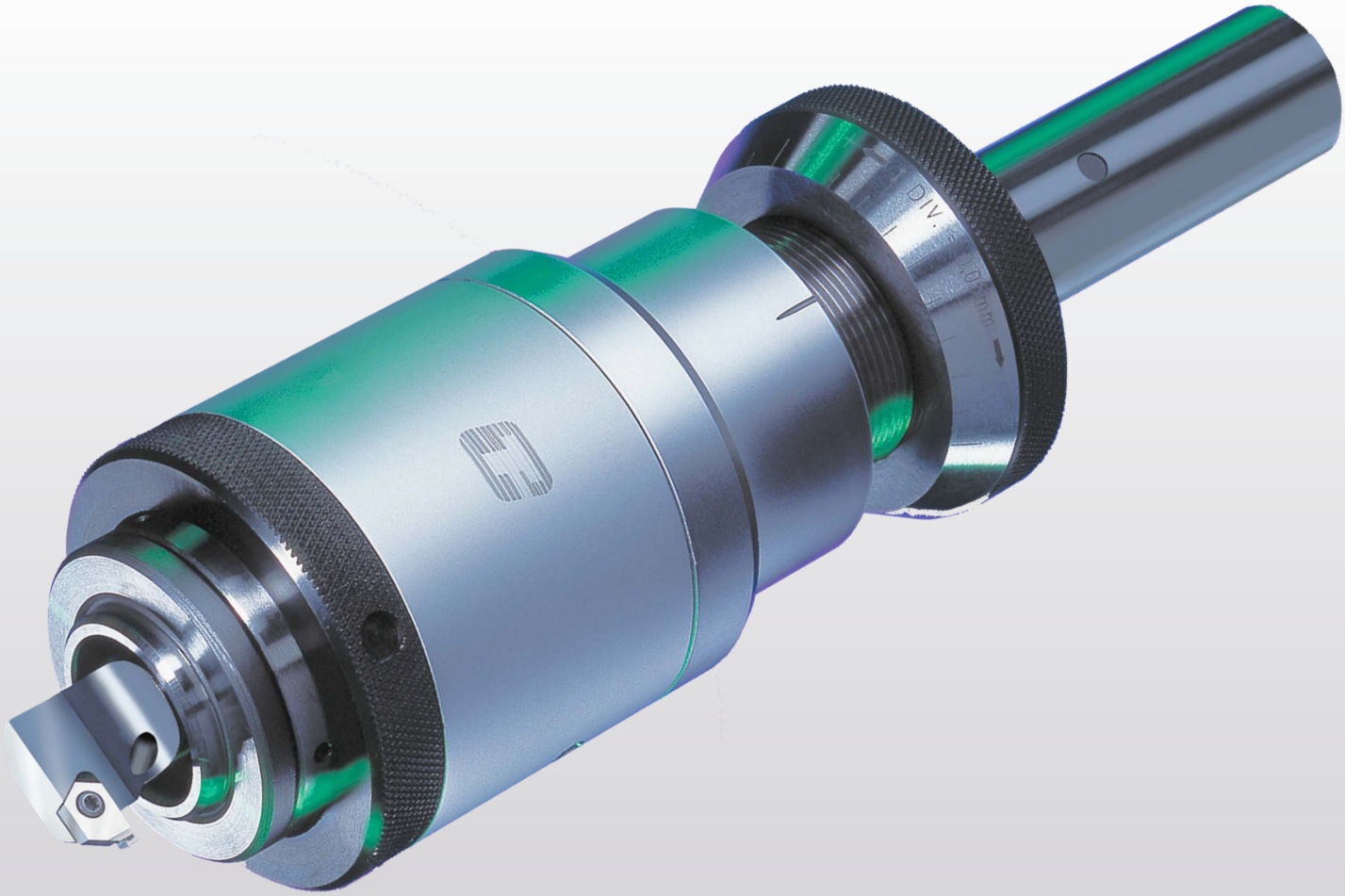
Cogsdill

Automatic Recessing



www.cogsdill.co.uk

Recessing

Overview

Cogsdill offers the most accurate standard tooling and the broadest range of solutions for precision grooving, recessing, and internal and external facing and chamfering.

