

# TANGI-FLOW<sub>PRODUCTS LTD</sub>

Precision made tooling for engineers  
with high standards



Rollerboxes  
Broaching Heads  
CNC Tool Holders  
Spares

TANGI-FLOW TOOLING TRUSTED BY ENGINEERS WORLDWIDE

Tangi-Flow Products Ltd	2
Floating Reamer Holder	3
ER Cylindrical Collet Chuck with Standard Nuts	3
Roller Boxes - AR/00M & AR/T0	4
Roller Boxes - AR/T9 & insert options	5
Roller Boxes - AR/T5 & AR/T6	6
Broaching Heads - 265, 275 & 295	7
Broaching Heads - 1500 & 1600	8

#### **Health & Safety at Work Act 1974**

As manufacturers and suppliers of products containing hardmetal, we wish to remind you that, in compliance with Section 6 of the Health & Safety at Work Act 1974, certain precautions should be taken with our products. We take every care to ensure that, as far as is reasonably practicable, our products are safe and without risk to health when properly used. Nevertheless, appropriate health and safety precautions must be observed, and in particular you should have special regard to the following points.

Hardmetal is a reasonably inert and safe material, but precautions are necessary in handling it because of its inherently brittle nature. It can be fractured by shock or impact, which may cause pieces to be detached at high velocity. Tools and components containing hard metal should not be hammered or fitted with undue force, and when such operations must be carried out, suitable eye protection should be used by the workers. Such eye protection should also be used whenever there is any danger of breakage of tools or components during normal usage.

Your attention is drawn to Statutory Instruments 1975, No. 1681 (Factories – The Protection of Eyes, Regulations 1974) and especially to Clause 5 and to Schedule 1, Part IV, Paragraph 31.

The grinding of hard metal must also be carried out under conditions that ensure that the operator is not exposed to an extent which would be deleterious to health. Most grades of hard metal is 0.1mg/m<sup>3</sup> (see H.S.E. Guidance Note FR “Threshold Limit Values”). Wet grinding is strongly recommended and conventional precautions related to the operation of safe grinding should be strictly observed.

Attention to these details in grinding will not only minimise the personal hazards which may arise, but will also result in benefits from the optimum performance of the hard metal. Hardmetal is frequently brazed with silver solder. When it is brazed or debrazed, fumes of cadmium oxide (ceiling value, 0.05mg/m<sup>3</sup> of cadmium) and zinc oxide (threshold limit value, 5mg/m<sup>3</sup>), and other substances may be given off from the brazing materials and suitable precautions must be taken to prevent inhalation of these fumes.

You are advised to consult The Health & Safety Executive regarding future amendments to the ceiling value and threshold limit values given above.

Founded in 1946, Tangi-Flow Products Limited is a precision engineering company based in Coventry, UK. Thomas Ivor Brock introduced the world famous auto-retract roller box to the manufacturing sector and over 60 years later, this roller box is still used by thousands of different manufacturing companies worldwide.



In 2009, the introduction of a new and modern production strategy, enabled Tangi-Flow to confirm its position as the leading UK manufacturer and supplier of the auto-retract roller box and the associated tips, broaching heads and broach cutting bits.



Today, Tangi-Flow tooling is a world-renowned brand. You are guaranteed original quality tooling solutions when you buy Tangi-Flow Products.

