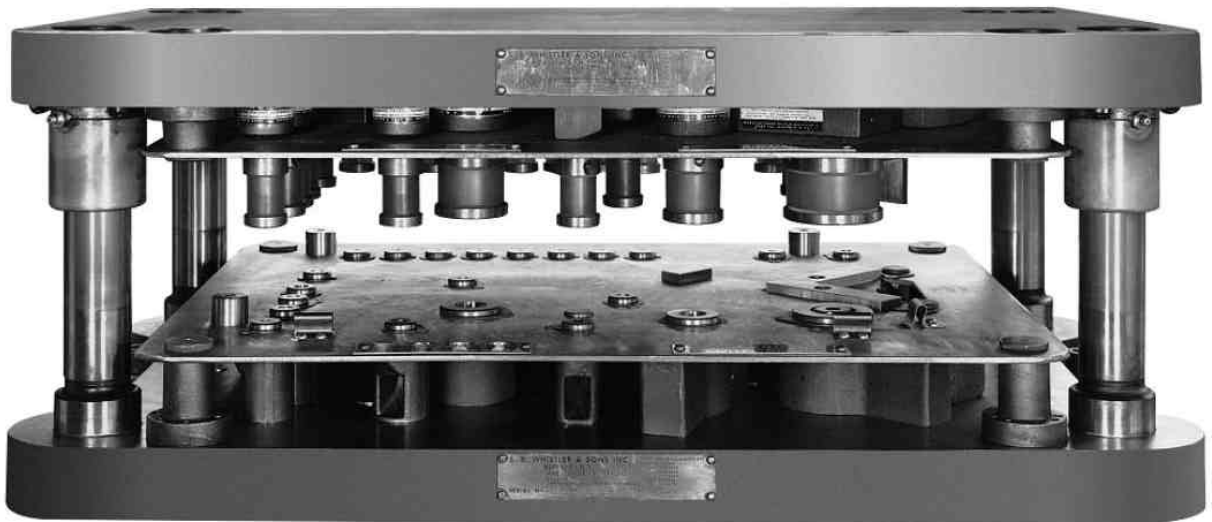


MAGNA DIE[®] and MAGNA DIE[®] 2000 USER'S MANUAL



This user's manual is intended to guide users of the Magna Die[®] & Magna Die[®] 2000 Modular Hard Die punching and notching system manufactured by S.B. Whistler & Sons, Inc. of Akron, NY 14001 USA.

For further information, or to place an order, contact our sales department at:

S.B. Whistler and Sons, Inc.

Post Office Box 207

32 Main Street

Akron, N.Y. 14001-0207

Phone: 716-542-4141 • 800-828-1010 • Fax: 716-542-4226

email: sales@sbwhistler.com / engineer@sbwhistler.com

www.sbwhistler.com

WARNING

TO PREVENT SERIOUS BODILY INJURY

- NEVER** PLACE ANY PART OF YOUR BODY UNDER THE SLIDE (RAM) OR WITHIN THE DIE AREA UNLESS POWER IS OFF, FLYWHEEL IS STOPPED AND THE SLIDE (RAM) IS BLOCKED UP.
- NEVER** OPERATE, INSTALL DIES, OR MAINTAIN THE PRESS WITHOUT PROPER INSTRUCTION AND WITHOUT FIRST READING AND UNDERSTANDING THE OPERATORS MANUAL AND PRESS MANUAL.

IT IS THE EMPLOYER'S RESPONSIBILITY TO IMPLEMENT THE ABOVE & ALSO TO PROVIDE PROPER DIES, GUARDS, DEVICES OR MEANS THAT MAY BE NECESSARY OR REQUIRED FOR ANY PARTICULAR USE, OPERATION, SET UP OR SERVICE.

This manual has been written to guide personnel through startup, operation and maintenance of Magna Die® & Magna Die 2000® Modular Hard Die Systems. Product designs, dimensions and tolerances are subject to change without notice.

NOTE: IF THE EMPLOYEE DOES NOT READ OR UNDERSTAND ENGLISH, IT IS THE EMPLOYER'S RESPONSIBILITY TO INTERPRET AND EXPLAIN ALL WARNING SIGNS, ALL INFORMATION CONTAINED IN THIS MANUAL, POWER PRESS SAFETY, PROCEDURES AND RELATED ISSUES PERTAINING TO THE PROPER CARE AND USE OF SUCH PRODUCTS.

SECTION "A"- INTRODUCTION

This manual will assist the reader in understanding and properly implementing Magna Die® & Magna Die® 2000 Modular Hard Die Systems.

