

# MUD Quick-Change™ Systems from D-M-E



**MUD** MASTER  
UNIT DIE

## QUICK-CHANGE™ SYSTEMS



**D-M-E**  
*Every step of the way*

# D-M-E MUD

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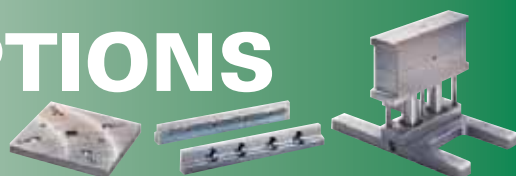
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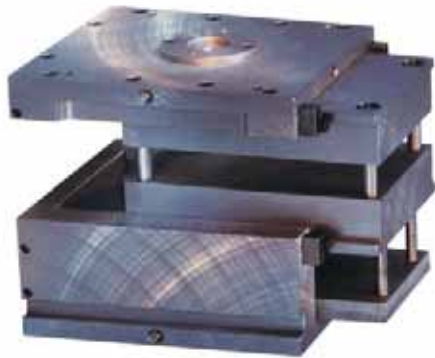
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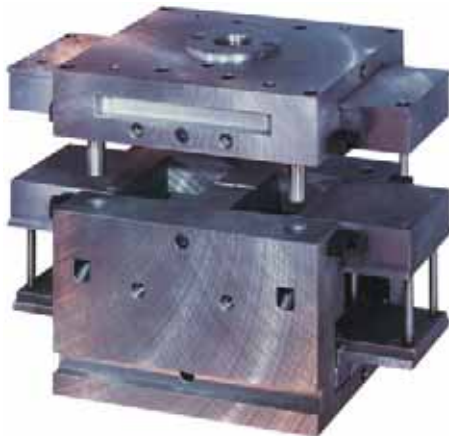
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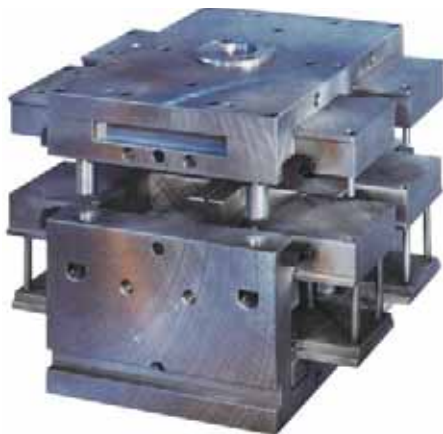
# The MUD Quick-Change™ Concept



Quick-Change U Frame



Quick-Change H Frame



Quick-Change Double H Frame

## A cost-effective approach to injection molding

This Master Unit Die Quick-Change Concept was developed to meet the parallel challenges of increasing productivity and decreasing costs.

The tooling approach to injection molding presented in this catalog offers mold makers and plastics manufacturers a number of competitive advantages. These include lower tooling costs and faster production changeovers. The remarkable flexibility this approach offers makes it ideal for just-in-time scheduling.

## Faster production changeovers and lower tooling costs

The Master Unit Die Quick-Change system approach is based on an unlimited number of companion insert molds easily interchanged within a single MUD Quick-Change frame. The frame remains in the molding machine during these mold changeovers.

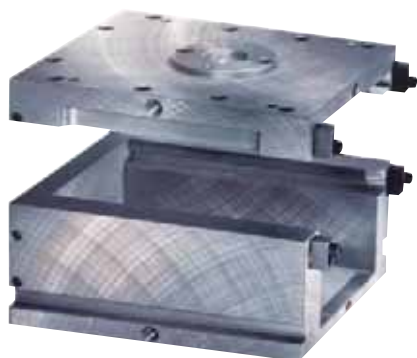
Most changeovers take less than five minutes, require no special equipment and can be made by one person. Simply loosen four clamps, disconnect any heating or cooling lines and slide the insert mold from the Quick-Change frame. Then slide in the replacement, reconnect the lines and reclamp. The new insert mold is now ready for production.

This approach to tooling reduces down time as much as 75 percent. Related labor costs are reduced even more since the need for a second person to assist in the mold change is also eliminated.