Floating Reamer Holder

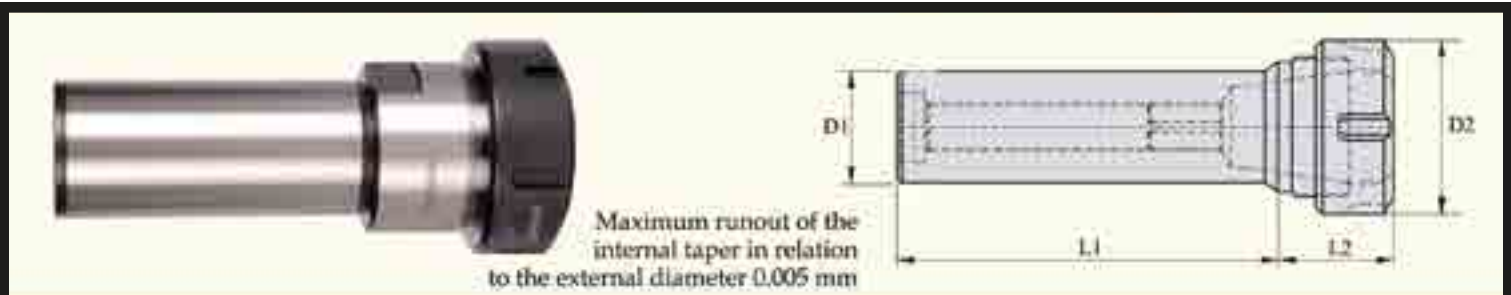


Features

- A Short length Floating Reamer Holder with radial parallel float of 1.0mm.
- Solves almost all Reaming problems such as; over-size cutting; bell-mouth; surface finish.
- ER 25 Collect Chuck Capacity 2.0 - 16.0mm

FRH ER25 A x 25.40	5/8 x 6
FRH ER25 A x 44.45	1 x 6

ER Cylindrical Collet Chuck with Standard Nuts

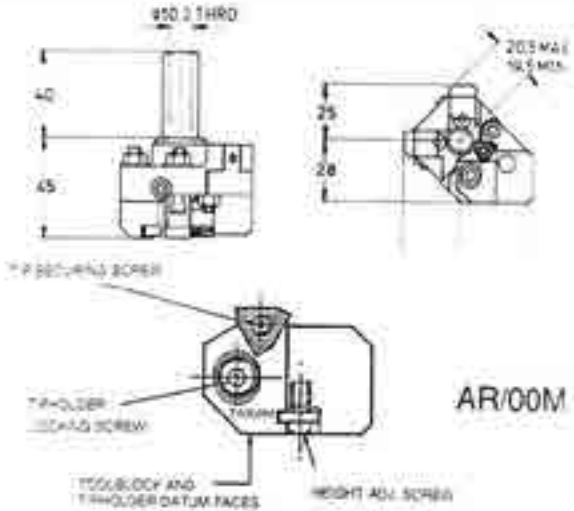


Machine	Part No	D1	L1	L2	D2	Collet
5/8 x 6	TF.16.25.4	25.40	50	30	28	ER16
1 x 6	TF.32.44.45	44.45	60	40	50	ER32
1.3/8, 1.3/4, 2.1/4	TF.32.50.80	50.80	60	40	63	ER32
1.3/8, 1.3/4, 2.1/4	TF.40.50.80	50.80	60	50	63	ER40

