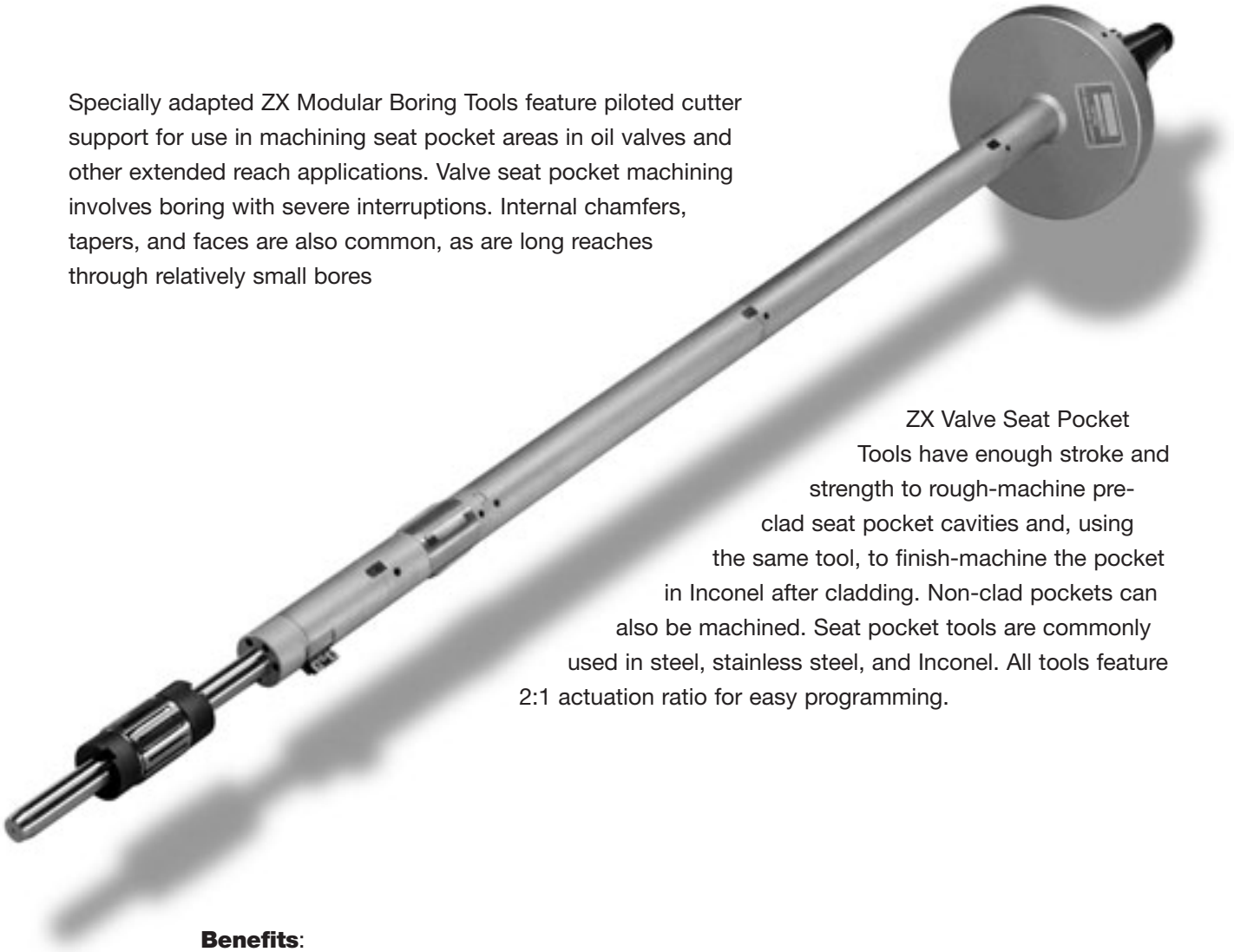
ZX Valve Seat Pocket Tools

ZX™ BORING, FACING, & CONTOURING SYSTEMS

Specially adapted ZX Modular Boring Tools feature piloted cutter support for use in machining seat pocket areas in oil valves and other extended reach applications. Valve seat pocket machining involves boring with severe interruptions. Internal chamfers, tapers, and faces are also common, as are long reaches through relatively small bores