The initial cost for new tooling is also reduced as much as 66 percent. This is because only the companion insert mold is replaced to produce a new part. It is not necessary to replace an entire standard mold base. Associated labor costs are lowered because insert molds are much easier to handle than larger, heavier standard mold bases.

This combination of reduced production down time, reduced labor cost and reduced tooling expense can result in a significant improvement in profit margins.

Reduces down time as much as **75 percent.**  
Reduces initial cost as much as **66 percent.**



Quick-Change U Frame



Quick-Change H Frame



Quick-Change Double H Frame

## Quick-Change frames and companion insert molds

### Three Quick-Change frame series

The MUD Quick-Change Concept is available in three frame series and in sizes for the smallest air-operated machines to models for 500-ton machines.

The MUD **U frame** series offers the most design flexibility and accepts both standard and T-style companion insert molds. **H frame** and **Double H frame** models offer simultaneous molding with two and four standard style companion insert molds. The benefits of both Quick-Change tooling and hot runner molding can be combined with the addition of a manifold to MUD H and Double H frame models.

All Quick-Change frames are precision made to exacting tolerances and are easily matched to the specifications of individual machines. Each is engineered for extra strength and rigidity and is designed for maximum molding flexibility.

### Two companion insert mold series

Master Unit Die companion insert molds for Quick-Change frames offer designers and mold makers exceptional application flexibility. Each is available in a variety of steels and is interchangeable within matching frames. The insert mold includes the cavity and core plates with leader pins and bushings installed and the ejector plates. Since this insert assembly is all that's needed to produce new parts, tooling costs are reduced significantly.

**Standard Style Insert Molds** offer maximum economy and are available in solid or laminated construction including three- and four-plate designs. Options and features include stripper plate, sleeve ejection and other special applications designed to meet virtually all injection molding needs. See U frame, H frame and Double H frame sections for details.



Standard Laminated Insert Mold

**T-Style Insert Molds** offer the maximum projected mold area and are available in laminated construction including three- and four-plate designs. Smaller models are also available in solid construction. Options and features include stripper plates, sleeve ejection and other special applications. See U frame section for details.



T-Style Laminated Insert Mold

# Advantages of the MUD Concept

Maximize your  
production volume  
and minimize your  
downtime with our  
Quick-Change™  
insert molds.

Quick-Change tooling offers you advantages at every step in the manufacturing process — from tooling lead time and cost to production and inventory control.

## **Quicker Delivery**

New tooling orders require less lead time because only a companion insert mold is required, not an entire standard mold base. This results in less time required for machining. Also, standard insert molds are usually shipped immediately from stock, seldom require more than seven to ten working days.

## **Lower Tooling Costs**

Since only an insert mold is needed for new, standby or replacement tooling, the cost is less for both material and fabrication. Costs are reduced as much as 66 percent. Another cost reduction feature is the use of spacer bars in larger frames. These permit the use of smaller, less expensive insert molds.

## **Faster Initial Mold Setup**

The MUD Quick-Change frame stays in the molding machine. Initial setup is simply a matter of sliding the insert mold in, then clamping it and connecting the heating or cooling lines.

## **Maximum High Volume Production**

H frames and Double H frames offer special advantages for high volume production. Multiple insert molds permit doubling (H frame) or quadrupling (Double H frame) quantities each cycle. Production is virtually uninterrupted during maintenance or repair by using quickly installed backup insert molds.

## **Quicker Production Changeovers**

Just loosen four clamps, disconnect heating or cooling lines and slide the insert mold from the Quick-Change frame. Then slide in the replacement, reclamp, and reconnect the lines. Most changeovers require less than five minutes.

## **Minimum Purging**

Because MUD insert molds can be interchanged in moments, the machine cylinder is not likely to require purging due to overheating. Both raw material and production time are saved.

## **Easier Maintenance and Repair**

MUD insert molds are faster to remove and reinstall than standard mold bases. They are also much lighter and smaller. This means scheduled preventative maintenance is much easier to perform. There is also less down time if the insert mold is ever removed for modification or repair. If the insert mold must be out for a long period, a replacement can be easily installed and the machine back in production within five minutes.

## **Convenient Storage**

Since the MUD Quick-Change frame stays in the machine, only the companion insert mold needs to be stored. Their lighter weight and smaller size means easier handling. Most models can be stored on bookcase-type shelves.



