

# HEADS BORING - FACING -

## U-TRONIC p.100

### SINGLE SLIDE

UT 3-360 S  
Ø max 800

UT 5-500 S  
Ø max 1000

UT 8-800 S  
Ø max 1600

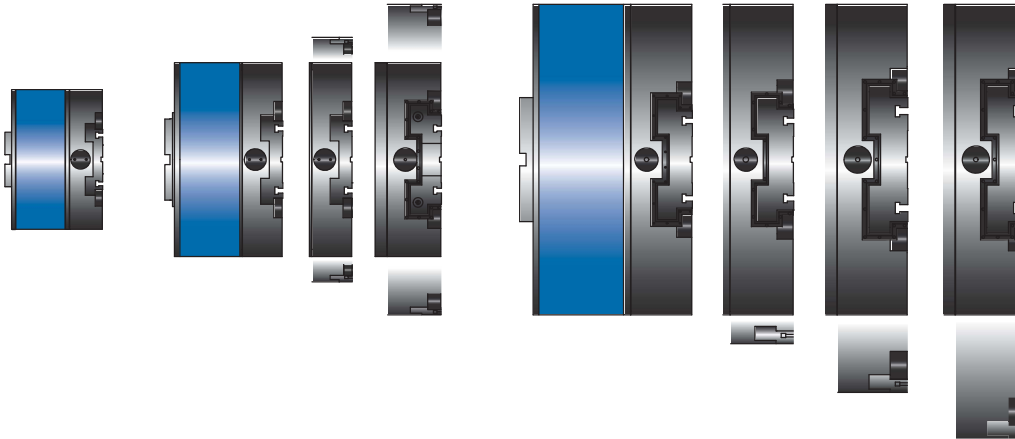
UT 8-1250 S  
Ø max 2700

UT 5-630 S  
Ø max 1250

UT 8-1000 S  
Ø max 2000

UT 8-1600 S  
Ø max 3200

UT 5-800 S  
Ø max 1400

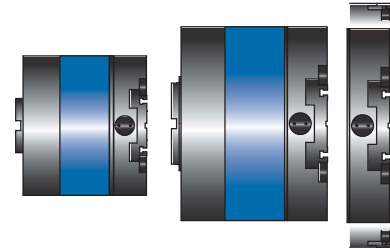


### GEARBOX

UT 3-360 S+R  
Ø max 800

UT 5-500 S+R  
Ø max 1000

UT 5-630 S+R  
Ø max 1250



## UT-Specials

**U-TRONIC** medium and large NC heads, that can be applied to boring machines, machining centers and special purpose machines. The movement of the slide is managed by a built-in servomotor directly connected to the NC and the application provides a connecting flange that can be manual, automatic, extended and angular. In addition to the standard range, a version with a built-in gearbox is also available as well as, on request, special versions with hole, sizes up to Ø 1600 mm, double-slide, with counterweights for self-balancing and Synchro.®



Extend

## TA-CENTER p.110

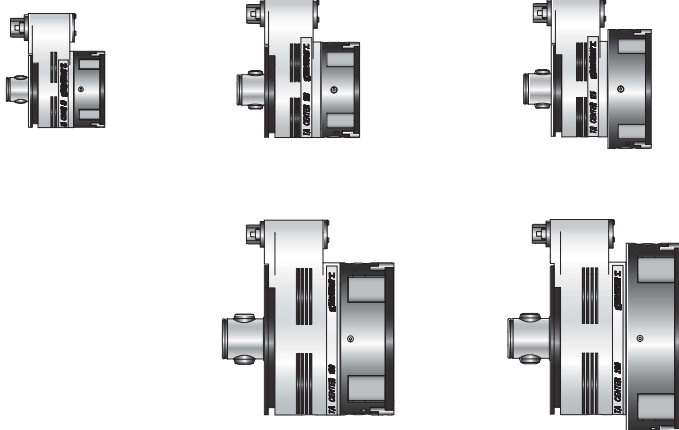
TA-C 80  
Ø max 160

TA-C 100  
Ø max 200

TA-C 125  
Ø max 250

TA-C 160  
Ø max 320

TA-C 200  
Ø max 400



**TA-CENTER** heads designed for machines with automatic tool change and which can be applied to any machining center. The movement of the toolholder slide is managed by an external U-DRIVE unit mounted onto the machine tool spindle.

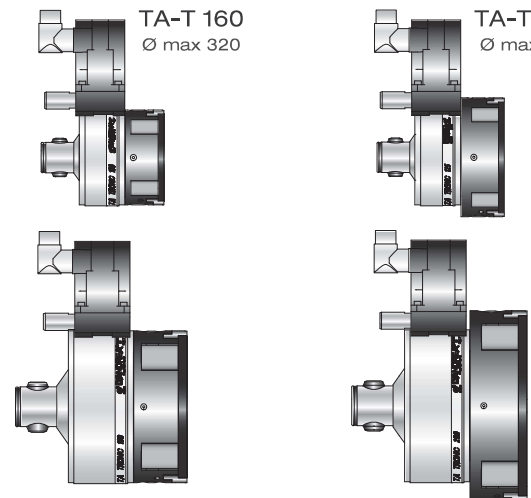
## TA-TRONIC p.118

TA-T 100  
Ø max 200

TA-T 125  
Ø max 250

TA-T 160  
Ø max 320

TA-T 200  
Ø max 400



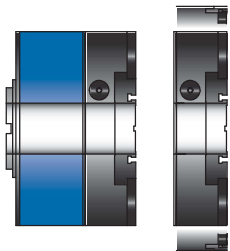
**TA-TRONIC** heads designed to be manually applied to small boring machines, machining centers and special purpose machines. The built-in motor is connected to the NC and drives the movement of the toolholder slide. The fixed body is supported by a flange or, for light operations, by a simple anti-rotation pin.

# RADIUSING - THREADING

## HOLE

UT 5-500 HOLE  
Ø max 1000

UT 5-630 HOLE  
Ø max 1200

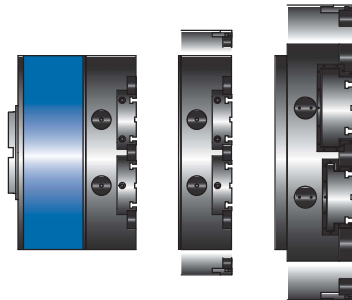


## DOUBLE SLIDE

UT 5-500 D  
Ø max 1000

UT 5-630 D  
Ø max 1200

UT 5-800 D  
Ø max 1400



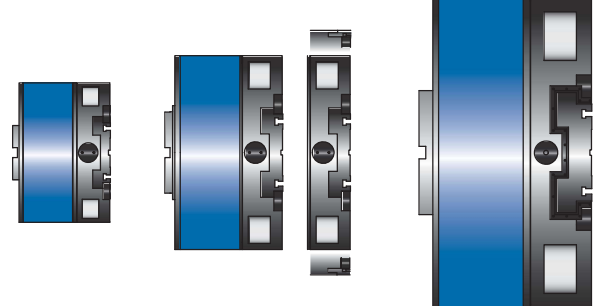
## HIGH SPEED

UT 3-360BH  
Ø max 600

UT 5-500 BH  
Ø max 900

UT 5-630 BH  
Ø max 1100

UT 8-800 BH  
Ø max 1400



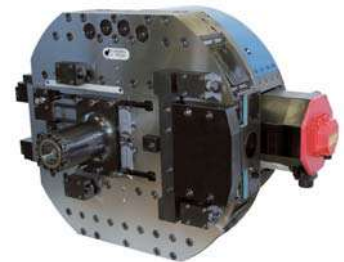
Angular  
Heads



High Speed



Double Slide



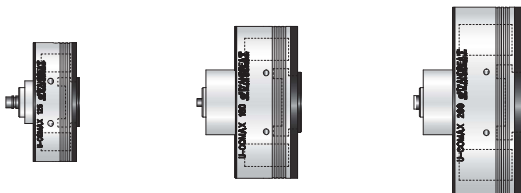
Synchro<sup>®</sup>

## U-COMAX p.124

CMX 125  
Ø max 200

CMX 160  
Ø max 250

CMX 200  
Ø max 320



**U-COMAX** axial drive heads designed for transfer machines or special units. The movement of the slide is driven by a U-DRIVE unit mounted on the back side of the spindle unit and managed by the NC. **Synchro<sup>®</sup>** option available.

## AUTORADIAL p.130

AR 125  
Ø max 320

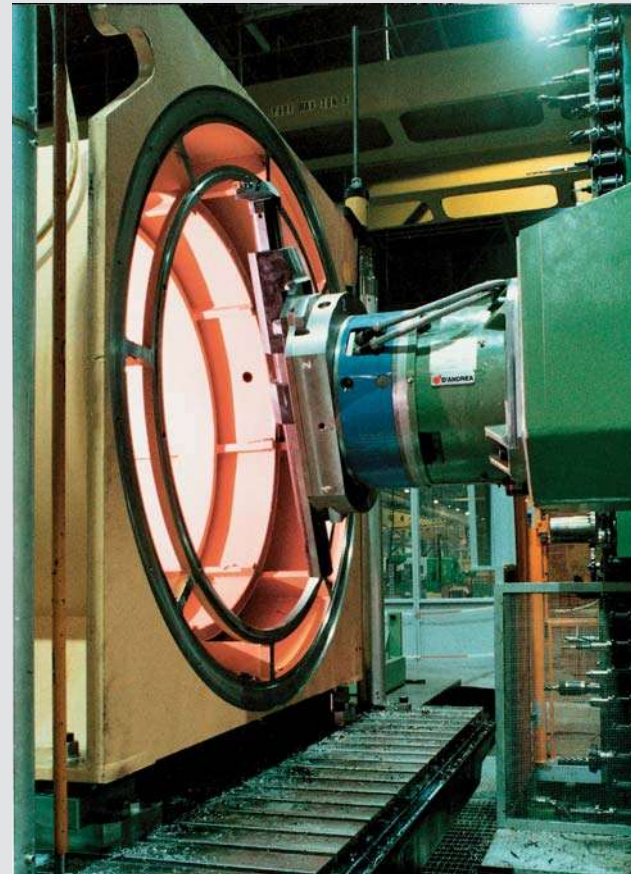
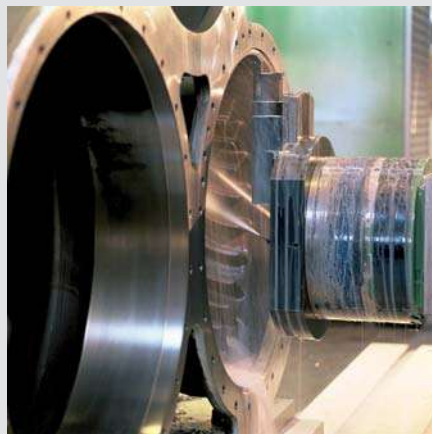
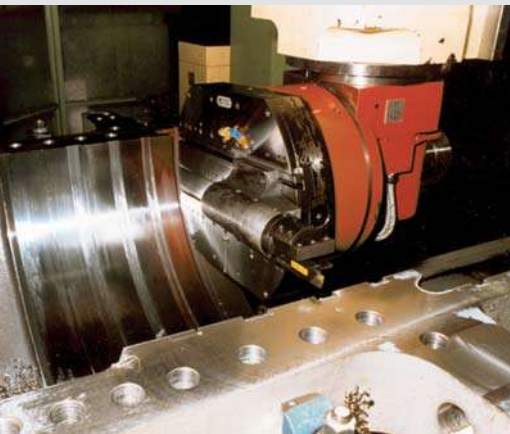
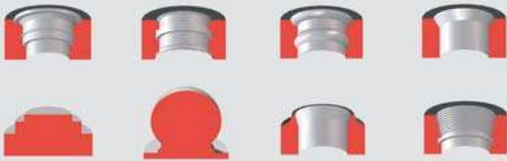
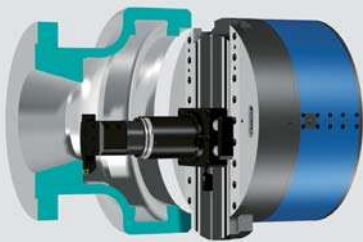
AR 160  
Ø max 400



**AUTORADIAL** automatic facing heads that can be applied to machining centers and NC machines without any electronic interface. They perform a work cycle automatically without ever stopping the rotation of the spindle. They are particularly suitable to execute seats for elastic rings, serrated faces and phonographic finish.

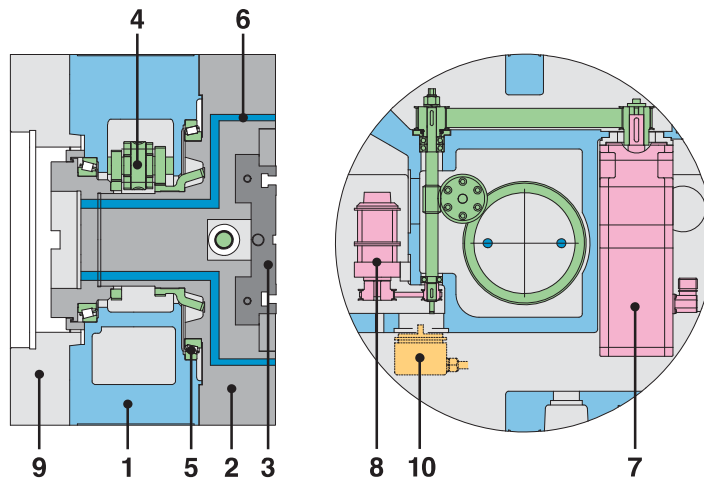
# U-TRONIC

**U-TRONIC** medium and large CN heads, that can be applied on boring machines, machining centers and special machines. The movement of the slide is managed by a built-in servomotor directly connected to the CN and the application provides an intermediate flange that can be manual, automatic, extended and angular. In addition to the standard range, the version with integrated reducer is available and, on request, special versions with hole, up to  $\varnothing$  1600 mm, with two slides, with counterweights for self-balancing and **Synchro**.<sup>®</sup>



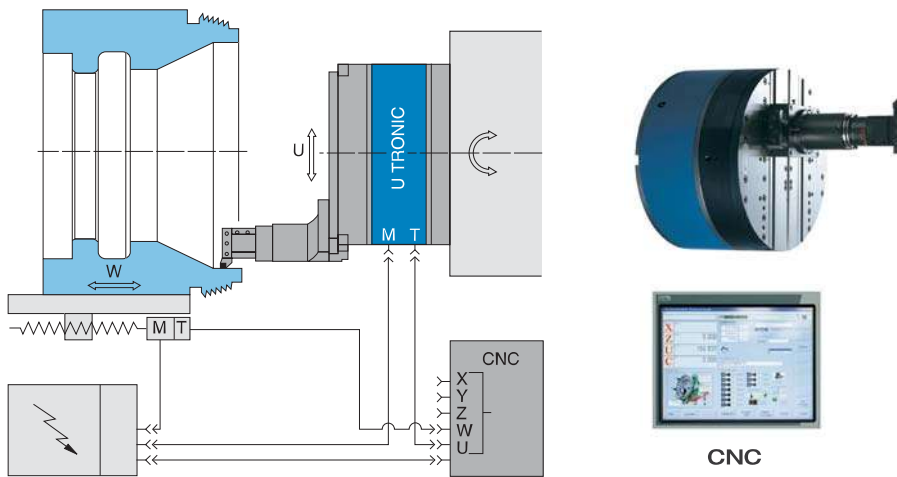
## COMPONENTS

1. Stationary body
2. Rotating body
3. Tool slide
4. Gears
5. Bearings
6. Coolant way
7. Servomotor
8. Limit switches
9. Flange
10. Encoder on request

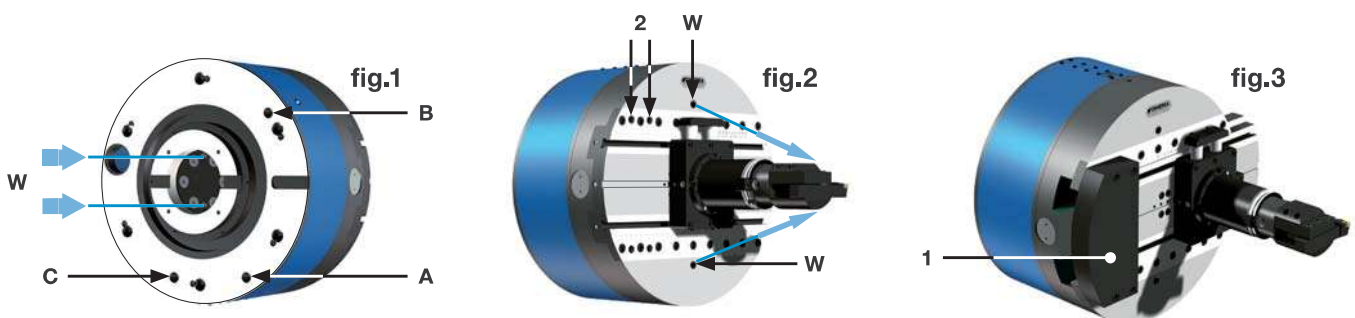


## COMMAND

The control of the U-Tronic heads takes place through the direct connection to the "U" axis of the numerical control of the machine tool and is used to perform any type of turning, boring, internal and external facing, threading, radius machining and spherical operations.



## PREARRANGEMENTS



### A-Internal pressurization fig.1

To prevent liquid and dust from getting into the motor, transducer, and limit switch areas, an  $\varnothing$  8,5 (A) hole is provided for internal pressurization of the fixed body with an air inlet at 0.5-1 BAR.

### B-Automatic greaser fig.1

A  $\varnothing$  8,5 (B) hole is provided on the head so that grease can be automatically put in the U-TRONIC.

### C-Atomized lubrication fig.1

To automatically lubricate the movement guides and the mother screw for dragging the toolholder slide located in the rotating body of the U-TRONIC, the head can be arranged, on request, for the introduction of a constant minimum flow of 10g/h of atomized oil at a pressure of 0,5 BAR in the  $\varnothing$  8,5 (C) hole.