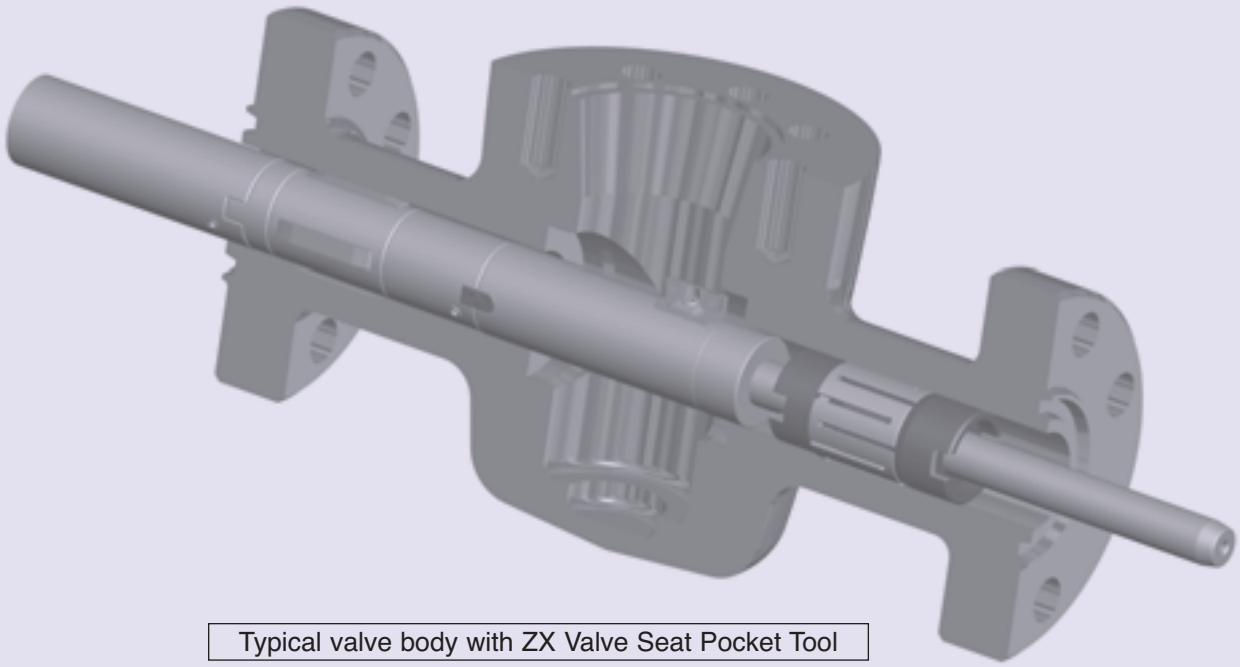
ZX Valve Seat Pocket Tools have enough stroke and strength to rough-machine pre-clad seat pocket cavities and, using the same tool, to finish-machine the pocket in Inconel after cladding. Non-clad pockets can also be machined. Seat pocket tools are commonly used in steel, stainless steel, and Inconel. All tools feature 2:1 actuation ratio for easy programming.

Benefits:

- In-bore piloting for rigid cutter support.
- Available in single and twin-slide designs to fit industry-standard flow bore sizes. Supplemental cartridges can be supplied to increase diameter range in special applications.
- Modular construction, in standard lengths: stub, medium, and long reach. (Non-threaded design allows for easy assembly and disassembly of modular sections.)
- Support collet pilots with wrench sets are included on medium and long-reach tools (optional air collets are available).

