

Hydraulic Tracer Controls



CONDENSED
CATALOG
S-1050

Valves for Milling and Turning . . . Lathe Attachments . . . Accessories

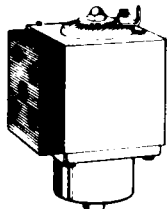
True-Trace manufactures the most extensive line of hydraulic tracing equipment available anywhere in the world. Since 1952, we've earned a reputation for producing advanced tracer equipment for highly accurate and profitable turning in 1 or 2 axes and milling in 1, 2, or 3 dimensions.

We are able to provide one-stop shopping for all your tracing requirements. The wide selection of valves, attachments, and accessories make it possible for us to provide precisely what you need.

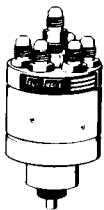
True-Trace hydraulic tracers are able to operate on the smallest tool-room engine lathes and on some of the largest and most sophisticated multiple-spindle profilers. The control sophistication of our tracers ranges from simple full-manual control for 1-axis turning or die sinking to 3-dimensional automatic control that permits rough and finish milling in a single setup.

All True-Trace equipment is available through our world-wide distributor/service network. Quick delivery is one of our trademarks.

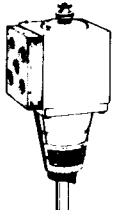
Valves for Single Axis Milling



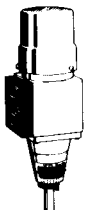
Models 1057 and 1059 S-180 General Purpose Depth Control Type - Manual or Solenoid Retract: For general applications where end deflection only is required. Dovetail mount provided on side of valve. Mounting attitude is inverted, vertical, or horizontal. Axial stylus actuation. Fittings not furnished.



Model 1093 S-180 R Depth Control Type - Air Retract: For light duty, general purpose depth control applications. End deflection only. Valve circumference mounts to machine. Mounting attitude is inverted, vertical, or horizontal. Axial stylus actuation. Requires 3-way air valve and regulator.

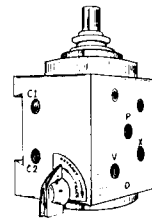


Model 1061 S-180 DS Die-Sinking Type - Manual Retract: Full universal stylus actuation. Adjustable counterbalance spring controls stylus weight on pattern. Graduated feedrate control lever at nose. Dovetail mount on valve body. Mounting attitude is vertical or horizontal. Fittings not included.

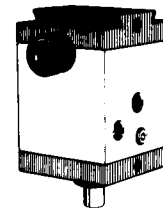


Model 1062 S-180 DSS Die-Sinking Type - Solenoid Retract: Full universal stylus actuation. Same applications as Model 1061. Solenoid permits remote retract. Valve does not have an adjustable counterbalance spring. Dovetail mount. Mounting attitude is vertical or horizontal. Fittings not included.

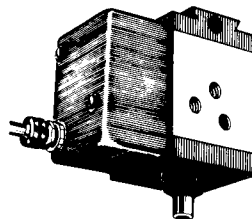
Valves for Single Axis Turning



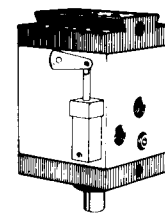
Model 1068 S-180 LA - Manual Retract: General purpose valve used where universal stylus motion is required. Spindle pinned for anti-rotation. Dovetail mount on side of valve includes riding nut for leadscrew. No manifold required. Mounting attitude is inverted, vertical or horizontal. No. 4 JIC fittings. Operating pressure is from 160 to 400 psi.



Model 1066 S-180 LP - Manual Retract: General purpose valve used where universal stylus motion is required. Spindle pinned for anti-rotation. Dovetail mount on top of valve compatible with 2-way slide. No manifold required. Mounting attitude is inverted, vertical or horizontal. No. 4 or No. 6 JIC fittings. Operating pressure is from 160 to 400 psi.