Max Runout 0.005mm

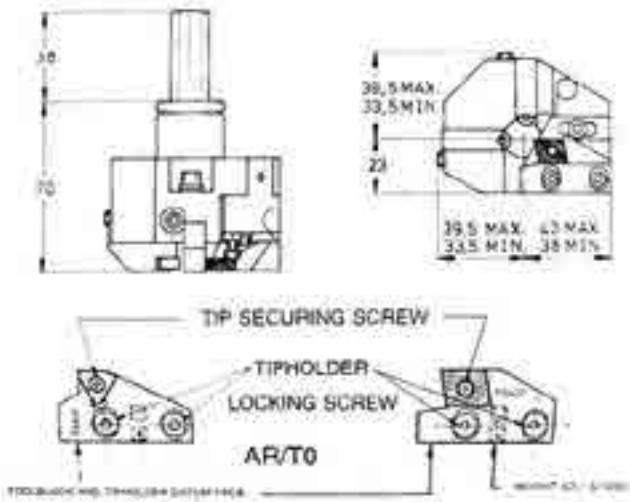


AR/00M Roller Box



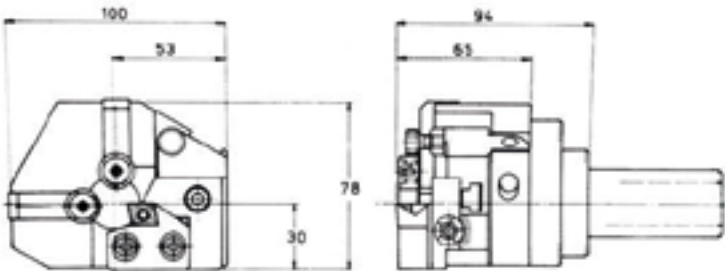
Capacity	Shank Dia Ø	Insert no.	Tip holder	Insert Screw	Pin	Roller	Carrier	Tool Block
1.5mm-10mm 1/16"-3/8"	16mm 20mm 25mm 5/8" 3/4" 1"	TA525 (available in CB & POS)	TA300M	EAS255	28P	131R	154L 154R	TA312M

AR/T0 Roller Box



Capacity	Shank Dia Ø	Insert no.	Tip holder	Insert Screw	Pin	Roller	Carrier	Tool Block
3mm-14.5mm 1/8" - 9/16"	16mm 20mm 25mm 5/8" 3/4" 1"	TA525 TA3504 (available in CB & POS)	TA400M TA455	TA5255 TA5005	130P	130R	4001	TA4002

AR/T9 Roller Box



All roller boxes available in various size shanks including V D I special adaptors made to suit customers requirements

Capacity	Shank Dia Ø	Insert no.	Tip holder	Insert Screw	Pin	Roller	Carrier	Tool Block
5mm-25mm	16mm 20mm 22mm	TA525	TA550	TA5005	130P	130R	1106	TA1104
	25mm 32mm 40mm	TA5304						
	50mm	(available in CB & POS)						
	5/8" 3/4" 1" 1.1/4"	 	TA555			130AR		
	1.1/2" 1.3/4" 2"							



**Chipstream Insert:** Takes the minimum power requirement. Ideal for use where the turned length is such that the coils of swarf produced do not constitute a problem or health hazard to the operator.



**Chipbreaker Insert:** Requires slightly more power, but breaks the swarf up into short lengths over a wide range of speeds and feed for most materials.




**POS. Insert:** The plain rake face with chip deflector is often more effective on very small depths of cut, especially on awkward materials such as wrought iron.

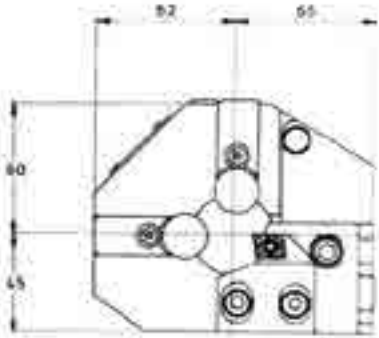
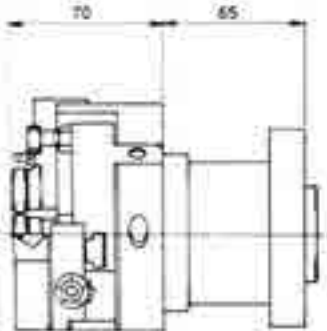
**Alternative Radii:** Available on inserts ex stock or to order. Price and delivery on application

**The new TF+ Insert:** Carbide specially formulated to machine exotic materials such as inconel.

AR/T5 Roller Box



AR/T5



Capacity  
6mm-35mm  
15/64" - 1.1/4"

Shank Dia  $\phi$   
Available on request

Insert no.  
TA3504  
TA3510  
(available in CB & POS)

Tip holder  
TA556  
TA557


Insert Screw  
TA5005

Roller Assembly  
128  
(pair)