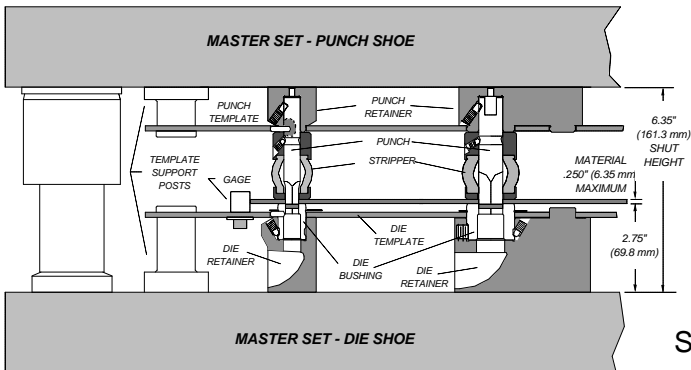
Magna Die tooling is manufactured and patented by S. B. Whistler & Sons and incorporates many innovations. Magna Die® tooling is a technical evolution of our original T-slot die system, known world-wide as Adjustable Modular Hard Dies.

Magna Die tooling is designed as an efficient, productive system for punching and notching flat sheet metal in conventional stamping presses and press brakes. Maximum system capacity is .500" / 12.7 mm thick mild steel (AISI-1010 or equivalent). Components are interchangeable and reusable. Features you will appreciate are:

- Top quality tool steel components
- close center punching
- high repeat accuracy
- light weight tooling
- simple assembly
- fast tool changes
- complete factory service and support

The system consists of a Master Die Set and two identically matched, 8 gage steel templates - one to position the punch tooling, the other to position the die tooling. Tool units lock into the templates.

The upper (punch) template and the lower (die) template are located in the Master Die Set over template locator posts and fastened with template clamp screws (TSC-50). The template locator posts are assembled into the Master Die Set at the factory and insure that the punch and die templates are kept in precise vertical alignment throughout the press cycle.

