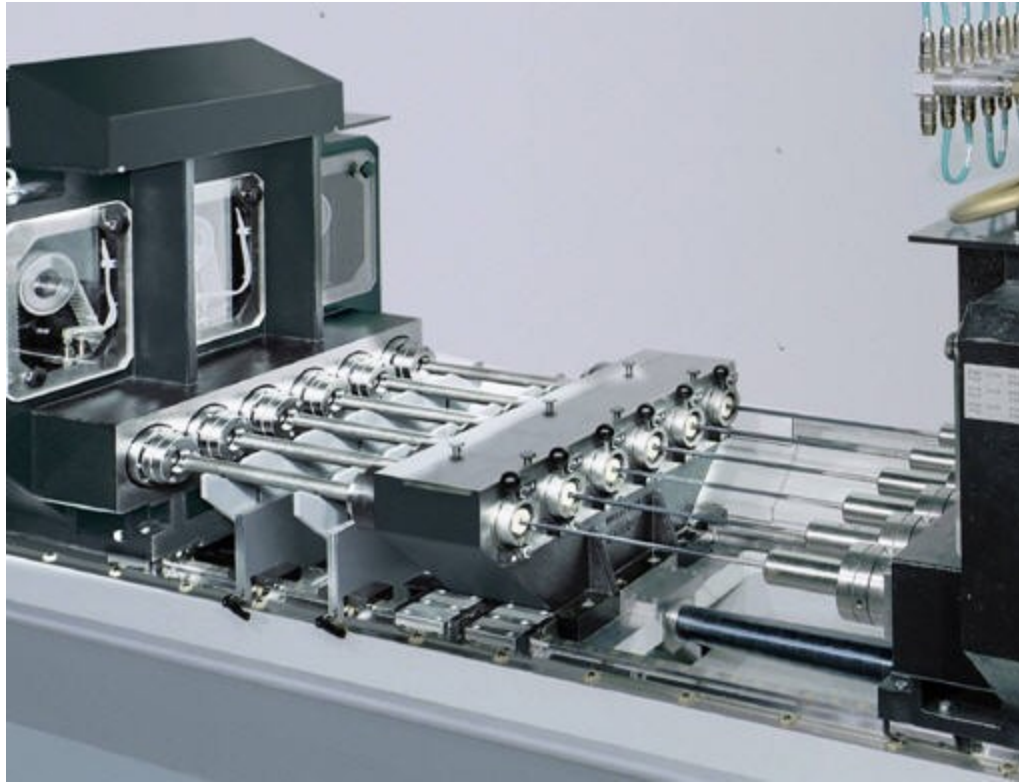




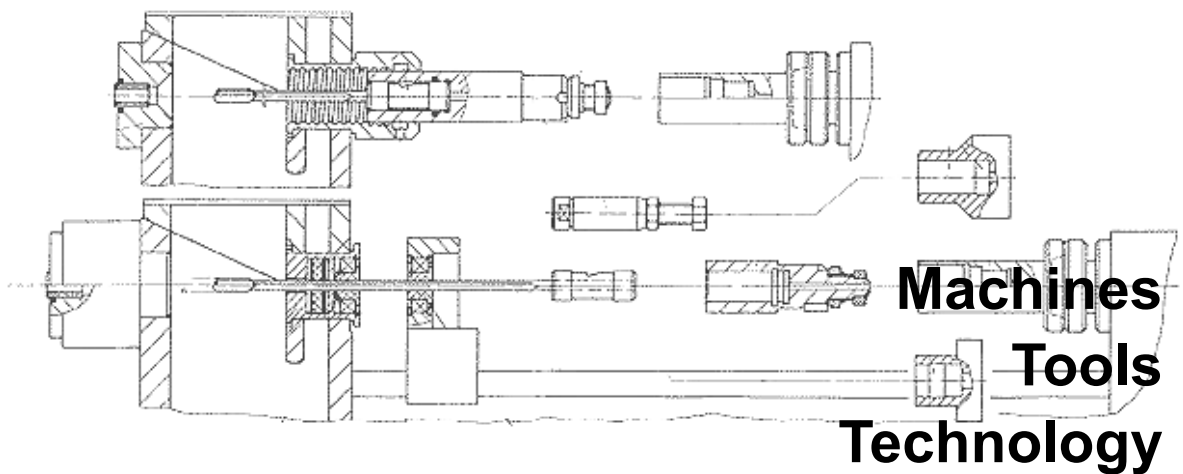
Nagel Precision Inc.