We will design and manufacture a complete tooling package for your application, including Automatic Recessing heads, cutters and pilots. The standard recessing heads described in this catalogue are available from stock to suit most applications and machines. Special recessing heads can be designed and manufactured for unusual applications.

GREATER ACCURACY, SHORTER CYCLE TIME, LOWER COST

Cogsdill Automatic Recessing Tools will save you time and money. Cycle time is reduced from minutes or hours to ***seconds***. The ***precision is built into the head*** so that grooves and recesses can be machined with ***exceptional accuracy and repeatability***. The ***Automatic Recessing*** head changes the operational direction by 90° (i.e., axial spindle motion is converted to radial cutter movement). Recessing operations can be performed on a variety of machines, even on a drill press.

SUPERIOR CRAFTSMANSHIP

All moving parts in our recessing heads are hardened and precision ground to ensure lasting accuracy and low maintenance costs. Close tolerances virtually eliminate “backlash” during retraction, for accurate size on groove width as well as depth. All sliding surfaces have large, hardened, load-bearing areas for long life and durability.

SUPERIOR CONSTRUCTION

Compression of the head between the machine spindle and the workpiece or jig plate actuates a sliding inclined wedge mechanism, thereby extending the cutter. Groove depth can be machined with great accuracy.

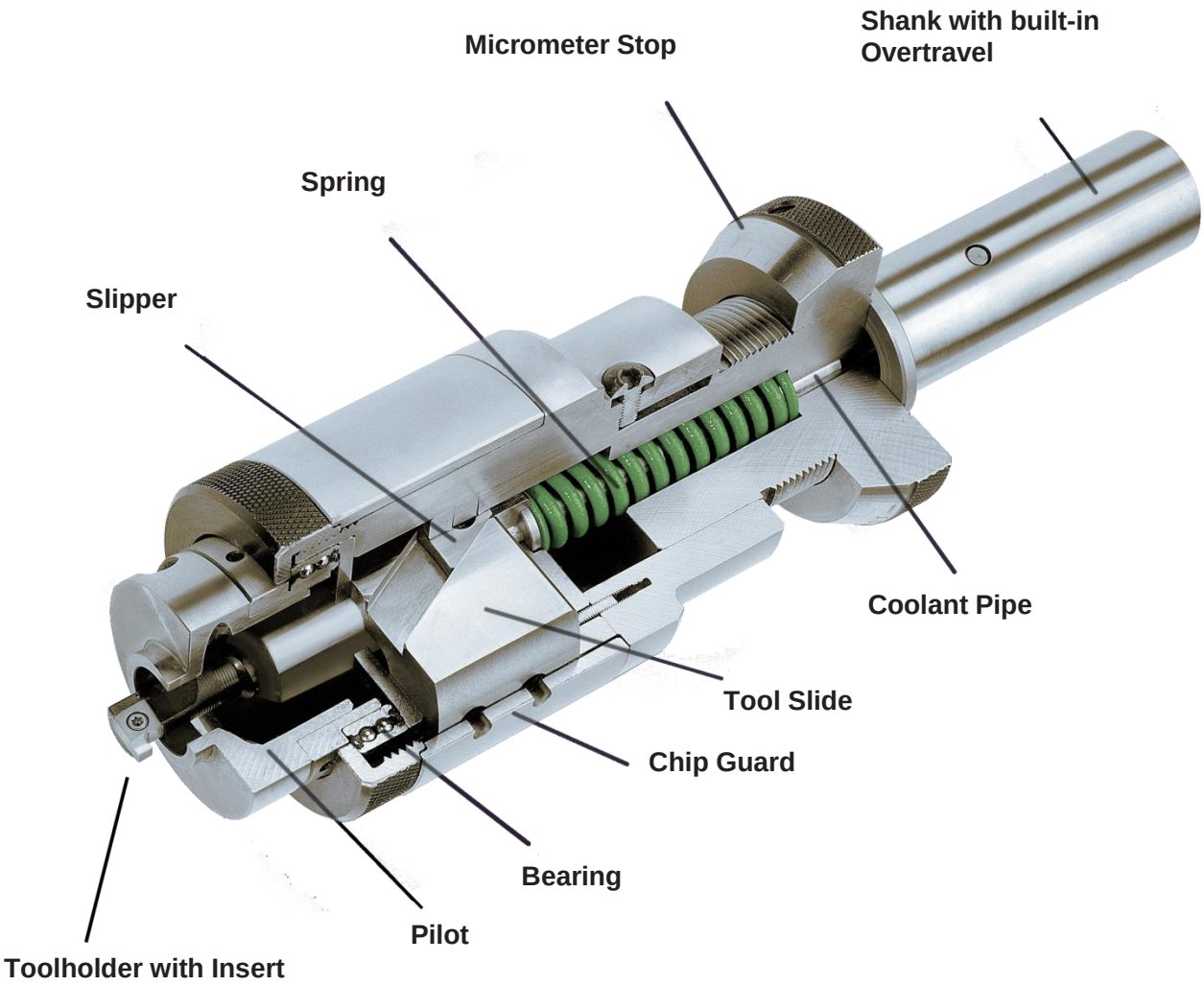
The cutter retracts radially prior to axial withdrawal of the tool from the bore, for accurate control of groove width. This design also results in a constant linear relationship between spindle movement and cutter movement. The straight-line movement of the cutter makes cutter regrinding easier.