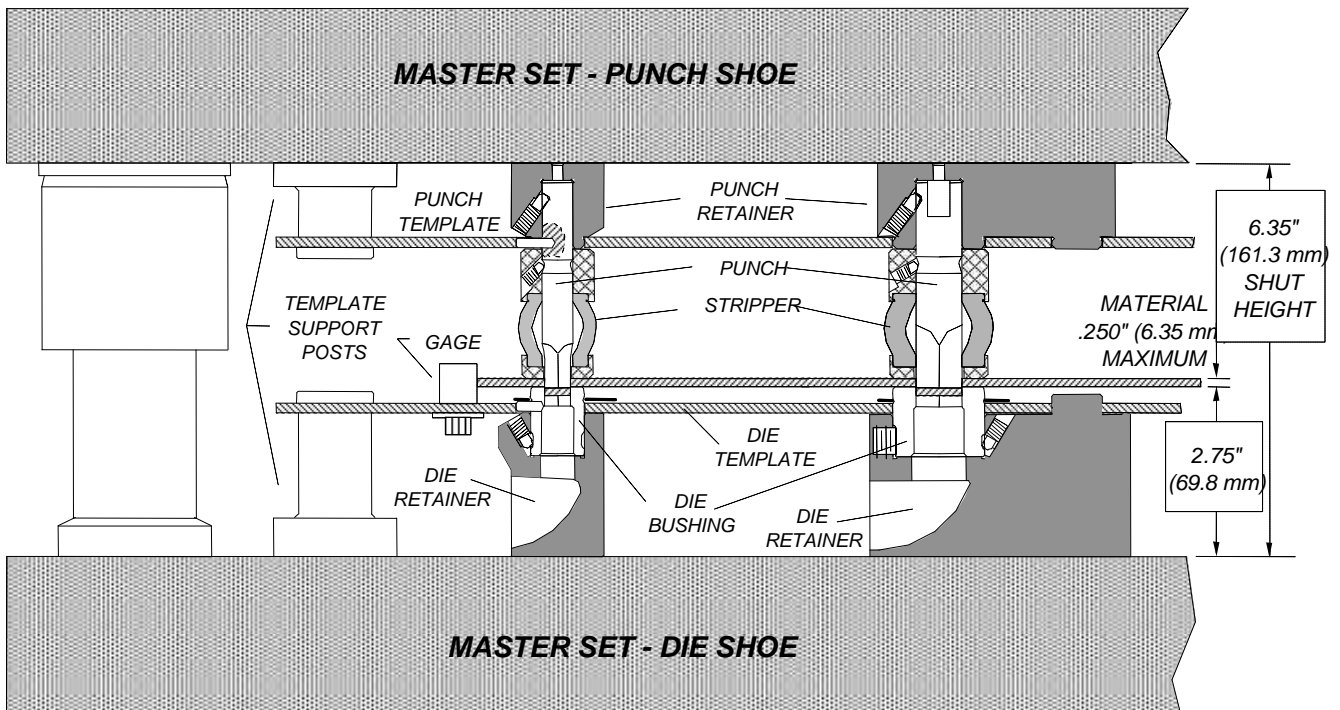


See next page larger image

1. Standard operating shut height is 6.35" (161.3 mm) between working faces of Master Set.

2. It is important to insure that all stripper faces are fully supported by the work piece at bottom of stroke. Lack of support can cause tipping or cocking of the stripper and possible resultant damage and/or injury. Strippers that cannot be fully supported by the work piece (edge notching, for example) must be counterbalanced by attaching a balance pad of the same thickness as the work piece, to the top surface of the bush. Adhesives can be used for this purpose. NOTE THE PRESS MUST NOT BE DRY CYCLED WITHOUT A WORK PIECE WHEN A BALANCE PAD IS BEING USED.

3. Magnetic attraction is achieved through the use of permanent magnet assemblies located in the top of each punch retainer. For optimum magnetic attraction and holding power it is essential that all magnet surfaces be maintained in a clean and smooth condition, free of dirt, slugs and metal particles. Improper maintenance can result in tipping or cocking of the punch retainer, possibly shearing punch and die components and reducing expected tool life.



SECTION "B"- RECEIVING THE ORDER

When you receive your shipment, it is important to review the whole order to make sure that all the parts of the Magna Die® system you ordered are accounted for. It is also important to understand how to identify each individual component and how all the pieces fit together. Following are basic illustrations of the Magna Die® components and how they are identified on the packing list. (additional information can be found in the reorder guide).

ORDER NUMBER	ORDER DATE	S. B. WHISTLER & SONS, INC
2480	06/28/01	32 MAIN STREET, PO BOX 207
		AKRON, NEW YORK 14001-0207

PAGE 1

CUSTOMER:

SHIP TO:

REMARKS:*** SHIP UPS NEXT DAY AIR MONDAY DELIVERY ***

P O NUMBER	CUSTOMER	SHIP VIA	REQ. DATE	TERMS
0004802	JLMA	SEE REMARKS	06/29/01	1% 15 NET 30

SALESPERSON	WH
04	1

LN#	QTY	SHIP B/O	ITEM NO. & TYPE	DESCRIPTION	BIN	MFG
1	6		D09471	02 MPU 50 PUNCH ROUND .264		MX
2	6		D05864	02 MDBU 50 BUSH ROUND .272		MX
3	1		D04772	02 MPU 75 PUNCH ROUND .750		MX
4	1		D04878	02 MDBU 75 BUSH ROUND .758		MX

*** P A C K I N G L I S T ***



Magna Die 2000® punch retainers: RMPR / MPR / MPRS50 thru 400 (series)



Punches: MPUL / MPUS / MPU50 thru 400 (series)



Punch Template



Strippers: (2) styles- urethane PMS & PMSX and steel spring; MS & MSX



Clips: MSR50 thru 300 (series)

Bushings: MDBUL / MDBUS / MDBU 50 thru 400 (series)



Die Template



Magna Die® Die Retainers: RMDR / MDR/ MDRS50 thru 400 (series)

For a full listing of each component and reorder details, see the Magna Die® Reorder Guide MRG-00.

Identifying Magna Die® Components and Accessories

In order to maximize the use of your Magna Die®, it is important to learn and understand all the components involved in the system. Below is a brief overview and description of some of the typical items. Your system will have most of these basic components, although some may be unique. The following components are listed in the Magna Die® Reorder Guide MGB-00 in more detail, including dimensions, sizes, etc. It is highly recommended that you review and read the Reorder Guide to better understand the components involved.

Retainer Sets: Retainer sets are available in (8) different sizes/styles determined by the size and shape of the hole being punched. RMU & MU styles are for punching round holes, MUS is used for punching shapes in standard Magna Die® with MPUS style punches. RMU and MU style retainers with added slot are used on Magna Die® 2000 with MPUL style punches.



RMU
RMUL



MU



MUS

Punches: Punches range from Series 50 (.500" body diameter) to Series 500 (5.000" body diameter). MPU for round punches, MPUS or MPUL for shaped punches.

MPU



MPUS



MPUL



Die Bushings: Bushings are sized to match the punch series with the OD matching the Retainer boss. MDBU for round holes, MDBUS or MDBUL for shaped holes.