### Coolant supply fig.1-2

Internal grooves (W) are provided inside the U-TRONIC head that allow coolants to pass through from the machine spindle until the two threaded holes located next to the slide (W). Hoses can be screwed on these holes to bring coolant directly to the tool.

**Max pressure BAR 40.**

### Balancing fig.3

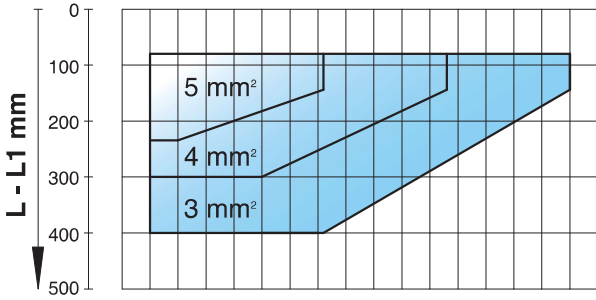
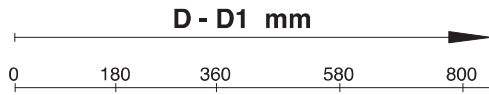
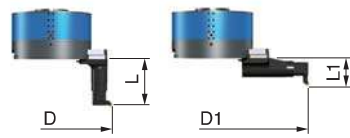
To improve working conditions and balance the position of the tool when it appears shifted in relation to the U-TRONIC axis, counterweights (1) can be applied using the threaded holes (2) located on the rotating body.



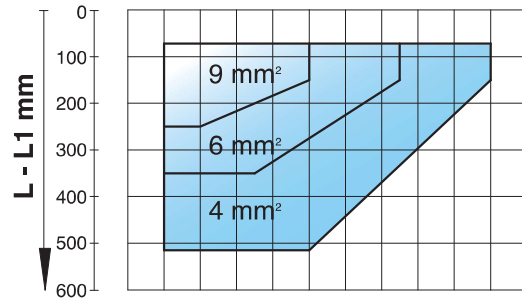
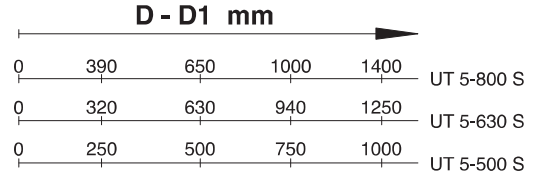
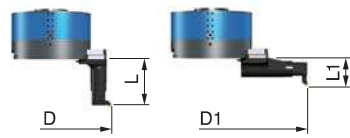
# CHIP REMOVAL CAPACITY

The chip removals are indicative for normal working conditions on steels with hardness 160-200 HB, (average  $K_s = 2000 \text{ N/mm}^2$ ) recommended  $V_t 120/160 \text{ m/min}$ .  
**The optimal values and working times must be determined with trials.**

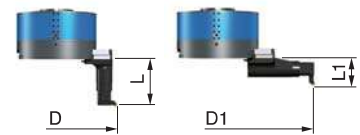
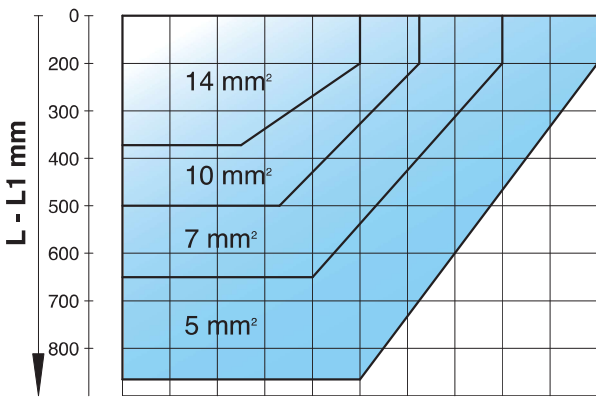
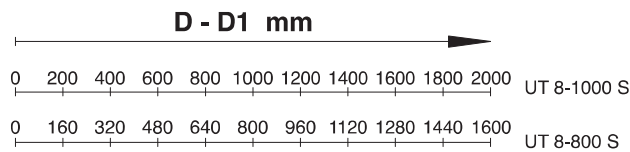
## U-TRONIC 3-360 S



## U-TRONIC 5-500 S 5-630 S 5-800 S

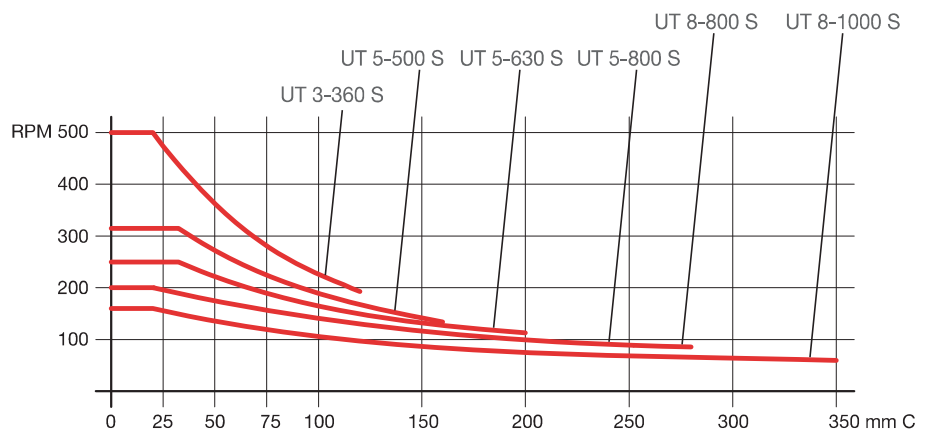


## U-TRONIC 8-800 S 8-1000 S



For good U-TRONIC head operations and to protect it from damages, it is advisable to follow the chart below that indicates the **maximum rpm**, based on the travel of the slide.

# MAX ROTATION SPEED





UT 3-360 S



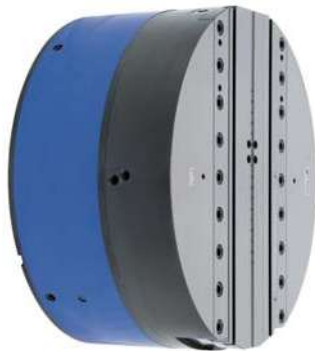
UT 5-500 S



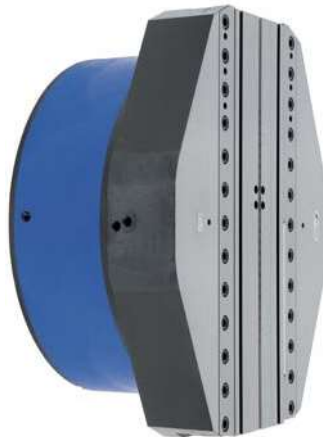
UT 5-630 S



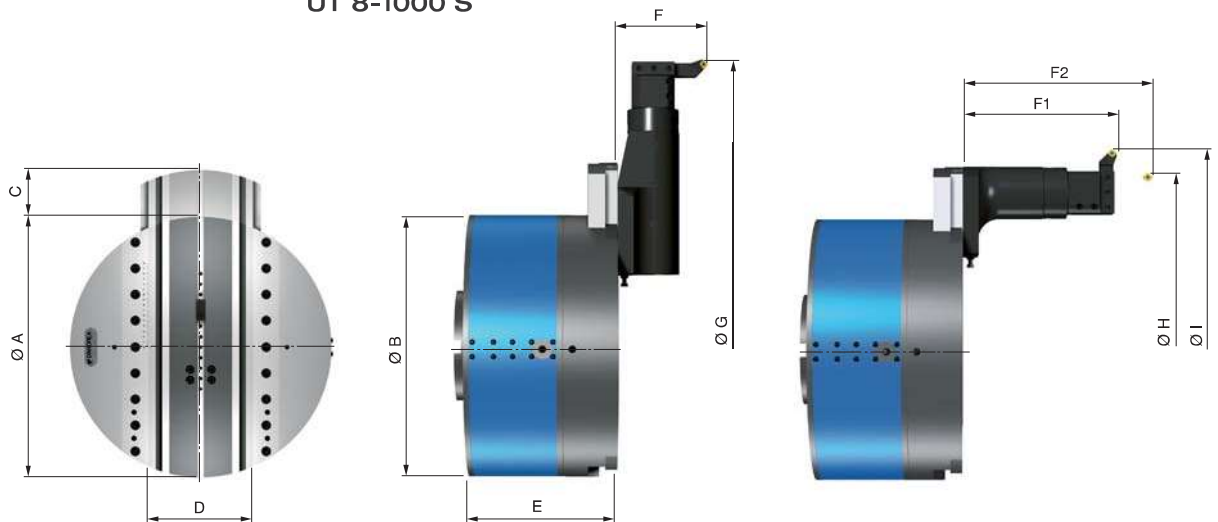
UT 5-800 S



UT 8-800 S



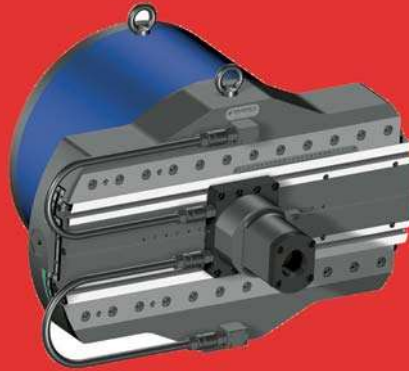
UT 8-1000 S



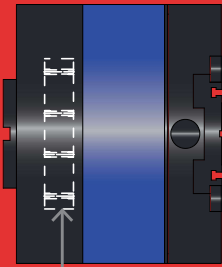
TECHNICAL DATA		UT 3-360 S	UT 5-500 S	UT 5-630 S	UT 5-800 S	UT 8-800 S	UT 8-1000 S
Ø A	mm	360	500	630	800		1000
Ø B	mm	360	500		800		
C radial traverse	mm	120	160	200	250	280	350
D	mm	154.6	199.6		230	250	260
E	mm	235	278.5	282	370	410	415
Ø G x F	mm	800 x 140	1000 x 150	1250 x 150	1400 x 150	1600 x 160	2000 x 160
Ø H x F2	mm	400 x 400	560 x 540	700 x 540	830 x 540	850 x 860	1050 x 860
Ø I x F1	mm	670 x 240	850 x 295	1050 x 295	1300 x 295	1250 x 370	1600 x 370
Max. mm/min	mm/min	1 ÷ 400				1 ÷ 500	
Max. ◊/min	RPM	500	315	250	200		160
Weight	Kg	130	230	310	530	1000	1200
Radial force	daN	400	500		1000		
Torque	daNm	400	800		1000		
Boring accuracy		H7					
Max chip removal	mm <sup>2</sup> C40	5	9		14		
Rapid trasverse	mm/min	400				500	
Roughness	Ra	0,8 ~ 1,2					

# U-TRONIC S+R

The U-TRONIC S+R, unlike the standard U-TRONIC S version, come with an integrated gearbox with a 1:4 ratio that increases the working torque and therefore chip removal. They are therefore particularly suitable for applications with high power / speed electro-spindles that have limited torque curves at low rpm. They are built in 3 models from  $\varnothing 360$  to  $\varnothing 630$  mm all with coolant through option.

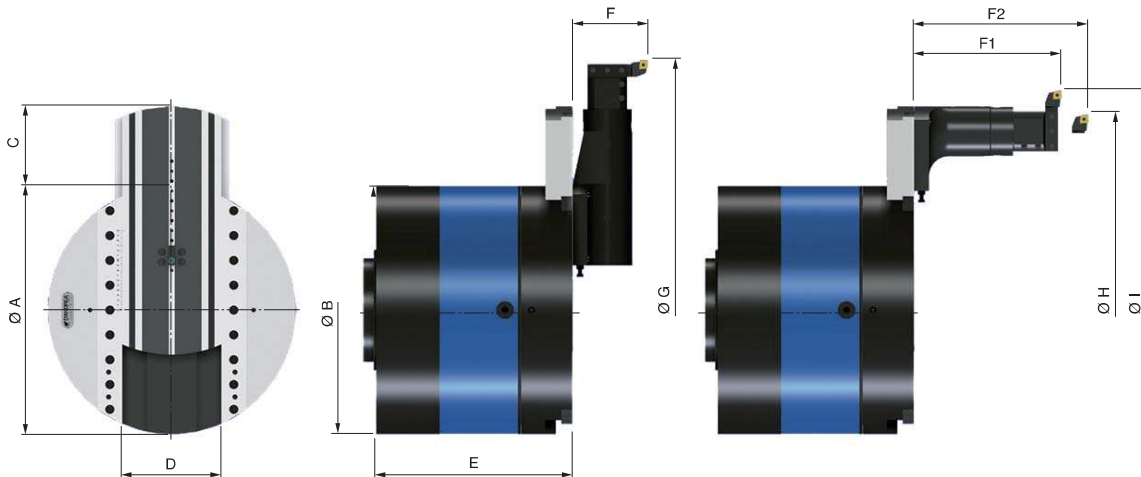
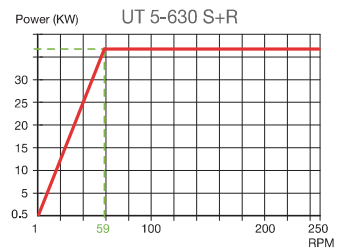
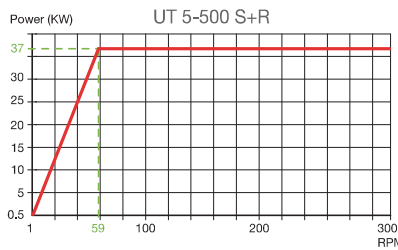
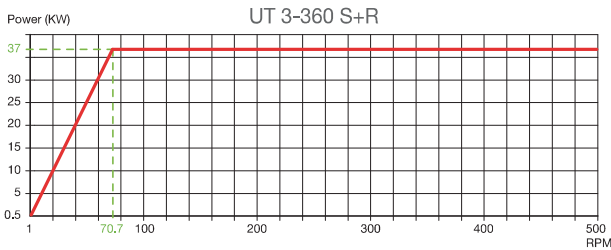


U-TRONIC S+R

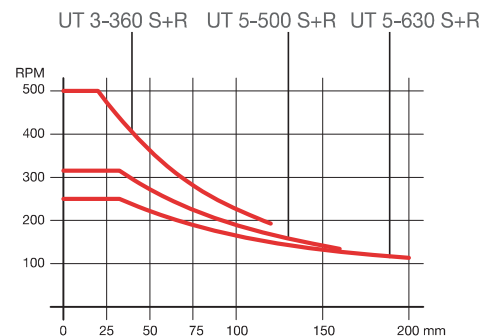


GEARBOX

GEARBOX		UT3-360 S+R	UT5-500 S+R	UT5-630 S+R
Transmission ratio		1:4		
Outbound nominal torque	N·m	4000	6000	
Outbound max torque	N·m	5000	8000	
Max RPM	RPM	2000	1000	1260
Outbound max RPM	RPM	500	315	250

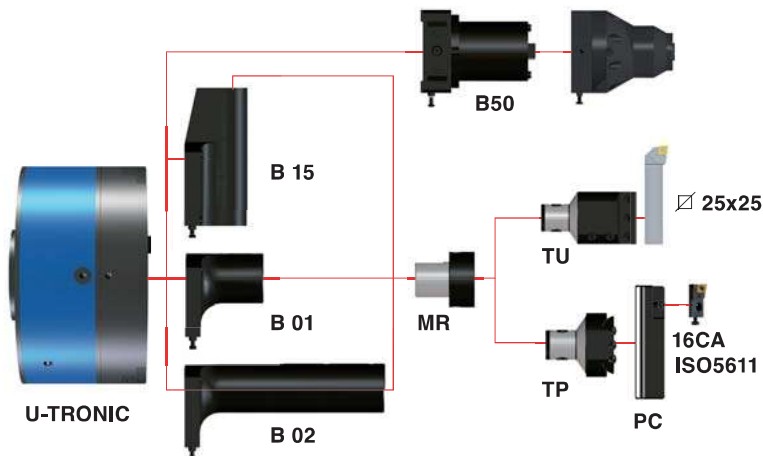


TECHNICAL DATA		UT 3-360 S+R	UT 5-500 S+R	UT 5-630 S+R
Ø A	mm	360	500	630
Ø B	mm	360	500	500
C radial traverse	mm	120	160	200
D	mm	154.6	199.6	
E	mm	335	396.5	400
Ø G x F	mm	800 x 140	1000 x 150	1250 x 150
Ø H x F2	mm	400 x 400	560 x 540	700 x 540
Ø I x F1	mm	670 x 240	850 x 295	1050 x 295
Max. mm/min	mm/min	1 ÷ 400		
Weight	Kg	150	370	450
Radial force	N	4000	5000	
Boring accuracy		H7		
Max chip removal	mm <sup>2</sup> C40	5	9	





UT 3-360 / 5-500 / 5-630 / 5-800 / 8-800 / 8-1000 S  
 UT 3-360 / 5-500 / 5-630 S + R



1 B 01  
 1 B 02  
 1 B 15  
 1 MR  
 1 TU

**K03**

REF.	CODE
KIT K03 UT 3-360 S	501703259300
KIT K03 UT 5-500 / 5-630 / 5-800 S	501705009300
KIT K03 UT 8-800 / 8-1000 S	501708009300

U-TRONIC	REF.	CODE	ØH7	B01/B02					kg
				A	B	C	D	E	
UT 3-360 S	B01	443005001150	50	80	23	100	135	150	5.5
	B02	443005002750	50	80	23	260	135	150	8.5
UT 5-500 / 5-630 / 5-800 S	B01	443006301550	63	100	30	155	170	200	11
	B02	443006303650	63	100	30	400	170	200	19
UT 8-800 / 8-1000 S	B01	443008002300	80	130	30	230	200	250	25
	B02	443008007200	80	130	30	720	250	250	60

U-TRONIC	REF.	CODE	ØH7	B15					kg	
				A	B	C	D	D1		E
UT 3-360 S	B15	445005001900	50	80	23	60	190	135	150	3.7
UT 5-500 / 5-630 / 5-800 S	B15	445006302500	63	100	30	70	270	170	200	7.5
UT 8-800 / 8-1000 S	B15	445008003001	80	130	30	85	300	200	250	34