Carrier  
5005

Tool Block  
TA5003

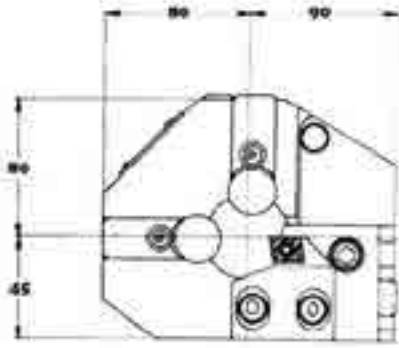
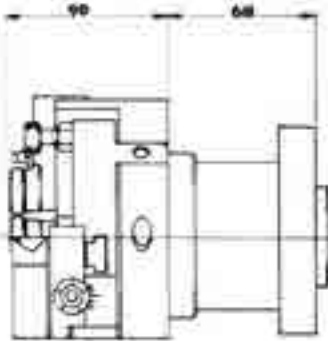
Micro adjusting  
Screw



AR/T6 Roller Box



AR/T6



Capacity  
10mm-51mm  
3/8" - 2"

Shank Dia  $\phi$   
Available on request

Insert no.  
TA3504  
TA3510  
(available in CB & POS)

Tip holder  
TA599  
TA500


Insert Screw  
TA5005

Roller Assembly  
129  
(pair)

Carrier  
5007

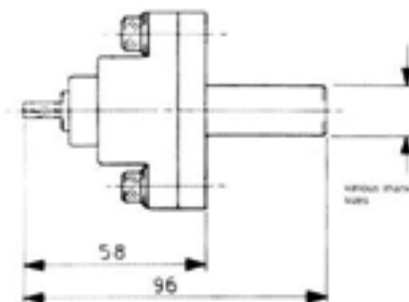
Tool Block  
TA6005

Micro adjusting  
Screw





## Broaching Head 265



A broaching head designed primarily to produce hexagonal holes without stopping the spindle.  
This is the smallest of the range designed to suit the smaller auto or CNC lathe.

Diameter broach shank: 8mm / 5/16"

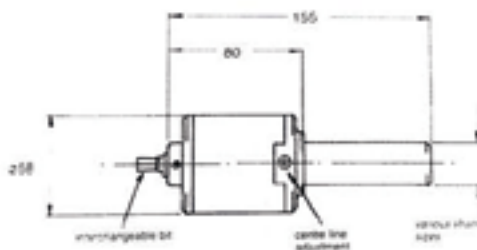
**Capacity**  
1.5mm-6mm  
0.050"-1/4"

**Shank Dia Ø**  
16mm  
5/8"

**Bearing Repair Kit**  
265K



## Broaching Head 275



This head is designed primarily for producing hexagonal holes. A micro screw is provided to set the cutting bit on the machine centre line. The inner shaft is mounted on sealed ball races for precision and long life.

Diameter broach shank: 8mm / 5/16"

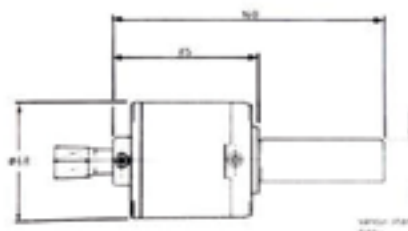
**Capacity**  
2mm-10mm  
5/64"-3/8"

**Shank Dia Ø**  
16mm 20mm 22mm 25mm 32mm 40mm 50mm  
5/8" 3/4" 1" 1 1/4" 1 1/2" 1 3/4" 2"  
2MT  
3MT

**Bearing Repair Kit**  
275K



## Broaching Head 295 (12mm Shank) 295I (1/2" Shank)



A larger version of code 275 but with increased capacity. All technical features remain the same.

Diameter broach shank: 12mm / 1/2" Dia

**Capacity**  
6mm-19mm  
1/4"- 3/4"

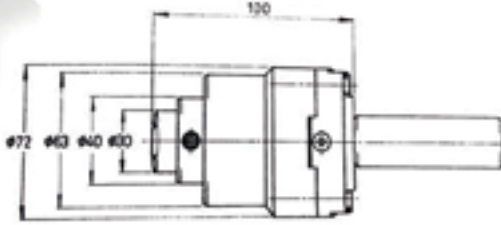

**Shank Dia Ø**  
16mm 20mm 22mm 25mm 32mm 40mm 50mm  
5/8" 3/4" 1" 1 1/4" 1 1/2" 1 3/4" 2"  
2MT  
3MT

**Bearing Repair Kit**  
295K





Broaching Head 1500




The external broaching head has been developed to produce hexagon and square forms and turned parts during the turning cycle on multispindle automatic lathes, swiss lathes (citizen style) and machining centres.

