactured by us are fully warranted in terms of selected materials, operating precision and sizing as well as high standards for the greater strength of parts under stress.

GENERAL NOTES

1

To ensure top product performance over time, the following points are most important:

- Correct installation.
- Maintenance and careful product use.
- Read this manual carefully before proceeding to set up and use the angle head.
- This manual was written to provide you with full information on technical considerations, installation, adjustment, use and maintenance of the angle head you have purchased. Please keep it in a suitable place where it will not be altered or damaged.
- Should you need any further details, please contact our after-sales service.
- The contents of this manual conforms to directive 2006/42 EC.

- Details and drawings are shown by way of example only. The manufacturer reserves the right to make changes without prior notice. O.M.G. S.r.l. protects the copyrights of this manual according to applicable legislation.




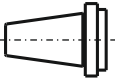


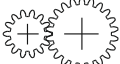





When selecting machine coupling always check compatibility with indicated performance.



The TA must be fitted on a machine with adequate protections and in conformity with directive 2006/42/ CE.

1.1 SYMBOLS USED

SYMBOL	MEANING	REMARKS
	DANGER	All the operations marked by this symbol must be performed with the utmost care as regards the safety norms detailed in chapter 4.
	IMPORTANT	All the operations marked by this symbol must be performed with the utmost care. Failure to comply with these norms could cause damage and faults to the angle head. This symbol also identifies operations requiring the special attention of the reader.
	ADJUSTMENT - OPERATIONS	All operations marked by this symbol must be carried out by persons trained to perform jobs on mechanical component parts.
	CONNECTOR	Type of connector available for machine connection.
	DRILLING	Maximum drilling capacity of angle head.
	TAPPING	Maximum tapping capacity of angle head.
	RATIO	Angle head in-out ratio.
RPM	SPEED	Maximum exiting speed of angle head, in rpm.
	WEIGHT	Weight of angle head, in kg.
	ROTATION	Rotation direction.
	PRESSURE	Maximum pressure of the coolant in bar.

IDENTIFICATION

2.1 MANUFACTURER IDENTIFICATION

O.M.G. S.r.l.
Via 8 Marzo n°1
42025 Cavriago (Reggio Emilia)
Italy



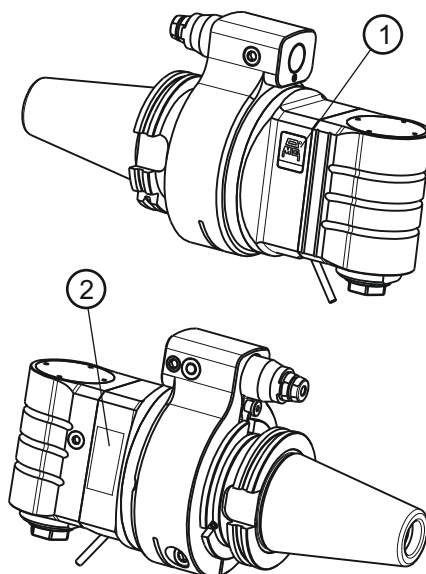
Tel. +39-0522941627
Fax. +39-0522941951

Website: www.omgnet.it
E-mail: omg@omgnet.it

2.2 ANGLE HEAD IDENTIFICATION

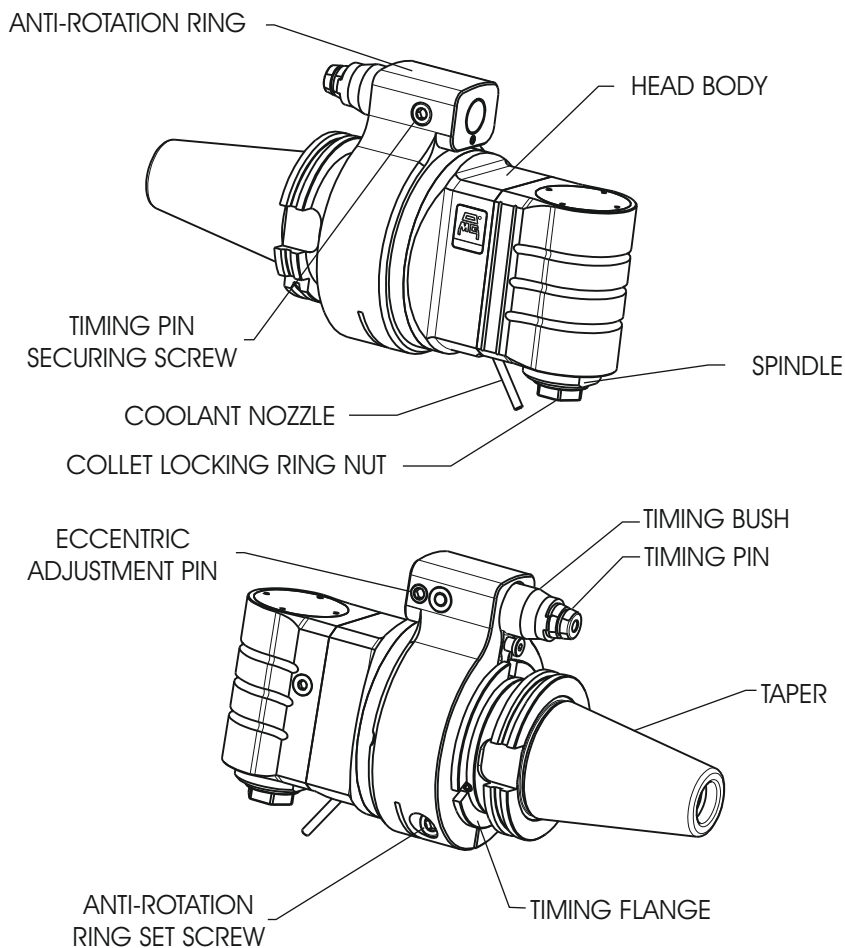
The Angle Head carries two different indications.

- On plate **1** besides the company logo, is the serial number of the angle head, that must be quoted when requesting information from our technical department.
- On the second **2** are the main technical details of angle head identification.



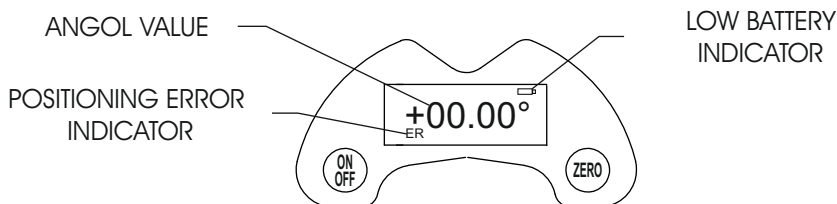
GENERAL DESCRIPTION

The O.M.G. S.r.l. angle heads series TA consist of:



Note: This illustration is merely exemplary and refers to an angle head series TA..P

- TAV Digital Display:



3.1 INTENDED USE

- Our angle heads have been designed and made to carry out drilling, spot-facing, tapping and milling operations.
- The envisaged operating specifications are those shown in Chapter 5 "Technical Specifications".