U-TRONIC	REF.	CODE	MHD'	ØH7	Ø1	MR			kg
						L	L1	L2	
UT 3-360 S	MR 50/80.80	450208001060	80	50	80	95	50	45	1.6
UT 5-500 / 5-630 / 5-800 S	MR 63/98.80	450209801060	80	63	98	105	60	45	3
UT 8-800 / 8-1000 S	MR 80/130.80	450213001240	80	80	130	125	80	45	6
	MR 80/130.110	450213001340	110	80	130	185	80	105	9

U-TRONIC	REF.	CODE	MHD'	Ø1	TU				kg
					L	L1	L2	L3	
UT 3-360 S	TU 80/95.25	460508025001	80	95	90	65	25	32	4
UT 5-500 / 5-630 / 5-800 S	TU 80/95.25	460508025001	80	95	90	65	25	32	4
UT 8-800 / 8-1000 S	TU 80/95.25	460508025001	80	95	90	65	25	32	4
	TU 110/110.32	460511032001	110	130	110	78	32	32	11.2

U-TRONIC	REF.	CODE	TP	
			Ø	kg
UT 3-360 S	TP 80/90.50	460408050001	90	2.3
UT 5-500 / 5-630 / 5-800 S	TP 80/90.50	460408050001	90	2.3
UT 8-800 / 8-1000 S	TP 80/125.50	460408050002	125	3.2

U-TRONIC	REF.	CODE	PC	
			Ø	kg
UT 3-360 S	PC 11.50	433050160950	95	1.3
UT 5-500 / 5-630 / 5-800 S	PC 12.50	433050161350	135	2
	PC 13.50	433050162000	200	3.2
UT 8-800 / 8-1000 S	PC 14.50	433050163000	300	5

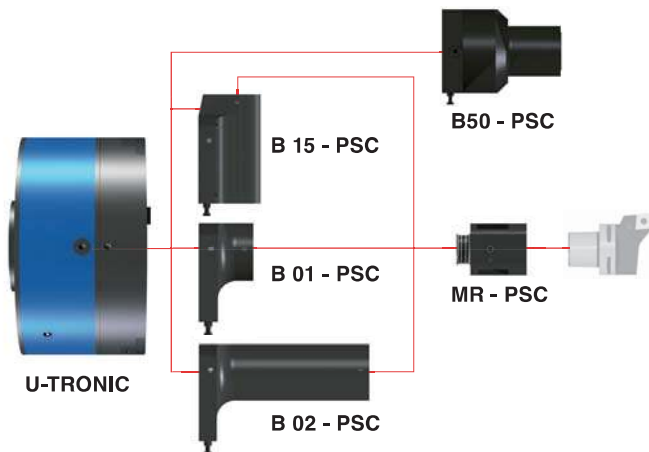
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CODE	483010161001

	<b>PCLNL16CA-12</b>
CODE	483010161002

	<b>PSSNL16CA-12</b>
CODE	483010161003

	<b>PSRNL16CA-12</b>
CODE	483010161004

## UT 3-360 / 5-500 / 5-630 / 5-800 / 8-800 / 8-1000 S UT 3-360 / 5-500 / 5-630 S + R



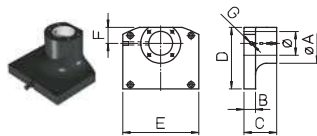
### K03 - PSC



1 B 01 - PSC  
1 B 02 - PSC  
1 B 15 - PSC  
1 MR - PSC

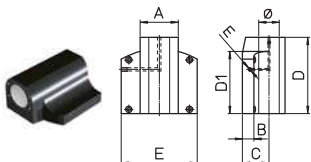
REF.	CODE
<b>KIT K03 PSC 63 UT 3-360 S</b>	501703259304
<b>KIT K03 PSC 63 UT 5-500 / 5-630 / 5-800 S</b>	501705009310
<b>KIT K03 PSC 80 UT 5-500 / 5-630 / 5-800 S</b>	501705009302
<b>KIT K03 PSC 80 UT 8-800 / 8-1000 S</b>	501708009301

### B01 / B02 - PSC



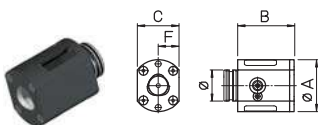
U-TRONIC	REF.	CODE	ØH7	A	B	C	D	E	F	G	kg
UT 3-360 S	<b>B01 - PSC 63</b>	443005000310	63	105	23	31	137	150	42	G1/8'	3.5
	<b>B02 - PSC 63</b>	443005001610	63	105	23	161	137	150	42	G1/8'	10
UT 5-500 / 5-630 / 5-800 S	<b>B01 - PSC 63</b>	443006302002	63	105	30	86	162	200	42	G1/8'	11
	<b>B02 - PSC 63</b>	443006304452	63	105	30	331	162	200	42	G1/8'	20
UT 8-800 / 8-1000 S	<b>B01 - PSC 80</b>	443006302001	75	130	30	71	185	180	50	G1/8'	10.5
	<b>B02 - PSC 80</b>	443006304451	75	130	30	316	235	180	50	G1/8'	30

### B15 - PSC



U-TRONIC	REF.	CODE	ØH7	A	B	C	D	D1	E	F	G	kg
UT 3-360 S	<b>B15 - PSC 63</b>	445005001210	63	100	23	60	121		150	42	G1/8'	8
UT 5-500 / 5-630 / 5-800 S	<b>B15 - PSC 63</b>	445006303152	63	100	30	70	201	170	200	42	G1/8'	6.5
	<b>B15 - PSC 80</b>	445006303911	75	130	39	85	262	200	180	50	G1/8'	27.5
UT 8-800 / 8-1000 S	<b>B15 - PSC 80</b>	445008003005	75	130	30		300	200	250	50	G1/4'	33

### MR - PSC



U-TRONIC	REF.	CODE	Øg6	A	B	C	F	kg
UT 3-360 S	<b>MR - PSC 63</b>	450206000630	63	105	114	84	42	6.5
UT 5-500 / 5-630 / 5-800 S	<b>MR - PSC 63</b>	450206000630	63	105	114	84	42	6.5
UT 5-500 / 5-630 / 5-800 S	<b>MR - PSC 80</b>	450208000800	75	130	129	100	50	11
UT 8-800 / 8-1000 S	<b>MR - PSC 80</b>	450208000800	75	130	129	100	50	11

## TOOLHOLDER WITH AUTOMATIC TOOL CHANGE B50 MHD' - PSC



fig.1



fig.1

U-TRONIC	REF.
UT 3-360 S	<b>B50 MHD' HSK - A63 -A100</b>
UT 5-500 / 5-630 / 5-800 S	<b>B50 MHD' DIN69871-A-B 50</b>
UT 8-800 / 8-1000 S	<b>B50 MHD' MAS BT50</b>

U-TRONIC	REF.
UT 3-360 S	<b>B50 PSC 63-80</b>
UT 5-500 / UT 5-630 / 5-800 S	<b>B50 PSC 63-80</b>
UT 8-800 / 8-1000 S	<b>B50 PSC 63-80</b>

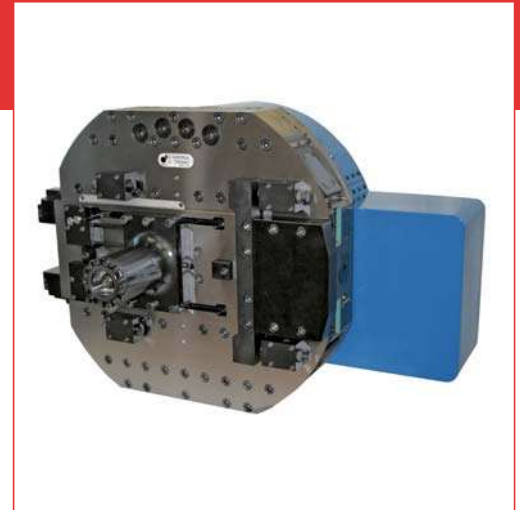
Special and HYDRAULICS B50 (fig.1) toolholders for automatic tool change, can be provided on request.

# U-TRONIC SYNCHRO

The new patented D'Andrea **SYNCHRO** system refers to the application on a head of the concept of synchronisation between the axes. The displacement of the tool-holder slide is performed by synchronising the motor that allows rotation of the machine spindle with the servomotor dedicated to the tool-holder slide movement.

Synchronisation between the axes is managed by the numerical control of the machine. The solution is used to increase the general performance of the head, in particular the feed rate of the slide.

Synchro <sup>®</sup>



## SPECIAL SOLUTIONS



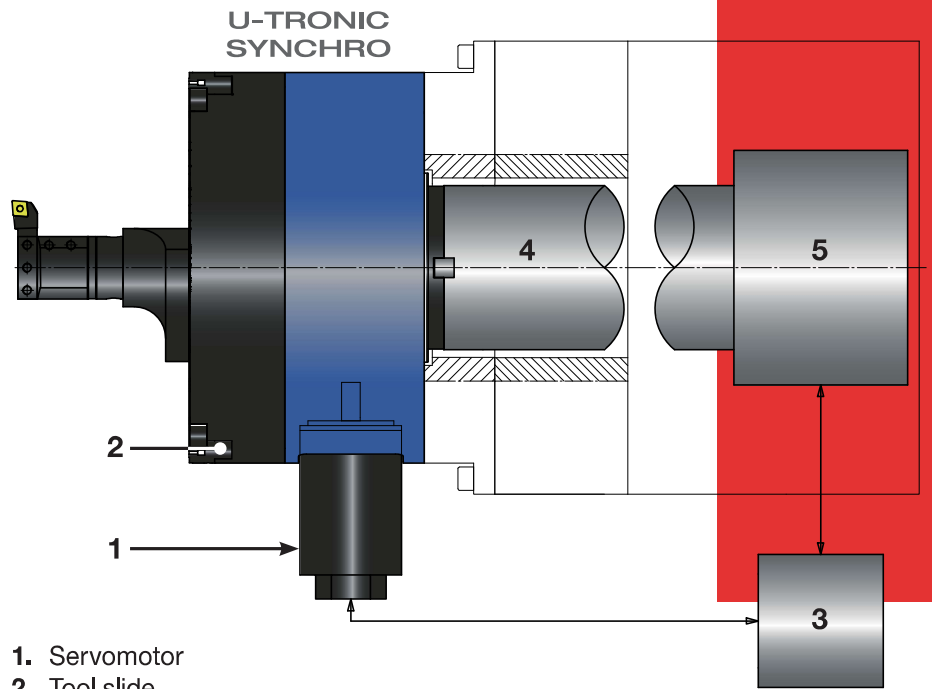
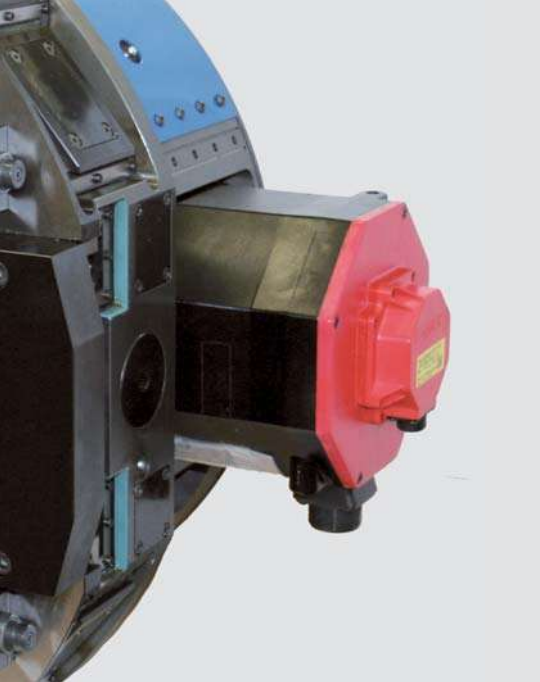
Extend



Double Slide



Hole



## APPLICATION OF D'ANDREA SYNCHRO SYSTEM ON U-TRONIC HEADS

In the schematic figure the U-TRONIC head, equipped with the **SYNCHRO** D'Andrea system, controls the tool-holder slide movement (2) by means of the servomotor (1).

The servomotor (1) is fitted on the fixed body of the head and transmits motion, through bevel gears and a satellite roller screw, to the tool-holder

1. Servomotor
2. Tool slide
3. Machine Tool C.N.C.
4. Machine Tool Spindle
5. Machine Tool Spindle Servomotor

slide (2) which is located on the rotating body driven by the machine spindle (4). To control the displacement of the slide (2), it is necessary to synchronise the rotation of the servomotor (1) with the servomotor of the machine spindle (5), and this is obtained by making the two motors rotate at the same number of revolutions (condition with

the slide stationary). The difference between the rotation speed of the motor (1) and the spindle motor (5) generates radial movement of the tool-holder slide (2).

The correct synchronisation between two rotating parts is obtained by suitably programming the numerical control of the machine tool

High Speed



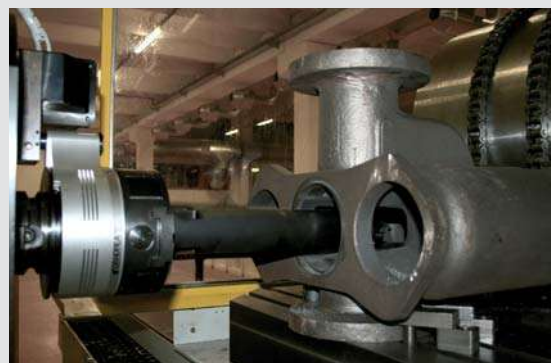
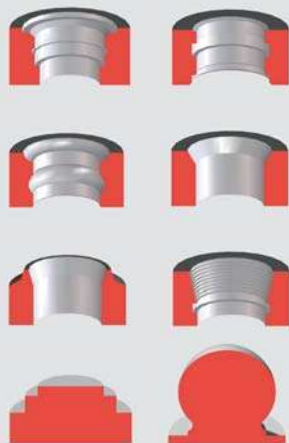
High Speed



Angular Heads

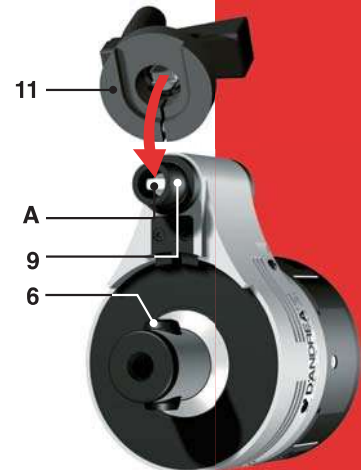
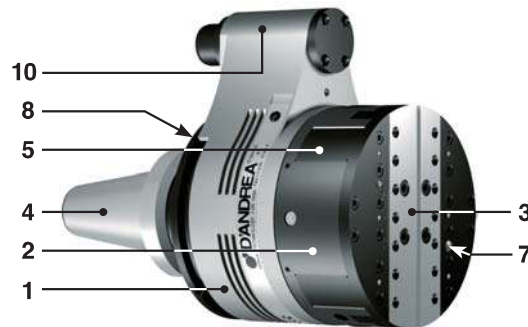
# TA-CENTER

**TA-CENTER** heads designed for machines with automatic tool change and which can be used on any machining center. The movement of the tool-holder slide is managed by an external U-DRIVE unit mounted onto the machine spindle.

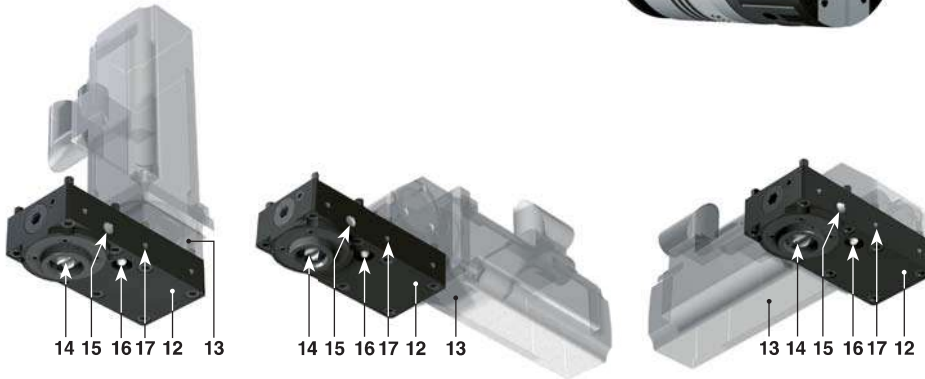


## COMPONENTS

1. Fixed body
2. Rotating body
3. Toolholder slide
4. Interchangeable taper
5. Balancing counter-weights
6. MHD' expanding pin
7. Coolant liquid outlet nozzle
8. Orientation ring
9. Retaining pin
10. "A" drive
11. Manual rotation device



12. Base element
13. Servomotor
14. Mechanical unit for automatic hook-up to the TA-CENTER drive
15. The unit comes with air inlet connection for cleaning the drive
16. Manual lubrication
17. n°6 M5x8 holes to be used for securing a possible protective casing



## COMMAND

The TA-CENTER boring and facing heads are designed to be used on machines with automatic tool change, therefore essentially on all machining centers. The control of the feed, the tool-holder slide and the tool position, also during rotation, is controlled by a **U-DRIVE** gearbox unit. This group is managed directly by an axis called "U" of the numerical control of the machining center. A machining center set up in this way allows to hit several different features such as internal and external turning, grooves, taper bores, concave and convex radius machining, cylindrical and conical threads and facing for serration.



## PREARRANGEMENTS



**Coolant supply fig.1**

Coolant exits from the two adjustable nozzles in the TA-CENTER located next to the slide after crossing the taper and the rotating body of the head. This noteworthy advantage ensures longer duration of the insert, quicker cutting speed and for obtaining good surface finishes. The centralized supply of coolant does not harm the TA-CENTER of which the internal labyrinth protected by an O-ring. It is advisable to not exceed **40 BAR** of pressure.