To produce a form, pre-turn a diameter to the across corner dimension, keep spindle rotating, index to tool station with external broaching head, advance tool, the cutting bit will start to revolve when picked up and driven by the turned part, advance to depth and retract.


The external broaching head compliments the internal head and is available with various shank diameters including V D I.

Capacity	Shank Dia Ø	Bearing Repair Kit
3mm-16mm	20mm 25mm 32mm	1500K
1/8" - 5/8" A/F HEX	3/4" 1" 1 1/4"	




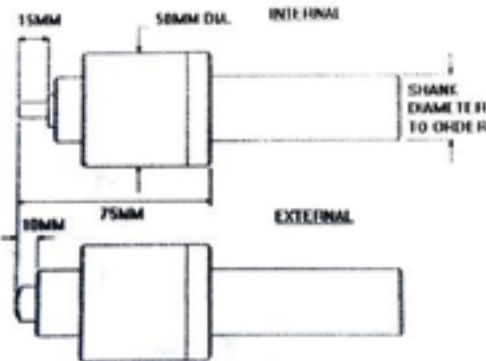
Broaching Head 1600

Internal



External





This universal model offers the versatility of being both an internal and external head, easily converted from one to the other with the exchange of operating shafts codes 1602 and 1612.

Various shank sizes available:  
Metric 16-20-25  
Imperial 5/8" - 3/4" - 1".

Capacity	Shank Dia Ø
Internal - 1.5mm-10mm	20mm 25mm 32mm
External - 2mm-14mm A/F HEX	3/4" 1" 1 1/4"

Order Code	Nominal A/F Size	To S Cut A/F Size	D (Metric)	Pre-Drill Hole
Hex x 1.035				
<b>8mm Shank</b>				
<u>Metric</u>				
283-1.5	1.5	1.56 / 1.61	2.00 / 3.10	1.55
283-2	2	2.06 / 2.11	3.00 / 4.00	2.07
283-2.5	2.5	2.56 / 2.61	3.80 / 4.80	2.60
283-3	3	3.06 / 3.11	4.50 / 5.50	3.10
283-4	4	4.09 / 4.15	6.00 / 7.00	4.20
283-5	5	5.09 / 5.15	7.50 / 8.50	5.20
283-6	6	6.09 / 6.15	9.00 / 10.00	6.20
283-7	7	7.09 / 7.15	10.50 / 11.00	7.20
283-8	8	8.12 / 8.19	12.00 / 13.00	8.30
283-10	10	10.04 / 10.19	15.50 / 16.50	10.30
283-12	12	12.05 / 12.23	18.50 / 19.50	12.40
<u>Imperial</u>				
284 - 0.050"	0.050"	0.0510 / 0.0520	3.00 / 4.00	1.30
284 - 5/64	5/64	0.0783 / 0.0790	3.00 / 4.00	2.00
284 - 3/32	3/32	0.0940 / 0.0950	3.80 / 4.80	2.50
284 - 1/8	1/8	0.1258 / 0.1268	4.80 / 5.80	3.20
284 - 5/32	5/32	0.1572 / 0.1586	6.00 / 7.00	4.10
284 - 3/16	3/16	0.1885 / 0.1898	7.20 / 8.20	4.90
284 - 7/32	7/32	0.2197 / 0.2213	8.30 / 9.30	5.70
284 - 1/4	1/4	0.2512 / 0.2526	9.50 / 10.50	6.60
284 - 9/32	9/32	0.2822 / 0.2836	10.70 / 11.70	7.40
284 - 5/16	5/16	0.3125 / 0.3160	12.00 / 13.00	8.20
284 - 3/8	3/8	0.3750 / 0.3790	15.00 / 16.00	9.80
284 - 1/2	1/2	0.5000 / 0.5050	19.50 / 20.50	13.10
<b>12mm Shank</b>				
<u>Metric</u>				
296-6	6	6.09 / 6.15	9.00 / 10.00	6.20
296-8	8	8.12 / 8.19	12.50 / 13.50	8.30
296-10	10	10.04 / 10.19	15.50 / 16.50	10.30
296-12	12	12.05 / 12.23	18.50 / 19.50	12.40
296-14	14	14.05 / 14.23	21.50 / 22.50	14.40
296-17	17	17.05 / 17.23	21.50 / 22.50	17.60
296-19	19	19.07 / 19.27	21.50 / 22.50	19.60
<u>Imperial</u>				
297- 5/16	5/16	0.3125 / 0.3160	12.50 / 13.50	8.20
297 - 3/8	3/8	0.3750 / 0.3790	15.00 / 16.00	9.80
297- 1/2	1/2	0.5000 / 0.5050	19.50 / 20.50	13.10
297 - 9/16	9/16	0.5625 / 0.5680	22.00 / 23.00	14.80
297 - 5/8	5/8	0.6250 / 0.6310	22.00 / 23.00	16.40
297 - 3/4	3/4	0.7500 / 0.7570	22.00 / 23.00	19.70