Solenoid



Cylinder

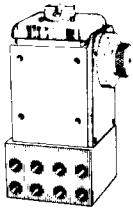
Model 1067 S-180 LPS - Solenoid or S-180 LPA Cylinder Retract: Valves are identical to Model 1066 except for electric solenoid or cylinder type remote-retract mechanisms. Dovetail on valve top is compatible with 2-way slide.

TRUE-TRACE
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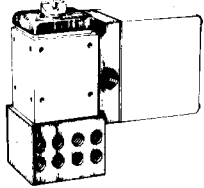
For the name of your local distributor, call or write:

2520 Pacific Park Drive
Whittier, California 90601
(213) 692-1225

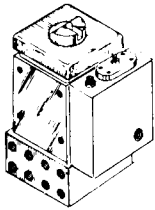
Valves for 2 Axis Milling and Turning



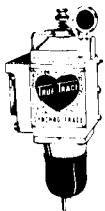
Model 1050 Synchro-Turn Valve - Manual Feedrate: For 2 axis lathe tracing. Can produce opposed 90° shoulders, such as O-ring grooves, in one continuous pass. Flow to both actuators is controlled by a single feed dial to provide a constant feedrate. Normal operating pressure is 180 to 450 psi. Stylus actuation is side universal, non-rotating.



Model 1051 Synchro-Turn Valve - Remote Feedrate Electrically Operated: Identical to manual feedrate Synchro-Turn, with the exception of remote electrically controlled feedrate. Electric motor operated models require an auxiliary electric power supply and feed control potentiometer for operation; these are available from True-Trace.

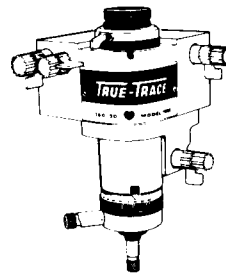


Model 1051 Synchro-Turn Valve - Remote Feedrate Fluid Activated: Identical to manual feedrate Synchro-Turn (Model 1050) except for the fluid-actuated remote feedrate control. Fluid-actuated models have a 2 position (high-low) feedrate mechanism that may be actuated by pneumatic or hydraulic pressure. They require a 3-way solenoid valve and switch.



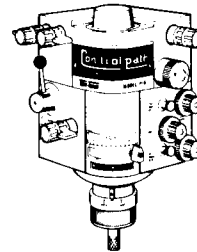
Model 1053 Synchro-Trace Valve - Milling type: For scanning-type milling that requires uniform feedrate control, such as automatic die sinking. Adjustable springs control stylus weight on pattern. Adjustable feedrate lever at top of valve. Dovetail mounting with riding nut. Full universal stylus actuation. Normal operating pressure is 180 to 450 psi.

Valves for 3D Milling

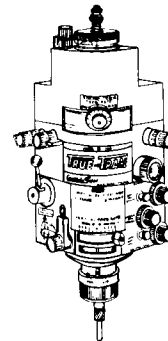


Model 1095 C-360/3D is a semi-automatic/manual pencil type valve for medium duty milling. It has bias control for semi-automatic 360° profiling and offers 7.5 gpm flow per sector at 500 psi.

Model 1100 D-360/3D has the added capability of high flow/high pressure for heavy duty milling. Flow is 15 gpm per sector at 1000 psi.



Model 1110 Con-Trol-Path - Fully Automatic 360/3D: For light or heavy duty milling. Precision profiling with full automatic-to-manual control. Capable of concurrent operation of the vertical axis while performing longitudinal and/or traverse profiling. Maximum vertical ramp angle of approximately 20°. Capable of 10.0 gpm flow per second at 1000 psi. Operates at pressures from 250 to 1000 psi. Furnished with in-line air regulator assembly.