3.2 FORBIDDEN USE

Our angle heads cannot perform mechanical operations the parameters of which exceed the technical specifications of the angle head itself.



Our angle heads haven't been designed for the use in the environments with potentially explosive atmosphere.



All other uses different from intended use shall be deemed unauthorised.



O.M.G. S.r.l. cannot accept any liability for injury to persons or damage to things or to the angle head caused by improper machine use.

SAFETY NORMS



IMPORTANT! Carefully follow the instructions indicated in this manual. The manufacturer cannot accept any liability for failure to comply with these instructions.



During machining, always use means of personal protection. All machining operations must be performed in compliance with the safety regulations in force at the place of work.



Use the head in the environments with sufficient light.



Never use the spindle speeder for purposes other than those indicated.



Never stop the spindle speeder by means of the spindle or tool.



Never clean, lubricate or service the machine while this is running

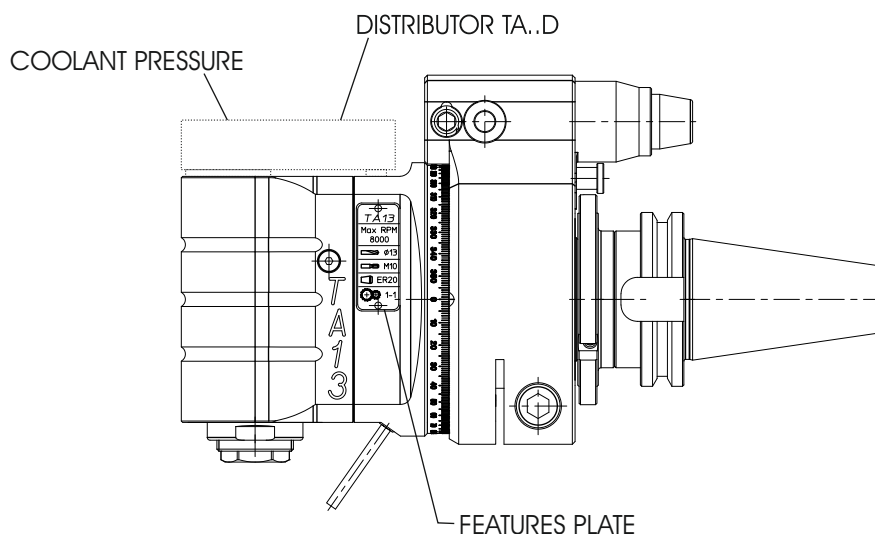


During the work the head can exceed the 60°C; use means of personal protection when is necessary handle the Angle Head.

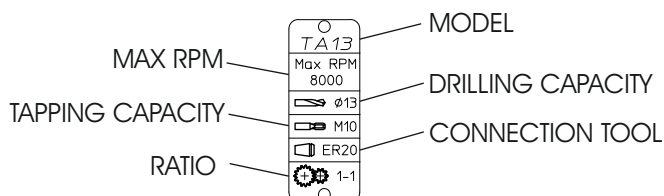
TECHNICAL SPECIFICATIONS

5

Each model of TA angle head has a plate with all basic technical features. Below in detail an example plate.



The noise of the head is less than 80 dB.



NOTE: For the size, features, accessories not listed here see as reported in the O.M.G. general catalogue.

PACKAGING - HANDLING - STORING

6.1 RECEIPT / UNPACKING

The angle head is supplied packaged in cardboard boxes containing loose shockproof materials (cut paper) or in a shockproof case. Upon receipt, make sure the contents correspond to order specifications and that the head has not been damaged during transport. Besides the angle head you will also find the following in the packaging:

- The standard stop-block if the anti-rotation device ordered is not specific for your machine.
- The spanners provided.
- This manual.
- Pack of lubricant.



In the event of evident faults being found, do not use the angle head, but immediately notify the manufacturer.



Packaging must be disposed of according to local waste disposal regulations.

It is recommended to use proper lifting equipment for handling.
If you can't move it with the hand, lifting belts are recommended.

Take always care that the angle head is balanced before lift it.

See the weight indicated in chapter "Technical specifications".



Always perform unloading, handling and installation operations in conformity with safety regulations in force at the place of work.

6.2 STORING

In the event of having to store the product, proceed as follows:

- Clean away any machining residues.
- Protect the ground parts with a film of grease and/or anticorrosion protective liquids.
- Store in cool and dry premises at temperatures between -5°C and $+40^{\circ}\text{C}$.
- Protect the angle head against dirt and dust.
- If storage continues for over six months, the lubricating grease is best replaced before machine re-use (see chapter 10.2).
- Clean the coolant pipes.

MACHINE CONNECTIONS

7



All the operations regarding installation, connection and registration of the head have to be executed by skilled workers.

Depending on type of purchased angle head, it may be too heavy to be manually lifted.

In such case, lifting belts are recommended.

See weight stated in chapter "Technical Features".



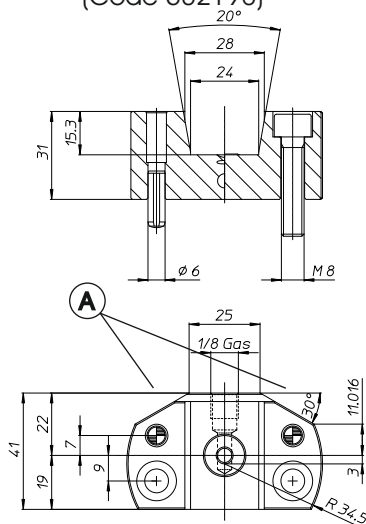
Take always care that the angle head is balanced before lift it.



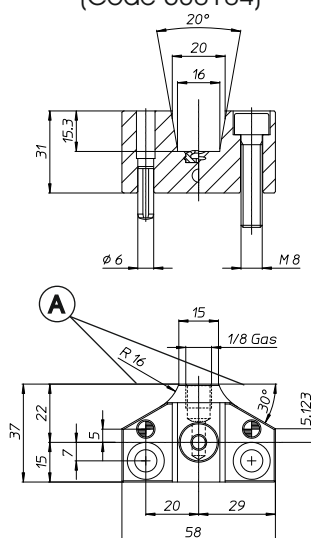
Make sure the machine on which the head is to be fitted is equipped with adequate protections and is in conformity with directive 2006/42/CE.