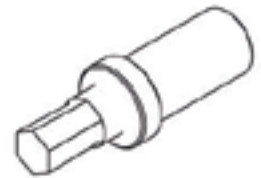
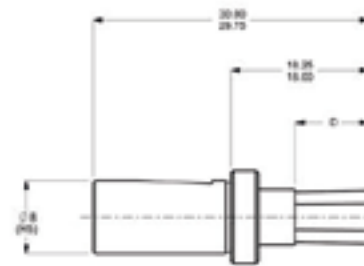
Special sizes made to order

Tangi-Flow broaching heads are primarily designed for producing hexagonal / square holes during the turning cycle of Capstans, Autos and CNC lathes.

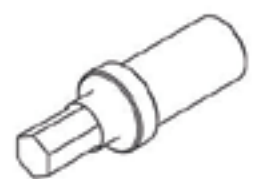
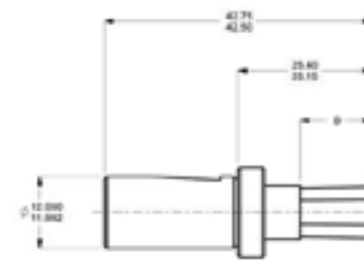
#### Operating Instructions:

- 1) Ensure the cutting bit is on centreline of machine at cutting point. This is adjustable.
- 2) Centre or cone to at least across corner dimension 60 or 90 degrees.
- 3) Pre-drill hole to a maximum depth of 1 ½ times drill
- 4) At a similar spindle speed and feed to that of drilling the hole, advance the broaching head and feed to depth – fast feed on return – do not rapid. Hexagon or square has now been formed.
- 5) Spindle speed does not affect method as much as feed rate (advance and rev of cutting tool bit) this due to several factors which include, age of machine, ability of power available to feed, possibility of component or bar stock "pushing back" through collet arrangement.

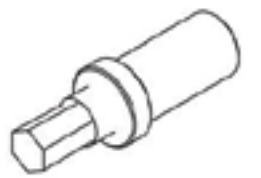
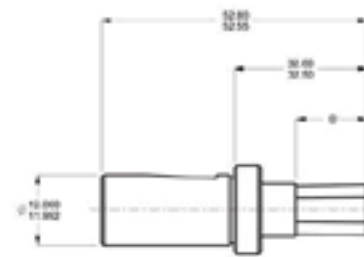
2803344



2960287  
Metric 12mm HEX  
5/16" - 5/8" HEX



2960287  
Metric 12mm HEX  
5/16" - 5/8" HEX





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