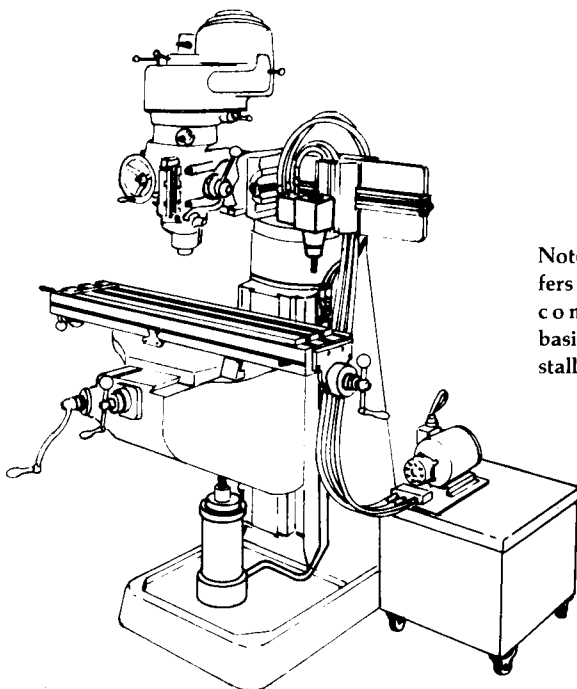


Model 1115 Con-Trol-Scan - Multi-Mode Tracer Valve: This valve incorporates the capabilities of both the Con-Trol-Path and Synchro-Trace valves. A common spindle centerline for all modes permits complete machining of a part from rough profiling to finished die or mold in one setup, without removing the part from the machine. Color-coded control dials simplify mode selection. **This valve requires a special diversion control assembly, an operator control panel, limit switches, and associated electrical controls. Please consult the factory for further details.**

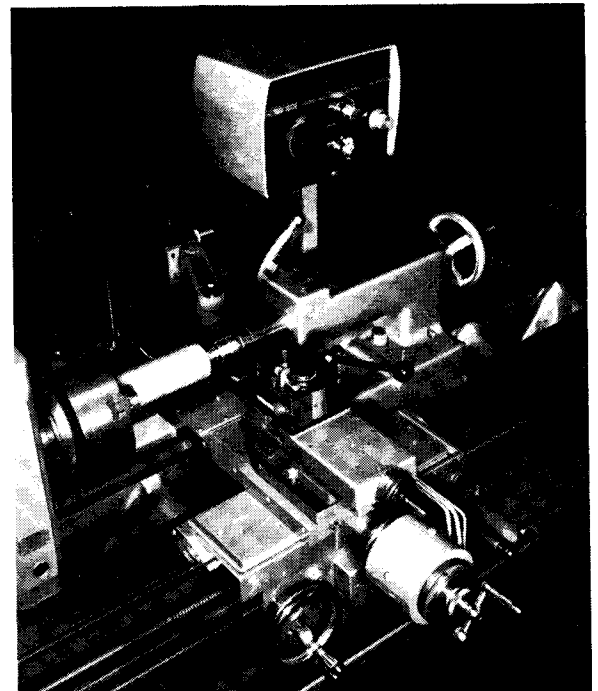
Kits for Customer Installation

Various kits are available on a component-only basis for customer installation. They include a 1-D Die Sinking System for small mills, a Synchro-Trace II Automatic Die Sinking System, and a 270/20 2-axis lathe system for lathes larger than applicable to the Mark 50/51A. The sketch (lower left) represents a typical mill application for True-Trace

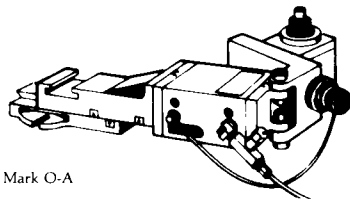
hydraulic components. The lathe shown at right is representative of lathes capable of being adapted to True-Trace 2-axis lathe systems. **True-Trace does not supply the machines or installation engineering. All interfacing bracketry must be customer designed and manufactured.**



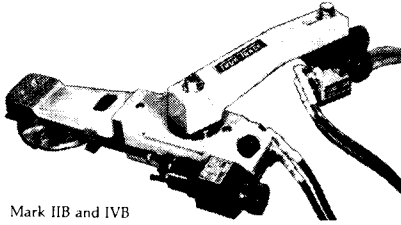
Note: True-Trace offers various kits on a component-only basis for customer installation.



