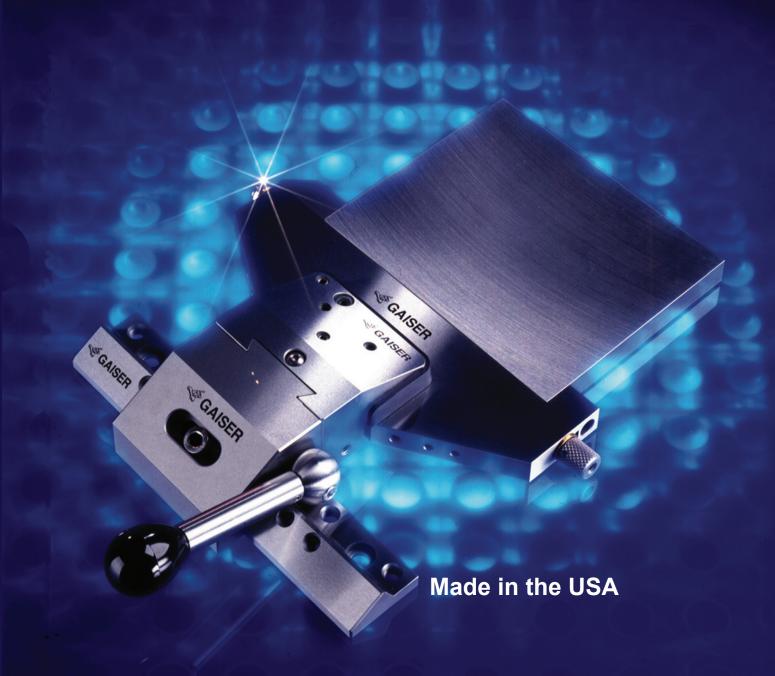


# GAISER EDM TOOLING, INC.



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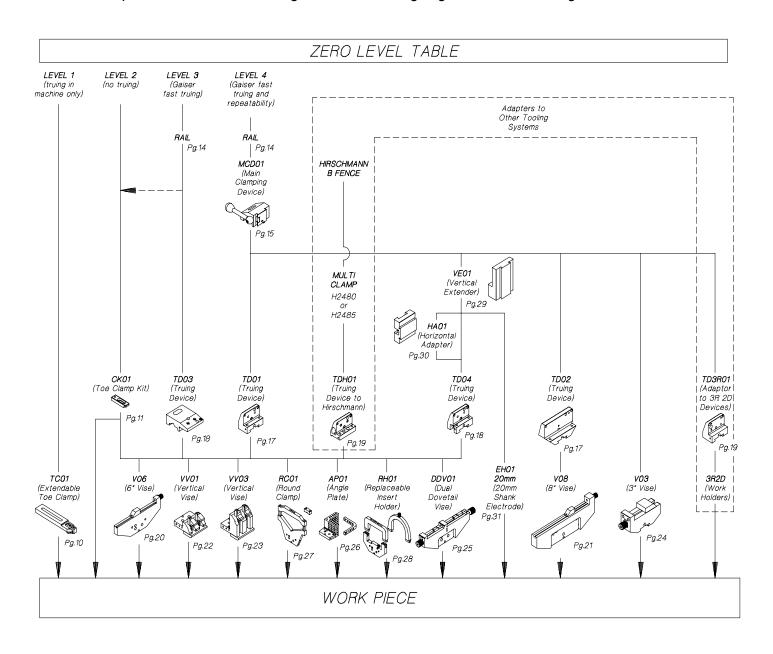
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## **Tooling Flow Chart**



# Gaiser EDM Tooling offers <u>four</u> levels of tooling to hold your work piece in the cutting zone of your machine, plus adapters for other tooling systems.

- **Level 1 -** Basic entry level, extendible toe clamp support arm with truing. Versatility at a very low cost. Can be used with level 2, 3 and 4. See page 10.
- **Level 2 -** Toe clamping of all Gaiser work holders directly to table, upgradeable to level 3 and level 4. Increased versatility at a low cost.
- **Level 3 -** TD03 rail mounted truing head, Gaiser fast truing, off-line truing, upgradeable to level 4.
- **Level 4 -** Top level, fast vertical loading, Gaiser fast truing, high, and off-line truing.



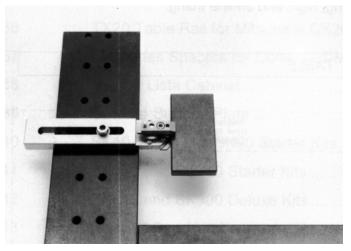


Level One Tooling is the first of four levels that Gaiser EDM Tooling offers

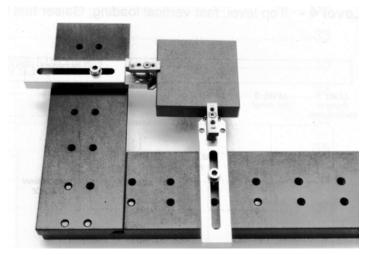
# **LEVEL ONE** - Alternative to Frame Systems Basic extendible toe clamping of a work piece

The most economical means of holding most any work piece in the cutting zone is the use of the TC01 extendible toe clamp. Leveling of the work piece can be done while in the machine. It can be used in combination with level two, three and four. See Page 10 for more details.

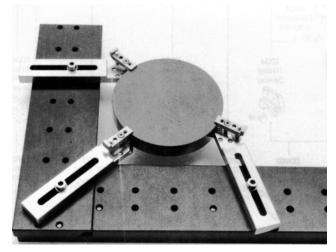
Multiple TC01's can be used in place of more expensive frame systems.



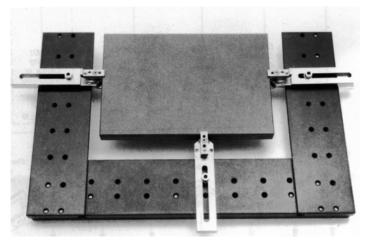
One TC01 toe clamp holding a 2 x 4 x  $\frac{1}{2}$  inch (50mm x 100mm x 12mm) work piece in the cutting zone



Two TC01 toe clamps holding a 4 x 4 x 1 inch (100mm x 100mm x 25mm) work piece in the cutting zone



Three TC01 toe clamps holding a 8 x 12 x  $\frac{1}{2}$  inch (200mm x 300mm x 12mm) plate in the cutting zone. No expensive frame system required!



Three TC01 toe clamps holding a 6 inch (150mm) diameter by 1 inch (25mm) thick round in the cutting zone

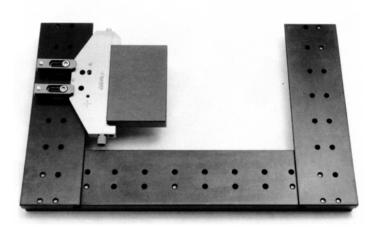
## **Level Two**



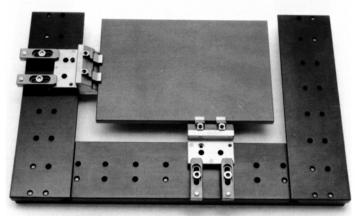
Level Two Tooling is the second level of four levels that Gaiser EDM Tooling offers

## LEVEL TWO - Toe clamping of vises for holding a work piece

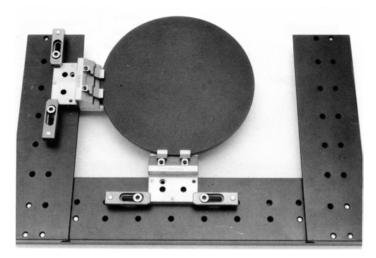
Another means of holding a work piece in the cutting zone is through the use of the CK01 toe clamps, which clamp any Gaiser EDM Tool vise or work holder directly to the table. The vises can easily be upgraded to level three and four.



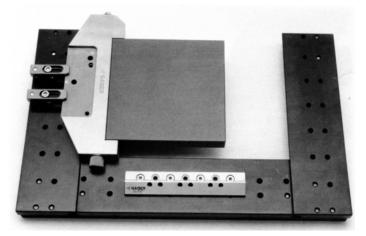
V06 vise with CK01 toe clamps holding a 4 x 6 x  $\frac{1}{2}$  inch (100mm x 150mm x 13mm) plate in the cutting zone



Two VV01 vises with CK01 toe clamps holding a 8 x 12 x  $\frac{1}{2}$  inch (200mm x 300mm x 13mm) plate in the cutting zone



Two VV01 vises with CK01 toe clamps holding a 10 inch (250mm) diameter by  $\frac{1}{2}$  inch (13mm) thick round in the cutting zone



V08 vise with CK01 toe clamps holding a 8 x 8 x 1 inch (200mm x 200mm x 25mm) plate in the cutting zone

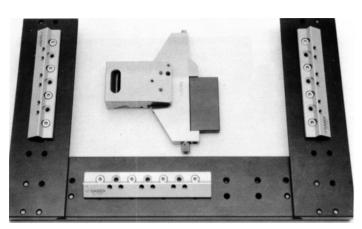
## Level Three



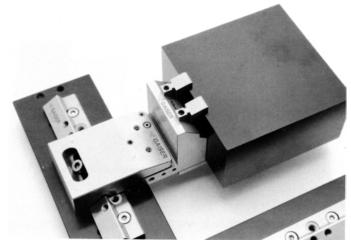
Level Three Tooling is the third of four levels that Gaiser EDM Tooling offers

## LEVEL THREE - TD03 rail mounted truing device and vise holding a work piece

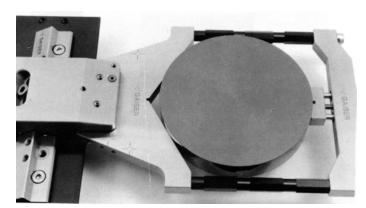
The TD03 rail mounted truing device may be used to hold a work piece in the cutting zone. The TD03 offers the Gaiser <u>exclusive three point leveling</u>. Work pieces can be trued off-line on a surface plate. Work holders can be easily upgraded to level four.



