

Thread production on machining centers with constant speed tapping



CNC-Attachments

CST Constant Speed Tapping relies on a compact tapping attachment to provide tap reversal. The machine spindle runs in one direction at the exact programmed speed and reversal occurs within the tapping attachment instantaneously upon machine retraction. This avoids the inevitable RPM fluctuations which occur with reversal of the machine spindle. Benefits include the following...

Reduced Cycle Time

By eliminating the machine spindles need to decelerate, stop, reverse and reaccelerate twice for each tapped hole the tapping time is dramatically reduced.

Longer Tap Life, Improved Thread Quality

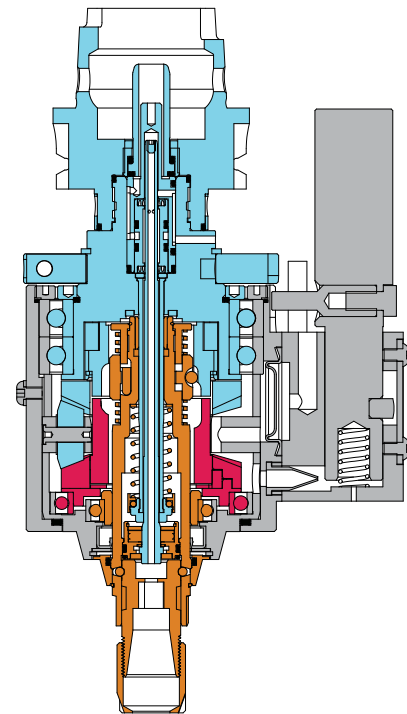
Constant speed tapping means that the tap is allowed to cut at the optimum speed continuously without deceleration at the bottom of the hole. The result is the longest tap life and improved thread quality.

Reduced Machine Spindle Wear

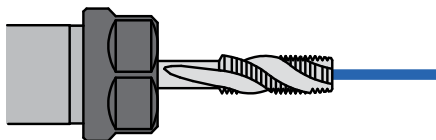
Tapping is the only operation requiring machine reversal. Using a Constant Speed Tapping Head eliminates this strain on the machine.

Reduced Energy Costs of up to 75 %

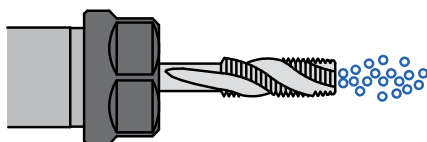
CST attachments reduce the energy costs required by machine spindle reversal by 75 %.



Two Through the Spindle Lubrication Options...



Standard balanced high pressure coolant through the spindle.



Minimum Quantity Lubrication, available on request.

Patented Design

TAPMATIC tapping attachments include a patented reversing ball drive. The ball drive allows for an exact and immediate change over into reverse once the desired thread depth is reached.

Advantages of tapping attachments with automatic reversal

General Information

Thread cutting is the only machining operation which requires a change of direction for the retraction of the tool. Reversing the spindle causes wear and is a costly procedure for any machine.

RCT and RDT tapping attachments

These reversing tapping attachments are specially designed for fast thread production on CNC machining centers. They eliminate reversal related machine wear and tear and reduce energy consumption. The patented ball drive with integrated planet gear for automatic reversal creates an almost constant cutting speed and eliminates the need to stop and reverse the machine spindle twice per tapped hole.

By using the RDT and RCT tapping attachments the cycle time is reduced and the life of the tap is increased. The IC-version allows coolant to flow directly through the tapping head.

Case history:

Original Application

Thread cutting on a horizontal machining center Fritz Werner TC800 with internal coolant.

Material

GG20

Tap

M6 standard thread HSS with TIN-AL coating

Thread

M6 standard thread, 9 mm deep, tapping drill \varnothing 5.05 and 12.5 mm deep

Speed with machine reversal

Rigid tapping with spindle reversal, programmed speed 1,200 RPM

Original Results

Cycle time of 6 min 34 sec for 68 threads

Change with TAPMATIC

Using a TAPMATIC tapping attachment RDT-IC50 with ER16 spindle, programmed speed 1,800 RPM.