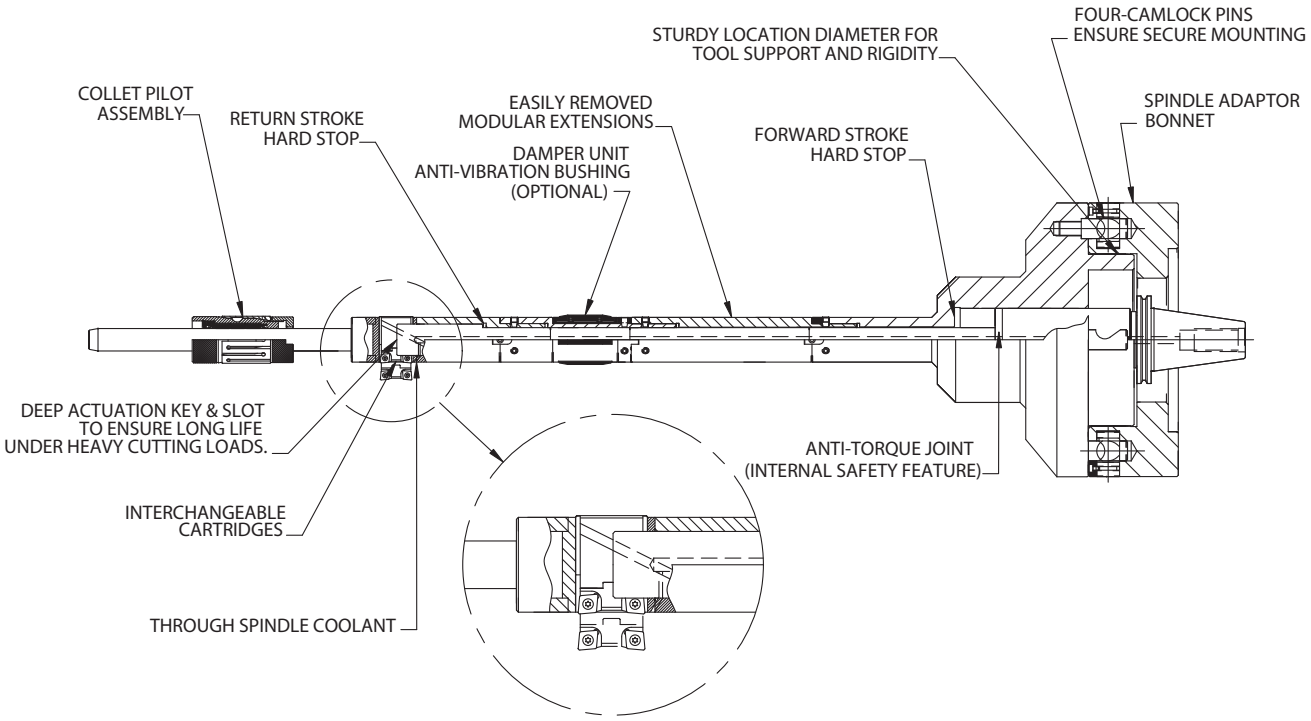
Benefits (continued):

- Longest tool slide strokes available, for maximum diameter range.
- Internal through-tool coolant is optional.
- Fully enclosed actuation mechanism – no chip packing.
- Internal forward hard stop and anti-torque features protect the tool in case of mishaps.
- Modular damper units are available on smaller-bore tools to dampen vibrations.
- Conversion kits provide ability to easily change tool for use in valves of various sizes.
- A variety of insert cartridges are available, utilizing industry-standard inserts (see chart on page 29).