7.1 STOP-BLOCK

Stop-block only for TA 26.. and TAV 20..
(Code 632198)



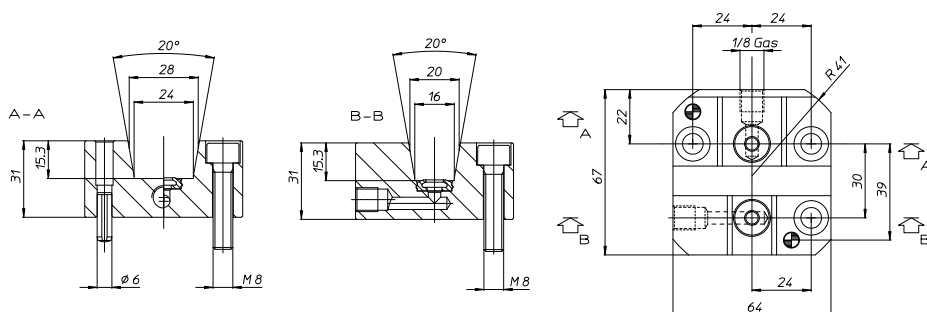
Stop-block only for TA....
(Code 630104)



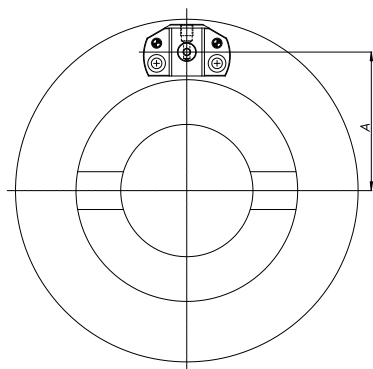
If the phasing pin suitable for your machine tool isn't required the stop-block is supplied with the Angle Head.

Two holes A for $\varnothing 6$ mm. pins available on stop-block are prepared at $\varnothing 5.75$ mm. Proceed as follows to fix:

- Find a position free of obstructions to fix stop-block to machine spindle
- Execute 2 holes M8 on spindle flange and fix stop-block with two screws.
- Execute 2 holes $\varnothing 5.75$ mm on spindle flange as preparation to pins, using holes **A** available on stop-block as reference.
- Bore holes to $\varnothing 6$ mm and insert pins.



The double Stop-Block (code 632199) is supplied on request. It is used when two angle heads are applied with different types of anti-rotation devices on the same machine tool like, for instance, TA16P and TA26P.



The securing distance A of the stop-block varies according to taper size. For tapers size 40 and HSK63 the distance is 65 mm, for tapers size 50, HSK80 and HSK100 the distance is 80 mm.

In the TA26 and TAV20 angle heads the distance is 110 mm.

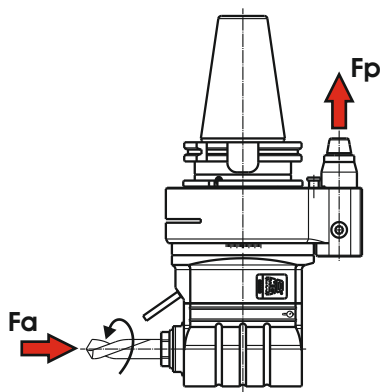


If the torque arm Triblock is supplied with the Angle Head carefully check where fixing the stop-block and the tightening pins considering the space needed by toolchange arm.

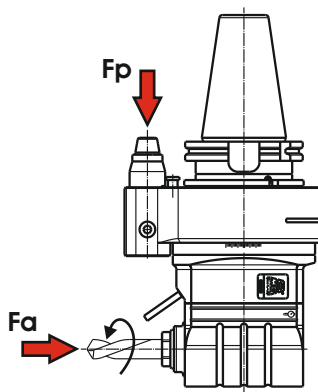
1

When possible, in your application, position the timing pin so as to oppose the force generated by working; this allows to obtain the maximum rigidity and consequently the best performance of the Angle Head.

• DRILLING

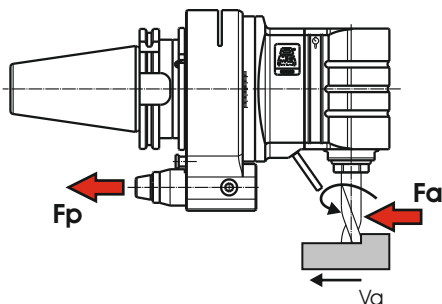


OPTIMUM

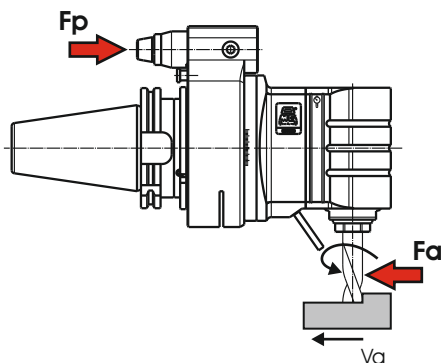


NOT OPTIMUM

• MILLING



OPTIMUM

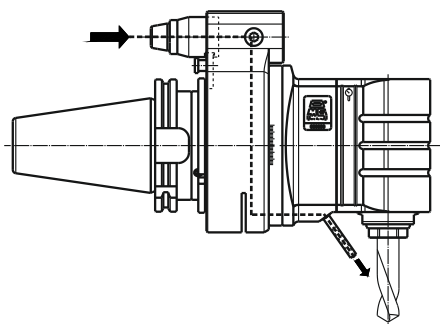


NOT OPTIMUM

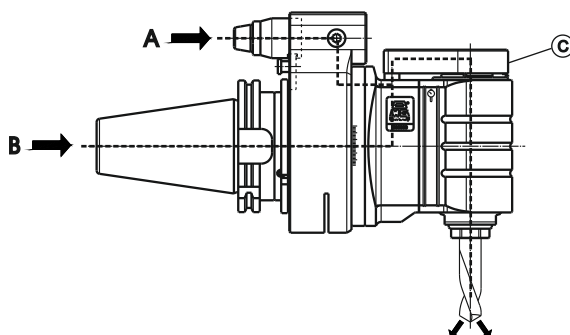
7.2 CONNECTION TO THE COOLANT UNIT

The TA...P, TA...2P, TAV...P, TAO...P and TAF...P angle heads are designed to receive the coolant liquid from the timing pin. Through a channel inside the angle head, the coolant liquid comes out of the nozzle located near the spindle. Direct the nozzle correctly so it faces the tool.

Pressure of the liquid should be max at $4 \div 5$ bar.



In the TA...PD angle heads with supply of liquid through the tool centre, the liquid is always supplied from the timing pin **A** or by the taper **B**. Read chapter 5 for the maximum applicable pressure.



IMPORTANT: in distributor **C** there are some seals that cannot work dry. If you want to use the head without supplying the liquid coolant then you must remove the distributor. For good distributor operation we recommend filtering the liquid at $50 \mu\text{m}$.



O.M.G. S.r.l. is not responsible for any kind of damage/injury occurred to things/persons or to TA head due to a connection not in accordance with instructions submitted.