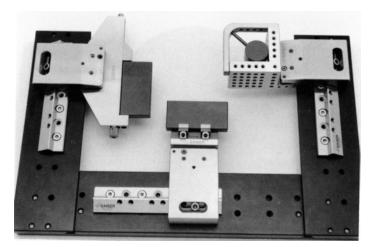
TD03 and V06 vise before mounting to the rail on the table



TD03 and VV03 vise holding an 8 x 8 x 3 inch (200mm x 200mm x 75mm) plate in the cutting zone



TD03 and RC01 Round Clamp holding a 6 inch (150mm) diameter round in the cutting zone



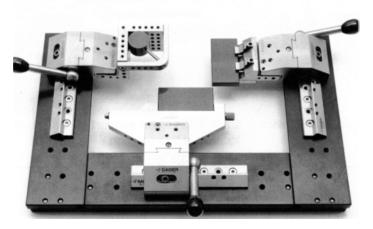
Three TD03's mounted to the table with three vises, V06, VV01 and AP01 holding various work pieces in the cutting zone



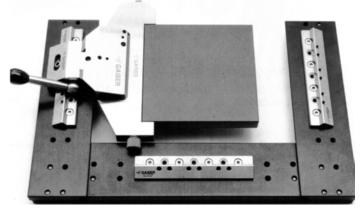
Level Four Tooling is the top of the line that Gaiser EDM Tooling offers

## LEVEL FOUR - Deluxe TD01 truing device for vertical loading and repeatability

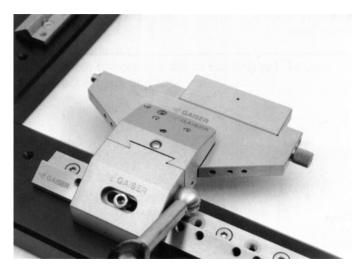
Use of the TD01 truing device and the MCD01 main clamping device provides all the great features of Gaiser EDM Tooling: exclusive fast three point truing, vertical adjustment, vertical loading for easy access, and 2 micron repeatability. See pages 12 and 13.



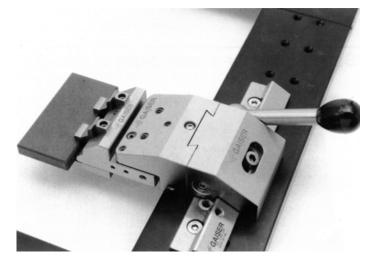
MCD01's with TD01's and three work holders AP01, V06 and VV01 holding various work pieces in the cutting zone



MCD01 with TD02 and V08 vise holding a 8 x 8 x 1 inch (200mm x 200mm x 25mm) plate in the cutting zone



MCD01 with TD01 and V06 holding a 2 x 4 x  $\frac{1}{2}$  inch (50mm x 100mm x 13mm) plate



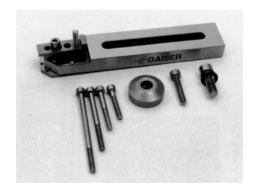
MCD01 with TD01 and VV01 holding a 4 x 4 x  $\frac{1}{2}$  inch (100mm x 100mm x 13mm) plate

## TC01 Extendible Toe Clamp

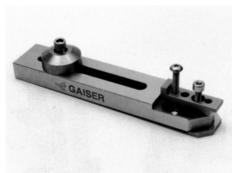


The TC01 extendible toe clamp can be used to hold a small work piece or grouped together to hold a large work piece.

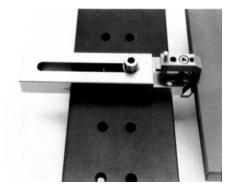
It can be used as a support arm while holding a large work piece in other Gaiser work holders. The TC01 can be adjusted to hold work pieces up to 6" thick and features work piece leveling by simple use of a support screw. Multiple TC01's can be used in place of more expensive frame systems.



TC01 with accessories

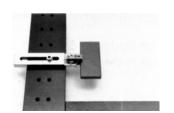


TC01 shown with M6 adapter in place

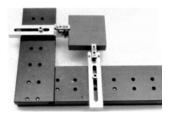


Each TC01 - can support 80 lbs. when located in this position

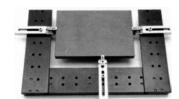
#### Direct work piece holding, Level One



One TC01 holding a 2" x 4" x ½" (50mm x 100mm x 13mm) plate



Two TC01's holding a 4" x 4" x 1" (100mm x 100mm x 25mm) plate

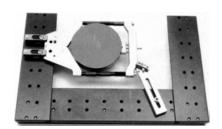


Three TC01's holding a 8" x 12" x 1" (200mm x 300mm x 25mm) plate

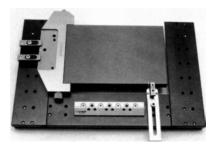


Three TC01's holding a 6" dia. (150mm) round

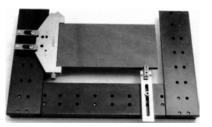
## Support arm for a work piece or a work holder, Level Two



RC01 with 6" (150mm) dia. round utilizing TC01 support arm



V08 vise with 8" x 12" x 1" (200mm x 300mm x 25mm) plate utilizing TC01 support



V06 with 6" x 12" x  $\frac{1}{2}$ " (150mm x 300mm x 13mm) plate utilizing TC01 support

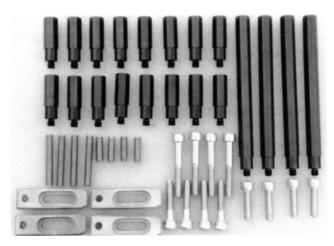
**Note**: When using any bottom plate support device, precaution must be taken to avoid collision with the lower flush cup.

## CK01 and CK02 Toe Clamps and Kits

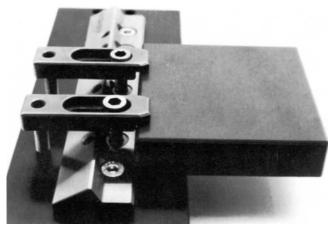




CK01-00 Toe Clamp with exclusive relieved clamping edge



CK01-8M Clamp Kit Contains four toe clamps, clamp screws, height adjustment screws and spacers



Example of a work piece being toe clamped using the threaded holes in the  $\underline{\text{rail}}$ 

The CK01-00 toe clamp design locates the actual clamping pressure pad a full ¼ inch away from the corner of the work piece. The clamps are made from hardened, stainless spring steel with thicker walls for added strength and durability. Clamps will not bend.

#### CK01-8M and CK01-6M Clamp Kit

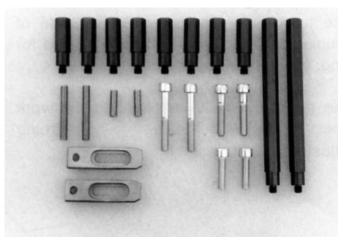
Contains four toe clamps, clamp screws, height adjustment screws and spacers.

#### CK02-8M and CK02-6M Clamp Kit

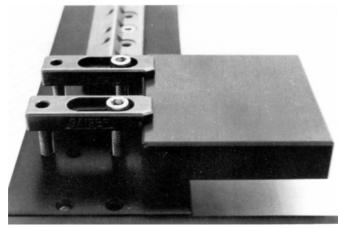
Contains two toe clamps, clamp screws, height adjustment screws and spacers.

The CK01-00 toe clamps alone are available for purchase.

M6 bolts with washers from existing wire EDM machines can be used with CK01-00 toe clamp.