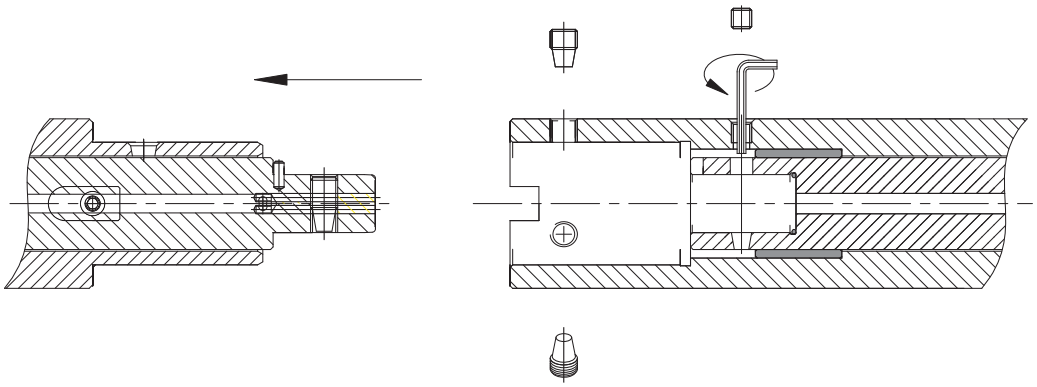


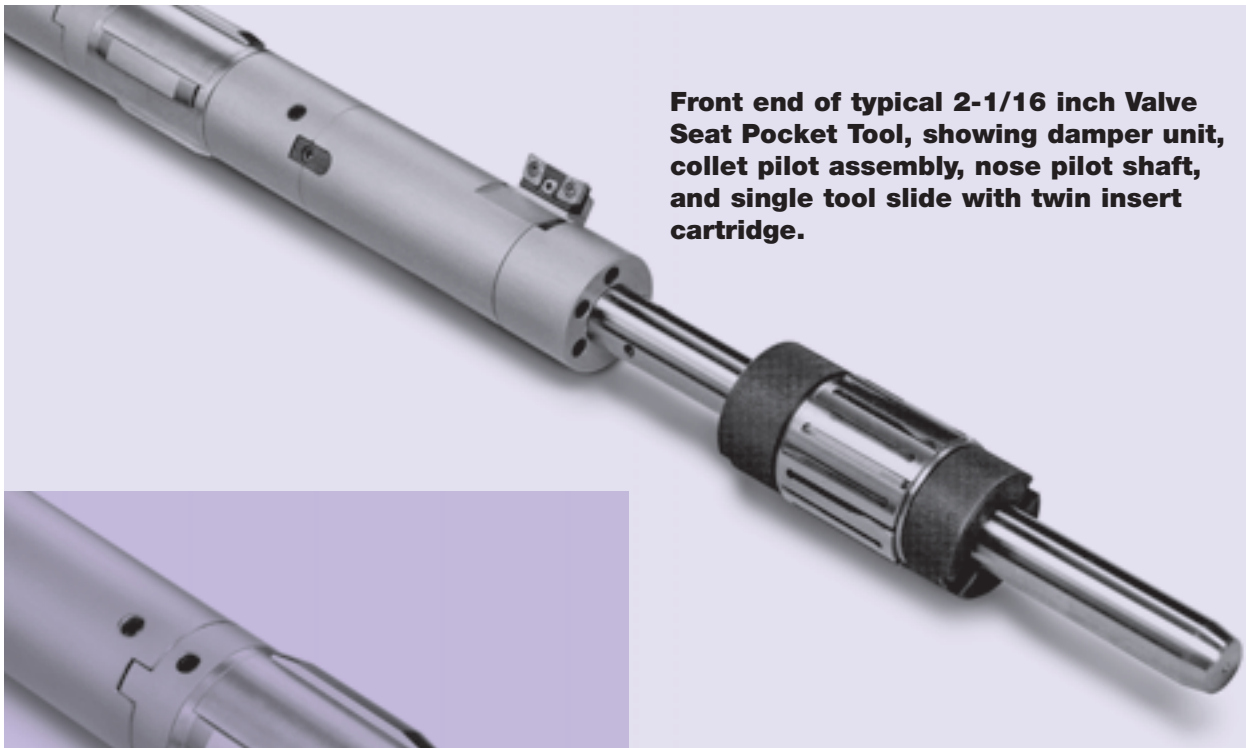
Typical valve body with ZX Valve Seat Pocket Tool