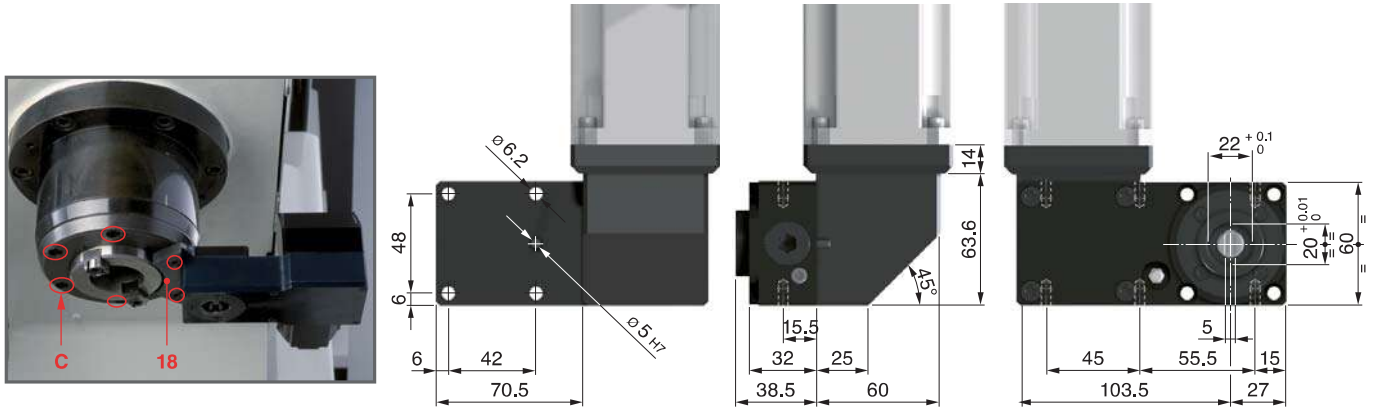
**Balancing fig.2**

TA-CENTER heads are designed with two counter-weights (5) for automatic balancing, that move opposite to the slide (3) allowing to machine at a higher number of rpms without noticeable oscillations.

### U-Drive

D'ANDREA has developed a standard U-DRIVE drive unit (horizontal and at 90°), on which different types of motors can be fitted. The U-DRIVE can be easily positioned on the machine (see photo) with a support (18) plate adaptor to the machine connected and fastened to the holes (C) on the front of the spindle.

Other special configurations can be provided on request.



The driving flange (24) must point towards the centre of the spindle.

### U-DRIVE assembly TA-CENTER

For a correct installation of the U-DRIVE and TA-CENTER, carefully follow these instructions:

1. Mount the cone on the TA-CENTER, detect the B distance between the gauge limit of the cone (4) and the retaining pin plane (9). Calculate X height with the formula  $X=B+4$  mm. Warning, if more heads are employed on the same machine, calculate the X height by using the lower B value.

2. Mount the plate (18) and the U-DRIVE on the machine according to the Layout and detect the F distance between the spindle gauge limit and the U-DRIVE plane.

The F distance must be equal to the X height.

The plate (18) is thicker than indicated in the layout, to get the F and X distances alike, the plate thickness must be trimmed (18). After adjusting the F height, remount the U-DRIVE by paying attention to its alignment, the position of the drive shaft (22) and distance (23) between the drive shaft axis (22) and the machine spindle centre.

### ⚠ The driving flange (24) must point towards the centre of the spindle.

3. To align the TA-CENTER to the U-DRIVE, remove the two locking dowels (21) of the orientation ring (8) to the left and right of the white reference point, and replace them temporarily with two longer dowels, integrating the ring to the fixed body. Screw the 4 ring dowels until they lay slightly to the cone (4) (fig.1-2).

After checking that the head is in the HOME POSITION, that the slide stroke is 0 and that the transmission shaft (22) of the U-DRIVE is aligned with the retaining pin (9) of the head, spindle orientation (M19), manually mount the head in the machine. Insert the cone (4) in the spindle by rotating the fixed body (1) up to the U-DRIVE, once the TA-CENTER and U-DRIVE are aligned in the machine and tighten all dowels (21) putting the two original dowels one at a time. During this operation, pay attention to the height between the ring (8) and the fixed body (1) (fig.3). Load and unload the TA-CENTER manually a few times to check the alignment.

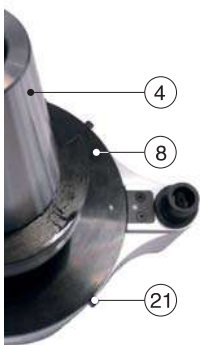


fig.1

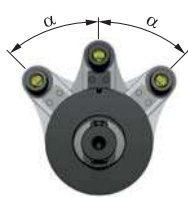


fig.2

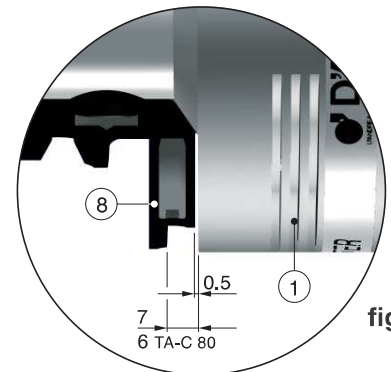


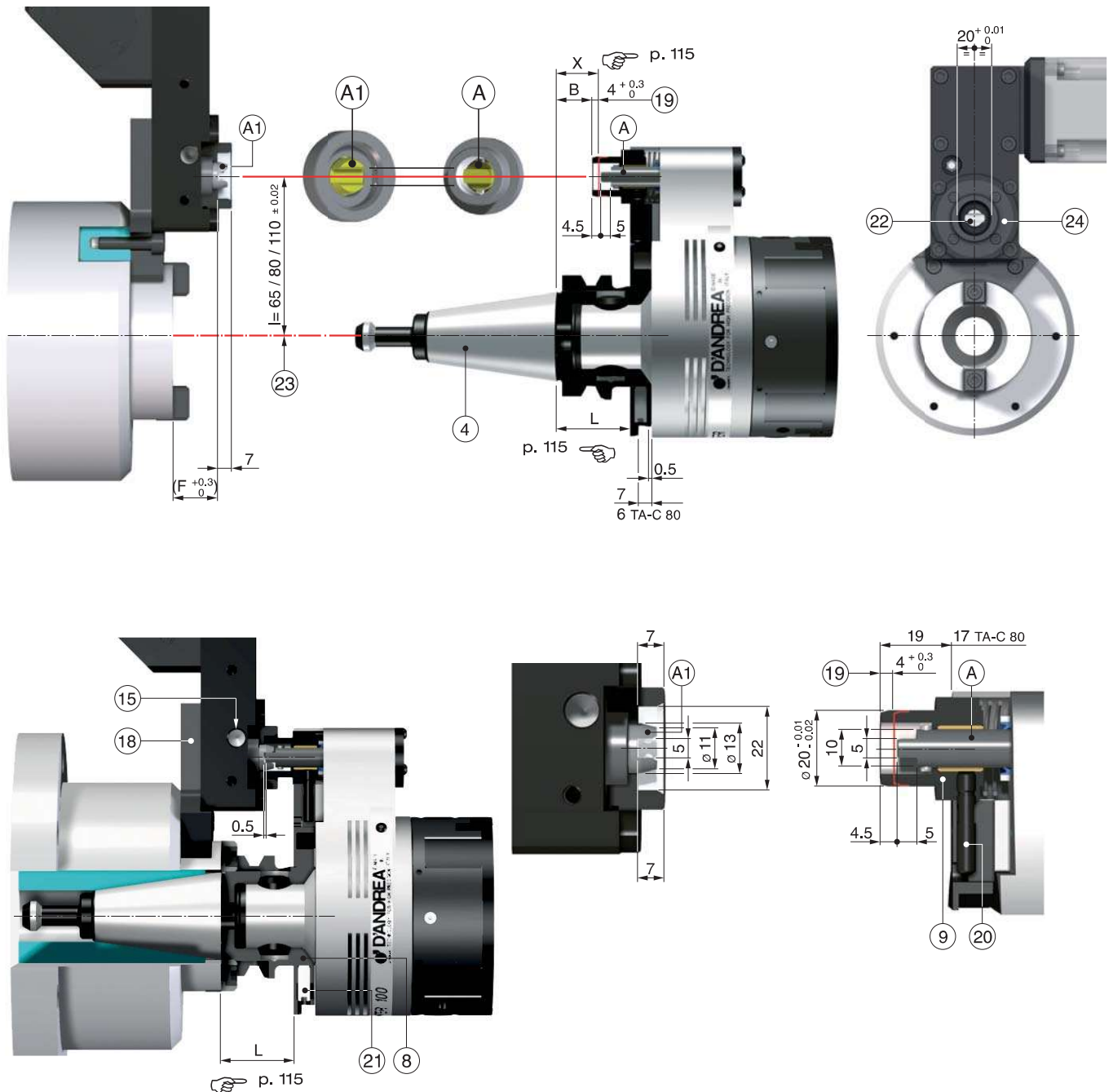
fig.3

## U-DRIVE assembly TA-CENTER

### ⚠ WARNING

During tool changes the “A” shafts of the TA-CENTER and “A1” U-DRIVE must comply with the correct “HOME POSITION” position, must be run always in unidirectional way to allow :

- the perfect coupling tooth “A” to “A1”.
- can be properly attached, the rotating body can be properly coupled to the fixed body
- Recognition of the “0” position of the tool slide should occur, otherwise it is likely to pass the limit and cause damage inside the head.



15. Air inlet connection for cleaning the drive 1/8 GAS.

18. Support plate for blocking and adapting the X dimension of the U-DRIVE ( $X +0.3/0$ ) mm.

19. Release rotation lock travel.

20. Locking-unlocking lever.

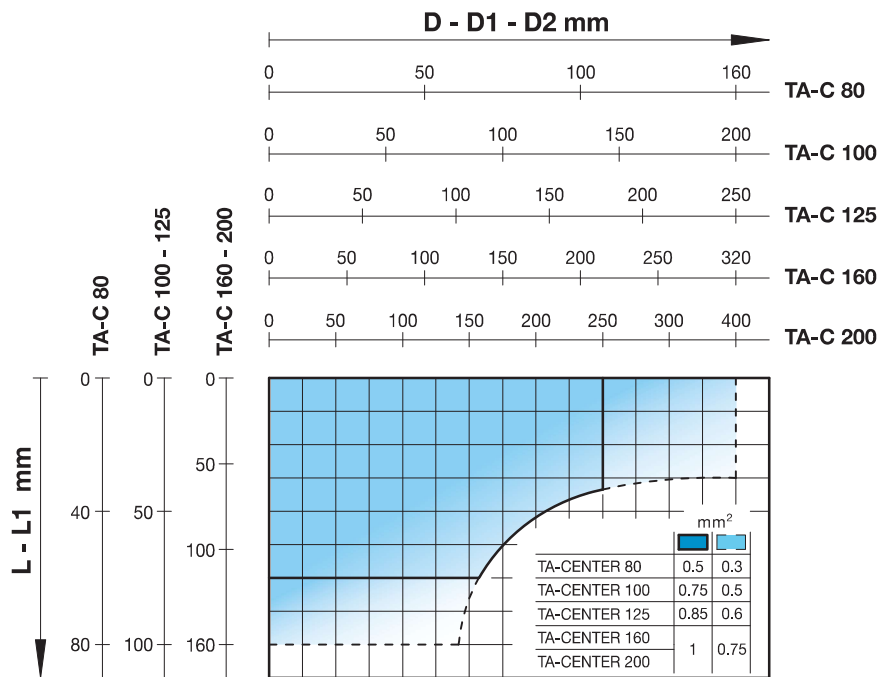


The chip removals are indicative for normal working conditions on steels with hardness 160-200 HB, (average Ks = 2000 N/mm<sup>2</sup>) recommended Vt 120/160 m/min.

The optimal values and working times must be determined with trials.

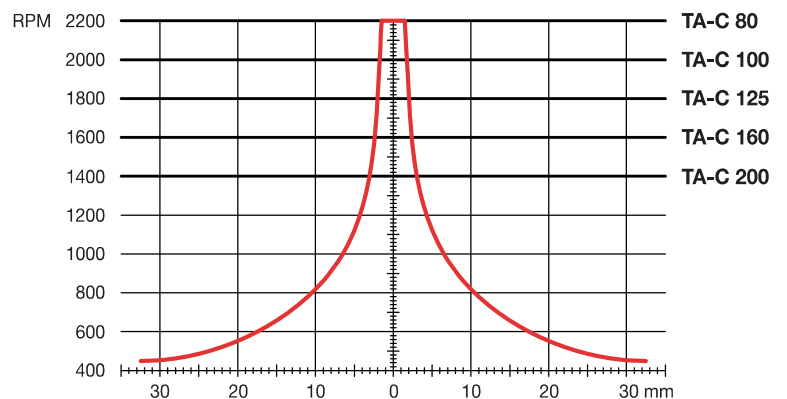


	TA-C 80	TA-C 100	TA-C 125	TA-C 160	TA-C 200
<b>D</b>	8 ~ 62	10 ~ 72	10 ~ 81	20 ~ 109	20 ~ 124
<b>L</b>	60	75	75	125	125
<b>D1</b>	62 ~ 102	72 ~ 122	63 ~ 131	103 ~ 203	88 ~ 218
<b>L1</b>	80	100	100	160	160
<b>D2</b>	112 ~ 160	122 ~ 200	131 ~ 250	203 ~ 320	218 ~ 400
<b>L2</b>	20.5	25.5	25.5	38.5	38.5



For good TA-CENTER head operations and to protect it from damages, it is advisable to follow the chart below that indicates the **maximum rpm**, based on the travel of the slide.

## MAX ROTATION SPEED



K02



REF.	CODE
K02 TA-C 80 I.65	501250800650
K02 TA-C 80 I.80	501250800800
K02 TA-C 100 I.80	501251000800
K02 TA-C 100 I.110	501251001100
K02 TA-C 125 I.80	501251250800
K02 TA-C 125 I.110	501251251100
K02 TA-C 160 I.110	501251601100
K02 TA-C 200 I.110	501252001100

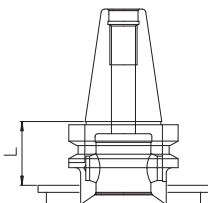
K03



1 P120 1 P130

REF.	CODE
KIT K03 TA-C 80	501200300801
KIT K03 TA-C 100-125	501200301001
KIT K03 TA-C 160-200	501200301601

MHD'



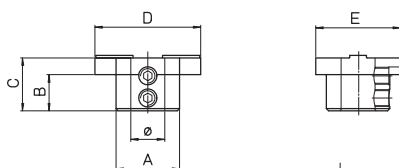
REF.	MHD'	TA-C 80		
		CODE	L	X
DIN 69871-A30 MHD'40.45.5	40	41 6 40 01 030 20	35	22
DIN 69871-A40 MHD'40.45	40	41 6 40 01 040 20	34.5	21.5
MAS403 BT30 MHD'40.35.5	40	41 6 40 01 030 30	25	12
MAS403 BT40 MHD'40.45	40	41 6 40 01 040 30	34.5	21.5

REF.	MHD'	TA-C 100		TA-C 125			
		CODE	L	X	CODE	L	X
DIN69871-A40 MHD'50.48	50	41 6 50 01 040 20	36.5	21.5	41 6 50 01 040 20	36.5	21.5
DIN69871-A40 MHD'50.56	50	41 6 50 01 040 70	44.5	29.5	41 6 50 01 040 70	44.5	29.5
MAS403 BT40 MHD'50.38.5	50	41 6 50 01 040 39	27	12	41 6 50 01 040 39	27	12
MAS403 BT40 MHD'50.48	50	41 6 50 01 040 30	36.5	21.5	41 6 50 01 040 30	36.5	21.5
MAS403 BT40 MHD'50.56	50	41 6 50 01 040 80	44.5	29.5	41 6 50 01 040 80	44.5	29.5
HSK-A63 MHD'50.66	50	41 6 50 15 063 20	54.5	39.5	41 6 50 15 063 20	54.5	39.5
ANSI/CAT40 MHD'50.66	50	41 6 50 01 040 40	54.5	39.5	41 6 50 01 040 40	54.5	39.5

REF.	MHD'	TA-C 160		TA-C 200			
		CODE	L	X	CODE	L	X
DIN69871-A50 MHD'80.48	80	41 6 80 01 050 29	36.5	21.5	41 6 80 01 050 29	36.5	21.5
MAS403 BT50 MHD'80.50	80	41 6 80 01 050 39	38.5	23.5	41 6 80 01 050 39	38.5	23.5
HSK-A100 MHD'80.88	80	41 6 80 15 100 20	76.5	61.5	41 6 80 15 100 20	76.5	61.5
ANSI/CAT50 MHD'80.62	80	41 6 80 01 050 40	50.5	35.5	41 6 80 01 050 40	50.5	35.5