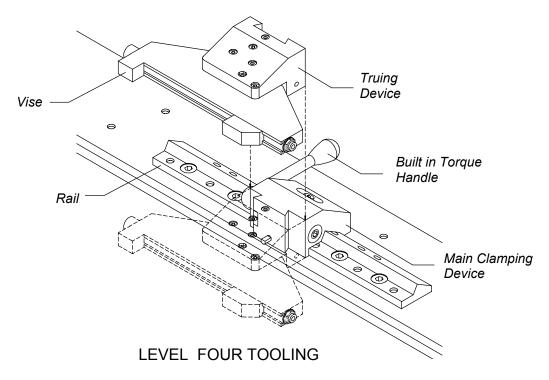
CK02-8M Clamp Kit Contains two toe clamps, clamp screws, height adjustment screws and spacers



Example of a work piece being toe clamped using the threaded holes in the  $\underline{\text{table}}$ 

General Description of Level Four Tooling





# GAISER EDM TOOLING is a revolutionary design completely unique to any wire EDM tooling on the market.

- The rail is attached to the machine table or riser and provides the x-y-z reference.
- The main clamping device is attached to the table or riser and held against the reference rail and table by a single bolt.
- The main clamping device has a vertical dovetail and a built-in torque handle.
- The main clamping device is intended to stay in the machine providing a repeatable connection for the truing device.
- The torque handle assembly is made of stainless steel components and sealed for long, trouble free operation.
- The truing device is attached to the work piece holder and provides x-y-z-θ truing adjustments.

- The truing device utilizes our patented three point suspension mechanism, which includes one pivot ball, two micrometer jack screws, a cam and a z-axis adjustment screw.
- Together, the work piece holder and the truing device insert onto the main clamping device in a vertical motion.
- The torque handle provides the precise force to secure the truing device to the main clamping device in a repeatable manner to within 0.000080 inch (2 micron).
- The tooling allows for repeatable truing of the work piece off-line on a surface plate.
- All tooling is made of hardened 420 stainless steel.

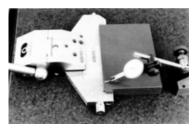
## Direct Truing Mechanism and Procedure



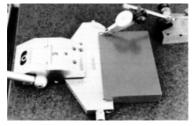
The patented truing mechanism operates without having to calculate ratios and locates directly over the work piece holder providing direct truing.

- The truing device contains a pivot ball and two micrometer jack screws.
- These three items form a triangle or three point suspension with two clamp screws located just inside the triangle.
- The pivot ball and #2 jack screw form the 1<sup>st</sup> axis hinge line which extends outward through the work piece holder as shown in Fig. 1.
- The pivot ball and #1 jack screw form the 2<sup>nd</sup> axis hinge line.

#### **FIRST AXIS**



STEP 1 - Zero the Indicator

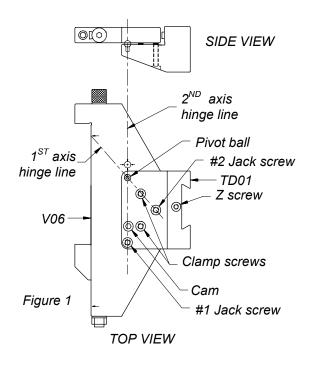


STEP 2 - Move the indicator and adjust the #1 jack screw until the indicator reads zero. First axis is true.

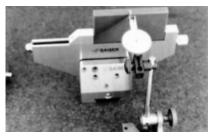
#### SECOND AXIS



STEP 3 - Move the indicator out 1 ½ inches and take indicator reading. Adjust the #2 jack screw until the indicator moves back to 2X the reading. Second axis is true.



THIRD AXIS



STEP 4 - Place TD01 onto surface plate. Zero the indicator over the pivot ball.

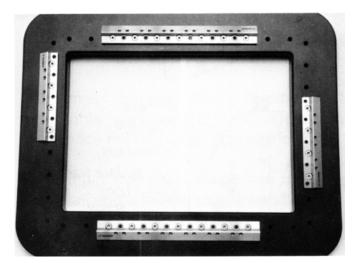


STEP 5 - Move the indicator, turn the cam until the indicator is adjusted back to zero. Third axis is true.

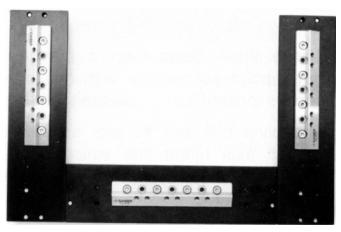
Rails, R75, R200 and R350 Series Mounted to zero level table



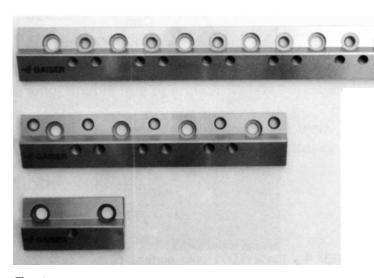
Gaiser Rails mount directly to the machine zero level table to provide the base reference.



R350-50-8M Mounted top and bottom

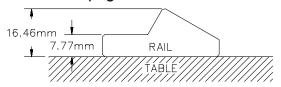


R200-50-8M Mounted three sides



#### Features:

- Vertical sides provide repeatable reference surfaces
- MCD01 main clamping device and TD03 rail mounted truing device locate most anywhere on the rail
- Threaded holes allow toe clamping directly to the rail without removing rail or bolts. See page 11



Example Part Number:	R350-50-8M
Rail length in mm —	_/ / /
Bolt spacing in mm —	/ /
Bolt size in mm —	/

Machine Type		Rail Type R75, R200, R350	
Agiecut 1XX, 2XX	-50-8M	M8	
CT Robofil 2020.1	-50-6M	M6	
CT Robofil 4020.1	-50-6M	M6	
CT Robofil 6020.1	-50-6M	M6	
CT Robofil 290/300/310*	-50-6M	M6	
CT Robofil 290/300/310**	-40-6M	M6	
Charmilles, Special	-35-6M	M6	
Mecatool Zero Level Table	-40-8M	M8	
Fanuc Alpha 0A, 0B, 0C	-50-8M	M8	
Fanuc Alpha 1A, 1B, 1C	-50-8M	M8	
Hansfedt DS-2	-50-5/16	5/16"	
Hitachi 203RS, 254RS, 355RS	-50-8M	M8	
Mitsubishi DWC 90C	-50-8M	M8	
Mitsubishi DWC 110C	-50-8M	M8	
Mitsubishi CX 20	-50-8M	M8	
Mitsubishi SX 10, SX 20	-50-8M	M8	
Mitsubishi FX1, 10	-50-8M	M8	
ONA Prima E 400, E 250	-50-8M	M8	
Sodick A320WL/A320D	-50/45-8M	M8	
Sodick A350WL	-50-8M	M8	
Sodick A530D	-50/-45-8M	M8	

<sup>\*</sup>Newer \*\*Older

MCD01 and MCD02 Main Clamping Device TS-MCD01 Truing Station



The patented main clamping device mounted on the machine table provides the base reference element and true zero positioning required for precision location.



MCD01 Main Clamping Device with permanent torque handle



MCD02 Main Clamping Device with removable torque handle

The MCD01 and MCD02 attach to the table using the rail for alignment and remain in the machine providing repeatability. The built-in or removable torque handle provides the exact torque for repeatability and is made of all stainless steel components for a long trouble-free life.

The MCD02 has a removable torque handle for machines with no tank clearance.

#### Features:

- Repeatability of 0.000080 inch (2 micron)
- Fast loading / unloading
- Versatile, can be quickly repositioned

#### MCD01/02 Dimensions

L = 2 3/4 in. (70 mm)

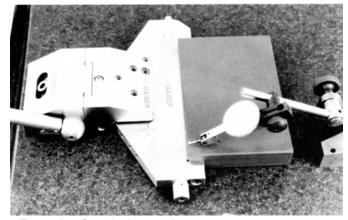
W = 3 in. (76mm)

H = 1 3/4 in. (44 mm)

#### TS-MCD01 Truing Station



TS-MCD01 Truing Station



Example of work piece truing

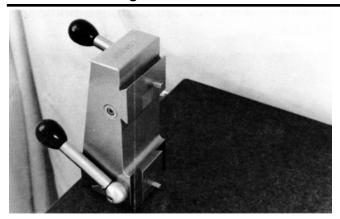
The TS-MCD01 truing station provides fast and easy truing of most work piece applications. An R75-50-8M rail is bolted to the 18 in. x 24 in. surface plate to hold the MCD01.

#### Included:

- MCD01
- R75-50-8M
- SP1824 Surface plate

PS01 Presetting Clamping Device TS-PS01 Truing Station





PS01 mounted to surface plate



PS01 mounted to table with a VV01 holding a tall work piece

L = 3 in. (76mm)W = 3 in. (76mm)

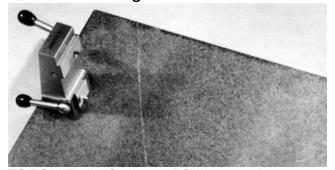
H = 7 in. (178 mm)

The PS01, normally mounted to a granite surface plate for off-line truing of the work piece, features both a lower vertical dovetail and an upper horizontal dovetail. All four axes can be trued without using a granite block or pedestals. It can be attached to the machine table in combination with the VV01 or VV03 for holding tall work pieces. Customers may use their own surface plate with the available insert installation kit.