### **Production Flexibility**

MUD Quick-Change H and Double H frames are designed for simultaneous molding with two or more companion insert molds. These insert molds can be interchanged independently. When single insert mold production is scheduled, blank insert molds are easily installed. Duplicate insert molds can be installed when greater volume of a part is required.

### **Design Versatility**

MUD companion insert molds are available in T-style and standard style and in solid and laminated construction. Design latitude is unlimited. Insert molds can be engineered for parts requiring stripper plates, sleeve ejection, single or double cam action, hydraulic, mechanical or pneumatic cylinders — virtually any feature desired including three- and four-plate designs.

## **Applications**

### **Prototypes and Samples**

Faster setup and start up means the Master Unit Die Concept is ideal for this type of application. Even more important, engineering changes involve only the companion insert mold, not an entire standard mold base. This keeps sample and experimental tooling time and cost to an absolute minimum.

### **Aluminum Insert Molds**

The thermal conductivity of available aluminum insert molds approaches four times that of steel for even faster cycling times. These light weight insert molds are also easy to handle and can be machined at high speeds. See pages UF 20 and UF 21.

### **Short Production Runs**

MUD insert molds offer unparalleled advantages when a variety of parts must be produced in a short time period, a major plus for just-in-time scheduling. Literally hours of production time are gained by these fast changeovers, often eliminating the need for overtime. The lower cost of these insert molds also makes duplicate tooling attractive insurance for meeting critical deadlines.

### **High Volume Production**

The simultaneous molding of parts in multi-section frames is one of the major Quick-Change advantages in increasing productivity. So is the lower cost of backup insert molds. Another advantage is the ease and speed of installing insert molds since this almost eliminates production down time. And since all molds require some maintenance, this time gained in removing and installing insert molds has added significance. MUD Quick-Change frames and companion insert molds are also constructed with the precision, the strength and the reliability to meet the demands of high volume production.

**Customized**  
and **versatile,**  
MUD insert  
molds meet  
your specific  
production  
needs.

# The MUD Quick-Change™ Concept Standard Mold Bases



## MUD Adapter Frame System permits production changeovers in less than ten minutes

Standard mold bases can now be interchanged in less than ten minutes with MUD's Quick-Change adapter system. It's an approach that works with any standard mold base in any molding machine up to 500-ton capacity. It's also the most economical Quick-Change available.

The system is based on a Master Unit Die adapter frame that remains in the molding machine during production changeovers. The frame is installed without modifying the machine. Standard mold bases equipped with companion ear plates are interchanged within this adapter frame.

Just one adapter frame accommodates an unlimited number of standard mold bases. These frames are easily transferred to other machines since no other special mounting hardware is required. The system is based on the unique slide and clamp approach to mold changeovers developed by Master Unit Die. Standard mold bases equipped with MUD ear plate sets simply slide in and out of the Quick-Change adapter frame. See Adapter Frames section.

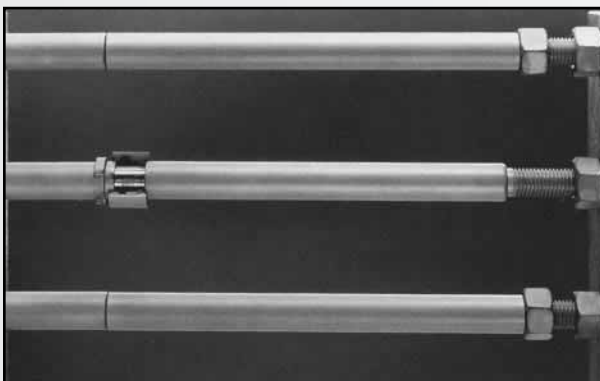
## Adapter Frame System Options

### MUD Balancing Lift Bar

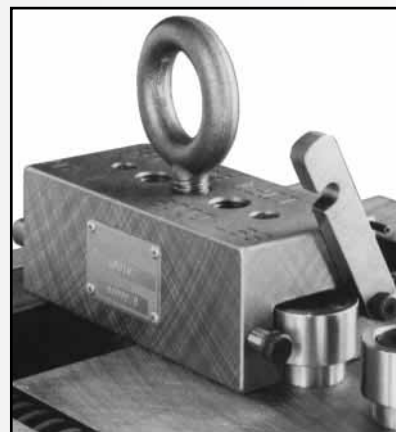
These slide and lock bars allow standard mold bases to be easily lowered in and raised out of the molding machine. See page AF 103.