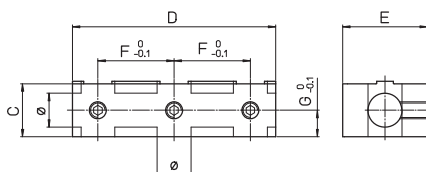
Complete range of arbors on page 10

P120

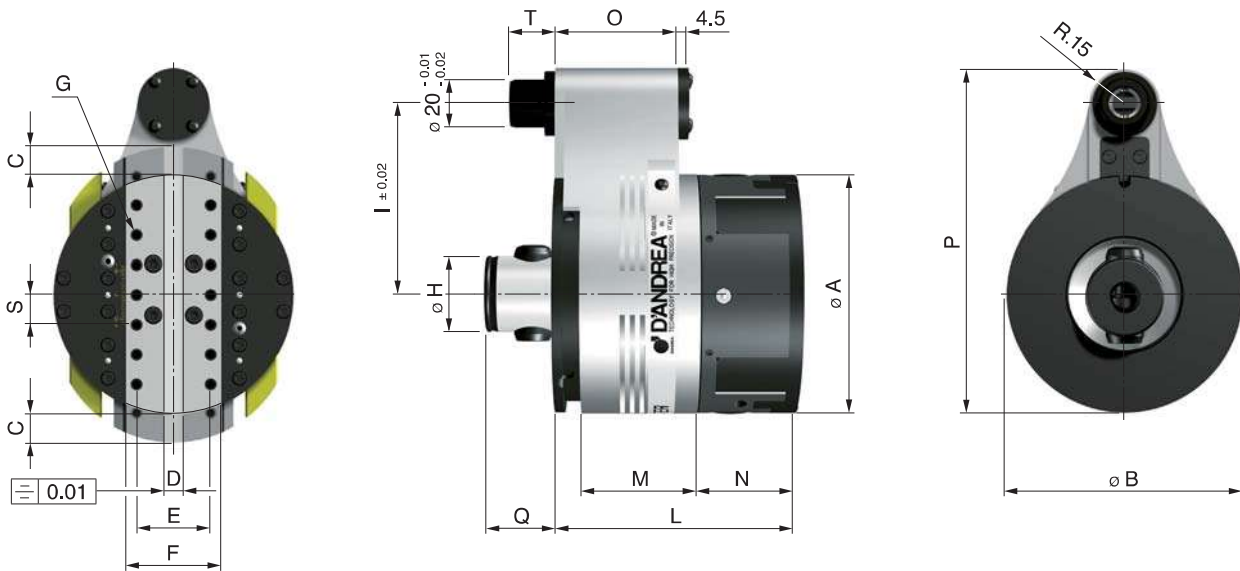


	REF.	CODE	ØH7	A	B	C	D	E	Kg.
TA-C 80	P120	431550160200	16	30	14	20	40	32	0.1
TA-C 100-125	P120	431550160250	16	30	17	25	50	40	0.2
TA-C 160-200	P120	431550250380	25	47	27.5	38	76	54	0.55

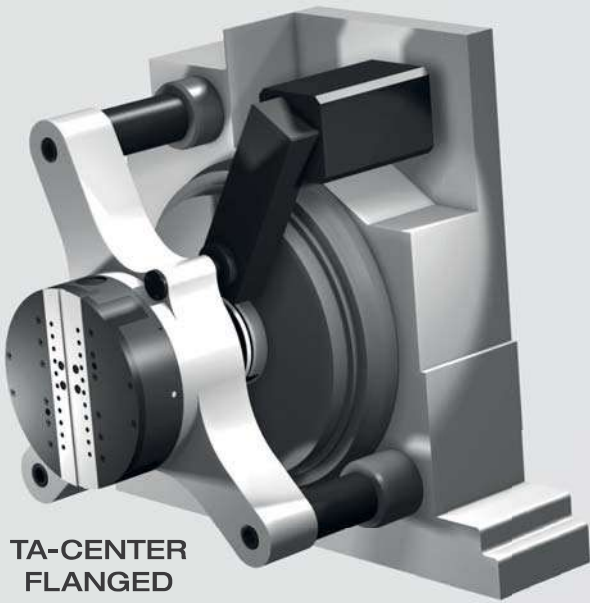
P130



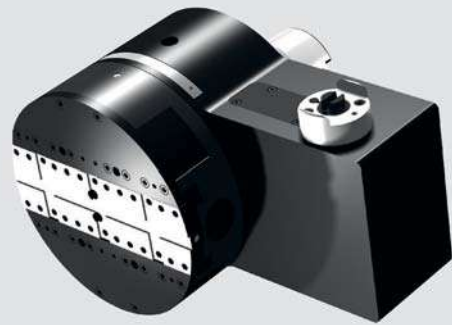
	REF.	CODE	ØH7	C	D	E	F	G	Kg.
TA-C 80	P130	433032200800	16	20	80	32	30	10.5	0.3
TA-C 100-125	P130	433040250950	16	25	95	40	37	10.5	0.5
TA-C 160-200	P130	433054381520	25	38	152	54	59.5	16.5	1.6



TECHNICAL DATA		TA-C 80	TA-C 100	TA-C 125	TA-C 160	TA-C 200
Ø A	mm	80	100	125	160	200
Ø B	mm	80.5	100.5	125	160.5	200
C radial traverse	mm	± 10	± 12	± 17	± 25	± 32.5
D	mm	6 <sup>+0.04</sup> <sub>+0.02</sub>	8 <sup>+0.04</sup> <sub>+0.02</sub>	10 <sup>+0.04</sup> <sub>+0.02</sub>	12 <sup>+0.04</sup> <sub>+0.02</sub>	15 <sup>+0.04</sup> <sub>+0.02</sub>
E	mm	25	31	37	44	51
F	mm	32	40	45	56	63
G	mm	M 3	M 4	M 5	M 6	M 8
Ø H	mm	(MHD'40) 25 <sup>-0.004</sup> <sub>0.006</sub>	32 <sup>-0.005</sup> <sub>-0.008</sub> (MHD'50)	40 <sup>-0.005</sup> <sub>-0.008</sub> (MHD'50)	50 <sup>-0.005</sup> <sub>-0.008</sub> (MHD'50)	63 <sup>-0.005</sup> <sub>-0.008</sub> (MHD'80)
I	mm	65/80	80/110	100/130	125/160	150/190
L	mm	80	100	104	136	160
M	mm	37.5	48.5	56	69	80
N	mm	32.5	40.5	44.5	56	63
O	mm	43	51	61.5	74	87
P	mm	120 / 135	145 / 175	175 / 205	205	250
Q	mm	23.5	29	35	44.5	51
S	mm	10	12.5	15	19	22.5
T	mm	17	19	22.5	28	34
Feed	mm/min	1 ÷ 500				
Radial force	daN	100	150	200	250	300
Maximum speed	RPM	2200	2000	1800	1600	1400
Torque	daNm	200	400	600	800	1000
Weight without the cone	Kg	2.9	4.8	6.5	16.8	21.4
Boring accuracy		H7				
Max workable ø	mm	160	200	250	320	400
Max chip removal on C40 steel	mm <sup>2</sup>	0,5	0,75	0,85	1	1,2
Roughness	Ra	0.8 - 1.2				



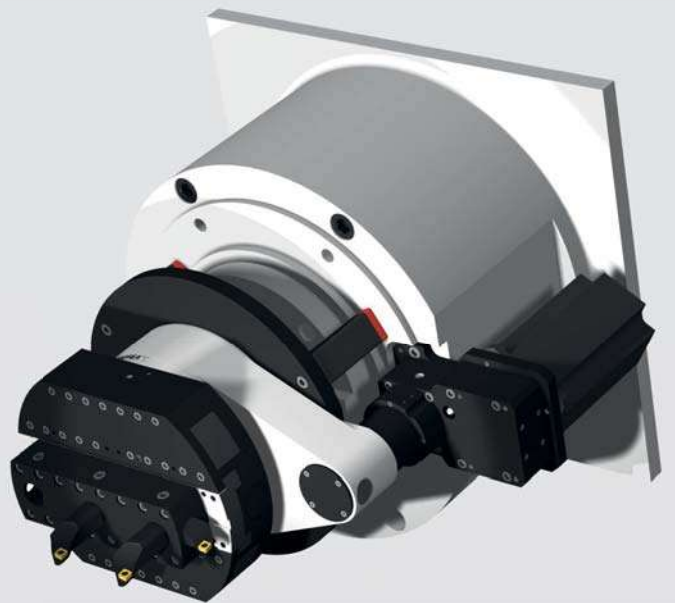
TA-CENTER  
FLANGED



TA-CENTER  
90°



TA-CENTER  
SPECIAL MACHINES



TA-CENTER  
SPECIAL DIMENSIONS



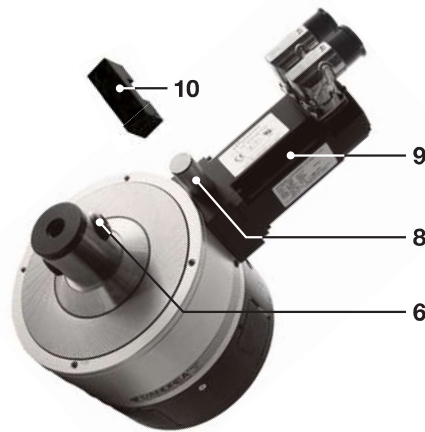
# TA-TRONIC

**TA-TRONIC** Heads designed to be manually attached on small boring machines, machining centers and special machines.

The built-in motor is connected to the NC and manages the movement of the tool-holder slide. The fixed body is supported by a flange or, for light operations, by a simple anti-rotation pin.



## COMPONENTS



- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Fixed body</li> <li>2. Rotating body</li> <li>3. Toolholder slide</li> <li>4. Interchangeable taper</li> <li>5. Balancing counter-weights</li> </ol> | <ol style="list-style-type: none"> <li>6. MHD' coupling</li> <li>7. Coolant liquid outlet nozzle</li> <li>8. Anti-rotation pin</li> <li>9. Motor</li> <li>10. Anti-rotation Small block</li> </ol> |
|--|--|

## COMMAND



CNC

The control of the TA-Tronic heads takes place through the direct connection to the "U" axis of the numerical control of the machine tool that allows boring, internal, external and back facing, internal and external turning, grooves, facing for serration, threads and taper bores, as well as concave and convex radius machining through interpolation with the other axes.

## PREARRANGEMENTS

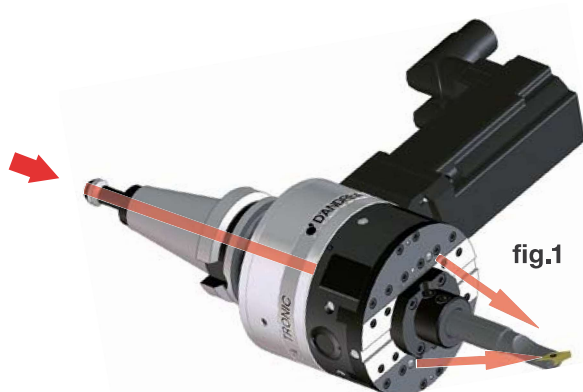


fig.1

### Coolant supply fig.1

Coolant exits from the two adjustable nozzles in the TA-TRONIC located next to the slide after crossing the taper and the rotating body of the head. This noteworthy advantage ensures longer duration of the insert, quicker cutting speed and for obtaining good surface finishes. The centralized supply of coolant does not harm the TA-TRONIC of which the internal labyrinth protected by an O-ring. It is advisable to not exceed **40 BAR** of pressure.

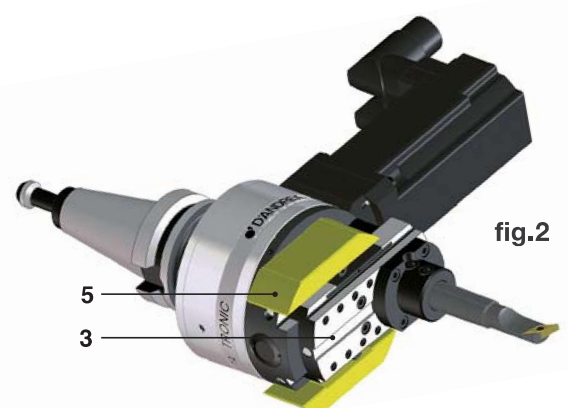


fig.2

### Balancing fig.2

TA-TRONIC heads are designed with two counter-weights (5) for automatic balancing, that move opposite to the slide (3) allowing to machine at a higher number of rpms without noticeable oscillations.

### WITHOUT FLANGE

TA-TRONIC is mounted on the machine using a taper (4).

The anti-rotation pin (8) inserted in the dowel (10) locked on the head of the machine tool, preventing the fixed body of TA-TRONIC to rotate.

The dowel (10) is applied on a fixed part around the spindle in relation to the dimensions of fig.1, adjusting the height indicated by way of a thickness S.

For heavy machining it is advisable to apply a flange (11) to make the TA-TRONIC solidly connected with the head of the machine tool (fig.2-3).

It is always advisable to use a flange with TA-TRONIC 160 and 200.

The type of flange to use depends on the model of the machine and may be easily built by the Customer or supplied by D'Andrea.

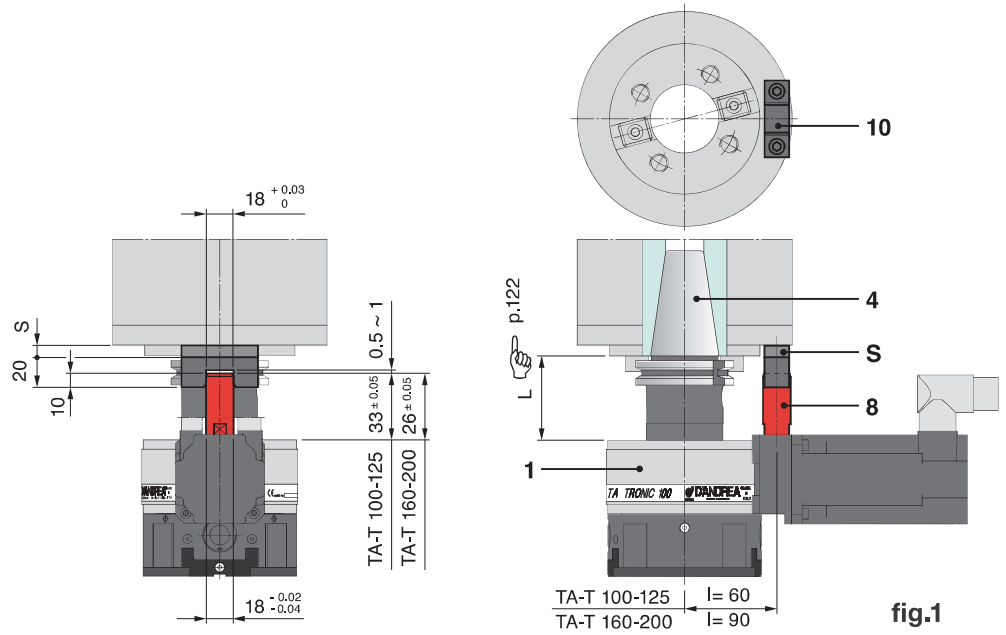


fig.1

### WITH FLANGE

#### Application on a machine with threaded holes fig.2

Properly detect the X dimension mounting the TA-TRONIC without the flange.

Build the flange (11) with a dimension X in tolerance  $\pm 0.005$  mm.

Mount the flange on the TA-TRONIC tightening the screws A.

Apply TA-TRONIC on the machine using a taper (4).

Check that the fixed body and flange rotate freely.

Fix the flange to the machine using the screws B.

#### Application on a machine without threaded holes fig.3

Mount the flange on the TA-TRONIC without tightening the screws A.

Apply TA-TRONIC on the machine using a taper (4).

Lightly tighten the screws B of the collar (12) of the flange (11).

Start up the machine and check that the spindle with TA-TRONIC rotates freely.

Fully tighten the screws B and A.

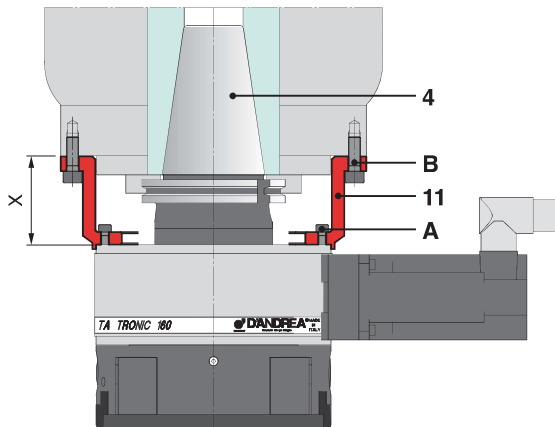


fig.2

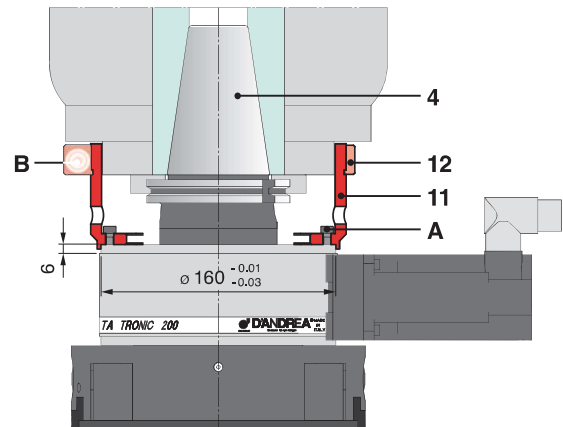
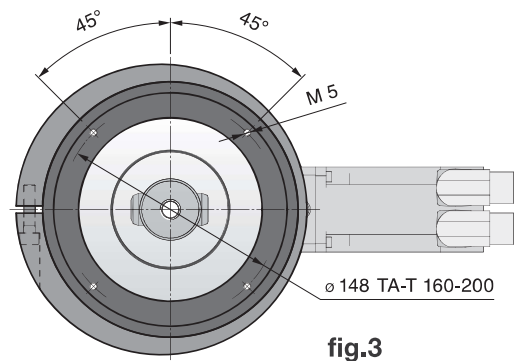
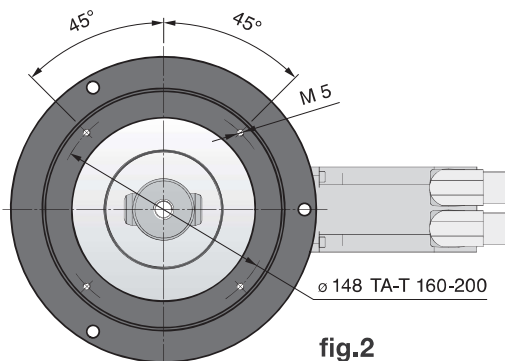


fig.3



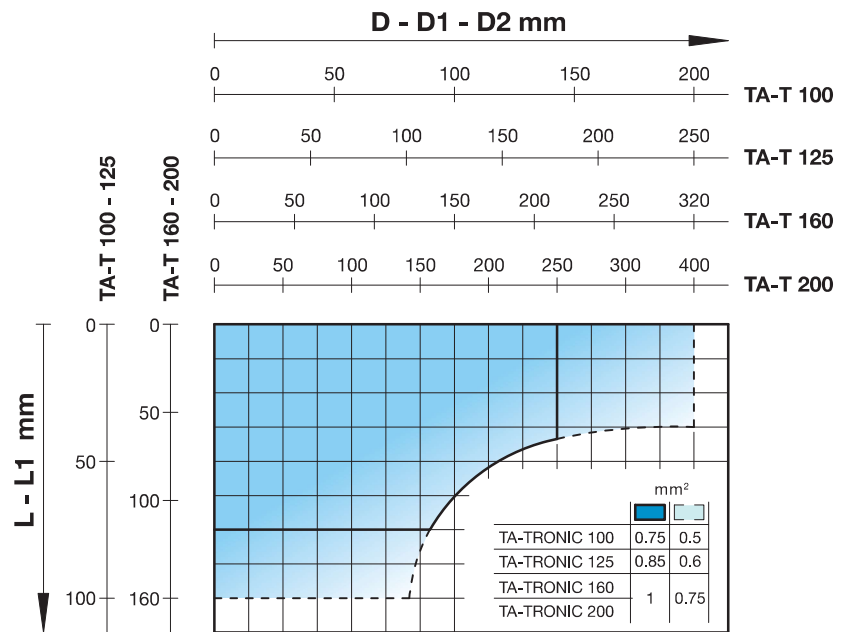
# CHIP REMOVAL CAPACITY

The chip removals are indicative for normal working conditions on steels with hardness 160-200 HB, (average Ks = 2000 N/mm<sup>2</sup>) recommended Vt 120/160 m/min.