ZX VALVE SEAT POCKET TOOL

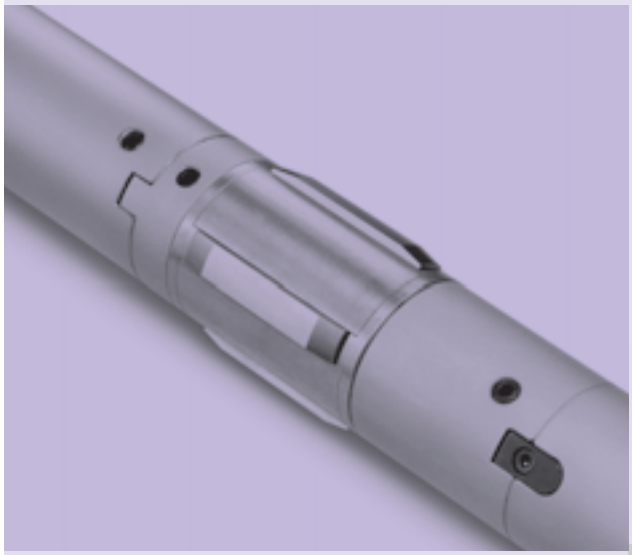


EXTENSION COUPLING



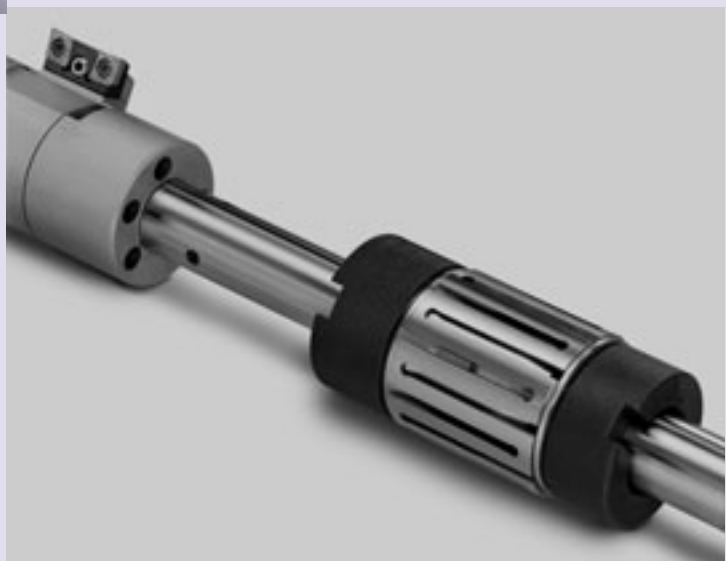


Front end of typical 2-1/16 inch Valve Seat Pocket Tool, showing damper unit, collet pilot assembly, nose pilot shaft, and single tool slide with twin insert cartridge.



Modular damper unit eliminates vibration at extended tool lengths.

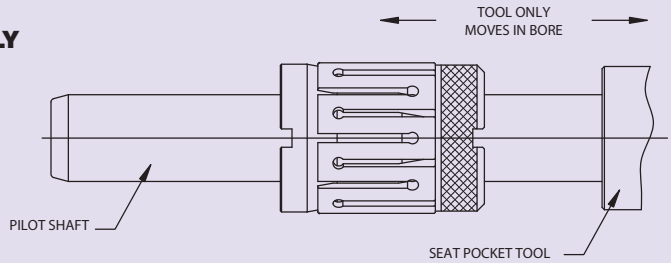
Collet pilot assembly on nose pilot shaft, for rigid support in bores.



ZX PILOT ASSEMBLIES

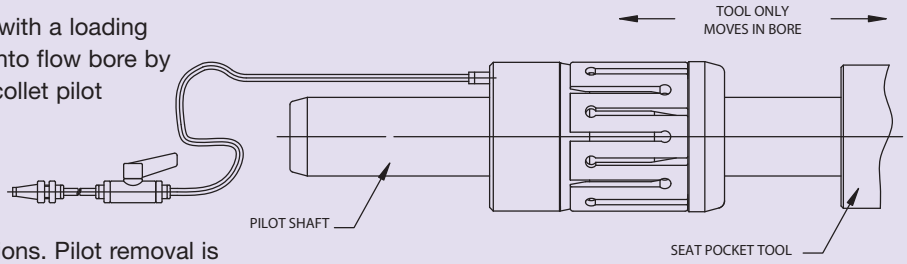
STANDARD
MANUALLY-OPERATED COLLET PILOT ASSEMBLY

Loaded and expanded into component flow bore with a single-acting collet spanner. Pilot remains fixed in bore while pilot shaft attached to seat pocket tool moves axially through the collet pilot assembly during machining operations. Pilot removal is again by use of the single-acting collet spanner. Provides a rigidly supported cutting action on long-length seat pocket tools.