### Quick Coupler Locking KO Rod System

This optional knockout assembly permits locking the mold ejector system to the machine's hydraulic KO system with a simple push and turn action. See page AF 102.



MUD Balancing Lift Bars



Quick Coupler Locking KO Rod Systems  
U.S. PATENT #5,033,784



# Customer Commitment

## Applications Engineering

When you call D-M-E with a new application for a hot runner system, many systems go into action. D-M-E has its own design and applications engineering group consisting of professional engineers and experienced designers. After you have given us the information necessary for proper application design and analysis, the D-M-E applications engineering team goes to work diligently analyzing, designing and manufacturing a hot runner system that will best suit your needs and requirements.

## Technical Service

D-M-E is proud to say that it is an industry model for technical service coverage and response. The D-M-E technical service department covers the entire United States and Canada, with additional service representatives in Europe, Asia and throughout the world. Because D-M-E knows you need assistance starting, operating, and maintaining hot runner systems it has made a great effort to strategically staff a Technical Service Department that is responsible for the success of D-M-E's molding systems.

## Field Sales and Customer Service

When you need a knowledgeable person to help you order parts and components, D-M-E has you covered. Our direct field sales force puts a local sales representative in your area. One who understands your business and can offer valuable assistance in helping you select the molding system best suited to your application and your budget. In addition, D-M-E provides a customer service department that has been extensively trained on all of D-M-E's products and systems, making it easier for you to order and have your questions answered. We can provide you price and delivery information on all D-M-E items quickly and accurately.

To take advantage of any or all of these services, or if you have any questions, problems, or ideas please call D-M-E at:

- 800-626-6653 (U.S.)
- 800-387-6600 (Canada)

Part prints or system design prints may be sent in the following ways:

- [appl\\_eng@dme.net](mailto:appl_eng@dme.net)
- 248-544-5707 (U.S.) fax
- 905-677-5280 (Canada) fax

D-M-E offers you a wide range of services from component selection to on-site system installation. Our ever-growing list of services include the ability to:

- Analyze the best system to fit your needs
- Assist in system design
- Perform computerized system analysis and resin qualification before any metal is cut
- Marry your system to the mold base, plates and components required
- Provide quotations for and perform all of the special machining required
- Assemble and wire the system
- Check mechanical fit of all components and perform electrical load testing
- Assist with system start-up and maintenance

All of which gives you ... more time to concentrate on cavities and cores!