The optimal values and working times must be determined with trials.

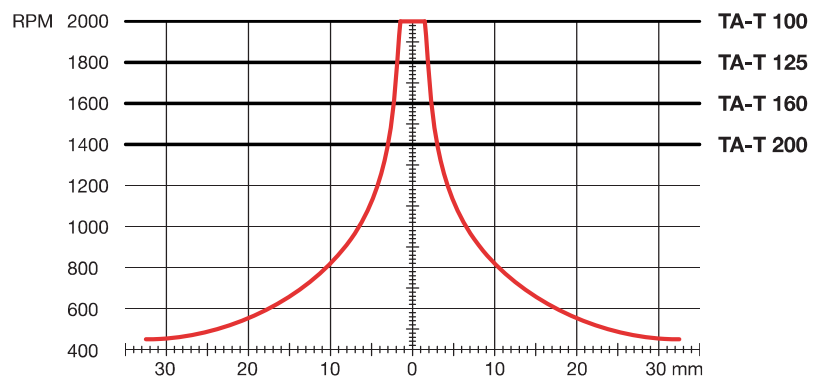


	TA-T 100	TA-T 125	TA-T 160	TA-T 200
<b>D</b>	10 ~ 72	10 ~ 81	20 ~ 109	20 ~ 124
<b>L</b>	75	75	125	125
<b>D1</b>	72 ~ 122	63 ~ 131	103 ~ 203	88 ~ 218
<b>L1</b>	100	100	160	160
<b>D2</b>	122 ~ 200	131 ~ 250	203 ~ 320	218 ~ 400
<b>L2</b>	25,5	25,5	38,5	38,5



For good TA-CENTER head operations and to protect it from damages, it is advisable to follow the chart below that indicates the **maximum rpm**, based on the travel of the slide.

## MAX ROTATION SPEED





### K02



REF.	CODE	
K02 TA-T 100 1FK7022-5AK74-1HA5	501201000400	
K02 TA-T 100 FANUC bis 1/6000	501201000800	
K02 TA-T 125 1FK7022-5AK74-1HA5	501201250400	
K02 TA-T 125 FANUC bis 1/6000	501201250800	
K02 TA-T 160 1FK7032-2AK74-1EA2	501201600400	
K02 TA-T 160 FANUC bis 1/6000	501201600800	
K02 TA-T 200 1FK7032-2AK74-1EA2	501202000400	
K02 TA-T 200 FANUC bis 1/6000	501202000800	

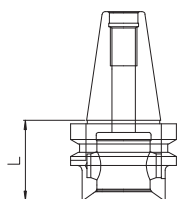
### K03



1 P120      1 P130

REF.	CODE	
KIT K03 TA-T 100-125	501200301001	
KIT K03 TA-T 160-200	501200301601	

### MHD'

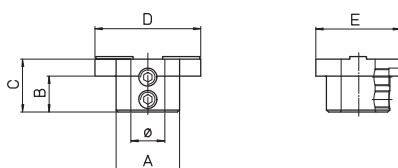


REF.	MHD'	TA-T 100		TA-T 125	
		CODE	L	CODE	L
DIN69871-A40 MHD'50.48	50	41 6 50 01 040 20	36,5	41 6 50 01 040 20	36,5
DIN69871-A40 MHD'50.56	50	41 6 50 01 040 70	44,5	41 6 50 01 040 70	44,5
MAS403 BT40 MHD'50.38.5	50	41 6 50 01 040 39	27	41 6 50 01 040 39	27
MAS403 BT40 MHD'50.48	50	41 6 50 01 040 30	36,5	41 6 50 01 040 30	36,5
MAS403 BT40 MHD'50.56	50	41 6 50 01 040 80	44,5	41 6 50 01 040 80	44,5
HSK-A63 MHD'50.66	50	41 6 50 15 063 20	54,5	41 6 50 15 063 20	54,5
ANSI/CAT40 MHD'50.66	50	41 6 50 01 040 40	54,5	41 6 50 01 040 40	54,5

REF.	MHD'	TA-T 160		TA-T 200	
		CODE	L	CODE	L
DIN69871-A50 MHD'80.48	80	41 6 80 01 050 29	36,5	41 6 80 01 050 29	36,5
MAS403 BT50 MHD'80.50	80	41 6 80 01 050 39	38,5	41 6 80 01 050 39	38,5
HSK-A100 MHD'80.88	80	41 6 80 15 100 20	76,5	41 6 80 15 100 20	76,5
ANSI/CAT50 MHD'80.62	80	41 6 80 01 050 40	50,5	41 6 80 01 050 40	50,5

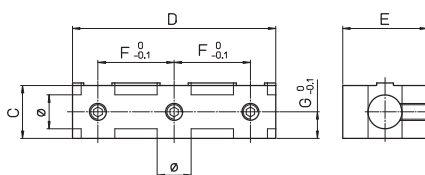
Complete range of arbors on page 10

### P120

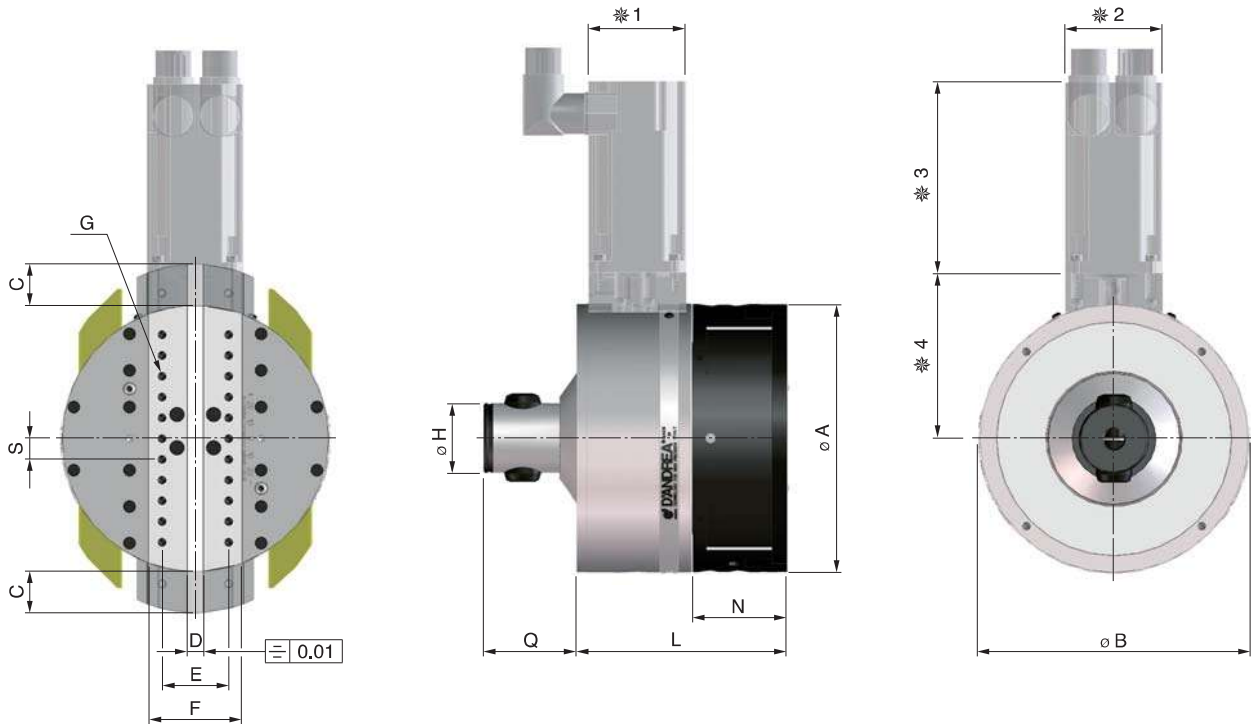
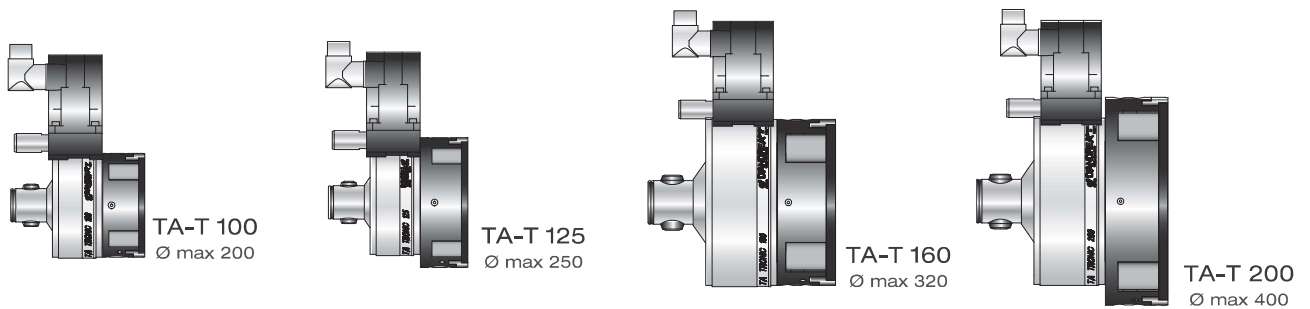


	REF.	CODE	ØH7	A	B	C	D	E	Kg.
TA-T 100-125	<b>P120</b>	431550160250	16	30	17	25	50	40	0.2
TA-T 160-200	<b>P120</b>	431550250380	25	47	27.5	38	76	54	0.55

### P130



	REF.	CODE	ØH7	C	D	E	F	G	Kg.
TA-T 100-125	<b>P130</b>	433040250950	16	25	95	40	37	10,5	0,5
TA-T 160-200	<b>P130</b>	433054381520	25	38	152	54	59,5	16,5	1,6



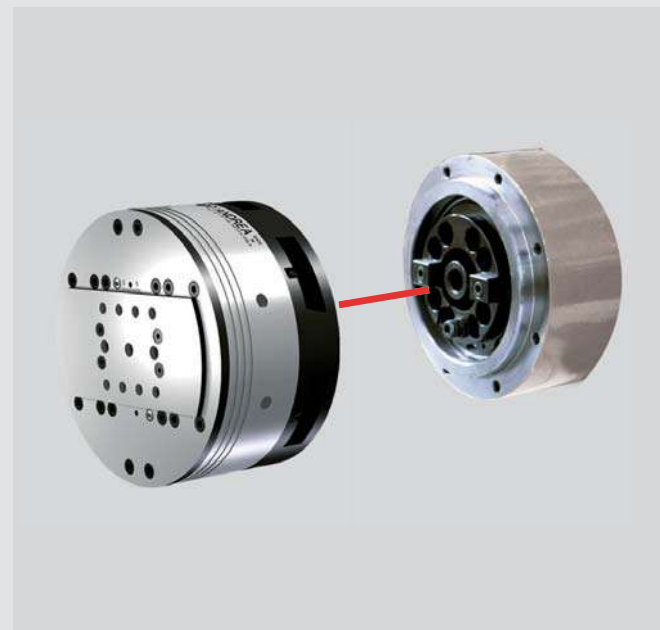
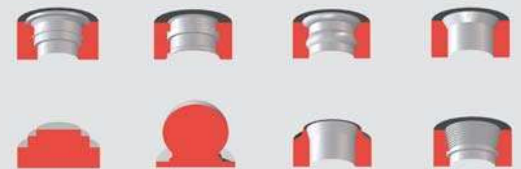
TECHNICAL DATA		TA-T 100	TA-T 125	TA-T 160	TA-T 200
Ø A	mm	100	125	160	200
Ø B	mm	100.5		160.5	
C radial traverse	mm	± 12	± 17	± 25	± 32.5
D	mm	8 <sup>+0.04</sup> / <sub>+0.02</sub>		10 <sup>+0.04</sup> / <sub>+0.02</sub>	
E	mm	31		40	
F	mm	40	45	56	63
G	mm	M 4		M5	
Ø H	mm	32 <sup>-0.005</sup> / <sub>-0.008</sub> (MHD'50)		42 <sup>-0.005</sup> / <sub>-0.008</sub> (MHD'80)	
L	mm	89	93	125	125
N	mm	40.5	44.5	56	56
Q	mm	29		55.45	
S	mm	12.5			
Feed	mm/min	1 ÷ 500			
Radial force	daN	150		250	
Maximum speed	RPM	2000	1800	1600	1400
Torque	daNm	400		800	
Weight without the cone	Kg	4.8	6.5	16.8	21.4
Boring accuracy		H7			
Max workable ø	mm	200	250	320	400
Max chip removal on C40 steel	mm <sup>2</sup>	0,75	0,85	1	
Roughness	Ra	0.8 - 1.2			

SIEMENS / FANUC Motors Dimensions	TA-T 100 / TA-T 125		TA-T 160 / TA-T 200	
	Siemens 1FK7022	FANUC βis 1/6000	Siemens 1FK7032	FANUC βis 1/6000
* 1	55	60	72	60
* 2	55	60	72	60
* 3	178	111.5	173	111.5
* 4	92		118,5	

\* Rough measures that may vary on changing the motor

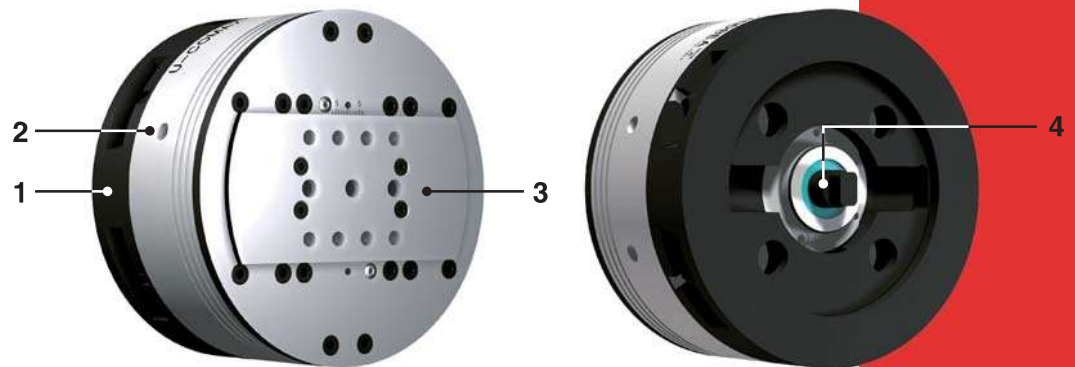
# U-COMAX

**U-COMAX** axial control heads designed to be used on transfer machines or special units.  
The movement of the slide is managed by a U-DRIVE gearbox unit mounted at the back of the spindle unit and managed by the NC.  
Synchro® option available



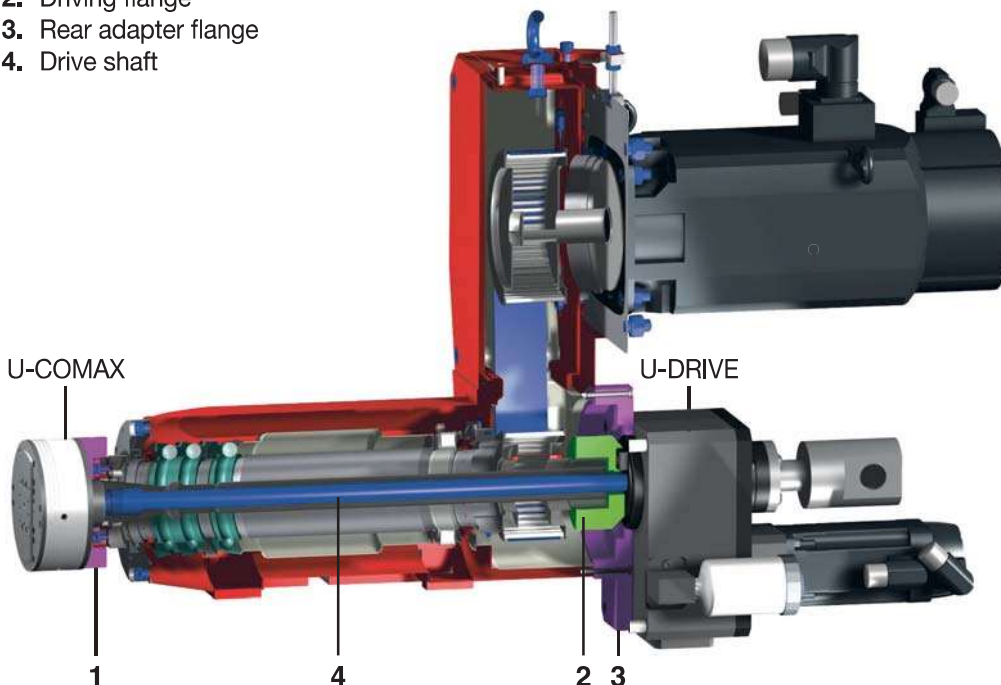
## COMPONENTS

1. Adapter flange to the machine
2. Rotating body
3. Toolholder slide
4. Drive shaft



1. Front adapter flange
2. Driving flange
3. Rear adapter flange
4. Drive shaft

## MECHANICAL CONTROL U-DRIVE



The U-Drive drive unit for U-Comax heads is mounted behind the spindle of the machine. It is controlled by an axis of the numerical control and mechanically connected to the U-Comax head drive with a transmission shaft that crosses the spindle of the machine. The U-Drive drive unit can be configured in various ways depending on the required application and the design of the machine.