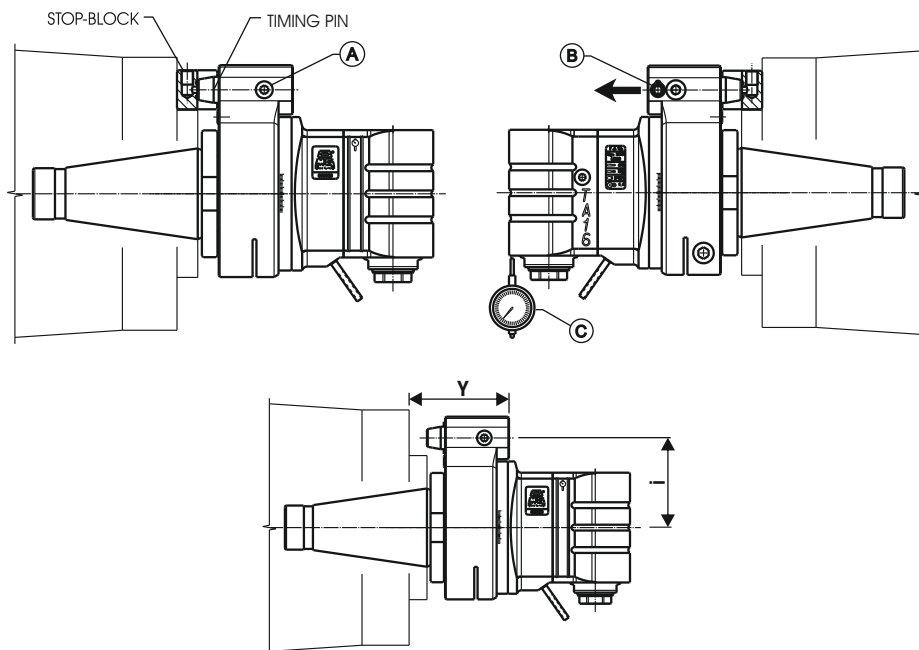
ADJUSTMENT



All the operations regarding installation, connection and registration of the head have to be executed by skilled workers.

8.1 TAPER DIN2080 ANSI B5.18

The angle heads are supplied with a timing pin, the purpose of which, once adapted in the stop-block, is to not allow the head to spin around its own axis.



If the angle head features the standard anti-rotation device, first fix the stop-block as specified in paragraph 7.1 and then proceed as follows (see figures):

1. Loosen screw **A** to free the timing pin.
2. By means of the eccentric pin **B**, move the timing pin back in the direction of the arrow. This pin is axially adjusted at 1.5 mm.

3. Mount the head on the machine avoiding to engage the phasing pin in the stop-block.
4. Obtain the dimension **Y**.
5. If **Y** respects the value in the table go to point 7. Otherwise it is necessary to put a spacer between stop-block and machine spindle, or mill the stop-block.

i = 65	Y=87±0.75
i = 80	Y=87±0.75
i = 110	Y=96±0.75



The spacer or the stop-block modification are at customer charge.

6. Loosen the M8 setscrews on the stop-block (see chapter 7.1) so it can adapt to the timing pin during the subsequent adjustment. Bring the antirotation pin in contact with the stop-block by means of the eccentric bolt **B**, using the comparator **C** to check that the preload does not exceed 0.01 mm. Tighten screw **A** with a torque of 25 Nm. Tighten the M8 screws on the stop-block. The angle head must have no radial play.



IMPORTANT: the comparator **C** must always be placed opposite to the antirotation pin.



IMPORTANT: adjust the taper pin accurately, until there is no radial play. An inaccurate adjustment can damage the angle head.

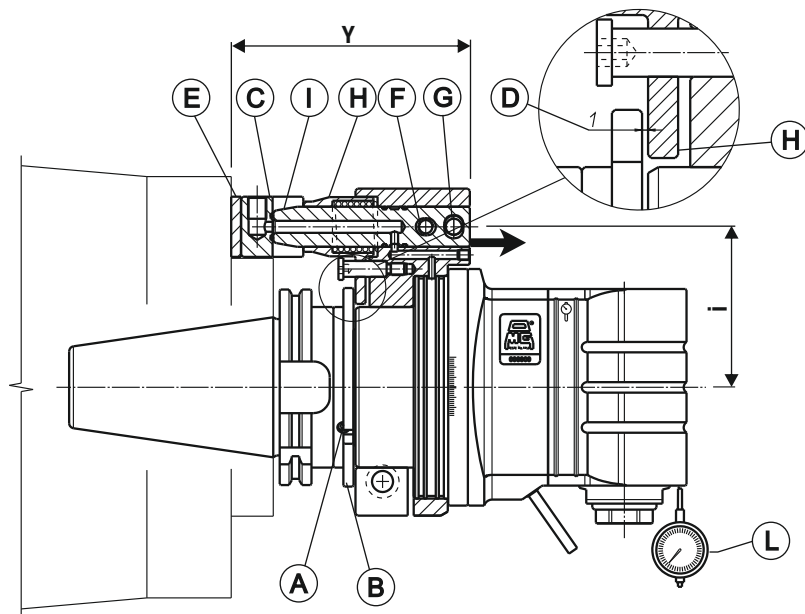
7. Read paragraph 8.4 for angle adjustment.



TO ENSURE GOOD APPLICATION REMEMBER THAT:

1. The more accurate the coupling is between the timing pin and its housing on the stop-block, the less angle play there will be on the head.
2. Positioning the timing pin so as to counter the working direction helps obtain a better performance of the angle head.

8.2 TAPER DIN69871-MAS403-ANSI B5.50 HSK



If the angle head features a specific anti-rotation unit for your machine tool, read only points 1-7-8-9.

In the event of the head featuring a standard anti-rotation device, first fix the stop-block as specified in paragraph 7.1 and then proceed as follows (see illustration alongside):

1. Loosen the two screws **A** to free flange **B** that maintains timing between the two milling operations of the taper and timing device **H**.
2. Loosen the screw **F** to unlock the antirotation pin **I**. By the eccentric pin **G** put back the torque arm pin that has an axial regulation of 1.5 mm, following the arrow.
3. Mount the head on the machine avoiding to engage the torque arm pin in the stop-block **C**.
4. Obtain the dimension **Y**.

5. If **Y** respects the value in the table go to point 7. Otherwise it is necessary to put a spacer **E** between the stop block and the spindle machine or mill the stop-block.

i = 65	Y=114±0.75
i = 80	Y=114±0.75
i = 110	Y=123±0.75



The spacer **E** or the modification of the stop-block are at customer charge.

6. To align the antirotation pin **I** to the stop-block **C**. Loosen the clamping screws M8 of the stop-block to allow to adapt itself. Bring the antirotation pin in contact with the stop-block by means of the eccentric bolt **G**, using the comparator **L** to check that the preload does not exceed 0.01 mm. Tighten the screw **F** to a 25 Nm. Tighten the screws M8 of the stop-block. The Angle Head can't have radial play. Check that the dimension **D** is 1 mm.