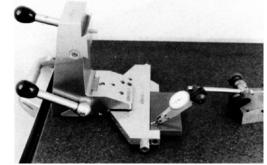
Features: **PS01 Dimensions** 

- Provides truing of X-Y-Z-0 axes
- Fast easy truing without pedestals or granite blocks
- Mounts to the surface plate and the machine table using a rail
- Can be used in the machine together with a variety of work holding devices for holding tall parts

## TS-PS01 Truing Station



TS-PS01 Truing Station - a PS01 mounted to a SP1824 granite surface plate



Typical set up of PS01, V06 / TD01 work holder and dial indicator

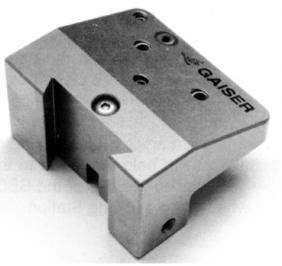
The TS-PS01 truing station features a PS01 and R75 rail mounted to an 18 inch (46cm) by 24 inch (61cm) granite surface plate. Truing of most work pieces can be accomplished between the lower and upper stages of the PS01 without granite blocks or pedestals.

#### Included:

- 1 ea. PS01
- 1 ea. R75-50-8M
- 1 ea. 18 x 24 inches surface plate

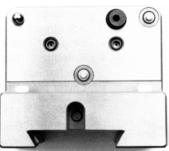
TD01 Truing Devices
TD02 Truing Device (for V08 vise)





TD01 Truing device

L =  $2\frac{5}{8}$  in. (67mm) W = 3 in. (76mm) H =  $1\frac{3}{4}$  in. (44mm)



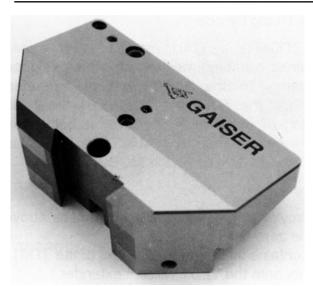
**Bottom View** 

#### TD01 Truing Device

The TD01 attaches directly to most all of the work piece holders (except V08 and V03 vises). Together the TD01 and workpiece holder make up the X-Y-Z-θ axes adjusting mechanism. It has the matching dovetail to connect to the MCD01. A vertical loading motion connects the TD01 to the MCD01.

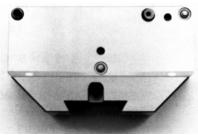
#### Features:

- Contains the screws and cam for the X-Y-Zθ axes adjustments
- Exclusive three point truing procedure is fast and easy
- Micrometer screws located close to the workpiece result in finer resolution
- Contains a self-locking, vertical Z-axis adjustment screw that is independent of the X-Y-0 axes
- Three-in-one Truing Device
  - a) Grounded leveling
  - b) Isolated leveling
  - c) Non-leveling



TD02 Truing device

L =  $3\frac{1}{4}$  in. (83mm) W =  $5\frac{3}{8}$  in. (137mm) H = 2 in. (51mm)



**Bottom View** 

#### **TD02 Truing Device**

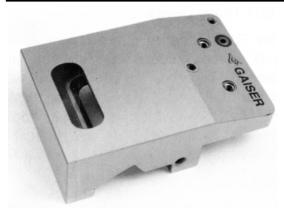
The TD02 has all the features of the TD01 with a larger truing area for added strength to connect to the large V08 eight inch(208mm) vise. The TD02 connects to the standard MCD01.

#### Features:

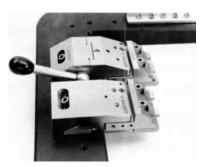
- Contains all the adjustment features as the TD01
- Stronger for large loads
- Low profile for flush cup clearance

TD03 Truing Device (rail mounted)
TD04 Truing Device (self locking)





TD03 Rail-mounted truing device



Comparison of TD03 to MCD01 / TD01



TD03 with V06 vise

#### **TD03 Truing Device**

The TD03 is a rail mounted truing device that mounts directly to the table without the use of an MCD01. It positions the work piece holder closer to the rail to allow more clearance in smaller machine models. It does not provide vertical insertion or vertical adjustments. A single M8 bolt holds the TD03 to the machine table. SB01 spacer blocks are required when using a Truing Station.

#### Features:

- Added clearance for smaller machines
- Contains the adjustments for X-Y-θ axes adjustments
- Single bolt for easy loading and unloading
- Smooth, micrometer resolution truing mechanism
- Lower profile for vertical clearance

L =  $4\frac{7}{16}$  in. (113mm) W = 3 in. (76mm)

 $H = 2\frac{3}{8}$  in. (60mm)



TD04 attached to VE01

#### TD04 Truing Device

The TD04 is a TD01 modified with a self-contained clamping mechanism. It is designed to clamp to the VE01 vertical extender. When combined, the TD04 and the VE01 allow for the locating of work holders above or below the zero level of the machine table.

\*\*The TD04 also can be used directly on the MCD01.\*\*

#### Features:

- Provides the holding of a work piece above the zero level
- Contains all the great features of the TD01
- Fits onto the VE01 vertical extender

 $L = 2\frac{5}{8}$  in. (67mm)

W = 3 in. (76 mm)

 $H = 1\frac{3}{4}$  in. (44mm)

See pages 29 and 30 for applications using the TD04 on the VE01 vertical extender and on the HA01 horizontal adapter.

TDH01 Truing Device (Adapter to Hirschmann)
TD3R01 Truing Device (System 3R® adapter)\*





TDH01 Truing Device (Hirschmann)



TDH01 mounted to Hirschmann multiholder



V06 vise mounted to TDH01 and Hirschmann multiholder and B Beam

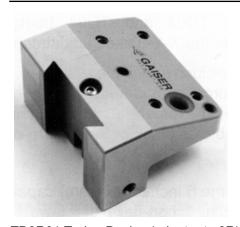
#### TDH01 Truing Device / Adapter

The TDH01 is an adapter designed to attach to the Hirschmann H2480 and H2485 Multiholders. The TDH01 allows the use of Gaiser work holders on the Hirschmann system. Hirschmann multiholders provide for the loading and unloading of the work pieces. Positional accuracy is limited to that of the Hirschmann system.

#### Features:

- Allows the use of most all Gaiser work piece holders on the Hirschmann system
- Attaches easily to the multiholder with four holts
- Provides the X-Y-θ adjustments

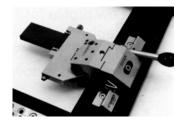
L =  $2\frac{5}{16}$  in. (59mm) W = 3 in. (76mm) H =  $1\frac{3}{4}$  in. (44mm)



TD3R01 Truing Device (adapter to 3R)



TD3R01 mounted to 3R supervise



TD3R01 and supervise attached to MCD01 main clamping device

#### TD3R01 Truing Device / Adapter

The TD3R01 is an adapter designed to attach to most of the System 3R® 2D work piece holders. The converted 3R 2D work holder can be used in the repeatable Gaiser main clamping device. The 2D work holder requires a countersink pocket for the pivot ball and two ¼ inch (6.4mm) holes for the ceramic insert pads.

#### Features:

- Most System 3R® 2D work holders can be used on Gaiser base
- Fast, easy truing
- Fast loading and unloading of work piece
- Improved repeatability of the work piece
- Provides the X-Y-Z-θ adjustments

L =  $2\frac{5}{8}$  in. (67mm) W = 3 in. (76mm) H =  $1\frac{3}{4}$  in. (44mm)

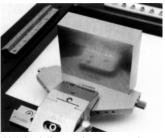
\* System 3R registered trademark of System 3R

#### V06 Six Inch Vise





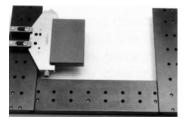
MCD01 & TD01 with V06 holding a work piece



V06 holding a large work piece



TD03 & V06 holding a workpiece



Toe clamped V06 holding a work piece



V06 holding a horizontal round in C0309 jaw



V06 holding a vertical round in C0308 jaw



V06 holding a dovetail form tool with C0307 jaws



V06 holding a work piece away from the vise bed



V06 vise including two C0303 jaw inserts.  $L = 3\frac{5}{16}$  in. (84mm),  $W = 9\frac{3}{16}$  in. (233mm), H = .59 in. (15mm)

C0302
Sliding Jaw
Standard

C0308

C0306
Sliding Jaw
Long

C0308

C0308

Vertical
Fixed Jaw

C0309
Horizontal
Fixed Jaw
C0307
Jaw Set
Dovetail

#### V06 Six Inch Vise

The V06 six inch vise holds a work piece up to 6 inches (154mm) and attaches to the TD01, TD03, and TD04 truing devices to provide the X-Y- $\theta$  axes adjustment.

An exclusive two piece sliding jaw design produces two force components, resulting in a strong clamping force. Replaceable jaws are available as blank or factory pre-cut.