MDBU



MDBUS



MDBUL



Strippers: Light duty strippers for punching up through the 1/8" / 3 mm thick steel are furnished in (2) styles: steel capped polyurethane series PMS and vanadium steel spring series MS. Series PMS is intended for use on medium to high volume punching. Series MS is recommended when only partial support of the stripper is provided while the work piece material and on automated coil applications. Heavy Duty strippers are designed for punching up through 1/4" / 6.35 mm thick mild steel are also furnished in (2) styles: steel capped polyurethane series PMSX (through series 150 only) and vanadium steel spring series MSX. Series MSX is recommended when only partial support of the stripper will be provided by the work piece material.



PMS
PMSX



MS
MSX

Accessories:



TSC-50 : used for securing both punch and die templates to the template support posts on the Master Die Set. Typically (8) are required for each template section (4 on punch template and 4 on die template).



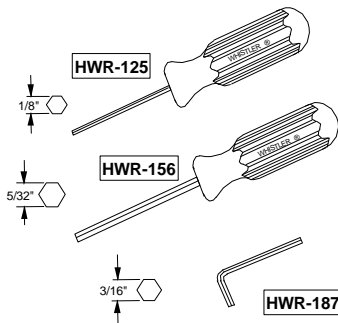
Snap rings : MSR-50 through MSR-500 are used to secure the die assembly into the template.



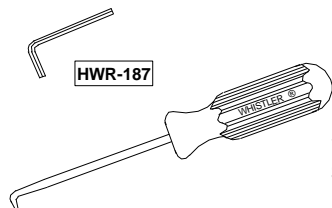
Gages or End Stops : (2) styles MGA-50-E which has an OD of .750 and MGA-50-D which has an OD of 1.000"



MPG-50 Pilot : used to locate work piece through previously punched holes on hand feed operations. They provide accurate placement for subsequent operations.



Hex Wrenches : HWR-125 for stripper set screws and HWR-156 for retainer set screws. HWR-187 is used on the template clamp screws TSC-50.



SHR-50 : snap ring hook is for securing/removing MSR snap rings from bushings on the die template.

SECTION "C"- PRESS REQUIREMENTS

The Whistler Magna Die[®] Modular Hard System is intended for use in conventional machine tool stamping and forming presses, either mechanically or hydraulically driven. Typical press styles used are: OBS, OBI, Gap Frame, Straight Side and Press Brake. Other types of machines, such as air powered and the so called "platen press" may be applicable, but should be carefully reviewed with the manufacturer for specific applications.

Magna Die[®] requires a press of sufficient punching tonnage, equipped with working surfaces or filler plates, on both the slide (ram) and the bed which are flat, parallel and free of any openings or depressions which can influence the tooling. Working surfaces should be tough enough to withstand the repeated impact of the punching forces generated by the tool holders. We recommend filler plates made from AISI-1045 carbon steel plate or a similar high strength low alloy.

Operating shut height is 6.35" (160mm) between working surfaces of the Master Set a press with at least 3" (76mm) stroke, or greater, is recommended for hand feeding operations.

Filler plates should be at least equal in size to the overall footprint of the Master Die Set. If filler plates extend beyond or overhang the bed or bolster or slide face, the amount of overhang should not exceed the thickness of the filler plate.

If the unsupported area of the filler plate is greater than the plate thickness, then supporting brackets, adapters, or other means of support should be added to prevent any possible deflection of the filler plate during maximum expected punching load. Whistler will quote, design and manufacture filler plates for your specific application, upon request.

If you are in doubt about calculating tonnage or balancing tonnage load, just ask a Whistler representative about your specific application and we will be happy to assist; or, see page 9 for instructions on how to calculate tonnage. You can also visit the technical area of our website at www.sbwhistler.com to download a useful tonnage calculator.

When calculating press tonnage requirements, remember that press brake capacities should be considered from 1/2 to 2/3 of rated bending tonnage, when used for punching. For example, a 100 ton hydraulic press brake should not be used for a punching application that exceeds 50-67 tons of force. The break through shock of punching can damage hydraulic circuits. Be sure to consult with the press manufacturer. Stop blocks or kiss blocks should also be considered when Magna Die is run in a hydraulic or pneumatic press.

Maximum production efficiency is often a result of operator comfort. If a setup is deep front-to-back and the press bed (tool position) is low, the operator may have to bend or stoop to see the work piece gauges when loading a part. This will become tiresome, resulting in a drop in productivity.

Consider ergonomics, proper lighting and work placement when operating your press. Also, you can consider front gauging, template viewing cutouts and other remedies to the above problems.