Single Axis Lathe Tracing Attachments



Mark O-A



Mark IIB and IVB

Pivot Type Lathe Tracing Attachments: These are completely self contained units. Each attachment incorporates its own cylinder and slide assembly and is supplied complete with a universal template rail, 1 hp hydraulic power supply, and all required hoses.

Model Mark O-A offers a 3" tracing stroke for lathes having 9" to 15" swing, a 12" template rail assembly, standard 1 hp power supply with 3 gpm pump. Specify voltage required.

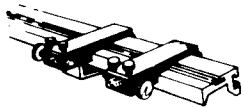
Model Mark IIB attachment is recommended for lathes with 13" to 24" swing. The basic attachment consists of slide and arm assembly with 5" tracing stroke, rear limit stop assembly, reverse seek control, hydraulic tracer valve, and hoses. The basic attachment for rear mounting is the same as the front mount but with the addition of a 110V 60Hz solenoid retract on the tracer valve for remote operation.

Model Mark IVB attachment is recommended for lathes with 20" to 28" swing. Basic attachments for standard and rear mounting are similar to those of the Mark IIB except in a larger version with a 7" tracing stroke.

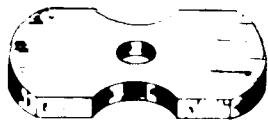
Options/Accessories for Single Axis Lathe Attachments



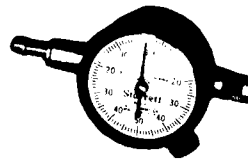
Turret Stop Assembly: 7 position turret stop. Fully adjustable positioning for up to six successive roughing cuts and a finishing cut. Recommended for front mount only.



Round template holders: Designed to clamp to the template rail, permitting master turned parts to be used as template. Maximum template diameter is 2 3/4".



0.500" Riser Plate: Inserts between adapter plate and slide assembly to increase stack height.



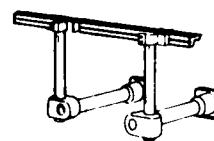
Dial Indicator Kits: Indicators have 1 1/2" dia. face dials, 0.250" travel. Offered in 0.0005" and 0.001" increments. Inch-graduated dials are standard. Indicators are furnished with mounting hardware for Model 4049 2-axis adjusting slides.



18" Universal Template Rail: Standard equipment on the Mark IIB and IVB. The template rail is most commonly used for boring, turning and facing. Way clamps include 20° (LeBlond) or 90° inserts.

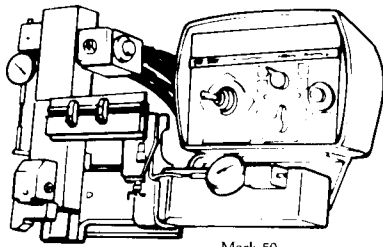


48" and 72" Template Rails - Front Mount: Template rail clamps to bed ways. Complete assembly includes base blocks with 20° (LeBlond) or 90° way clamps. Three template clamps included.



48" and 72" Template Rails - Rear Mount: Template rail bolts to rear of lathe bed. Heavy duty cast-iron base brackets. Solid steel bars and heavy wall tubing supports. Three template clamps included.

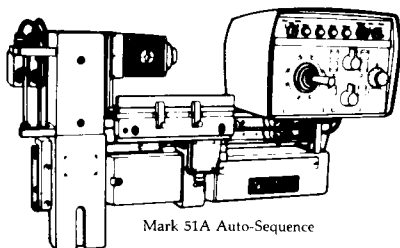
2 Axis Lathe Tracing Attachments



Mark 50

Mark 50 and Mark 51A Attachments: These are completely self contained 2-axis tracing attachments that adapt to almost all tool room lathes in the 9" to 16" swing range. The basic attachment includes hydraulic power unit and all hydraulic lines. An adapter bracket is not supplied with basic attachment. Several types of adapter brackets are available to suit individual lathes and their applications. The basic slide assembly of these attachments incorporates 3" dia. cylinders with 3.5" of cross stroke and 6.5" of longitudinal stroke.