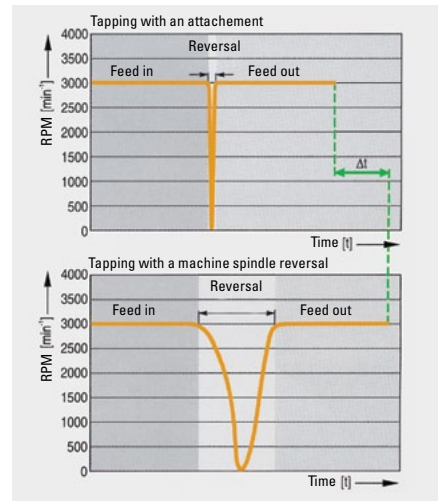
Improvement

Cycle time reduced to 3 min 22 sec for 68 threads, tap life tripled.

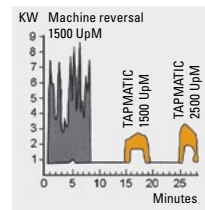
Advantage

Besides reducing the cycle time, tap life was considerably increased.

Constant speed tapping – the secret of longer tap life



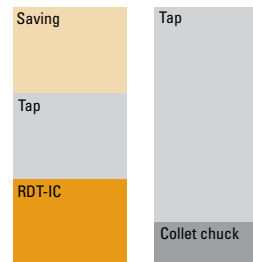
Power consumption for 144 threads M8



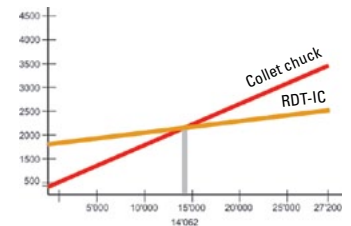
Energy cost saving of 75 %

Not only is the shorter cycle time of importance, but also the constant spindle direction. By changing the direction (decelerating and accelerating) of the spindle, higher spikes of power are needed, which can be prevented by constant spindle rotation.

Total cost/year



Break Even Point



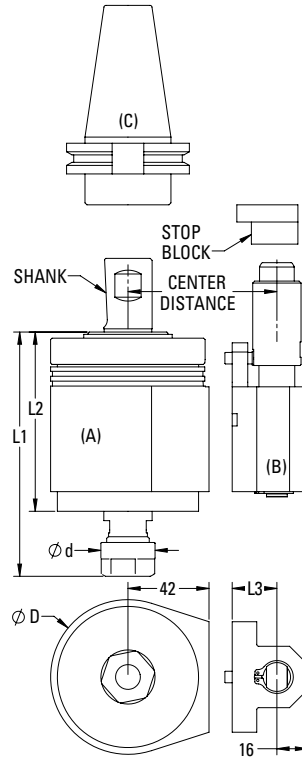
Results

- reduction of cycle time by 50 %
- increase of production capacity
- tap life tripled
- less machine wear (no spindle reversals)
- roughly 75% energy savings by constant speed tapping

Conclusion

With the use of Tapmatic constant speed tapping, the cycle time is less, which increases productivity. Additionally, machine repair / downtime and energy costs are reduced and tap life is dramatically improved.

High speed tapping attachments with modular straight shank, without internal coolant system



Features and Advantages

- high speed self-reversing tapping for fastest cycle time for tap capacity up to M6
- rugged design for years of production, with little maintenance
- simple installation and programming

How to Order

Please select the Tapping attachment (A), stop arm (B) and CAT, SK, or BT shank (C), to fit your machine. Accessories like steel collets, sealing gaskets and stop blocks are not included. Please order these separately.

Tapmatic can provide a complete tool ready to fit your machine. Please simply provide the information shown on installation page 23, fill in the form on the back cover or contact us directly.