Recessing

Construction

The **AR** Series Automatic Recessing Tool is made up of three basic components: head, cutter, and pilot. The head is usually standard and consists of shank and tool body. All cutters and pilots are manufactured to suit your application.

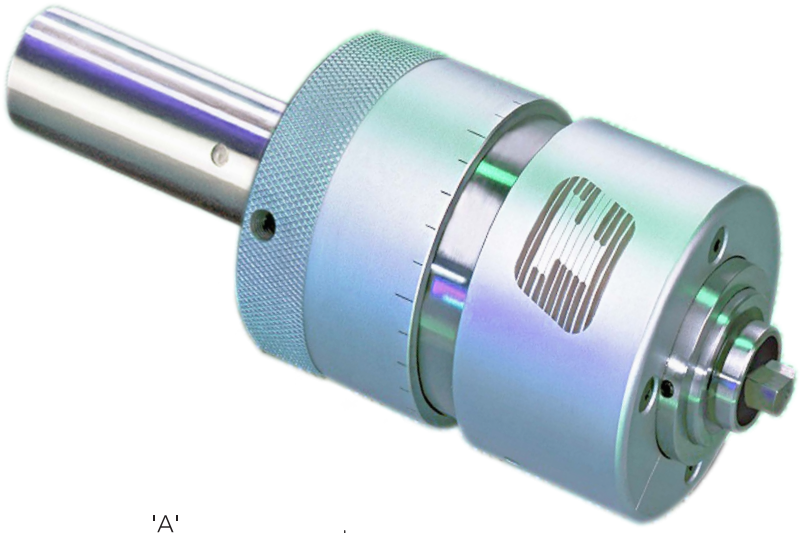
AR16 Recessing Head

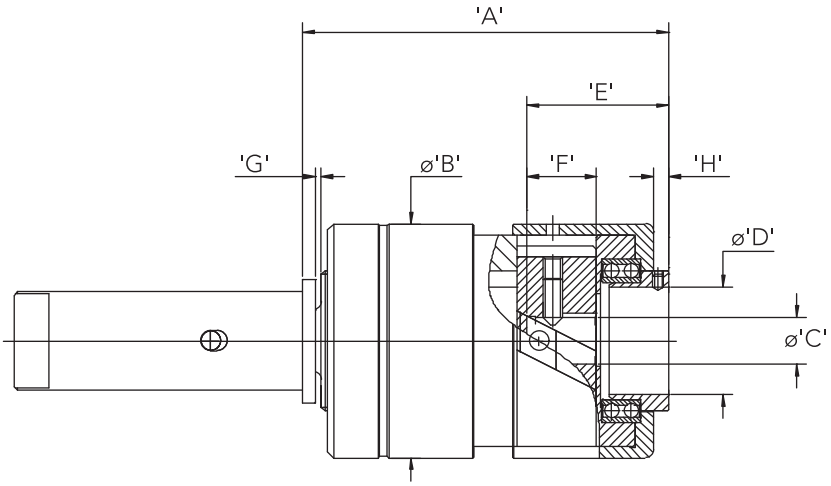


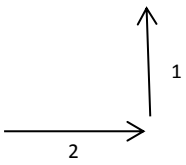
Recessing

The Range

ARSP Short Pilot Head







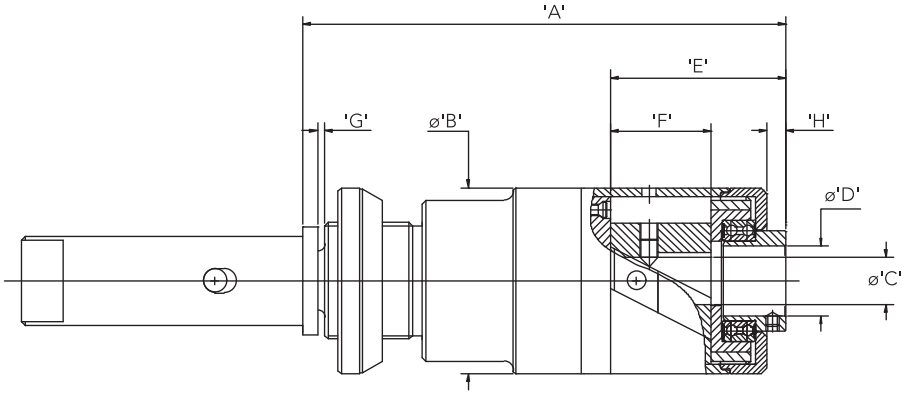
The *Feed Ratio* is the ratio of the Spindle to radial cutter movement

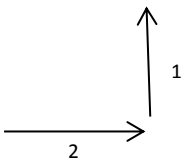
METRIC (Imperial)											
Head Type	Approximate Capacity Range	Maximum Cutter Travel	Shanks	(A) Free Length	(B) Tool body	(C) Cutter shank	(D) Master Pilot	(E) Ref Min Cutter Length	(F) Bore Depth	(G) Overtravel	(H) Ref to Front Nut
ARSP2	5.00mm (0.196") 45.00mm (1.772")	5.00mm (0.197")	25.00mm (1.000")	93.95mm (3.699")	Ø60.00mm (Ø2.360")	Ø12.00mm (Ø0.472")	Ø27.70mm (Ø1.091")	36.50mm (1.440")	20.50mm (0.810")	1.50mm (0.060")	4.00mm (0.158")