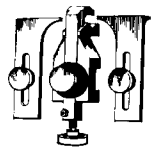
Model 2067 Mark 50 Attachment: Manually operated unit can trace 90° opposed shoulders such as O-ring grooves. Will also function as a single axis attachment using single point tools.



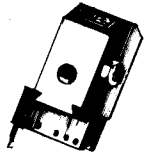
Mark 51A Auto-Sequence

Model 2085 Mark 51A Auto-Sequence attachment is a fully automatic unit that can be programmed to automatically perform precision contour turning, boring or facing in a single complete cycle. The attachment is programmed by setting pre-programmed drums. The drums can be stored for repeat runs. High positioning rates up to 100 ipm are available in this standard design. The unit can also be operated manually. The power unit incorporates all electric required for system operation. One program drum designated "turn left - one pass" is furnished unless another drum is specified.

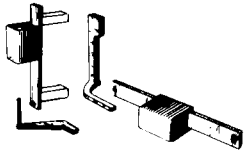
Accessories for 2 Axis Lathe Tracing Attachments



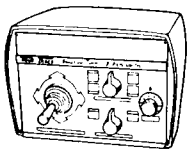
Model 3050-01 Round Template Holder Assembly: Clamps to template rail to hold round master parts 5/16" to 3/4" in dia. Includes right hand and left hand lead-in/lead-out extensions.



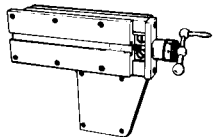
Model 3053-01 Tool Post and Bar Assembly: Special quick change tool post and T-nut. Includes combination turning and facing bar holder for 1/2" square tools (KDK type). **Model 3053-02 Tool Post Assembly** (not shown) same specs as Model 3053-01 except ALORIS type.



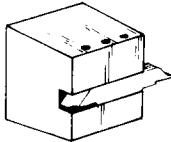
Model 3052-01 Indicator Holder Assembly (for Mark 50) and Model 3052-03 (for Mark 51A, not shown): Set of brackets and stops for indicator. **Model 3094-01, 2" Travel Indicators** with 0.001" graduations (two per attachment) are sold individually.



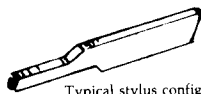
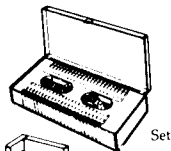
Model 4016 Operator's Control Box: For selecting tracing modes (turn or face) and feed direction (right, left, in, etc.). Joystick controls positioning of slides independently of tracing circuit. Model 4044 provides remote control functions.



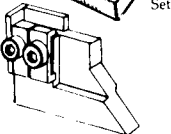
Model 3054-01 Longitudinal Template Rail Adjustment Slide (for Mark 50): Provides longitudinal adjustment of template. Slide is required when using headstock or bed type mounting bracket.



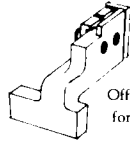
Model 3075-02 Cutting Tool Grinding Block: Steel holding block for cutting tools to proper tip and angle clearance required for 2 axis turning.



Typical stylus configuration



Straight stylus holder for turning



Offset stylus holder for facing

Flat Blade Stylus Set

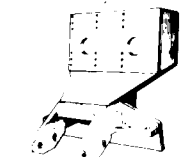
Complete set of 48 blade-type styli in 0.002" increments, from 0.034" to 0.128" for 2 axis tracing. Set includes stylus holders for turning and facing operations. Used on Synchro-Turn tracer valves.



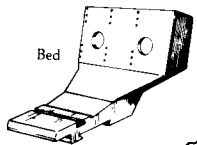
Program drums for the Mark 51A are available in turn-left, turn-right, face-in, face-out, bore-left configurations for one or two passes.

Mounting Adapter Brackets

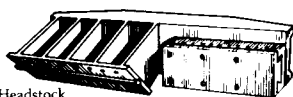
Brackets are available to mount Mark 50/51A to 1) carriage wings 2) headstock of lathe 3) bed way of Hardinge HSL or DV59 lathes or 4) universal mounting bracket. Universal mounting bracket is machined for customer use in adapting to any machine.