CNC-Attachments

(A) Tapping Attachment RDT Cylindrical Shank



Model	Capacity (steel)	Collets	Shank	Order code	L1	L2	Weight kg	D	d	Max. RPM
RDT25	M2-M6 #4-1/4"	ER11	25 mm	39252511	106	79	1.7	57	19	4000
			1"	39251111						

Notes: When using Roll Form Taps the tool's capacity must be reduced 25%. All dimensions are shown in mm. 25.4mm = 1"

(B) Stop Arm Assembly



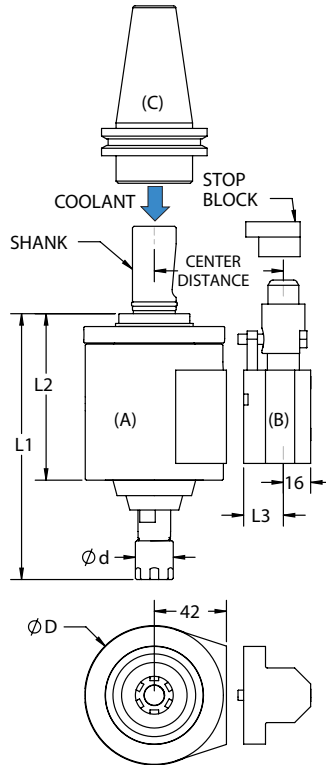
Center Distance (42+L3)	Order code RDT25	L3
55	3925551	13
65	3925651	23
80	3925801	38



Stop Block
Page 23



High speed tapping attachments with modular straight shank and internal coolant system or without internal coolant



Features and Advantages

- high speed self-reversing tapping for fastest cycle time
- rugged design for years of production, with little maintenance
- high pressure internal coolant system, 50 Bar
- simple installation and programming

How to Order

Please select the Tapping attachment (A) and stop arm (B) and CAT, SK or BT shank (C) to fit your machine. Accessories like steel collets, sealing gaskets and stop blocks are not included. Please order these separately.

Tapmatic can provide a complete tool ready to fit your machine. Please simply provide the information shown on installation page 23, fill in the form on the back cover or contact us directly.

(A) Tapping Attachment RCT Cylindrical Shank with Internal Coolant (IC)



Model	Capacity (steel)	Collets	Shank	Order code	L1	L2	Weight kg	D	d	Max. RPM
RCT50	M4.5-M12 #10-1/2"	ER16	25 mm	05502516	155	97	3.0	80	22	2500
			1"	0550116						
		ER20	25 mm	05502520	167	97	3.0	80	28	2300
			1"	0550120						

(A) Tapping Attachment RCT Cylindrical Shank without Internal Coolant

Model	Capacity (steel)	Collets	Shank	Order code	L1	L2	Weight kg	D	d	Max. RPM
RCT50	M4.5-M12 #10-1/2"	ER16	25 mm	04502516	152	97	3.0	80	22	2500
			1"	0450116						
		ER20	25 mm	04502520	162	97	3.0	80	28	2300
			1"	0450120	162	97				

Notes: When using Roll Form Taps the tool's capacity must be reduced 25%. All dimensions are shown in mm. 25.4mm = 1". Larger capacity tapping attachments up to M27, and extended length versions for difficult to reach holes, are also available on request.

(B) Stop Arm Assembly



Center Distance (42+L3)	Order code RCT50	L3
55	0550551	13
65	0550651	23
80	0550801	38



Stop Block
Page 23

(C)



Interchangeable Steep Taper



Steel Collets

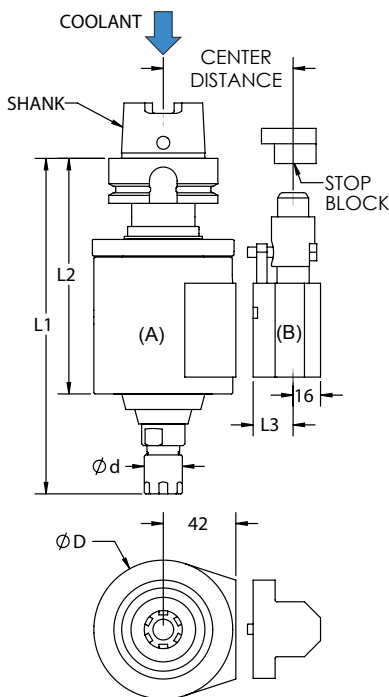


Sealing Gaskets



Installation

High speed tapping attachments with integral HSK shank and internal coolant system



Features and Advantages

- high speed self-reversing tapping for fastest cycle time
- rugged design for years of production, with little maintenance
- high pressure internal coolant system, 50 Bar
- simple installation and programming

How to Order

Please select the Tapping attachment (A) and stop arm (B) to fit your machine. Accessories like steel collets, sealing gaskets and stop blocks are not included. Please order these separately.