# Terms and Conditions of Sale

1. **FOB POINT / PRICES:** Products are sold F.O.B. point of origin. Any taxes are in addition to the prices and may be invoiced later.
2. **SHIPPING SCHEDULE:** The shipping schedule is our current estimate of delivery dates and we agree to use reasonable efforts to comply with the schedule.
3. **WARRANTY:**
  - (a) Any D-M-E trademarked or tradenamed product or part thereof manufactured by or for us which, under normal operating conditions in the plant of the Buyer thereof, proves defective in material or workmanship, as determined by our inspection, within 12 months from the date of shipment will be replaced or repaired free of charge to Buyer.  
*This warranty is contingent upon the following conditions: that we promptly receive notice of the defect; that Buyer establish that the product has been properly installed, maintained, and operated within the limits of related and normal usage as specified by us; and that, upon our request, Buyer will return to us at our expense the defective product or part thereof.*
  - (b) The terms of this warranty do not in any way extend to any product or part thereof which have a life, under normal usage, inherently shorter than 12 months.
  - (c) The conditions of actual production in each end user's plant vary considerably. Therefore, descriptions of the production or performance capabilities of any product or software materials are estimates only and are not warranted.
4. **EXCLUSIONS OF WARRANTIES:** THE WARRANTIES TO REPAIR OR REPLACE DEFECTIVE PRODUCTS OR PARTS AS SET FORTH IN PARAGRAPH 3, AND ANY ADDITIONAL WARRANTY EXPRESSLY STATED TO BE A WARRANTY AND SET FORTH IN WRITING AS PART OF THESE TERMS HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.
5. **LIMITATION OF REMEDIES AND LIABILITIES:** UNDER NO CIRCUMSTANCES SHALL WE OR ANY AFFILIATE OF OURS HAVE ANY LIABILITY WHATSOEVER FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES HOWSOEVER CAUSED OR ARISING (INCLUDING CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE), such as, but not limited to, loss of profit or revenue; loss of use of the product, part thereof; cost of capital; cost of replacement equipment; or claims resulting from contracts between Buyer, its customers and/or suppliers. Unless expressly provided for herein, in no event shall we or any affiliate of ours assume responsibility or liability for (a) penalties, penalty clauses or liquidated damages clauses of any description, (b) certifications or (c) indemnification of Buyer or others for costs, damages or expenses arising out of or related to the product or part thereof.
6. **CANCELLATION:** Unless otherwise agreed, Buyer may cancel all or any part of the order by written notice received by us before our completion of the order or applicable portion of the order. On receipt of such notice, all work on the order or part thereof canceled will be stopped as promptly as is reasonably possible. Buyer will then be invoiced for and will pay to us a cancellation charge. For completed items, the charge will be equal to their established prices. For items not completed, the charge will be equal to our full cost plus a premium in addition to a charge for any packing and storage and less a credit for the balance of the material as scrap.
7. **PAYMENT TERMS:** Payment is due in accordance with any applicable progress, advance or other agreed upon payment schedule, or, if no such schedule has been agreed to, upon Acceptance as specified in Paragraph 8, but in no event later than 30 days from the date of invoice. No cash discount is provided. If, in our judgment, Buyer's financial condition changes, we may stop work until financial arrangements satisfactory to us are made.
8. **ACCEPTANCE OF PRODUCT:** Each such product shall be deemed to be accepted within seven days after delivery of the product to the Buyer, unless we receive written notification of rejection for cause from Buyer within the seven day period.
9. **"Returned Goods":** No goods are returnable without prior approval, prepaid transportation and an issued RMA number. All items are subject to our inspection before credit will be allowed. Special mold bases or steel, items involving custom work, or items not shown in our catalog are considered non-returnable. A minimum service charge of 10% will be made on all returned goods.  
**NO GOODS ARE RETURNABLE LATER THAN THIRTY DAYS AFTER RECEIPT OF MERCHANDISE.**
9. **PATENT INDEMNITY:** We shall defend any suit or proceeding brought against Buyer and pay all costs and damages awarded against Buyer provided that:
  - (a) The suit or proceeding is based upon a claim that the product or part thereof is an infringement of any claim of a presently existing U.S. patent;
  - (b) The claim of infringement is not based, directly or indirectly, upon (i) the manufacture, use, or sale of any product furnished by us which has been modified without our consent; or, (ii) the manufacture, use, or sale of any combination of a product furnished by us with products not furnished by us; or (iii) performance of a patented process using a product furnished by us or production thereby of a patented product; and,
  - (c) We are notified promptly and given information and assistance (at our expense) and the authority to defend the suit or proceeding. We shall not be responsible hereunder for any settlement made without our written consent nor shall we be responsible for costs or expenses incurred without our written consent. If our product is adjudicated to be an infringement and its use in the U.S. by Buyer is enjoined, we shall, at our own expense, either:
    - (i) procure for Buyer the right to continue using our product;
    - (ii) replace it with a noninfringing product;
    - (iii) modify it so it becomes noninfringing;
    - (iv) remove the product or part thereof and refund Buyer's net book value and transportation costs attributable to it.