IMPORTANT: the comparator **L** must always be placed opposite to the antirotation pin **I**.



IMPORTANT: adjust carefully the torque arm pin to avoid the radial play. Un incorrect adjustment can damage the Angle Head.

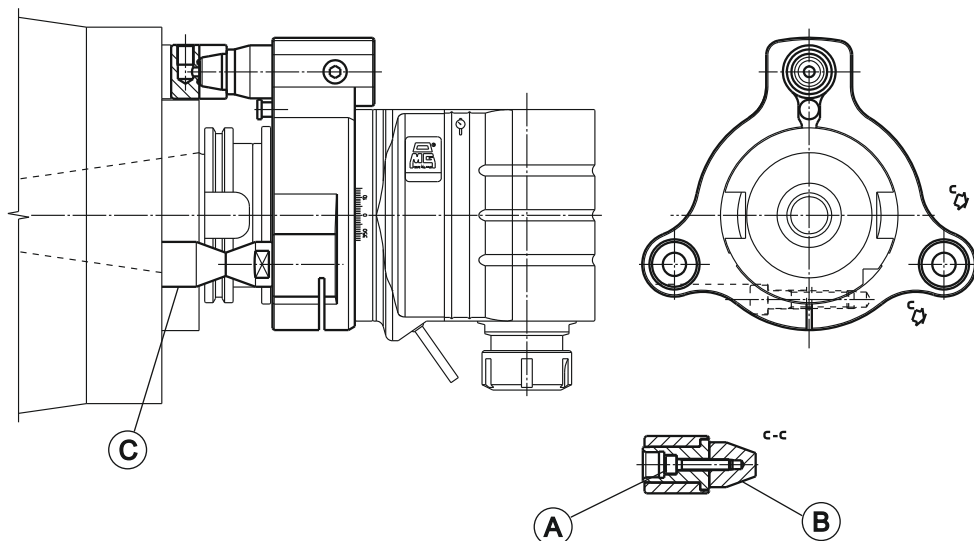
7. Give the "Start machine spindle" command to the numerical control (e.g. M19).
8. Regulate the angle of the timing flange **B**, allowing timing device **H** to fit into its housing once the head has been removed from the machine. Tighten screws **A**.
9. Remove the angle head from the machine and position this in the tool magazine. Turn the magazine and make sure the angle head does not interfere with this during rotation.



TO ENSURE GOOD APPLICATION REMEMBER THAT:

1. The more accurate the coupling is between the timing pin and its housing in the stop-block, the less angular play there will be on the head.
2. Positioning the timing pin to counter the direction of work helps obtain a better performance of the angle head.

8.3 “TRIBLOCK” THE ANTI-ROTATION DEVICE



1

If the angle head features the TRIBLOCK anti-rotation device specific for your machine tool, consult the specific drawing supplied together with our order confirmation.

If it features the standard TRIBLOCK anti-rotation device, first fix the stop-block as specified in paragraph 7.1 and then proceed as follows, before mounting the head on the machine:

1. Unscrew the two screws **A** to remove pins **B**.
2. Make two pins **C**, to support pins **B**, to fix on the machine. To avoid premature wear, the two pins must be hardened where they come into contact with the surface of pins **B**.
3. Mount the pins **C** on the machine spindle.
4. Mount the angle head on the machine and adjust the timing pin as specified in paragraphs 8.1 or 8.2, depending on the angle head taper.

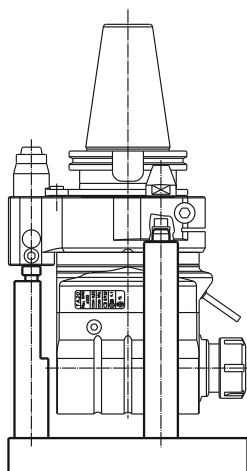
5. Check, with suitable instruments, how high pins B must be. Put pins B at the right height, considering a minimum interference of 0.01 mm and a maximum interference of 0.02 mm. This interference will impart the necessary strength to the system.



Before mounting, clean the contact surface carefully between pin **B** and **C** so as not to damage the angle head.



If the machine features automatic tool change, cleaning of the contact surfaces can be done automatically like, for instance, with a blast of air or washing with the coolant liquid. Consult the manufacturer of your machine tool to see if this is feasible.



The angle heads that cannot be used on the tool change due to their size and weight can, by means of the TRIBLOCK, be placed on a stand as shown in the diagram here on the left. The TRIBLOCK anti-rotation device, in the angle heads with a 50 taper, can be used as a reference point and as a stand. Contact our Technical Office for more information.



TO ENSURE GOOD APPLICATION REMEMBER THAT:

1. The more accurate the coupling is between the timing pin and its housing on the stop-block, the less angle play there will be on the head.
2. Excessive interference in the point of contact between pin B and C can damage the angle head.

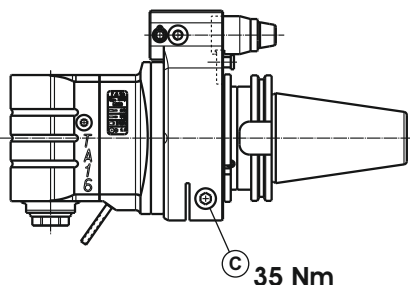
8.4 ANGULAR ADJUSTMENTS SERIES TA...



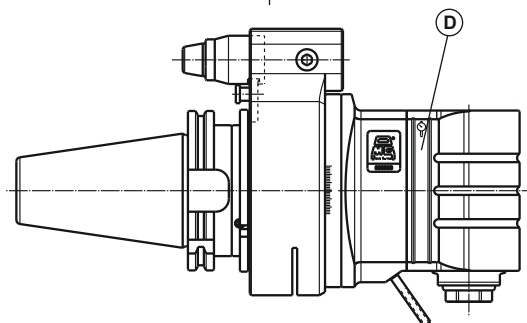
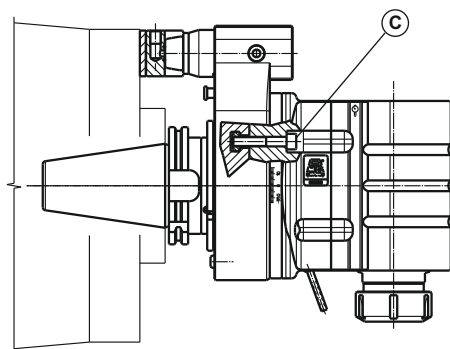
HEAD BODY- ANTI-ROTATING DEVICE ANGULAR ADJUSTMENT

1. Acquire a magnetic base complete with comparator and position this on the machine table.
2. Loosen screw **C**.
3. By means of the comparator, align table **D** with the axis of the hole to be made by moving the machine axis or axes. Manually turn the head body until perfect parallelism is achieved with the working axis.
4. Tighten screw **C** with a torque wrench.