Recessing

The Range

AR Recessing Head





The *Feed Ratio* is the ratio of the Spindle to radial cutter movement

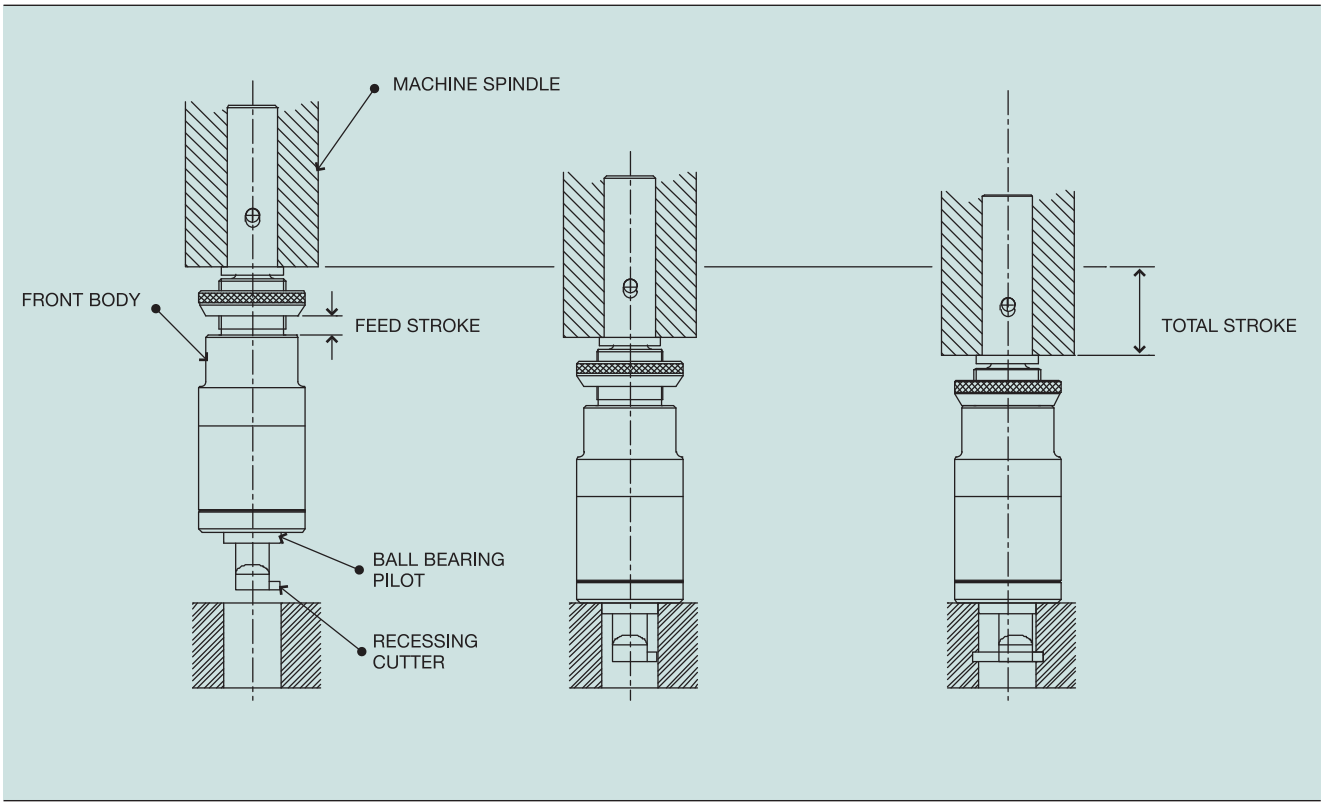
METRIC (Imperial)

Head Type	Approximate Capacity Range	Maximum Cutter Travel	Shanks	(A) Free Length	(B) Tool body	(C) Cutter shank	(D) Master Pilot	(E) Ref Min Cutter Length	(F) Bore Depth	(G) Overtravel	(H) Ref to Front Nut
	5.00mm (0.196")										
AR16	45.00mm (1.772")	7.00mm (0.276")	25.00mm (1.000")	140.90mm (5.547")	Ø65.00mm (Ø2.360")	Ø16.00mm (Ø0.630")	Ø36.00mm (Ø1.416")	51.50mm (2.030")	30.23mm (1.190")	1.50mm (0.060")	4.76mm (0.187")

Recessing

Operating principles

Illustrated below is the basic operating principle for AR, and ARSP Recessing Heads.
The head type shown below is the AR model.



1 Approach Stroke

The tool is rotating in a machine spindle. The spindle is lowered, and the tool moves into position.

2 Feed Stroke

The pilot is located in the bore against the face of the workpiece. Downward pressure causes compression of the recessing head, thereby actuating the slide mechanism which feeds the cutter out radially into the work.