Tapmatic can provide a complete tool ready to fit your machine. Please simply provide the information shown on installation page 23, fill in the form on the back cover or contact us directly.

CNC-Attachments

(A) Tapping Attachment RCT HSK with Internal Coolant (IC)



Model	Capacity (steel)	Collets	Shank	Order code	L1	L2	Weight kg	D	d	Max. RPM
RCT50	M4.5–M12 #10–1/2"	ER16	HSK63A	0550H63161	194	136	3.5	80	22	2500
			HSK80A	0550H80161	199	141	3.9			
			HSK100A	0550H100161	201	143	4.8			
ER20			HSK63A	0550H63201	206	136	3.5	80	28	2300
			HSK80A	0550H80201	211	141	3.9			
			HSK100A	0550H100201	213	143	4.8			

Notes: These internal coolant tools come standard with sealing nuts. These models are also available without internal coolant upon request. When using Roll Form Taps the tool's capacity must be reduced 25%. All dimensions are shown in mm. 25.4mm = 1"

Larger capacity tapping attachments up to M27, and extended length versions for difficult to reach holes, are also available on request.

(B) Stop Arm Assembly

Center Distance (42+L3)	Order code RCT50	L3
55	0550551	13
65	0550651	23
80	0550801	38



Stop Block
Page 23



Steel Collets



Sealing Gaskets



Installation



Tapmatic can supply a tapping attachment ready to fit your machining center

RDT and RCT tapping attachments eliminate the need for the machine spindle to reverse by automatically reversing the taps rotation when the machine retracts. For the automatic reversal to function a stop arm is needed to prevent the housing of the tapping attachment from rotating. Our stop arm locking mechanism allows the tool to easily make automatic tool changes.

Tapmatic maintains a large data base of machining center installations

Please simply let us know the machine manufacturer, make and model and we may already have the installation information available to provide a tool ready to run on your machine.

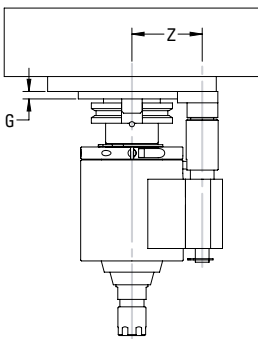
My machine already has a stop block

If your machine already has an anti-rotation stop block installed, please let us know the dimensions shown in the drawing below. We can prepare a tool to go with your existing stop block.

My machine does not have a stop block

If your machine does not have a stop block already installed, we would be pleased to prepare one for you. Please simply fill in the form on the inside back cover or download it from our website under "Customer Service", and forward us the information. We will be pleased to submit an offer to you.

Preferred Installation



Gage Line to Mounting Surface

G =

Center Distance

(commonly 55, 65, or 80)

Z =

Diameter of Bore or Width of Slot in Stop Block

D =

Depth of Bore or Slot in Stop Block

E =

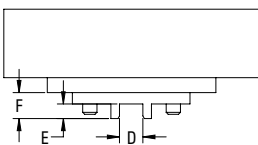
Total Height of Stop Block

F =

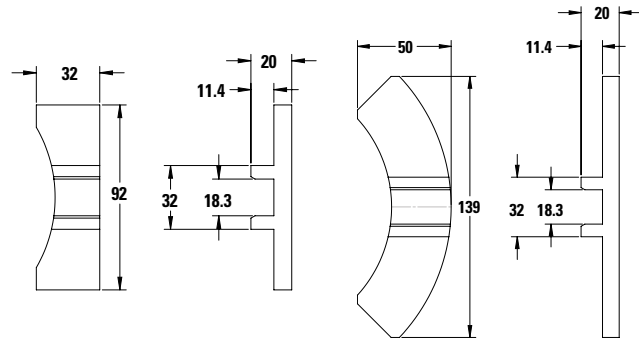
Machine Spindle Taper (SK, BT, CAT, HSK...)

Shank =

Machine Manufacturer and Model =



Standard stop blocks are available if you would like to design your own installation. These blank stop blocks can be modified to fit the bolt pattern of your machine.



Order code.
36007 Standard Block

Order code
36010 Standard Block