SERIES TA..., TAV..., TAF..., TAO...
(excluded TA26.. - TAV20.. - TAV30..)



SERIES TA26.. - TAV20.. SERIES TAV30..
25 Nm 30 Nm



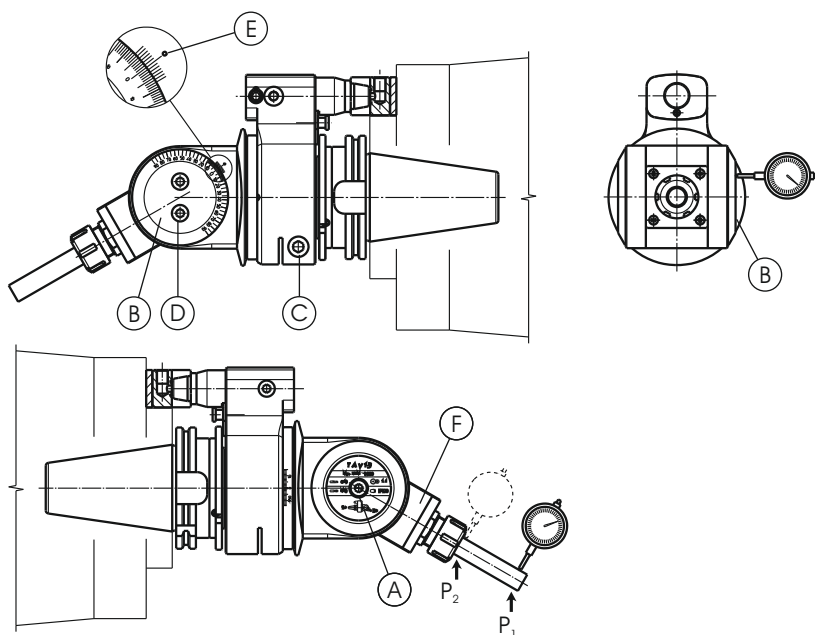
NOTE: if the angular alignment is not perfect, this will generate negative forces on the head components which could be permanently damaged, besides causing tool breakage.

8.5 TAV SERIES HEAD ADJUSTMENTS



ANGULAR ADJUSTMENT OF THE HEAD BODY/ANTI-ROTATING DEVICE

1. Acquire a magnetic base complete with comparator and position this on the machine table.
2. Loosen screw **C** (see chapter 8.4).
3. By means of the comparator, align table **B** with the axis of the hole to be made by moving the machine axis of axes. Manually turn the head body until perfect parallelism is achieved with the working axis.
4. Tighten screw **C** (see chapter 8.4).



Approximate adjustment of angle head:

1. Loosen screws **A** and **D**.
2. Turn the spindle holder **F** until index **E** is on the angle you require. The graduated scale **E** has a 10' precision.
3. Tighten screws **A** and **D**.



PRECISION ADJUSTMENT OF THE ANGLE HEAD

If you have a presetting for tools:

1. Fit an object in the head spindle which, reflecting on the viewer, can help you determine the angle required (e.g., the tool, a pin, etc.).
2. Position the head on the presetting.
3. Adjust the angle by turning the spindle holder.
4. Tighten screws **A** and **D**.

If you do not have a presetting for tools:

1. Acquire a magnetic base complete with comparator and position this on the machine table.
2. Calculate two points (e.g. 30 mm apart) one starting point and one end point we shall call **P1** and **P2** respectively. These correspond to the work angle to be covered by the head.
3. Position the head on the machine spindle.
4. Reset the comparator on the spindle holder at the point **P1** on the reference surface G.
5. Move the machine to point P2 while checking the comparator. If the alignment is not correct repeat steps 4 and 5.
7. Tighten screws **A** and **D**.



NOTE: alternatively, you can use a pin instead of the tool to detect points P1 and P2.



ADJUSTING THE HEAD SPINDLE ANGLE (DIGITAL VERSION)

The positioning accuracy of the DIGITAL TAVs is $\pm 0.05^\circ$ ($0'3''$).

Tool presetting adjustment:

1. To help you determine the angle required (e.g. tool, pin, etc.), fit an object in the head spindle so that it reflects on the viewer.
2. Position the head on the presetting.
3. Adjust the angle by turning the spindle holder in the zero position for you.
4. Turn the display on with the ON/OFF button.
5. Press the 'ZERO' button for about 2 seconds. This will reset the value on the display.
6. Adjust the angle by turning the spindle holder in the working position; follow the angle indicated on the display.
7. Tighten screws **A** and **D**.

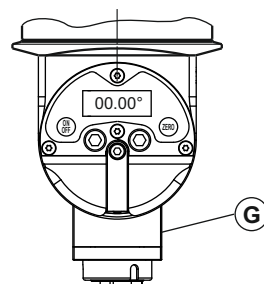


Adjustments directly on the machine:

IMPORTANT: only vertical spindle machines can be adjusted directly.

1. Obtain a magnetic base with comparator and place it on the bed of the machine.

2. Position the head on the machine spindle.
3. Align the head spindle along the machine's vertical axis by allowing the comparator to slide along surface **G**.
4. Turn the display on with the ON/OFF button.
5. Press the 'ZERO' button for about 2 seconds. This will reset the value on the display.
6. Adjust the angle by turning the spindle holder in the working position; follow the angle indicated on the display.
7. Tighten screws **A** and **D**.



IMPORTANT: if the orientation of the head is not perfectly vertical during the adjustment of the spindle angle, ER will appear on the display. Position the head vertically using the drive taper as reference and then proceed to adjust.

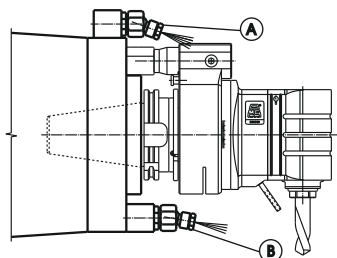


IMPORTANT: before starting up the angle head, check the direction of machine rotation to ensure the tool turns in the correct cutting direction.



NOTE: if the angular alignment is not perfect, this will generate negative forces on the head components which could be permanently damaged, besides causing tool breakage.

8.6 MACHINE REGULATIONS



When it is impossible to take the coolant directly from the machine, via the stop-block, to the nozzle on the head, make sure that the coolant nozzles on the machine do not send the coolant to the angle head like nozzle **A** but reaches the tool like nozzle **B**.



IMPORTANT: Do not convey the coolant directly against the angle head to avoid all chances of the coolant penetrating it.



O.M.G. S.r.l. is not responsible for any kind of damage/injury occurred to things/persons or to TAS head due to an adjustment not in accordance with instructions submitted.

USE

9



Before starting the machine, carefully read the safety instructions in chapter 4.

Fit the Angle Head on the machine and adjust correctly (see chapter 8). After fitting the tools (see chap. 9.1), the machine can be used.



