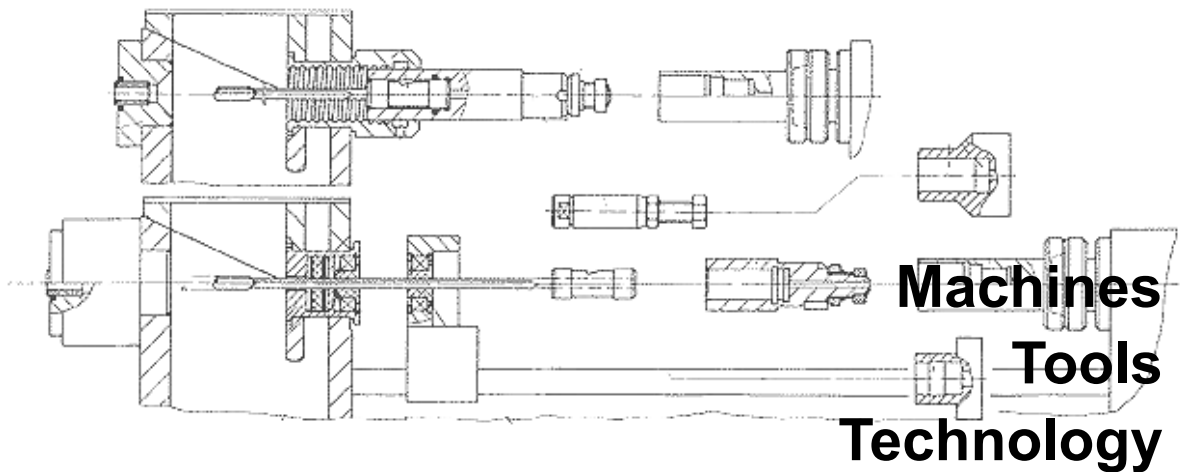




Nagel Precision Inc.



Deephole Gundrilling Machine DM50 / DM75 / DM100



QUALITY and MAINTAINABILITY

Nagel Precision Inc. and TBT Tiefbohrtechnik GmbH are the market leader for gundrilling. We pride ourselves of being the only manufacturer in the market that practices the “system approach”. By building machines, tools, and having a deep understanding of the technology, we are able to provide our customers with solutions that optimally fit their needs.

Being ISO 9001, ISO 14000, and QS 9000 TE certified, the company places high emphasis on delivering a constant high level of quality and service.

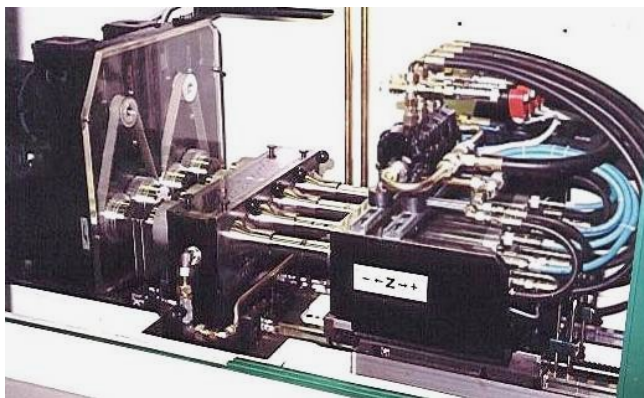
The **DM-Series machines** are designed to be highly flexible and are used for a wide range of applications. A number of standard workpiece clamping solutions, ranging from chucks, cones, collets to special fixtures are offered to meet most common needs.

The machines can be manually or automatically loaded. Loading options can include transfer solutions, and robot or gantry loading.



The machines are available in 1 / 2 / 3 / 4 / 5 spindle versions with **single** or **dual drill slides**. A machine with dual drill slides allows the operator to machine two different parts simultaneously, or prepare one side of the machine while finishing a production run on the other side.

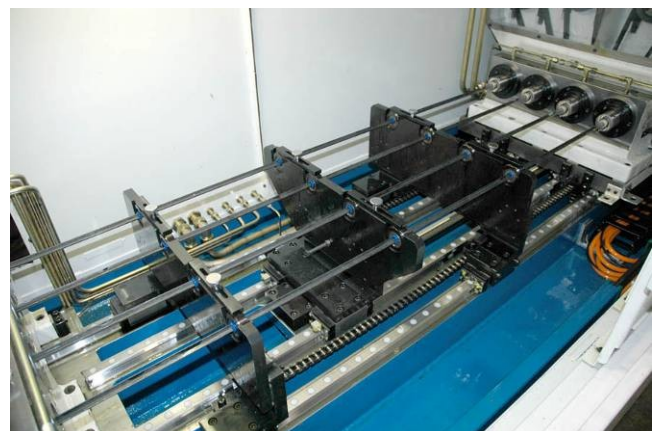
The feed movement of the drill unit is by a **1.6” precision re-circulating ballscrew** and AC Servo drive with absolute position measuring. The drill unit is mounted on heavy-duty **linear roller guideways**. The machine requires an extremely low level of maintenance to retain its capability to drill precision holes over time.



The DM-series machines can be equipped with a **tailstock** to clamp workpieces. The clamping motion is executed either pneumatically or hydraulically. As an option, counter rotation for the

workpieces is offered to help reduce bore run-out.

When required, the machine can be equipped with a number of **tools steadies**. The tool steadies are mounted on the same linear guideways as the drill unit guaranteeing alignment. They have been specially developed to minimize the “lost length”. Even when using up to 4 steadies, the tool length only increases 0.75” per steady.