3 End of Feed Stroke

The correct depth of cut is obtained when the micrometer stop bottoms against the front body, making it impossible to continue the cut. Groove location is controlled by the tool adjustment system on the shank end of the cutter.

When the spindle is retracted, pressure is relieved, and the tool is withdrawn from the bore. The cutter retracts and returns to its starting position. The piloted bearing absorbs both thrust and rotation. It remains stationary in the bore of the workpiece, under load, until the cutter is fully retracted, thereby preventing scoring of the workpiece.

Cogsdill

Recessing

Operating Parameters

Speeds & Feeds

Please refer to the charts below for ***speed and feed recommendations*** for specific material types. The charts are intended as a guide or starting point; the actual speed and feed used will depend on a number of factors, including type of machine, condition of machine spindle, rigidity of fixturing, type of coolant used or dry cutting, tool length, cutter geometry, interrupted cut, etc.

INCH

MATERIAL	CUTTING SPEED (FT/MIN)		FEED RATE (INCHES/REV)		TOP RAKE (DEGREES)	
	HSS	Carbide	HSS	Carbide	HSS	Carbide
Aluminum	200—300	400—700	.002—.005	.002—.005	10—15	8—12
Brass	100—200	200—525	.002—.005	.002—.005	0—3	0—3
Bronze	50—130	100—400	.002—.005	.002—.005	3—5	3—5
Cast Iron	50—90	100—180	.002—.004	.002—.005	0—3	0—3
Copper	100—200	200—400	.002—.004	.002—.005	10—15	8—12
Magnesium	200—300	400—700	.004—.006	.004—.006	10—15	8—12
Malleable Cast Iron	50—90	100—200	.002—.004	.003—.005	0—3	0—3
Resin (Plastic)	70—135	160—400	.004—.006	.004—.006	10—15	8—12
Free Cutting Steel	70—100	100—230	.002—.004	.003—.005	5—10	4—8
Annealed Steel	50—70	100—200	.002—.004	.003—.005	5—8	3—6
Wrought Steel	35—70	85—220	.002—.003	.003—.004	5—8	3—6
Alloy Steel	35—70	85—220	.002—.003	.003—.004	4—6	3—6
Tool Steel	35—50	85—150	.001—.002	.002—.003	4—6	3—6
Monel & Stainless	85—135	150—250	.001—.003	.002—.004	10—20	8—12

METRIC

MATERIAL	CUTTING SPEED (M/MIN)		FEED RATE (MM/REV)		TOP RAKE (DEGREES)	
	HSS	Carbide	HSS	Carbide	HSS	Carbide
Aluminum	60—90	120—210	0,05—0,13	0,05—0,13	10—15	8—12
Brass	30—60	60—160	0,05—0,13	0,05—0,13	0—3	0—3
Bronze	15—40	30—120	0,05—0,13	0,05—0,13	3—5	3—5
Cast Iron	15—25	30—55	0,05—0,10	0,05—0,13	0—3	0—3
Copper	30—60	60—120	0,05—0,10	0,05—0,13	10—15	8—12
Magnesium	60—90	120—210	0,10—0,15	0,10—0,15	10—15	8—12
Malleable Cast Iron	15—25	30—60	0,05—0,10	0,08—0,13	0—3	0—3
Resin (Plastic)	20—40	50—120	0,10—0,15	0,10—0,15	10—15	8—12
Free Cutting Steel	20—30	30—70	0,05—0,10	0,08—0,13	5—10	4—8
Annealed Steel	15—20	30—60	0,05—0,10	0,08—0,13	5—8	3—6
Wrought Steel	10—20	25—65	0,05—0,08	0,08—0,10	5—8	3—6
Alloy Steel	10—20	25—65	0,05—0,08	0,08—0,10	4—6	3—6
Tool Steel	10—15	25—45	0,03—0,05	0,05—0,08	4—6	3—6
Monel & Stainless	25—40	45—75	0,03—0,08	0,05—0,10	10—20	8—12

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ZX Tooling System

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