IMPORTANT: before starting the Angle Head, check the direction of rotation of the machine spindle so the tool turns in the right cutting direction.



First of all check if there are all screws for the connection to the machine and the necessary tools. Then check the correct clamping of the above mentioned screws. The wrong clamping can cause serious risks to personal safety and cause breaking and damages to persons and nearly equipments.



If you hear a strange noise or vibrations when starting the machine, interrupt operation and contact our Technical Department.



Any use other than that intended is to be deemed unauthorised.



O.M.G. S.r.l. is not responsible for any kind of damage/injury occurred to things/persons or to Angle Head due to improper protection devices.



After mounting the Angle Headr, inertia variation of the machine may increase the time stop of parts in movement, axis, spindles, etc. Carefully evaluate all risks during working operations and emergency situations.



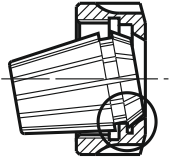
After installation of the head check again the machine safety devices and all risks concerning use. Regulate such devices, when necessary, by skilled workers.

O.M.G. S.r.l. cannot accept any liability for injury to persons or damage to things or to the Angle Head caused by improper machine use.



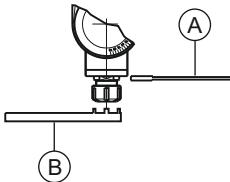
While working the head may exceed 60°C.

9.1 FITTING TOOLS

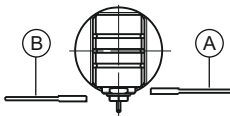


In the case of angle heads with collet spindles, the collet must be fitted first on the ring nut, making sure it enters the puller; next tighten the ring nut on the angle head spindle.

On some angle heads, on the bottom of the spindle, there is a screw to adjust the height of the tool.



Angle heads with external collet ring nut: tighten the collet lock ring using the special spanner **B**, holding the spindle still with spanner **A**, positioned in the housings on the spindle.



Angle heads with internal collet ring nut: tighten the collet lock ring using the special spanner **B**, holding the spindle still with spanner **A** positioned in the housings on the opposite side of the spindle.



Recommended value of ring nut torque wrench setting (Nm): the type of ring nut fitted depends on the angle head model (see "Technical specifications").

Nut	Ø [mm]	Clamping force [Nm]
ER 11AS	1.0-2.9	8 (10)
	3.0-7.0	24 (30)
ER 16AC	1.0	8 (10)
	1.5-3.5	20 (25)
	4.0-10.0	40 (50)
ER 20AC	1.0	24 (30)
	1.5-13.0	52 (65)
ER 25AC	1.5-3.5	24 (30)
	4.0-4.5	56 (70)
	5.0-17.0	80 (100)
ER 32AC	2.0-2.5	24 (30)
	3.0-22.0	104 (130)
ER 8M	1.0-5.0	6 (7.5)
ER 11M	1.0-2.9	8 (10)
	3.0-7.0	16 (20)
ER 16M	1.0	12 (15)
	1.5-10.0	24 (30)

ER 20M	1.0	16 (20)
	1.5-13.0	28 (35)
ER 25M	1.5-3.5	24 (30)
	4.0-17.0	32 (40)

ER 16MS	1.0	12 (15)
	1.5-10	20 (25)

ER 20UM	1.0	16 (20)
	1.5-6.5	32 (40)
	7.0-13.0	80 (100)

ER 25UM	1.0-3.5	24 (30)
	4.0-4.5	56 (70)
	5.0-7.5	80 (100)
	8.0-17.0	104 (130)

ER 32UM	2.0-2.5	24 (30)
	3.0-22.0	136 (170)

ER 40UM	3.0-26.0	176 (220)
ER 50UM	6.0-36.0	240 (300)

6023E	1-3	3
600E	1.5-4.5	5
601E	1.5-6	9

Note: the value in brackets indicates max torque wrench setting.



When clamping the tool, always lock the spindle with key **A**. If not, internal head's components may be damaged.

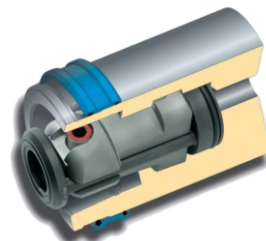
9.2 SPINDLE DIN 69063 (HSK)



Recommended value for HSK clamping system (Nm): the type of spindle depends on the Angle Head model (see "Technical specifications").

Unità di bloccaggio HSK

HSK size	25	32	40	50	63	80	100
Wrench size for operation	2	2,5	3	4	5	6	8
Starting torque (Nm)	1,5	2,5	6	10	15	25	60
Clamping force (N)	5,5	9	20	31	40	50	70

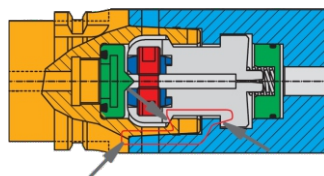


Note: the clamping strength can change within 15% in comparison to the temperature and to the lubrication.

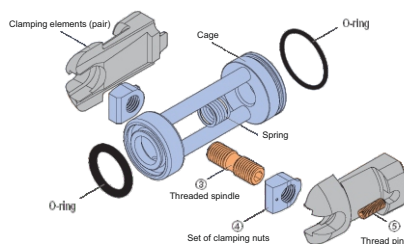


The clamping strength generated guarantees a very good resistance to the bending moment. In the down picture is indicated the distribution of the strength in the coupling.

Functioning system



Direction of clamping forces on two opposite sides



9.3 PLACEMENT INTO SERVICE

All angle heads are thoroughly tested and ran in before shipment. Before using the angle head for the first time, or if it has not been used for a long time, break it in by performing the steps at 20% of maximum speed, while making sure the temperature of its body does not exceed 60°C. If it does, stop the angle head, let it cool down and resume the break-in process from the step immediately preceding the point of interruption.



In case of unusual noise or vibrations during starting operations, stop working and contact our Technical Dept.

MAINTENANCE



Maintenance operations must be performed with the machine at a standstill and disconnected from the power supply by skilled personnel.

10.1 CLEANING



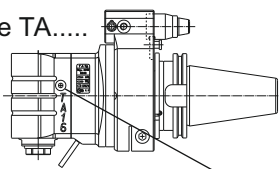
Periodically clean the head and remove any machining residues and drain the coolant liquid from the pipes.

10.2 LUBRICATION

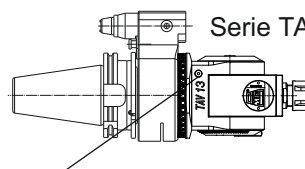


The angle heads are supplied complete with long life lubricant. During the first hours of work, part of the lubricant could leak away due to excessive quantities in the head body and in the protection labyrinth seal. Every 300 hours of operation add about gr. 10 of grease type NLGI 2, through the cap on the head body. After 2000 hours of operation or 12 months, we recommend changing the grease contained in the head. For this procedure, we recommend sending the head to O.M.G. S.r.l. .