## PREARRANGEMENTS

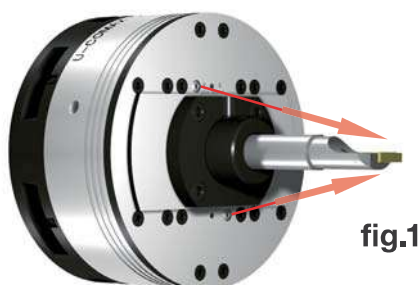


fig.1

### Coolant supply fig.1

In the U-COMAX, the coolant comes out of two adjustable nozzles located next to the slide after passing through the transmission shaft and the rotating body of the head. This considerable advantage ensures a longer life of the insert, a higher cutting speed and the achievement of good surface finishes.

The centralised supply of the coolant does not damage the U-COMAX whose internal labyrinths are protected by sealing rings. It is advisable not to exceed **40 BAR** of pressure.

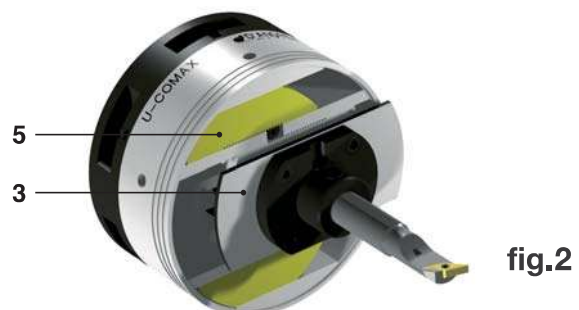


fig.2

### Balancing fig.2

U-COMAX heads are designed with two counter-weights (5) for automatic balancing, that move opposite to the slide (3) allowing to machine at a higher number of rpms without noticeable oscillations.

The U-COMAX are mounted on the machine by means of an adapter flange.  
There are two types of flanges.

### STANDARD FLANGE

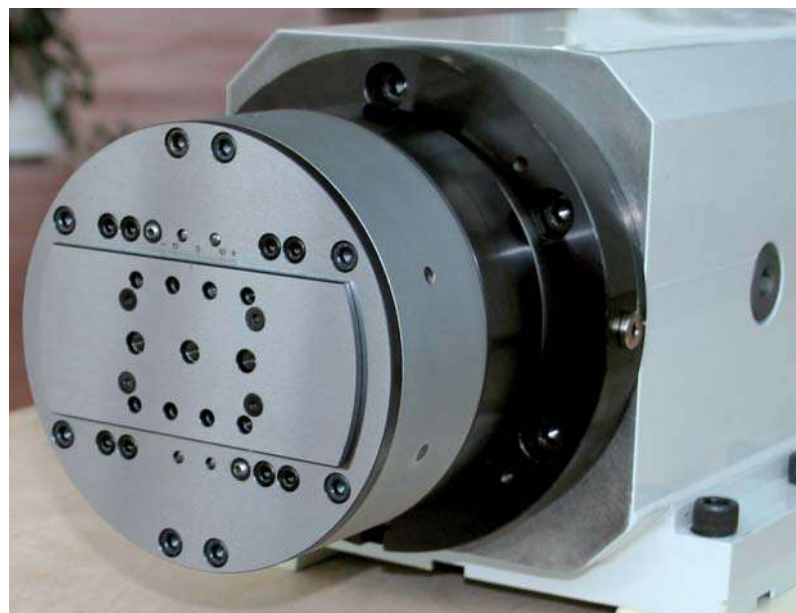
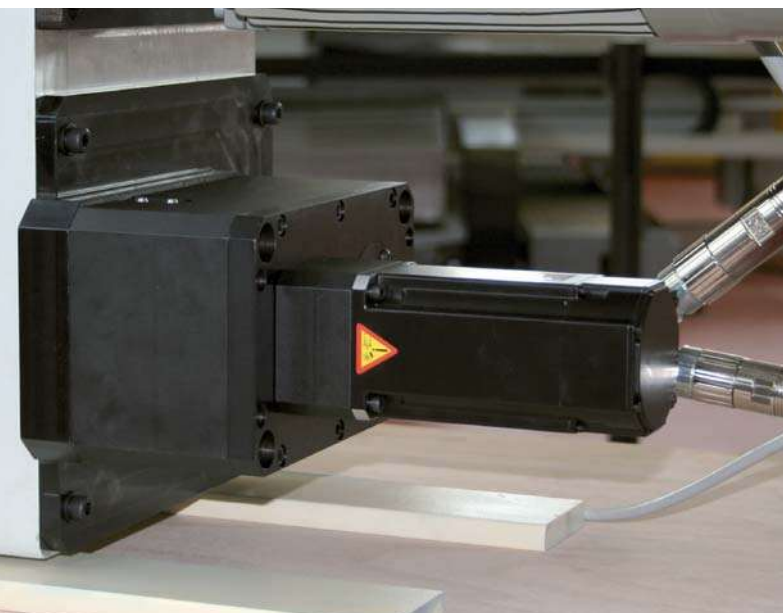
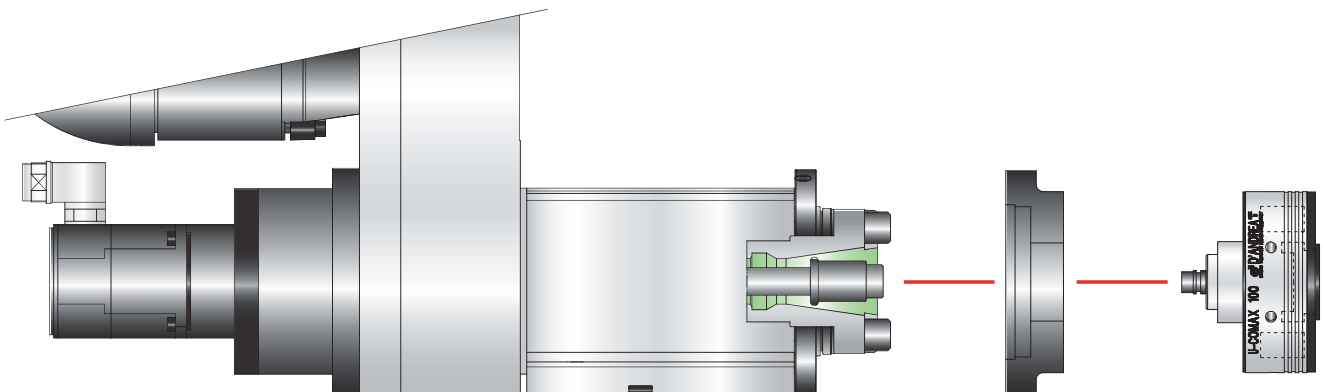
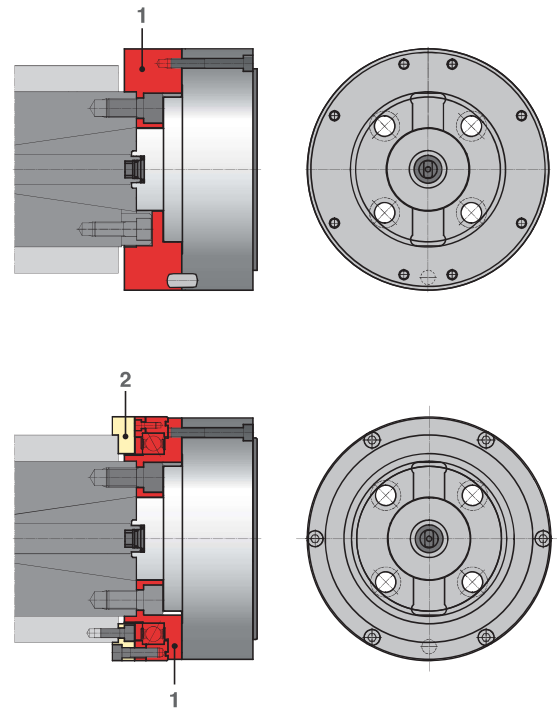
It is designed according to the type of machine on which the U-COMAX is mounted and can be easily built by the customer or supplied by D'ANDREA.

### FLANGE WITH BEARING:

It is a variant of the standard flange that is stiffened with an angular contact bearing: this system acts as an aid in case of particularly heavy machining. This variant is only available for the U-COMAX 160 and 200.

### ASSEMBLY

The adapter flange **(1)** is mounted on the spindle. In the case of the version with bearings, a connecting ring **(2)** will also be required, and then the U COMAX will be fixed to the flange.



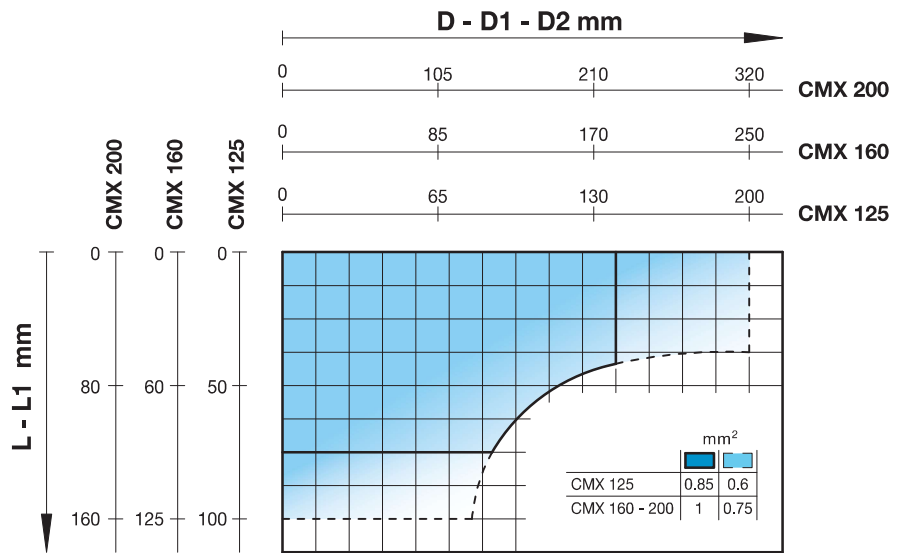
# CHIP REMOVAL CAPACITY

The chip removals are indicative for normal working conditions on steels with hardness 160-200 HB, (average  $K_s = 2000 \text{ N/mm}^2$ ) recommended  $V_t 120/160 \text{ m/min}$ .

The optimal values and working times must be determined with trials.

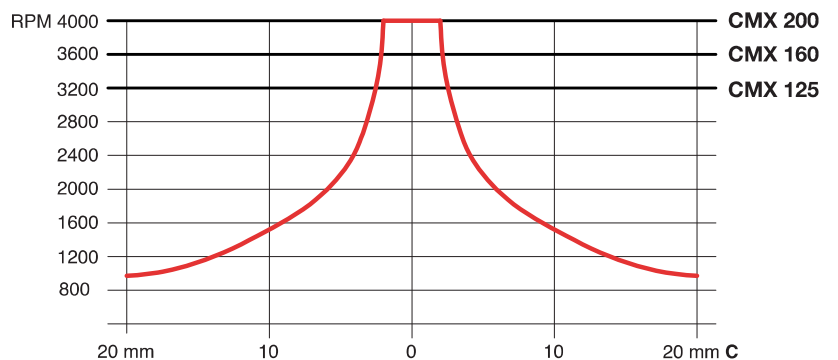


	CMX 125	CMX 160	CMX 200
<b>D</b>	10 ~ 72	20 ~ 81	20 ~ 200
<b>L</b>	75	100	125
<b>D1</b>	72 ~ 122	81 ~ 131	103 ~ 203
<b>L1</b>	100	125	160
<b>D2</b>	122 ~ 200	131 ~ 250	203 ~ 320
<b>L2</b>	25.5	38.5	38.5



For good U-COMAX head operations and to protect it from damages, it is advisable to follow the chart below that indicates the **maximum rpm**, based on the travel of the slide.

## MAX ROTATION SPEED

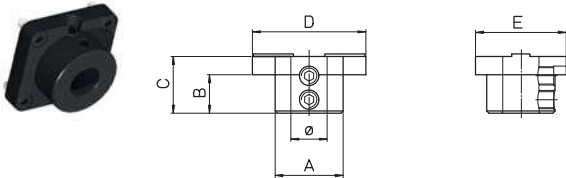




**K02**  
ON REQUEST U-COMAX SPECIALS

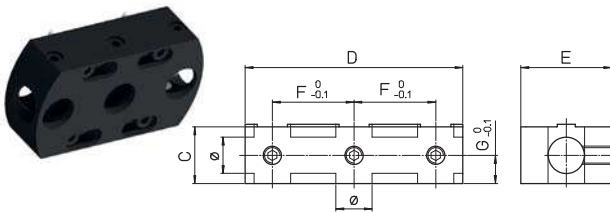
REF.	CODE
K02 CMX 125	500512510001
K02 CMX 160	500516010001
K02 CMX 200	500520010001

**P120**



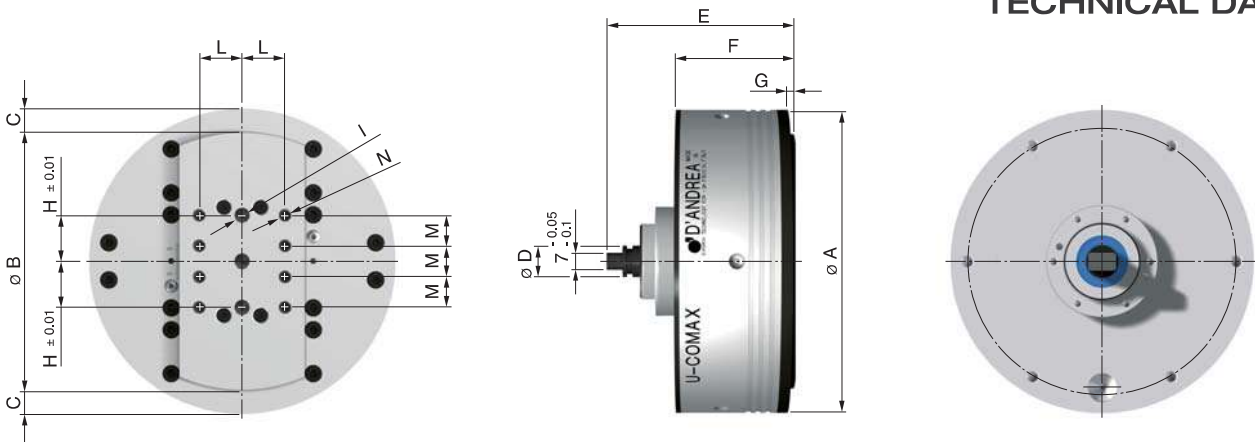
	REF.	CODE	ØH7	A	B	C	D	E	Kg.
CMX 125	P120	431550160261	16	30	16	25	48.5	46	0.2
CMX 160	P120	431550250390	25	47	26	38	61	58	0.55
CMX 200	P120	431550250391	25	56	24	38	76	72	0.9

**P130**



	REF.	CODE	ØH7	C	Ø D	E	F	G	Kg.
CMX 125	P130	433046250810	16	25	81	46	30	10.5	0.45
CMX 160	P130	433058381030	25	38	103	58	35	16.5	0.9
CMX 200	P130	433072381330	25	38	133	72	50	16.5	1.7

### TECHNICAL DATA



TECHNICAL DATA		CMX 125	CMX 160	CMX 200
Ø A	mm	125	160	200
Ø B	mm	105	128	167
C radial traverse	mm	± 12	± 16	± 20
D	mm	13 <sup>-0.01</sup> <sub>-0.02</sub>		15 <sup>-0.01</sup> <sub>-0.02</sub>
E	mm	86.5		109.5
F	mm	52.5	69	68
G	mm	2.5		3.5
H	mm	18.75	24	30
Ø I	mm	6	8	10
L	mm	17.5	22.5	28
M	mm	12.5	16	20
Ø N	mm	M5	M6	M8
Feed	mm/min		1 ÷ 500	
Radial force	daN	150		250
Maximum speed	RPM	3600	3200	2800
Torque	daNm	400		800
Weight without the cone	Kg	3.2	9.8	11.5

# U-COMAX - Synchro

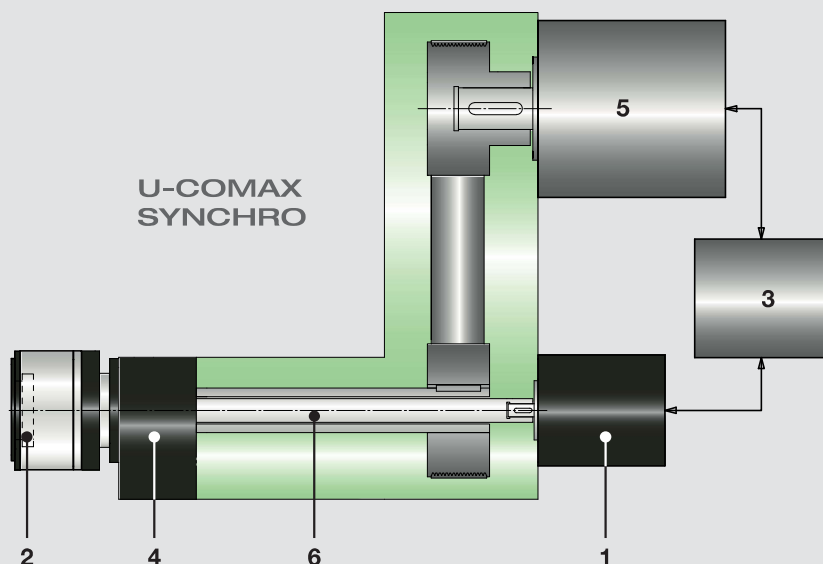
The new patented D'Andrea **Synchro**® System refers to the application of synchronization between the axes on a CN head. The toolholder slide movement is carried out synchronizing the servomotor that allows the machine tool spindle rotation with the servomotor dedicated to the movement of the slide. The synchronization between the axes is managed by the machine tool NC system. This solution allows to increase generally the performances of the head, especially the feedrate of the toolholder slide.