#### Features:

- Large 6 inch (154mm) wide capacity
- Rigid, non-flexible jaws allow for strong, repeatable clamping to 0.000080 (2micron)
- Can hold a work piece away from the vise bed
- Low profile for flush cup clearance
- Replaceable jaws for custom shapes
- Clamping of small round pieces
- Can hold a dovetail form tool 5/8 in. to 3 in. wide\*

Replaceable jaw inserts available

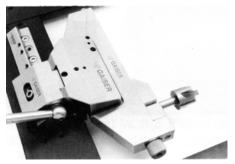
<sup>\*</sup> See DDV01 for production form tools page 26

## V08 Eight Inch Vise





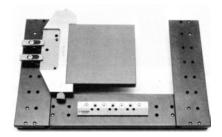
TD02 with V08 utilizing the MCD01 main clamping device



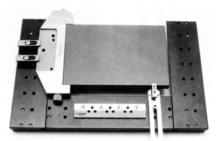
V08 holding a horizontal round in the C1709 jaw



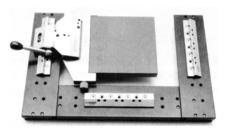
V08 holding a vertical round in the C1708 jaw



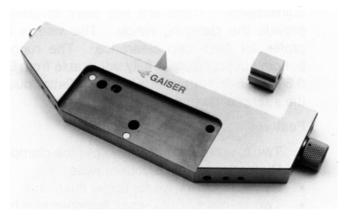
Toe clamped V08 holding a 8 x 8 x 1 inch (200mm x 200mm x 25mm) plate



Toe clamped V08 vise with 8 x 12 x 1 inch (200mm x 300mm x 25mm) plate utilizing the TC01 support arm



MCD01/TD02 with V08 holding a 8 x 8 x 1 inch (200mm x 200mm x 25mm) plate



V08 Eight Inch Vise including one C1703 Jaw insert

#### C1702 C1703 Sliding Jaw Fixed Jaw / Standard Standard C1708 Vertical C1706 Fixed Jaw / Sliding Jaw Long C1709 Horizontal I Fixed Jaw / C1707 Jaw Set Dovetail

Replaceable Jaw inserts available

#### V08 Eight Inch Vise

The V08 vise has a large capacity for work pieces of up to 8 inches (208mm) wide. It must attach to the TD02 truing device to utilize the MCD01 main clamping device. The vise body is 1.0 inch (25mm) thick with the exclusive two piece sliding jaw design to provide the extra strong clamping force.

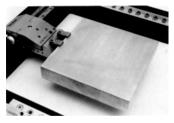
#### Features:

- 8 inch (208mm) wide capacity
- Replaceable jaw inserts
- Holds rounds vertically and horizontally
- Lower flush cup clearance while holding a large work piece
- 50 pounds (22kg) capacity
- Includes THW15 Torque Wrench

L = 4 in. (101mm) W = 12¾ in. (324mm) H = 1 in. (25mm)

## VV01 Vertical Vise (1.5 Inches)

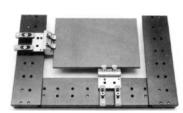




MCD01 & TD01 with VV01 holding a 8 x 8 x 1 ½ inch plate



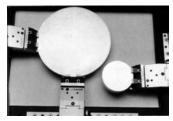
Two VV01's holding an 8 x Two toe clamped VV01's 15 x ½ inch plate



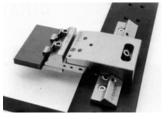
holding a 8 x 15 x ½ inch plate holding a turning tool



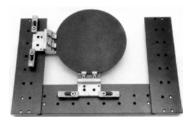
MCD01 & TD01 with VV01



VV01's holding 10 inch and 4 inch rounds



TD03 & VV01 holding a 2 x 4 x ½ inch plate

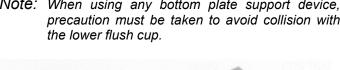


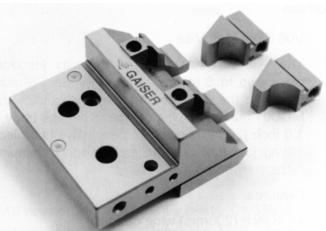
Two toe clamped VV01's holding a 10 inch round



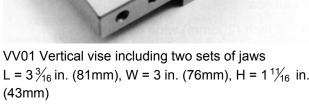
Toe clamped VV01 utilizing TC01 support holding a 8 x 12 x ½ inch plate

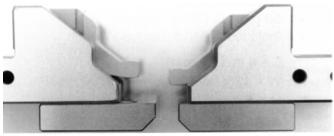
Note: When using any bottom plate support device, precaution must be taken to avoid collision with





L =  $3\frac{3}{16}$  in. (81mm), W = 3 in. (76mm), H =  $1\frac{11}{16}$  in. (43mm)





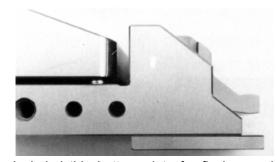
Bottom plate adjusts from .16 inch (4mm) to .60 inch (15mm)

#### VV01 Vertical Vise (0.0-1.5 in)(0mm-38mm)

The VV01 vise holds a work piece up to 1.5 inches (38mm) thick. It attaches to the TD01 truing device to provide  $X-Y-Z-\theta$  axes adjustments. The vise is low profile for flush cup clearance with a rugged bottom support plate fully adjustable from 0.2-0.6 inch (5-15mm). Parts are held flatter due to the strong bottom plate.

#### Features:

- Two independent vise jaws (no toe clamps)
- Optimum clearance for upper flush cup
- Two or more VV01 vises together can hold a large workpiece
- 22 pound(10kg) capacity
- Can be adjusted 0.015 inch below zero level



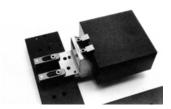
Included thin bottom plate for flush cup clearance (necessary for Charmilles)

## VV03 Vertical Vise (3 Inches)





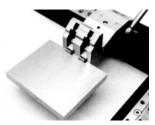
MCD01 & TD01 with VV03 holding a 8 x 8 x 3 inch plate



Toe clamped VV03 holding a 8 x 8 x 3 inch plate



MCD01 & TD01 with VV03 holding a 5 x 6 x ½ inch plate



MCD01 & TD01 with VV03 holding a 5 x 6 x ½ inch plate



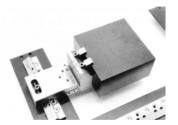
MCD01 & TD01 with VV03 holding a 1 inch diameter



MCD01 & TD01 with VV03 holding a 4 inch diameter round

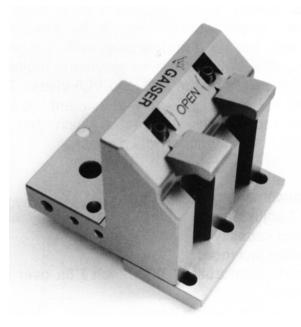


MCD01 & TD01 with VV03 holding a 6 inch diameter



TD03 & VV03 holding a 8 x 8 x 3 inch plate

Note: When using any bottom plate support device, precaution must be taken to avoid collision with the lower flush cup.



VV03 Vertical Vise

L =  $3\frac{3}{16}$  in. (81mm) W = 3 in. (76mm) H =  $3\frac{1}{4}$  in. (83mm)

#### VV03 Vertical Vise (0.0-3.0 in)(0mm-76mm)

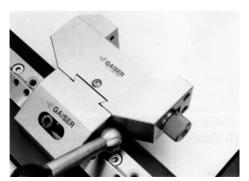
The VV03 vise holds a work piece of up to 3.0 inches (76mm) thick. It attaches to the TD01 truing device to provide X-Y-Z- $\theta$  axes adjustments. One pair of jaws provides for the entire clamping range with the same adjustable bottom plate as the VV01. The rugged, bottom support plate is fully adjustable from 0.2-0.6 inch (5-15mm). Parts are held flatter due to the large bottom plate.

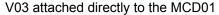
#### Features:

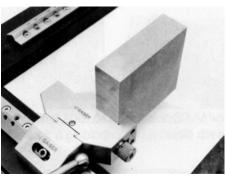
- Two independent vise jaws (no toe clamps)
- Optimum clearance for upper flush cup
- Two or more VV03 vises together can hold a large workpiece (same as VV01 Pg. 22)
- 22 pound (10kg) capacity
- Single piece, rugged construction

#### V03 3 Inch Vise

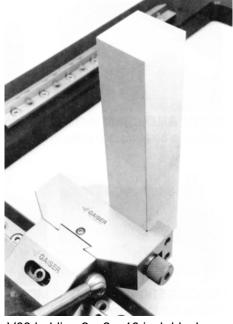








V03 holding a 8 x 8 x 1½ inch block



V03 holding 2 x 2 x 10 inch block

V03 Vise (3 inch)

C1602 C1603

Replaceable jaw faces can be machined for holding many shapes

The C1603 jaw can be bolted to either the fixed jaw and/or the sliding jaw.

#### V03 Vise

The V03 is a 3 inch vise with 1 \(^3\)4 inch wide jaws. It is ruggedly designed to hold heavy work pieces which can be accurately loaded in and out of the machine with excellent repeatability. Mounting is done directly to the MCD01 without a TD01 truing device. The V03 has the same unique movable jaw for holding power as the V06 and V08 vises and includes the exclusive Zaxis adjustment. It also features the replaceable jaw faces which can be custom cut for holding unique work pieces.