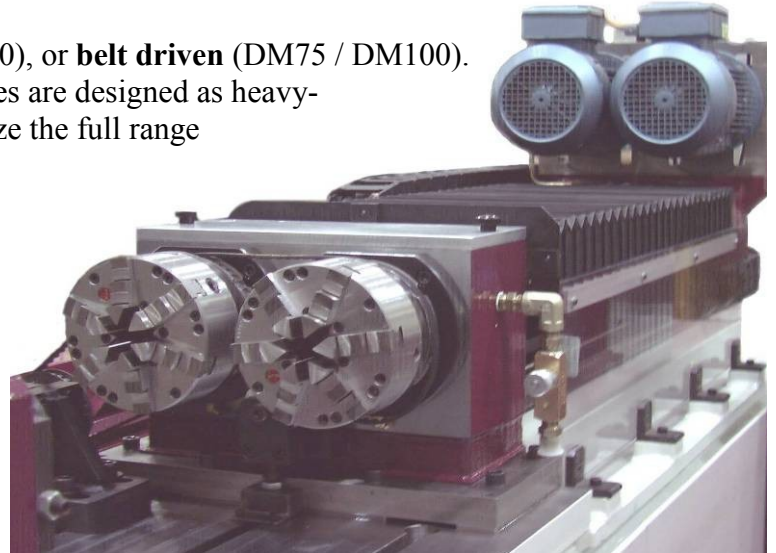
USER-FRIENDLY and RELIABLE



An AB Rockwell Touch Screen HMI allows the operator to program the machine within seconds. The machining parameters such as drilling depth, feed rate, and spindle speed are logically arranged to facilitate machine operation. The machine automatically monitors spindle power and coolant flow levels to ensure proper execution of the drilling process. The PLC machine controls allow for different drill speeds at different points in the workpieces. This feature helps to reduce cycle time.

The spindles are direct **drive motor spindles** (DM50), or **belt driven** (DM75 / DM100). The spindle speeds are programmable. The machines are designed as heavy-duty machines. As a result, you will be able to utilize the full range of the machine, even when drilling hard materials.

The machine is offered with a stand-alone coolant system. This compact system has a chip collection bin, and provides pre-and fine filtering of the coolant by means of bag and cartridge type filters. The high-pressure coolant levels can be manually adjusted. The cooling unit incorporates as a standard, an efficient air-oil or water-oil heat exchanger. This helps to maintain a constant coolant temperature.



Bore sizes: 0.035 -0.400” Spindle speed: 1,000—24,000 Rpm (Direct Drive Spindle)			
Machine Type	Spindle Stroke	# of Spindles	# of drill slides
DM 50-1	15 / 35”	1	1
DM 50-2-1	15 / 35”	2	1
DM 50-2-2	15 / 35”	2	2

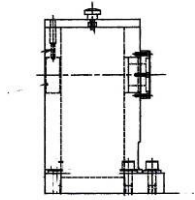
Bore sizes: 0.12 - 0.75” Spindle speed range available: 240—10,400 rpm			
Machine Type	Spindle Stroke	# of Spindles	# of drill slides
DM 75-1	48/ 60 / 72 / 90”	1	1
DM 75-2-1	48 / 60 / 72 / 90”	2	1
DM 75-2-2	48 / 60”	2	2

Bore sizes: 0.24 - 1.00” Spindle speed range available: 240—5,200 rpm			
Machine Type	Spindle Stroke	# of Spindles	# of drill slides
DM 100-1	48 / 60 / 72 / 90”	1	1

WORKPIECE CLAMPING OPTIONS

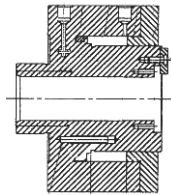
STANDARD

Chipbox with drill bushing liner



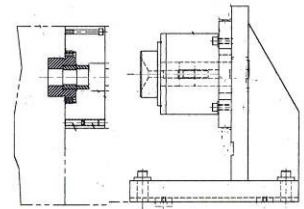
OPTION 1:

Pneumatic drill bushing carrier



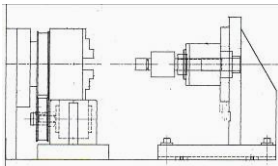
OPTION 2:

Manual 6-jaw chuck with pneumatic end-clamp



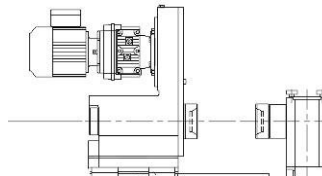
OPTION 3:

Manual counter rotating 6-jaw chuck with pneumatic end-clamp



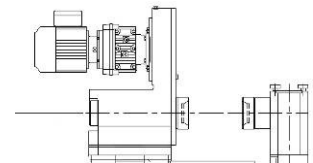
OPTION 4:

Clamping between cones and counter rotating tailstock



OPTION 5:

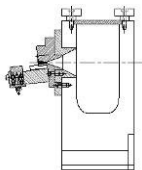
Clamping in collets With counter rotating tailstock



TOOL GUIDE DEVICES

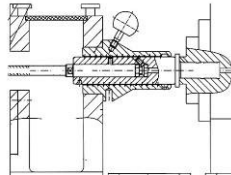
OPTION 6:

Special clamping devices



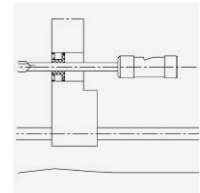
OPTION 1:

Sealing sleeve



OPTION 2:

Whip Guides



COOLANT SUPERVISION OPTIONS

STANDARD:

Flow minder

OPTION 1:

Pressure sensor



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