## Synchro®



## APPLICATION OF D'ANDREA SYNCHRO SYSTEM ON U-COMAX HEADS

1. Servomotor
2. Tool slide
3. Machine Tool C.N.C.
4. Machine Tool Spindle
5. Machine Tool Spindle Servomotor
6. Transmission shaft



The schematic figure represents a U-COMAX axial control head, equipped with the **SYNCHRO** D'Andrea system, mounted directly to the spindle unit of the machine tool.

The displacement of the tool-holder slide takes place via the servomotor (1) mounted on the rear of the spindle unit and mechanically connected to the U-COMAX head with a transmission shaft that crosses the spindle of the machine itself.

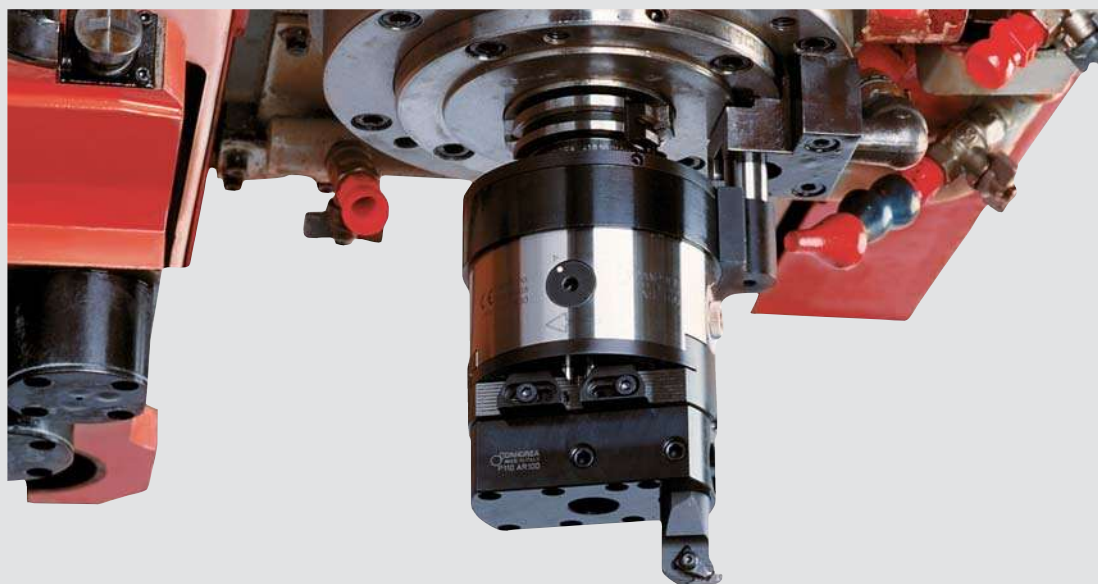
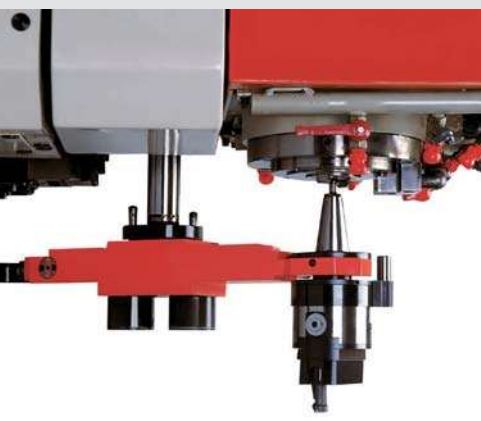
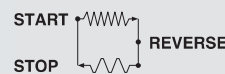
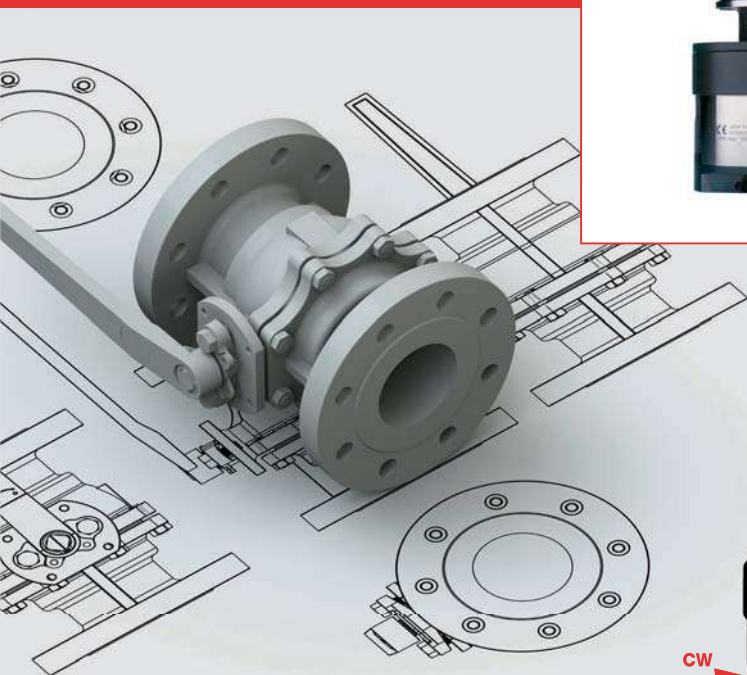
The servomotor (1) by rotating transmits motion to the tool-holder slide located on the rotating body driven by the machine spindle (5); therefore to control the displacement of the slide it is necessary to synchronise the rotation of the servomotor (1) with the spindle motor (5). For the synchronization of the U-COMAX to the machine unit, the transmission shaft (6) must perform the same number of revolutions as the machine spindle (condition with the slide stationary). The difference between the rotation speed of the motor (1) and the spindle motor (5) generates radial movement of the tool-holder slide. The correct synchronisation between two rotating parts is obtained by suitably programming the numerical control of the machine tool.



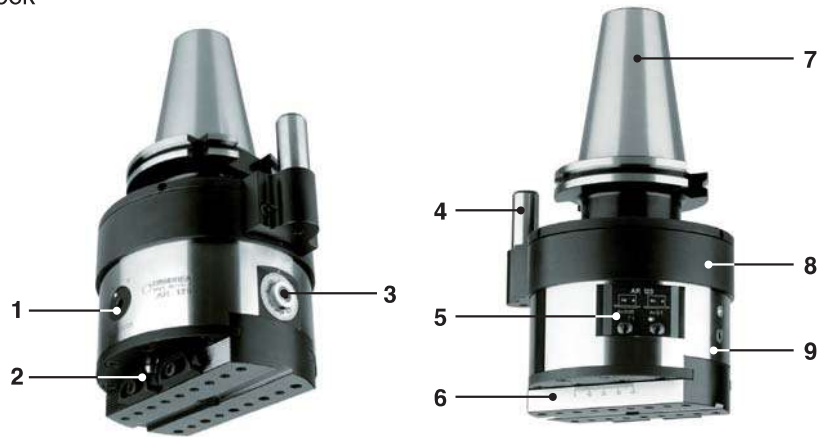
# AUTORADIAL

**AUTORADIAL** automatic facing heads that can be applied on machining centers and on NC machines without the need for an electronic interface or interlock.

They perform a work cycle automatically without ever stopping the rotation of the spindle. They are particularly suitable for machining seats for elastic rings and facing for serration.



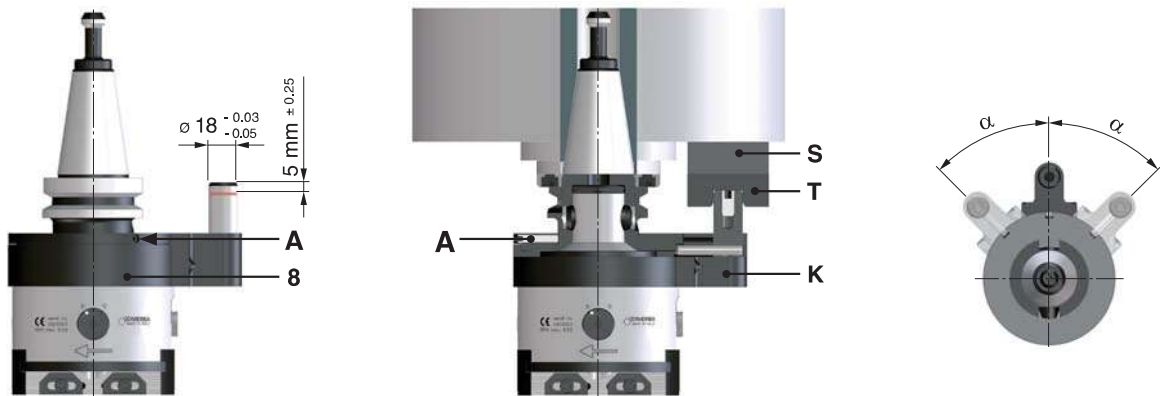
1. Override (A), return (R)
2. Limit blocks
3. Control screw
4. Check pin
5. Interchangeable feed block
6. Tool slide
7. Interchangeable arbor
8. Drive flange
9. Rotating body



## ASSEMBLY

In the AUTORADIAL the slide is moved forward by holding back the drive flange (8) while the spindle is rotating. The T-block supplied with the K-NC KIT (K) is to be applied to a fixed part around the spindle, observing the measurements indicated.

If the stroke of the check pin is not  $5 \text{ mm} \pm 0.25$ , you must adjust the position of the T-block using the spacer S. The angle  $\alpha$  is freely adjustable by loosening the 3 screws (A), turning the flange (8) to the desired angle and tightening the screws (A).



## INSTRUCTIONS TO REPLACE THE FEED BLOCK

- a. Loosen the screw 1
- b. Extract block 5
- c. Insert new block 5 lubricated with ISO-UNI XM2 grease
- d. Lock screw 1



### K02

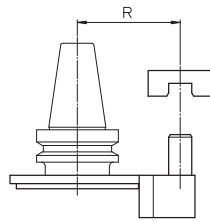
SPECIAL AUTORADIALS ON REQUEST



REF.	Fmm/∅	K02 AR 125 CODE	K02 AR 160 CODE
K02 AR...- F.0.05 ± 0.005	0.05	500612520050	500616020050
K02 AR...- F.0.1 ± 0.005	0.1	500612520100	500616020100
K02 AR...- F.0.2 ± 0.01	0.2	500612520200	500616020200
K02 AR...- F.0.3 ± 0.01	0.3	500612520300	500616020300
K02 AR...- F.0.4 ± 0.02	0.4	500612520400	500616020400
K02 AR...- F.0.5 ± 0.02	0.5	500612520500	500616020500
K02 AR...- F.0.6 ± 0.02	0.6	500612520600	500616020600

### K-NC

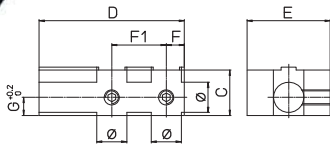
### MHD'



REF.	R.80 CODE	R.110 CODE
K-NC R... - AR 125	394112508002	394112511002
K-NC R... - AR 160	394116008002	394116011003

REF.	MHD'	Complete range of arbors on page 10
AR 125	63	
AR 160	80	

### P110



REF.	CODE	∅H7	C	D	E	F	F1	G	Kg.
AR 125 - P 110	433056381200	25	39	121	56	15	45.5	16	1.3
AR 160 - P 110	433063481600	32	49	164	63	19	63	21	2.5

### INTERCHANGEABLE FEEDS

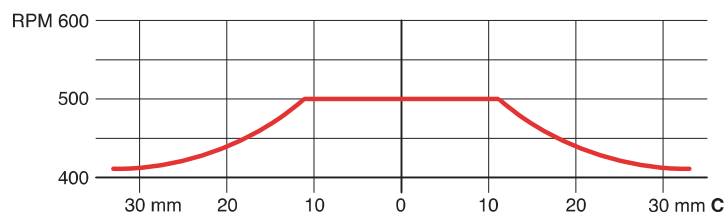
### F ...



REF.	Fmm/∅	K02 AR 125 CODE	K02 AR 160 CODE
F. 0.05-AR... ± 0.005	0.05	382006105001	382006205001
F. 0.1 - AR... ± 0.005	0.1	382006110001	382006210001
F. 0.2 - AR... ± 0.01	0.2	382006120001	382006220001
F. 0.3 - AR... ± 0.01	0.3	382006130001	382006230001
F. 0.4 - AR... ± 0.02	0.4	382006140001	382006240001
F. 0.5 - AR... ± 0.02	0.5	382006150001	382006250001
F. 0.6 - AR... ± 0.02	0.6	382006160001	382006260001

For good AUTORADIAL head operations and to protect it from damages, it is advisable to follow the chart below that indicates the **maximum rpm**, based on the travel of the slide.

### MAX ROTATION SPEED



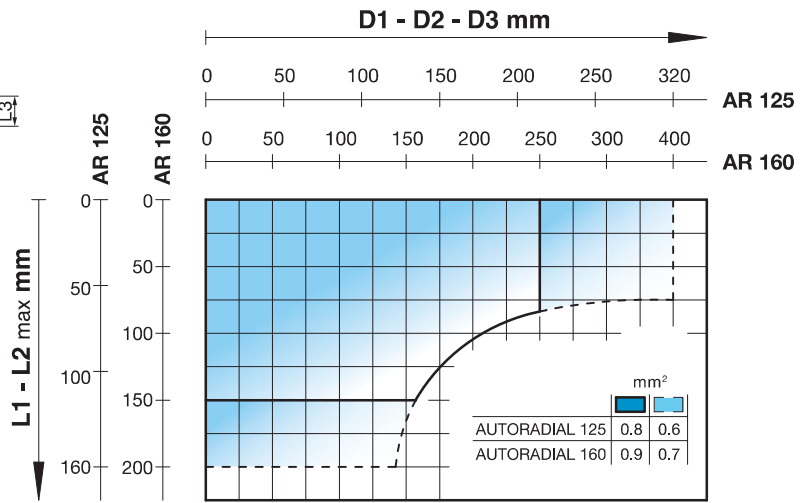
# CHIP REMOVAL CAPACITY

The chip removals are indicative for normal working conditions on steels with hardness 160-200 HB, (average Ks = 2000 N/mm<sup>2</sup>) recommended Vt 120/160 m/min.

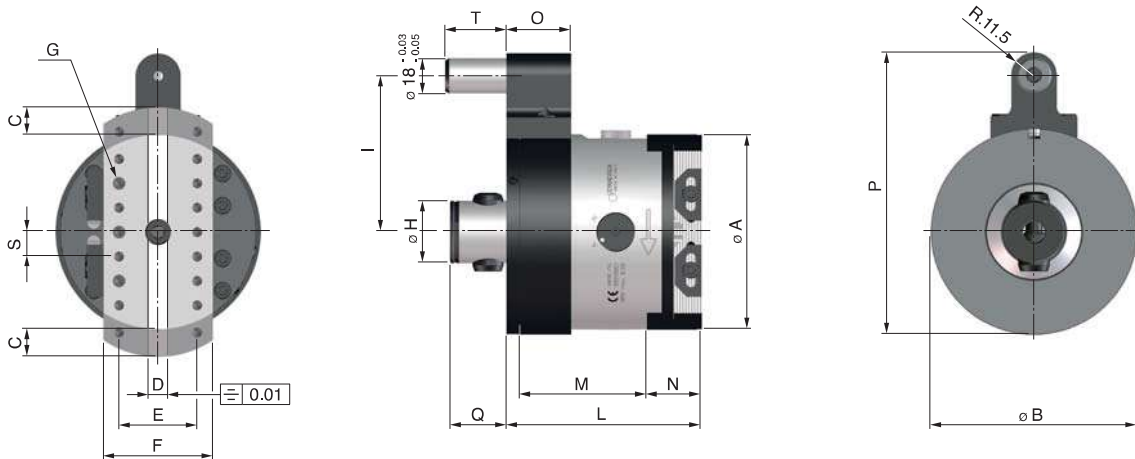
The optimal values and working times must be determined with trials.



	AR 125	AR 160
F	25	32
D1 max	99	144
L1	160	200
D2 max	190	270
L2	160	200
D3 max	320	400
L3	40	50



## TECHNICAL DATA



TECHNICAL DATA		AR 125	AR 160
Ø A	mm	125	160
Ø B	mm	130	130
C radial traverse	mm	± 20	± 35
D	mm	10 <sup>+0.03</sup> <sub>0</sub>	12 <sup>+0.03</sup> <sub>0</sub>
E	mm	40	50
F	mm	63 <sup>-0.003</sup> <sub>-0.007</sub>	80 <sup>-0.003</sup> <sub>-0.007</sub>
G	mm	M5	M6
Ø H	mm	(MHD'63) 42 <sup>-0.005</sup> <sub>-0.008</sub>	(MHD'63) 42 <sup>-0.005</sup> <sub>-0.008</sub>
I	mm	80/110	80/110
L	mm	110	125
M	mm	75	83
N	mm	28	35
O	mm	35	35
P	mm	156.5 / 186.5	171.5 / 201.5
Q	mm	38.5	44.5
S	mm	12.5	15
T	mm	39.5	45.5
Interchangeable feeds	mm/°	pag. 140	pag. 140
Maximum speed	RPM	500	400
Weight without the cone	Kg	9	14
Quick return	mm/°	0.8	0.8