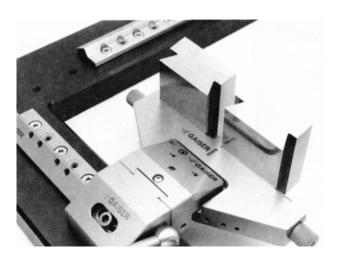
#### Features:

- Direct attachment to the MCD01
- Vertical Z adjustment
- Heavy load capacity
- Replaceable jaw faces
- Holds work piece true to .0002 inch /  $5\mu$  over 4.0 inch distance
- Includes THW15 Torque Wrench

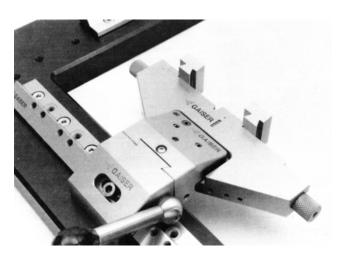
L = 3 in. (76mm)W = 7 in. (178 mm) $H = 1\frac{3}{4}$  in. (44mm)

DDV01 Dual Dovetail Vise for Dovetail Form Tools





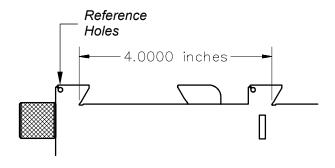
DDV01 holding two 3.0 inch wide tools



DDV01 holding two 5/8 inch wide tools



DDV01 Dual Dovetail Vise with inserts



Four inch jaw spacing

#### DDV01 Dual Dovetail Vise

The DDV01 vise has two independent vises in one. Each fixed jaw is located on the left side, which is the same reference side as the form tool. The vise will hold dovetail widths from 5/8 inch (16mm) to 3 inches (76mm) wide. Two inserts fit into the vise beds to provide the necessary spacing for the smaller form tools. The jaws are spaced exactly 4.0 inches (102mm), which allows for easier set-ups.

#### Features:

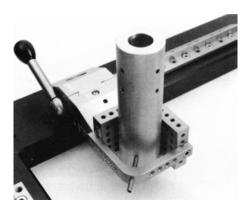
- Faster set-up time (no touch off required)
- Holds two dovetails from 5/8 3.0 inches (16mm - 76mm)
- Contains X-Y-Z- $\theta$  axes adjustments
- Two independent vises in one

Note: For increased clearance for a smaller machine table, use together with the TD03 truing device

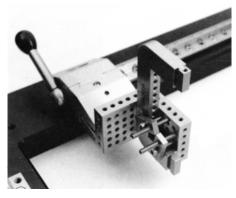
L =  $3\frac{1}{8}$  in. (79mm) W =  $10\frac{1}{8}$  in. (257mm) H = 1 in. (25mm)

## AP01 Angle Plate

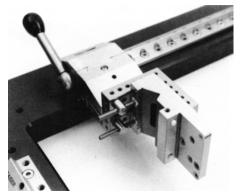




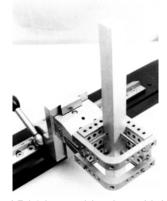
The 2.5 inch high angle block provides for accurate clamping of a long work piece



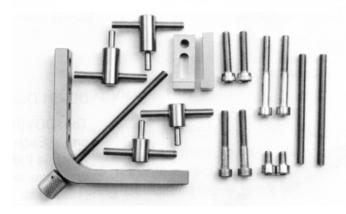
Clamping of an irregular shaped work piece using toe clamps



Clamping of an irregular shaped work piece using in-hole clamps



AP01 in combination with VE01 and TD04 allows clamping of a work piece at mid shank



A complete set of clamps and screws is included with the AP01



AP01 Angle Plate shown with strap clamp

#### AP01 Angle Plate

The AP01 is a multi-sided angle plate with a versatile array of threaded holes.

It attaches to the TD01 truing device to provide the X-Y-Z- $\theta$  axes adjustments. A complete set of clamps for various applications is included.

#### Features:

- Holds round pieces up to 2.5 inches (64mm) diameter
- Holds most work pieces at any angle
- Holds 22 pounds (10kg) capacity
- Complete assorted set of clamps
- Versatile

 $L = 4\frac{7}{8}$  in. (124mm)

W = 3 in. (76 mm)

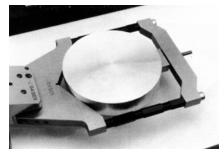
 $H = 2\frac{1}{2}$  in. (64mm)

## RC01 Round Clamp

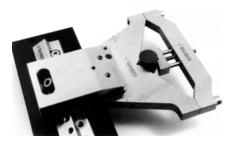




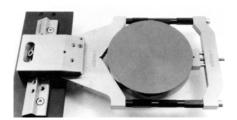
RC01 holding a one inch diameter round



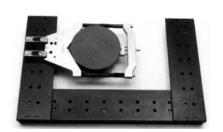
RC01 holding a 6 inch diameter round



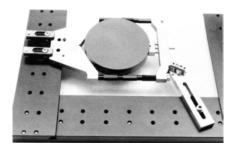
TD03 & RC01 holding a one inch diameter round



TD03 & RC01 holding a 6 inch diameter round



Toe clamped RC01 holding a 6 inch diameter round



Toe clamped RC01 holding a 6 inch diameter round with a TC01 support



RC01 Round Clamp (with spacers to hold 6 inch diameter round)

#### RC01 Round Clamp

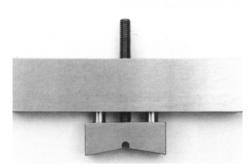
The RC01 vise holds round work pieces up to 6.0 inches (154mm) diameter. It attaches to the TD01 truing device to provide X-Y-Z- $\theta$  four axes adjustments. The exclusive "floating vee" provides torque free clamping. It allows clearance for wire touch-off for perfect centering.

#### Features:

- Strong, rugged surround clamping
- "Floating vee" provides touch-off clearance
- Range is 0.5-6.0 inches (12mm-154mm) diameter
- Low profile design for flush cup clearance
- 15 pounds capacity

RC01 Round Clamp (without spacers to hold down to 5/8 inch diameter round

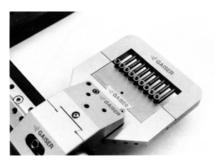
L = 6 in. (152mm) W =  $7\frac{1}{2}$  in. (190mm) H = .59 in. (15mm)



Exclusive "floating vee" block for stable clamping of the work piece

## RH01 Replaceable Insert Holder





RH01 holding nine rounds



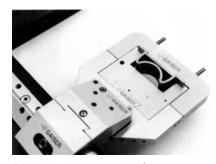
RH01 holding three rounds



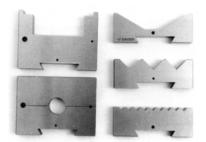
RH01 holding four inch diameter



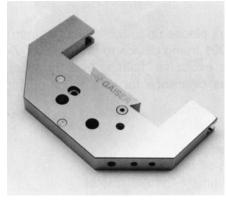
RH01 holding concentric round



RH01 holding special flange RH01 Replaceable Insert Holder



Typical insert shapes



RH01 replaceable insert holder (supplied with a choice of multi-clamp or horseshoe clamp)

The RH01 vise holds two types of machineable inserts for holding custom workpiece shapes. It attaches to the TD01 truing device to provide the X-Y-Z- $\theta$  axes adjustments. A multi-clamp is included.

#### Features:

- Replaceable inserts for custom shapes
- Hold delicate shapes with equal pressure
- High Production jobs capability
- Holds multiple parts, up to nine pieces
- Holds up to 4.0 inch (102mm) diameter rounds  $L = 3 \frac{1}{2}$  in. (89mm)

W =  $6\frac{1}{16}$  in. (154mm) H = .59 in. (15 mm)

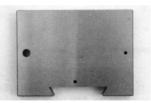


C0603 multi-clamp (included standard C0606 Horseshoe clamp (optional) with RH01 if not specified)





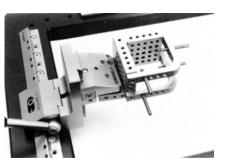
C0604 Basic Insert



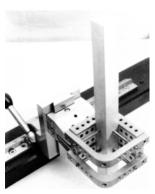
C0605 Deluxe Insert

## VE01 Vertical Extender





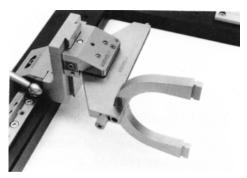
VE01 assembled between the MCD01 and TD04 / AP01 Angle Plate



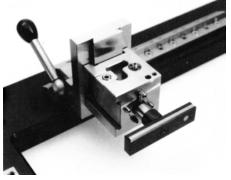
AP01 using two strap clamps holding a long work piece at mid-shank



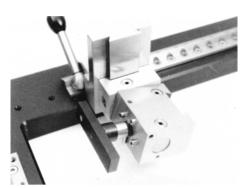
AP01 holding a flanged casting at mid-shank



V06 Vise holding a curved work piece at mid-shank



VE01 can hold 3R electrode holders and other vertical dovetail pieces



VE01 holding electrode holder for 20mm shanks



VE01 Vertical Extender

## VE01 Vertical Extender

The VE01 connects directly to the MCD01 main clamping device. It can extend above or below zero level for holding work pieces. The TD04 truing head is designed to clamp directly to the VE01.