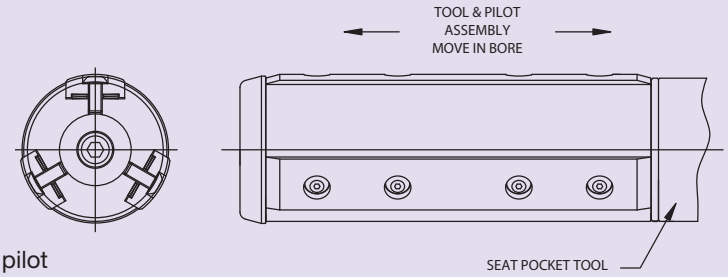
OPTIONAL
AIR-OPERATED COLLET PILOT ASSEMBLY

Loaded into component flow bore with a loading tool. Collet ring is then expanded into flow bore by use of air line attached to front of collet pilot assembly. Pilot remains fixed in bore while pilot shaft attached to seat pocket tool moves axially through the collet pilot assembly during machining operations. Pilot removal is again by use of loading tool after the air has been turned off. Provides a rigidly supported cutting action on long-length seat pocket tools.

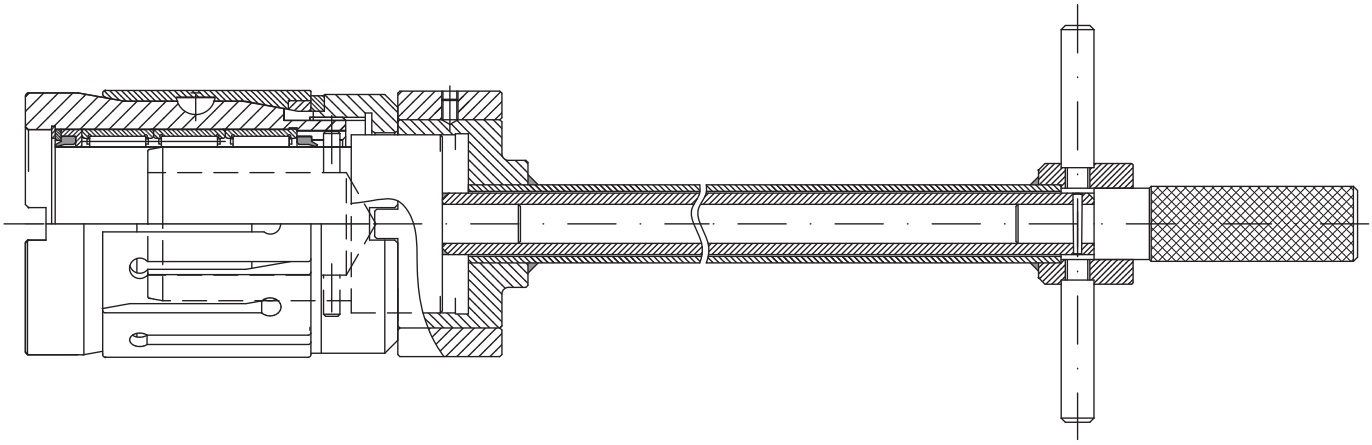


OPTIONAL
SPRING-LOADED FIXED PILOT ASSEMBLY

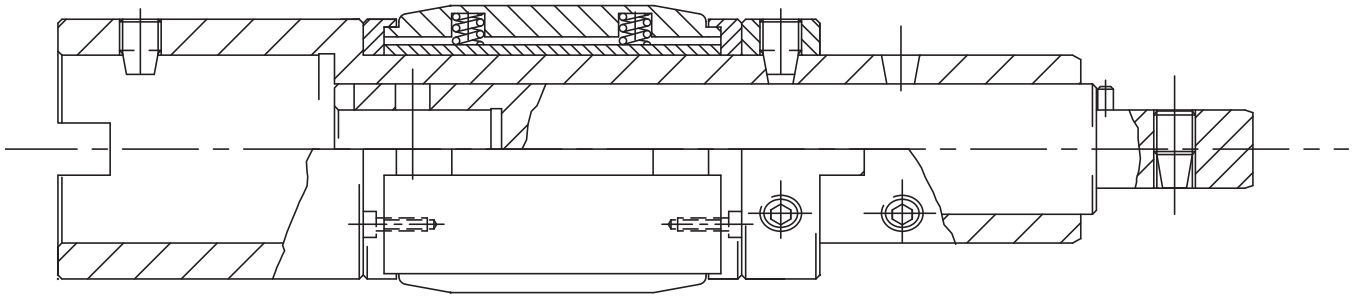
Permanently fixed to the front of the seat pocket tool. The fixed pilot assembly moves with the tool during machining operations. The three spring-loaded pads are pre-set to the flow bore diameter before the seat pocket tool is loaded into the component flow bore. Once correctly set, the fixed pilot assembly has the advantage of offering operator-free use, as no further setting of the pilot assembly is required. Set-up times are reduced.