The foregoing states our entire liability with respect to any patent infringement by our products or any parts thereof. To the extent that our product or any part thereof is supplied according to specifications and designs furnished by Buyer, Buyer agrees to indemnify us in the manner and to the extent set forth above insofar as the terms thereof are appropriate.
10. **FORCE MAJEURE:** We shall not be liable for any delay in performance or nonperformance which is due to war, fire, flood, acts of God, acts of third parties, acts of governmental authority or any agency or commission thereof, accident, breakdown of equipment, differences with employees or similar or dissimilar causes beyond our reasonable control, including but not limited to, those interfering with production, supply or transportation of products, raw materials or components or our ability to obtain, on terms we deem reasonable, material, labor, equipment or transportation.
11. **ACCEPTANCE OF ORDERS:** Buyer agrees that all orders, including any arising from our Proposal, shall include these terms and conditions only, notwithstanding any different or additional terms that may be embodied in Buyer's order. All orders are subject to our acceptance and we reserve the right to reject orders as, in our sole judgement, mandated by business conditions. We reserve the right to not proceed with any order until all necessary information is received from Buyer.
12. **MERGER CLAUSE:** This Agreement entirely supersedes any prior oral representations, correspondence, proposal, quotation, or agreement. This writing constitutes the final and total expression of such agreement between the parties, and it is a complete and exclusive statement of the terms of that agreement.
13. **ASSIGNMENT:** Neither party may assign this Agreement without the written consent of the other party, except that we may assign this Agreement to a third party that acquires substantially all of our assets or we may assign the flow of funds arising out of this Agreement.
14. **GOVERNING LAW:** This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan.



# Sales and Ordering Information

## U.S.A.

**TERMS AND CONDITIONS OF SALE:** See previous page.

**PHONE ORDERS – TOLL FREE: 800-626-6653.** D-M-E's Customer Service Dept. operates Monday through Friday from 8 a.m. to 8 p.m. E.S.T. Calls can be made from anywhere in the continental U.S. and Puerto Rico (Puerto Rico: use "137" prefix instead of "1"). Our Customer Service Representatives will be happy to answer your questions on D-M-E products or services, provide on-the-spot feedback on product availability and shipping details, or take any messages you wish relayed to your local D-M-E sales, manufacturing or technical service representatives.

**MAIL ORDERS:** If you prefer to order by mail, please address your order to:

- D-M-E Company, 29111 Stephenson Highway, Madison Heights, Michigan 48071  
ATTN: Customer Service Dept.

**FAX:** You may fax your order to:

- D-M-E Customer Service  
248-398-6174 • 888-808-4363

**CHECKS OR MONEY ORDERS:** When paying invoices by check or money order, please make payable to *D-M-E Company*. Include remittance copy of invoice and mail to:

- D-M-E Company, Department Lock Box 78242, P.O. Box 78000, Detroit, Michigan 48278-0242

**WALK-IN ORDERS, PICK-UPS AND RETURNS:** If desired, ordered products in stock at your nearest D-M-E Service Center can be picked up rather than shipped. Walk-in orders at Service Center locations can also be processed while you wait. Products being returned for repair or exchange should be processed through Customer Service prior to being returned.

**SPECIAL MACHINING SERVICES:** Prints for quotation on special machining work can be sent by EDI to [dme\\_cad@dme.net](mailto:dme_cad@dme.net) or mailed to the Estimating Department of the D-M-E manufacturing location nearest you. Call our toll-free number if desired to clarify location which serves your area.

Estimating locations are:

- 70 East Hillis Street, Youngwood, Pa 15697, FAX: 724-925-2424
- 1117 Fairplains Street, Greenville, MI 48338, Tel. 616-754-4601, FAX: 616-225-3924
- 3275 Deziel Drive, Windsor, Ont N8W 5A5, Tel. 519-948-5001, FAX: 519-948-4652
- 464-466 Windy Point Drive, Glendale Heights, IL 60139, Tel. 630-469-4280, FAX: 630-469-4740 (estimating only)

Please add "D-M-E Company" and "Attn: Estimating Dept." to above addresses when mailing prints. To obtain prices and delivery on special mold base orders or to check status of special work in progress please contact Customer Service.

## CANADA

**TERMS AND CONDITIONS OF SALE:** See previous page.

**PHONE ORDERS:** Contact our Mississauga, Ontario office at 800-387-6600, FAX: 800-461-9965.

**MAIL ORDERS:** Send to: D-M-E of Canada, Ltd., 6210 Northwest Drive, Mississauga, Ontario L4V 1J6.

**CHECK OR MONEY ORDERS:** Make payable to *D-M-E of Canada, Ltd.* Include remittance copy of invoice and mail to Mississauga address above.

**WALK-IN ORDERS, PICK-UPS, RETURNS, AND SPECIAL MACHINING:** Contact our Mississauga office.