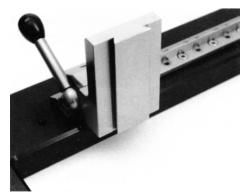
#### Features:

- 6 inch working range: three inches in both directions
- Holds most all Gaiser work holders above or below zero level
- Strong rugged construction
- Holds other tooling systems
- Can be setup on truing station

 $L = 1\frac{3}{4}$  in. (44mm)

 $W = 3 \frac{1}{4}$  in. (83mm)

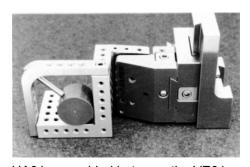
 $H = 4\frac{3}{4}$  in. (121mm)



VE01 attached to MCD01 Main Clamping Device

## HA01 Horizontal Adapter

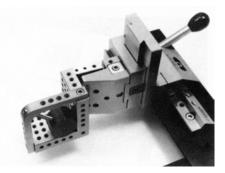




HA01 assembled between the VE01 and TD04 allowing an AP01 to be rotated 90°



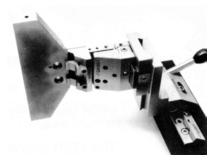
Assembly attached to a TS-PS01 truing station for easy off-line truing



Assembly shown mounted in the machine



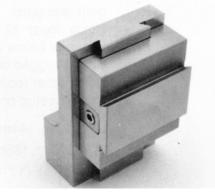
RC01 round clamp holding a six inch diameter round horizontally



VV01 vertical vise holding an irregular shaped work piece (without corners in which to clamp)



**HA01 Horizontal Adapter** 



HA01 connected to the VE01 vertical extender

#### **HA01 Horizontal Adapter**

The HA01 horizontal adapter is designed to provide a horizontal dovetail reference. When the HA01 is connected to the VE01 vertical extender, it can be adjusted up or down. A TD04 truing device connects the work piece holder to the HA01.

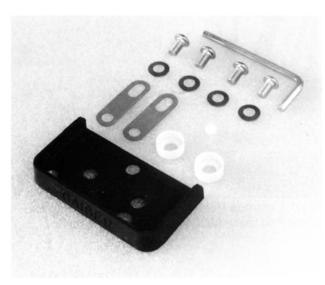
#### Features:

- 90° degree rotation of work holders
- Allows work holders to hold more types of work pieces
- Square or 90° degree cuts can be made without removing the work piece from the vise

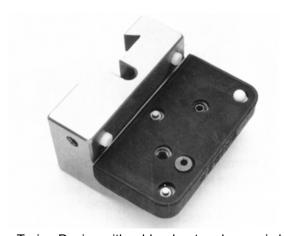
L =  $1\frac{1}{4}$  in. (32mm) W = 3 in. (76mm) H =  $3\frac{1}{4}$  in. (83mm)

#### EI01 Electrical Isolation Kit

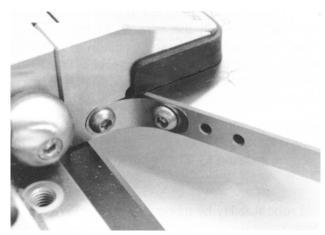




EI01 Isolation Kit



Truing Device with rubber boot and ceramic ball



Using ground strap

#### El01 Isolation Kit

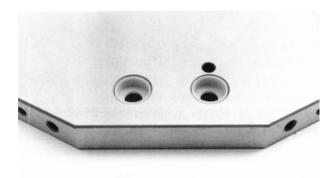
Electrically isolating the work piece reduces parasitic capacitance. Reduced capacitance makes finer surface finishes obtainable. The El01 electrical isolation kit easily converts most Gaiser truing devices into isolated work piece holders (except the V08 vise).

The kit contains a ceramic pivot ball, clamp screw insulators, rubber boot, and copper ground straps with screws.

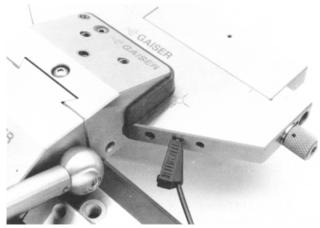
Fast change over from grounded to isolated status is accomplished using the ground strap or a banana plug, further increasing up time.

#### Features:

- Finer surface finishes obtainable
- Fast change over from grounded to isolated
- Economical
- Increases machine up time



V06 vise with clamp screw insulators installed



Using banana plug - Quick Change

CAB01 Lista Cabinet SP1824 Surface Plate

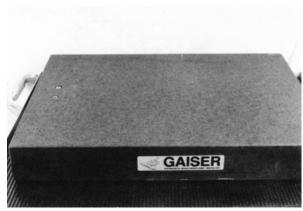




CAB01 Lista cabinet

The CAB01 is a convenient size Lista cabinet to hold the SP1824 surface plate. The cabinet is comprised of five drawers, two handles, and locking wheels for easy access and maneuverability.

Height 36 in. (92cm) Width 28 in. (71cm) Depth 23 in. (58cm)



SP1824 Granite Surface Plate

The SP1824 surface plate is a Class B flatness plate. It measures 18 inches wide by 24 inches long by 4 inches thick (46cm x 61cm x 104mm). It has two M8 threaded bushings at 50mm spacing cemented into the plate to attach the R75-50-M8 rail for holding the PS01 or the MCD01. The size of the surface plate provides ample room for a dial indicator and stand to be positioned around the work piece. The SP1824 fits easily onto the CAB01 Lista Cabinet.

S5068 insert installation kit is available for mounting rails to any surface plate.

#### S5068 Includes:

- 1 Core drill
- 2 Bushings
- 1 Glue

## RI01 Compact Rotary Indexer





RI01 Rotary Indexer

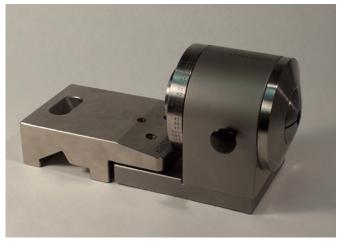
- Uses standard 5C collets
- TD01 adapter plate standard
- 5 degree positive locking indexing
- 15 minute index accuracy
- Vernier scale for setting of any angle
- 2.250" center height
- 1.125" thru hole
- Compact size 3"x3"x3" (less adapter plate)
- · Constructed of 420 stainless steel
- Corrosion resistant collet sets available

# RI01 Compact Rotary Indexer

Allows accurate indexing of work pieces. Multiple sided parts can be cut in a single set-up. Excellent for multiple flute, specialty cutting tools. Wire multiple angles on a work piece without removing it from the wire machine.

The RI01 uses standard 5C collets to index a full  $360^{\circ}$ . Features 5 degree positive locking, accurate to within 15 minutes. A vernier scale and friction lock allows for manual setting of any angle. Used with the supplied adapter plate to mount to a TD01, TD03, or TD04 for Gaiser EDM Tooling - 3 point leveling. The RI01 can also be mounted directly to the machine table, or can be used with other tooling systems.

A spanner wrench and a dead stop pin allow for quick and easy removal of collets.



RI01 Rotary Indexer shown mounted with TD03

## SK10, SK50 and SK90 Starter Kits





#### SK10 Starter Kit (Level Three)

Utilizes the TD03 rail mounted truing device. It requires removal of the bolt to unload from the machine. Provides Gaiser three point truing and can be preset at a truing station. Can upgrade to level four.

- 1 ea. R200 Rail \*
- 1 ea. TD03 Truing Device
- 1 ea. V06 Six Inch Vise (2 inserts)
- 1 ea. SK10 Wrench Kit

(V06 can be substituted with other holders at a price difference)



#### SK50 Starter Kit (Level Four)

Utilizes the MCD01 main clamping device together with the TD01 truing device for fast, vertical loading. Provides Gaiser three point truing and can be preset at a truing station.

- 1 ea. R200 Rail \*
- 1 ea. MCD01 Main Clamping Device
- 1 ea. TD01 Truing Device
- 1 ea. V06 Six Inch Vise (2 inserts)
- 1 ea. SK10 Wrench Kit

(V06 can be substituted with other holders at a price difference)



Kits include cost savings over individual piece pricing

#### SK90 Starter Kit (Level Four)

Same as the SK50 with the addition of a VV01 Vertical vise and a CK01-50-8M Clamp Kit. The TD01 must be changed out from V06 to VV01.