Serie TA.....



Serie TAV...



LUBRICATING SCREW



During machining, the temperature of the head may exceed 70 °C for a few minutes. If this occurs, decrease the rotation speed of the head or reduce the load being placed on it. If you have any questions or problems, contact our Technical Department.



The frequency of lubricating specified refers to a standard use. This value can therefore vary in case of particular hard works or for a long period of inactivity.



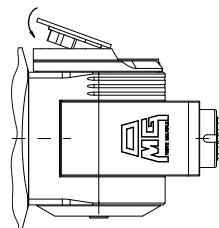
The lubricants used are highly polluting. Do not throw them or any materials with which they have come into contact away into the environment. Ensure disposal through specially qualified disposal channels.

10.3 TAV DIGITAL BATTERY REPLACEMENT



When the battery power starts to run low, the related symbol will appear on the display. To replace the batteries, follow the procedure described below:

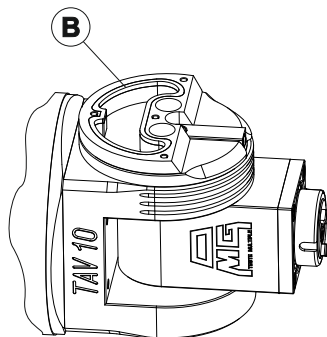
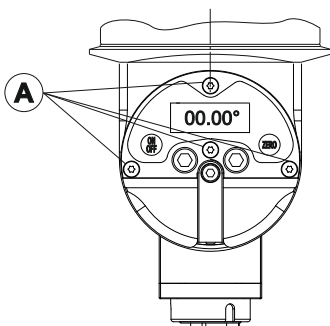
1. Remove the screw **A** around the display with the key wrench provided with the supply.
2. Remove the cover carefully, to avoid damaging the gasket **B**.
3. Replace the batteries.
4. Seat the gasket **B**.
5. Insert the display as shown in the picture.
6. Tighten the screws **A** to 1 Nm.



NOTE: when replacing the batteries, the memorized zero is not lost.



IMPORTANT: use only LR44-type batteries.





The lubricants used are highly polluting. Do not throw them or any materials with which they have come into contact away into the environment. Ensure disposal through specially qualified disposal channels.

10.4 TROUBLESHOOTING



In case of faulty operation, refer to the following table. In case the fault continues, contact the manufacturer.

FAULT	POSSIBLE CAUSE	REMEDY
Tool rotation not concentric	Collet wrongly fitted in ring nut, dirt in collet or housing	See para. 9.1
Drilling tool broken	The tool is turning in the wrong direction	See para. 9

10.5 SCRAPPING

In case the head has to be decommissioned, the various components must be scrapped (the head must be made inoperative) and disposed of through authorised channels.



Do not throw the head or any of its component parts away into the environment.



O.M.G. S.r.l. is not responsible for any kind of damage occurred to angle head due to a operations executed by unqualified workers.

SPARE PARTS

11

Due to the complexity of the Angle Head, if maintenance is required, it is advisable to ship the spindle speeder to our factory.

Our maintenance personnel will see to servicing it in the shortest possible time.

In case of spare parts order it's necessary to proceed as follows:

- **Contact O.M.G. S.r.l. to require the exploded view giving always the following information:**

1. **the type of Angle Head (see the test certificate or plate)**
2. **serial number stated on the plate**

After that fill in the spare parts enquiry form and return it complete with the following information:

- **the type of Angle Head (see the test certificate or plate)**
- **the serial number stated on the plate**
- **the number of spare part stated on the drawing**
- **quantity**

WARRANTY

12

1. DURATION AND START OF WARRANTY

O.M.G. S.r.l. products are guaranteed against material and manufacturing faults. This warranty lasts one year starting on the date of invoicing. During this period, O.M.G. S.r.l. undertakes to repair or replace, at its discretion, any faulty parts, bearing relevant costs as long as the product is sent directly to O.M.G. S.r.l. The transport costs for shipping the product to be repaired shall be borne by the customer. All components removed during repair under warranty shall become the property of O.M.G. S.r.l. All components replaced during the 12 months warranty period shall be covered by the further period of warranty.

2. RESTRICTIONS

The warranty shall not be valid in the case of products damaged by accidents, improper use, repairs or alterations made by persons not authorised by O.M.G. S.r.l..

DECLARATION OF INCORPORATION

DECLARATION OF INCORPORATION OF 'PARTLY COMPLETED MACHINERY' IN ACCORDANCE TO MACHINERY DIRECTIVE (2006/42/CE AND UPDATED) AND TO MANUFACTURE REGULATION

Manufacturer: **O.M.G. S.r.l.**

Address: Via 8 Marzo 1 - 42025 Cavriago (RE)

in person of its Chairman of the Board of Directors Mr Catellani Corrado

Declares under his own responsibility that the manufactured 'partly completed machinery' named:

TA Angle Head

which this declaration refers to, are in compliance with safety essential requirements of directive 2006/42/CE, which following essential requirements as per attachment 1 are respected and applied:

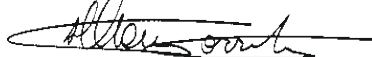
- from 1.1.2 to 1.1.5
- from 1.2.5 to 1.3.1
- 1.3.4
- 1.3.6
- 1.3.8.1
- 1.4.1
- from 1.5.4 to 1.5.6
- from 1.5.8 to 1.5.9
- 1.5.13
- 1.6.1
- from 1.6.4 to 1.7.4.3

and relevant technical documentation has been issued in accordance with attachment VII B, and to national manufacture regulations of Machinery Directive.

We additionally inform as follows:

- relevant technical documentation is kept by OMG s.r.l. with headquarters in Via 8 marzo, n°1 - 42025 Cavriago (RE) Italia, in person of its legal representative, Mr. Catellani Corrado.
- We commit ourselves to supply information referred to the 'partly completed machinery' upon duly justified requests of national authorities. Said commitment includes the methods of transmission and keeps unprejudiced the manufacturer intellectual property rights of the 'partly completed machinery'.
- The 'partly completed machinery' angle heads cannot be put into service until the final machine, in which they will be integrated, will be declared in compliance with the here mentioned directive, and any other applicable directive.

Cavriago, 30/05/2018



Chairman of the Board of Directors

O.M.G. PRODUCTION

O.M.G., leader in the industry, offers a broad and complete range of products including:

- Adjustable-joint multispindle heads
- Angle heads
- Variable-angle heads
- Turret heads
- Fixed centre multispindle heads series TC
- Variable-axis heads
- Fixed-angle heads
- Spindle speeders
- Fixed centre multispindle heads series MT
- Fixed centre multispindle heads series TC3

Documentation on these units is available from our sales department.



This manual is printed on recycled paper.