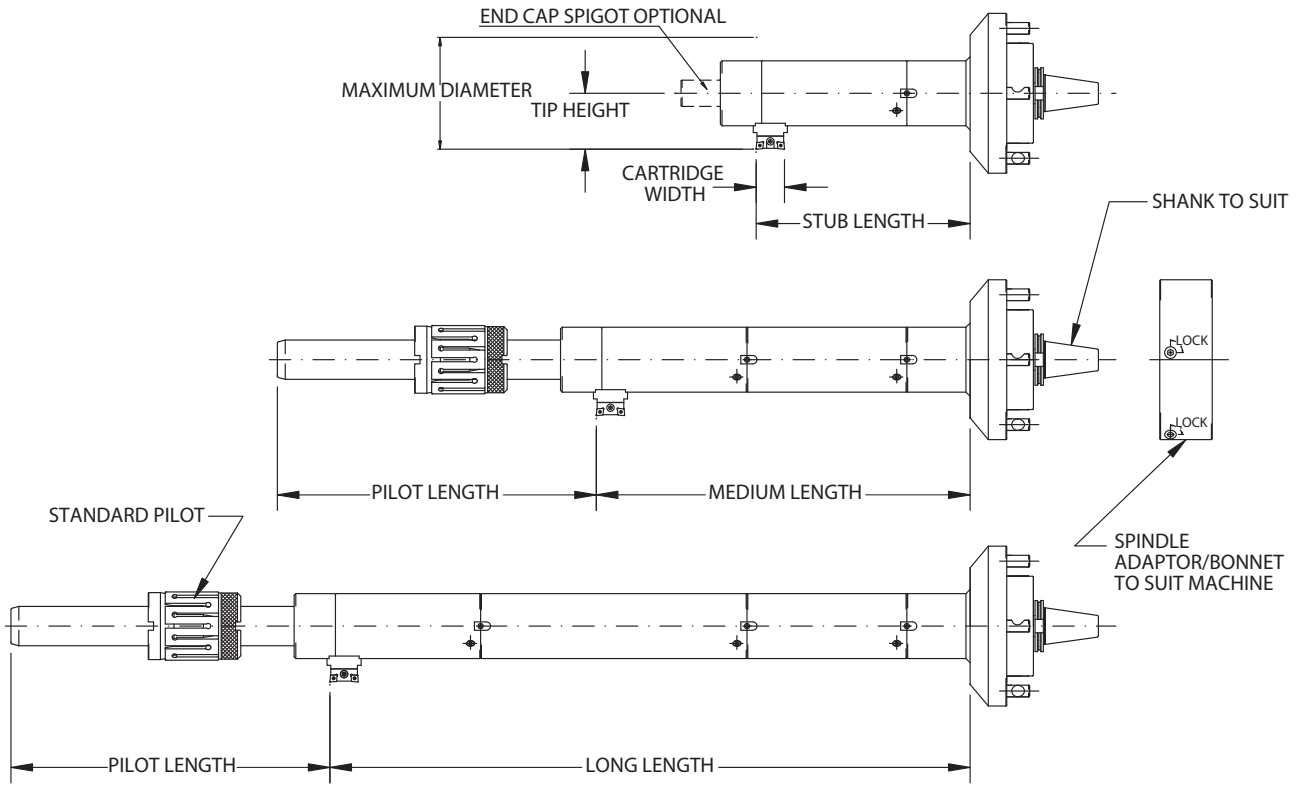
TYPICAL SINGLE-ACTING LOCKING SPANNER FOR MECHANICAL COLLET ASSEMBLY



TYPICAL DAMPER UNIT



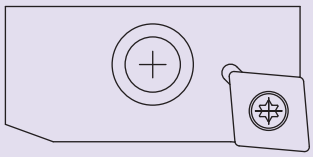
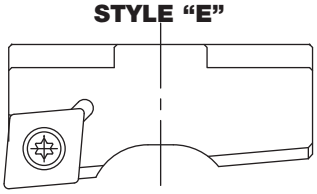
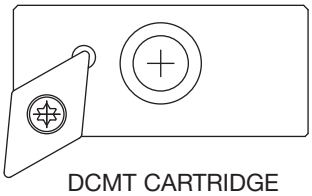
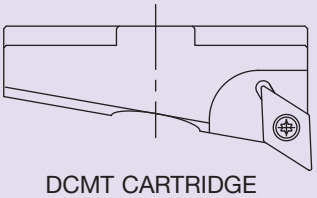
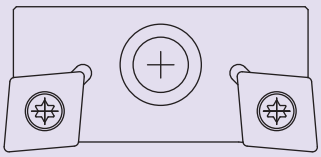
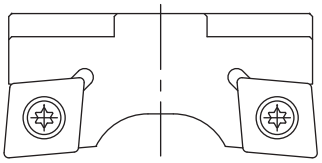
Tool Specifications



Tool Size	Tool/Conversion	Collet Pilot	Slide Stroke	Spindle Travel	Max Diameter	Tip Height	Tool Diameter	Pilot Shaft	Stub Length	Medium Length	Long Length
1-13/16* & 2-1/16 single or twin	1-13/16 tool*	1.810 to 1.890	0.812	1.625	3.440	0.890	1.750	13.000	8	28	48
	2-1/16 conversion	2.050 to 2.130			3.656	1.016					
2-1/16 & 2-9/16 single or twin	2-1/16 tool	2.050 to 2.130	0.875	1.750	3.782	1.016	1.960	13.000	10		
	2-9/16 conversion	2.550 to 2.630			4.282	1.266					
3-1/16 & 4-1/16 single or twin	3-1/16 tool	3.050 to 3.130	1.250	2.500	5.500	1,500	2.875	18.000	14		
	4-1/16 conversion	4.050 to 4.190			6.500	2.000					
5-1/8 & 6-3/8 & 7-1/16 single or twin slide	5-1/8 tool	5.110 to 5.250	1.680	3.360	8.380	2.510	4.875	23.500	20	28	52
	6-3/8 conversion	6.345 to 6.485			9.620	3.130					
	7-1/16 conversion	7.040 to 7.180			10.300	3.470					
7-1/16 & 9-1/16 single or twin	7-1/16 tool	7.040 to 7.180	1.680	3.360	10.300	3.470	6.875	23.500	20		