Carriage

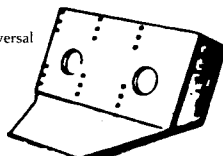


Bed

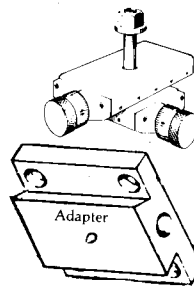


Headstock

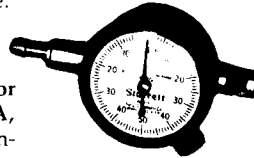
Universal



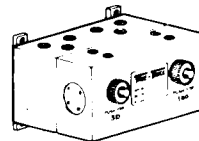
General Tracing Accessories



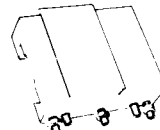
Model 4049 Tracer Adjustment Slide: A precision 2 axis device for positioning the valve independently of the template or cutting tool. Slides are 90° to each other and fitted with gibs. Micrometer type hand dials graduated in 0.001" increments. Single bolt mounting permits 360° orientation of slide ways. Valves mount directly to lower feed screw or indirectly, via an adapter plate. These slides are used in conjunction with the S-180 LP, LPS, LPA and Synchro-Turn tracer valves.



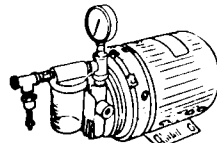
Model 3094 Dial Indicator Kits: Indicators have 1 1/2" dia. face dials, 0.250" travel. Offered in 0.0005" and 0.001" increments. Inch-graduated dials are standard. Indicators are furnished with mounting hardware for Model 4049 2-axis adjusting slides (above).



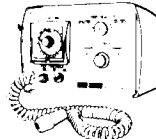
Model 4111 Safety Diversion Valve: For use with combination Con-Trol-Path and 180° depth control tracing system. Returns control to 3D sector of the Con-Trol-Path valve upon contacting an object, preventing damage to the valve and/or the project.



Model 3079 Vertical Slide Adapters: Used to attach the horizontal dovetails on single axis 180° valves to the vertical slide. Adapters include riding nut and gib.



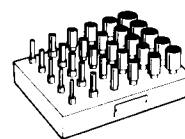
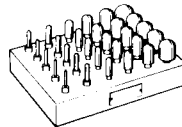
Model 4040 Vacuum Pump - Electric motor Driven: Used to scavenge oil from hydraulic tracer valves, hydraulic drives, and other actuation devices. Units include relief valve and gauge for vacuum adjustment.



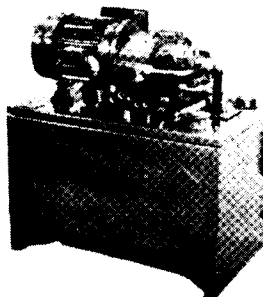
Model 4112 Pick Control Box: For 3D tracing systems. Lets the operator "pick" down to a pre-determined depth after each pass of the cutter. Control panel has a mode selector for pick control or standard 3D operation. 110V operation.



Models 6050 (4.5" bore) and 6093 (6.0" bore, shown at left) Hydraulic Knee Cylinders: For actuating the knee of small vertical mills, such as those made by Bridgeport Machines, employing True-Trace tracer valves. Both models have 6 inch stroke.



Model 3061 Ball Nose and Model 3062 Flat Nose Stylus Sets: Complete sets of 30 styli in protective cases for 360/3D tracing.



Single and Dual Pressure Power Supplies are available to power all True-Trace valves. **Single pressure** configurations: 1 hp motors, 3 gpm pumps, 15 gal reservoirs; or 3 hp motors, 6 gpm pumps, 30 gal reservoirs. **Dual pressure** configurations: 1 hp motors, 3 gpm pumps, 15 gal reservoirs; 3 hp motors, 6 gpm pumps, 30 gal reservoirs; or 5 hp motors, 10 gpm pumps, 30 gal reservoirs.

For the name of your local distributor, call or write:

TRUE-TRACE
Division of Thiem Industries, Inc.

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Whittier, California 90601
(213) 692-1225