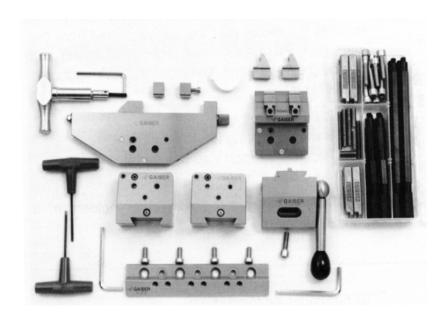
- 1 ea. R200 Rail \*
- 1 ea. MCD01 Main Clamping Device
- 1 ea. TD01 Truing Device
- 1 ea. V06 Six Inch Vise
- 1 ea. VV01 Vertical Vise (2 set jaws)
- 1 ea. SK10 Wrench Kit
- 1 ea. CK02-8M or CK02-6M Clamp Kit (please specify)

(Other holders can be exchanged at a price difference)

\* See page 14 for Rail ordering instructions

#### SK100 and SK210 Starter Kits



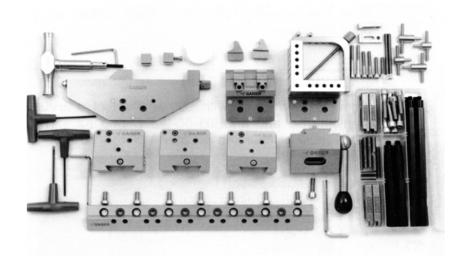


SK100 Starter Kit (Level Four)

Includes the following:

- 1 ea. R200 Rail \*
- 1 ea. MCD01 Main Clamping Device
- 2 ea. TD01 Truing Device
- 1 ea. V06 Six Inch Vise (2 inserts)
- 1 ea. VV01 Vertical Vise (2 sets jaws)
- 1 ea. SK100 Wrench Kit
- 1 ea. CK01-8M or CK01-6M Clamp Kit (please specify)

(Other holders can be substituted at a price difference)



SK210 Starter Kit (Level Four)

Includes the following:

- 1 ea. R350 Rail \*
- 1 ea. MCD01 Main Clamping Device
- 3 ea. TD01 Truing Device
- 1 ea. V06 Six Inch Vise (2 inserts)
- 1 ea. VV01 Vertical Vise (2 sets jaws)
- 1 ea. AP01 Angle Plate (set of clamps)
- 1 ea. CK01-8M or CK01-6M Clamp Kit (please specify)
- 1 ea. SK210 Wrench Kit

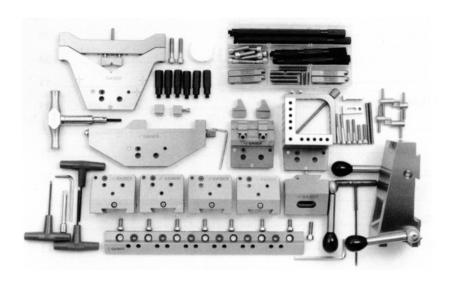
(Other holders can be substituted at a price difference)

See page 14 for Rail ordering instructions

Kits include cost savings over individual piece pricing

#### SK310 and SK300 Deluxe Kits



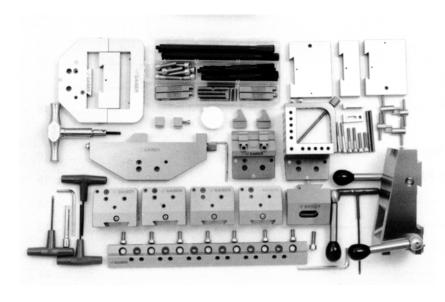


#### SK310 Starter Kit

#### Includes the following:

- 1 ea. R350 Rail \*
- 1 ea. MCD01 Main Clamping Device
- 4 ea. TD01 Truing Device
- 1 ea. V06 Six Inch Vise (2 inserts)
- 1 ea. VV01 Vertical Vise (2 sets jaws)
- 1 ea. AP01 Angle Plate (set of clamps)
- 1 ea. RC01 Round Clamp
- 1 ea. CK01-8M or CK01-6M Clamp Kit (please specify)
- 1 ea. SK310 Wrench Kit
- 1 ea. TS-PS01 Truing Station

(Other holders can be substituted at a price difference)



#### SK300 Starter Kit

#### Includes the following:

- 1 ea. R350 Rail \*
- 1 ea. MCD01 Main Clamping Device
- 4 ea. TD01 Truing Device
- 1 ea. V06 Six Inch Vise (2 inserts)
- 1 ea. VV01 Vertical Vise (2 sets jaws)
- 1 ea. AP01 Angle Plate (set of clamps)
- 1 ea. RH01 Replaceable Insert Holder (multi clamp, 2 small as a two large insert)
- 1 ea. CK01-8M or CK01-6M Clamp Kit (please specify)
- 1 ea. SK300 Wrench Kit
- 1 ea. TS-PS01 Truing Station

(Other holders can be substituted at a price difference)

\* See page 14 for Rail ordering instructions

Kits include cost savings over individual piece pricing



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# **Gaiser Vises**

Vise	Dimensions	Capacity	Truing	Attachments	Accessories	Comments
V03	L = 3 in. (76mm) W = 7 in. (178mm) H = 1 3/4 in. (44mm)	3 in. wide 25 lbs (11kg)	Z axis	Direct mount to MCD01	Replaceable Jaw Faces (extra) THW15 Torque Wrench (Included)	Vertical Z adjustment     Holds work piece true to 0.0002 in. over 4.0 in. distance
V06	L = 3 5/16 in. (84mm) W = 9 3/16 in. (233mm) H = 0.59 in. (15mm)	6 in. wide 18 lbs (8kg)	X-Y-θ	TD01, TD04 for use with MCD01 or TD03 separately	Replaceable Jaw Inserts (extra)	<ul> <li>Strong, repeatable clamping to 0.000080 in. (2μ)</li> <li>Low profile for flush cup clearance</li> <li>Holds dovetail form tool 5/8 in. to 3 in. wide</li> </ul>
V08	L = 4 in. (101mm) W = 12 3/4 in. (324mm) H = 1 in. (25mm)	8 in. wide 50 lbs (22.7kg)	X-Y-θ	TD02 for use with MCD01 or TD05 separately	Replaceable Jaw inserts (extra) THW15 Torque Wrench (Included)	<ul> <li>Two piece sliding jaws provide extra strong clamping force</li> <li>Hold rounds horizontally and vertically</li> <li>Low flush cup clearance</li> <li>True to 0.00012 in. (3µ)</li> </ul>
DDV01	L = 3 1/8 in. (79mm) W = 10 1/8 in. (178mm) H = 1 in. (44mm)	1 or 2 dovetails from 5/8 in. to 3 in.	Х-Ү-Ө	TD01 for use with MCD01 or TD03 separately	N/A	<ul> <li>Two independent vises in one</li> <li>True to 0.00008 in. (2μ)</li> <li>Fast, easy set-up</li> </ul>
VV01	L = 3 3/16 in. (81mm) W = 3 in. (76mm) H = 1 11/16 in. (43mm)	1.5 in. thick 22 lbs (10kg)	Х-Ү-ө	TD01 for use with MCD01 or TD03 separately	Extra Jaws up to 6 in. capacity	<ul> <li>Two independent vise jaws</li> <li>Bottom plate adjusts to 0.2 in. or 0.6 in.</li> <li>Adjusts to 0.015 in. below zero level</li> <li>True to 0.00008 in. (2µ)</li> </ul>
VV03	L = 3 3/16 in. (81mm) W = 3 in (76mm) H = 3 1/4 in. (83mm)	3 in. thick 22 lbs (10kg)	X-Y-θ	TD01 for use with MCD01 or TD03 separately	Extra Jaws up to 6 in. capacity	<ul> <li>Two independent vise jaws</li> <li>Only one pair of jaws used for clamping range</li> <li>Bottom plate adjusts to 0.2 in. or 0.6 in.</li> <li>True to 0.00008 in. (2μ)</li> </ul>

<sup>\*\*</sup> All Gaiser manufactured vises are made from high-quality 420 stainless steel.

## **VOLUME 8**

Gaiser EDM tooling was developed in the late 1980's when Gaiser Tool Company's work in the micro EDM industry called for a more accurate and repeatable work holding system than what was available at that time. Gaiser's team of engineers and toolmakers went to work designing EDM tooling that would meet their needs. In their efforts to create tooling that met their tolerance requirements, an amazingly versatile and easy to use system of Wire EDM tooling was developed. Innovations were made in Gaiser EDM Tooling's patented dovetail clamping system, and its simple yet effective three point truing system.

In 2002, the EDM tooling division of Gaiser Tool Company of California, became Gaiser EDM Tooling, Inc. which is now headquartered in Colorado. All manufacturing, development, service, and distribution will be based from our state-of-the-art, quality controlled manufacturing facility at the foot of the Rocky Mountains near Denver.

Gaiser EDM Tooling, Inc. offers our customers the highest quality wire EDM tooling available in the industry. Our wire EDM tooling is machined and precision ground from the highest quality 420 series stainless steel. This unique alloy offers high strength and hardness, while maintaining a high level of corrosion resistance. Tooling components are cryogenically stress relieved and vacuum hardened. When properly maintained, Gaiser EDM Tooling will offer many years of reliable use.

Visit us at our website: <a href="www.gaiseredm.com">www.gaiseredm.com</a> or ask your local EDM supplier about Gaiser EDM Tooling and see why Gaiser is "The most repeatable name in EDM tooling."

Made in the USA



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