	9-1/16 conversion	9.040 to 9.180			12.300	4.470					

All dimensions shown in inches. Special work lengths, tool slide strokes, tool body diameters, and other special requirements can be accommodated; contact us for a quotation. * 1 - 13/16 tool is available only in single-slide design.

Insert Cartridges

TOP MOUNTED	END MOUNTED THROUGH COOLANT
STYLE "E"  CCMT CARTRIDGE (RH/LH AVAILABLE)	**STYLE "E"**  CCMT CARTRIDGE (RH/LH AVAILABLE)
STYLE "E"  DCMT CARTRIDGE (RH/LH AVAILABLE)	**STYLE "E"**  DCMT CARTRIDGE (RH/LH AVAILABLE)
STYLE "B"  CCMT CARTRIDGE (DUAL CUTTING)	**STYLE "B"**  CCMT CARTRIDGE (DUAL CUTTING)

Other special cartridge designs available on request

FEEDS AND SPEEDS

The guidelines below are intended as a starting point.

METRIC PROGRAM						
	ROUGHING			FINISHING		
	SPEED	FEED	D.O.C.	SPEED	FEED	D.O.C.
	M/Min	mm/Rev	mm	M/Min	mm/Rev	mm
STEEL (4140)	60-120	0,2-0,3	1,5-3,0	65-150	0,1-0,13	0,4-1,0
INCONEL	18-25	0,1-0,3		25-30		
STAINLESS STEEL	80-135	0,2-0,3		95-180		

INCH PROGRAM						
	ROUGHING			FINISHING		
	SPEED	FEED	D.O.C.	SPEED	FEED	D.O.C.
	Ft/Min	Inch/Rev	Inch	Ft/Min	Inch/Rev	Inch
STEEL (4140)	200-400	.008-.010	.060-.125	300-500	.004-.005	.015-.040
INCONEL	60-80	.004-.010		80-100		
STAINLESS STEEL	260-440	.008-.010		300-590		