TIEFBOHRTECHNIK



Multiple-Spindle Gundrilling Machines DM50 / DM75 SERIES

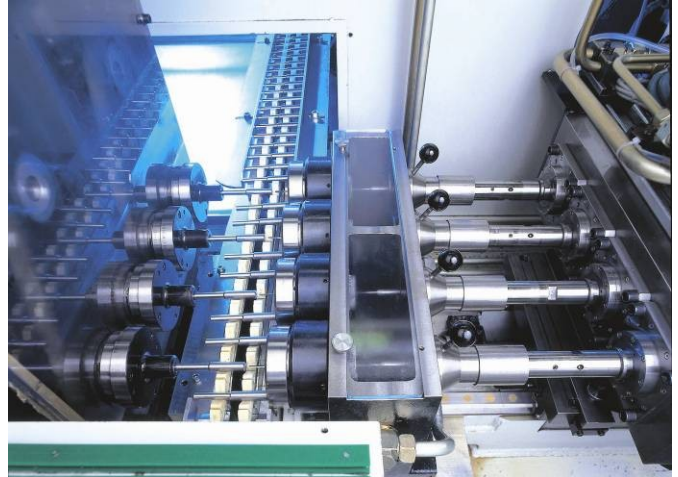


PRODUCTION & PRECISION

The **DM** series machines are designed as versatile, production machines that can be manually or automatically loaded. Automatic load /unload options included lift & carry transfer, robot, or overhead gantry solutions.

The machines are available in 1 / 2 / 3 / 4 / 5 spindle versions with single or multiple slides. Drill spindles are mounted in precision bearings, packed with grease for life time lubrication.

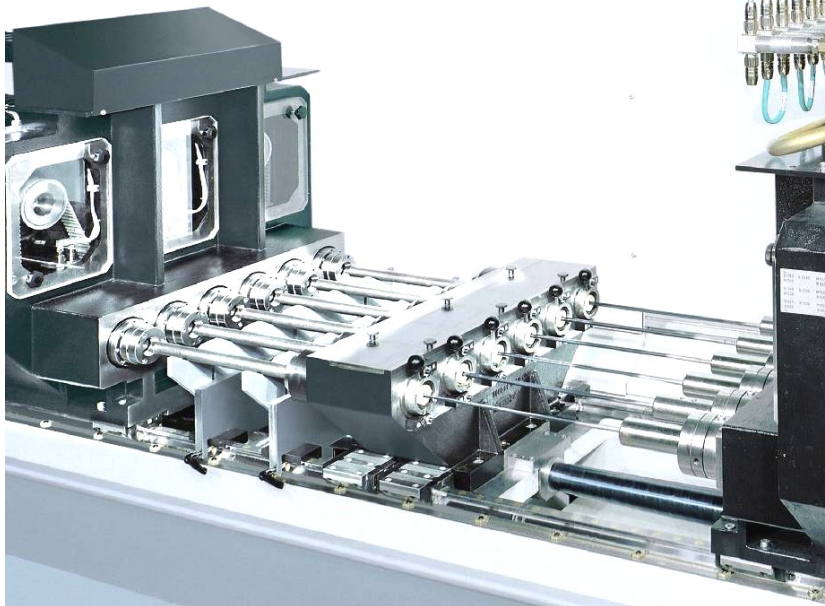
The **feed movement** of the drill unit is via precision re-circulating ball screw and NC servomotor drive. Each axis has integral absolute encoders for high positional accuracy. The drill unit is mounted on heavy duty linear guideways.



The **DM** series machines come standard with counter-rotating **tailstocks** (when applicable). The clamping motion is executed either hydraulically or via NC servomotor and includes clamp force monitoring and adjustable control.

The **drill bushing carrier** and **chip box** are of rigid cast iron design. A wide variety of workpiece clamping systems allow fixturing of cylindrical or cubical components. Different tooling systems are available to keep the drills as short as possible. When required, **tool steadies** are mounted on

the same linear guideways as the drill unit.



Special machines designed for drilling parts from both sides simultaneously are available for application such as cylinder heads or engine blocks.

PROCESS RELIABILITY

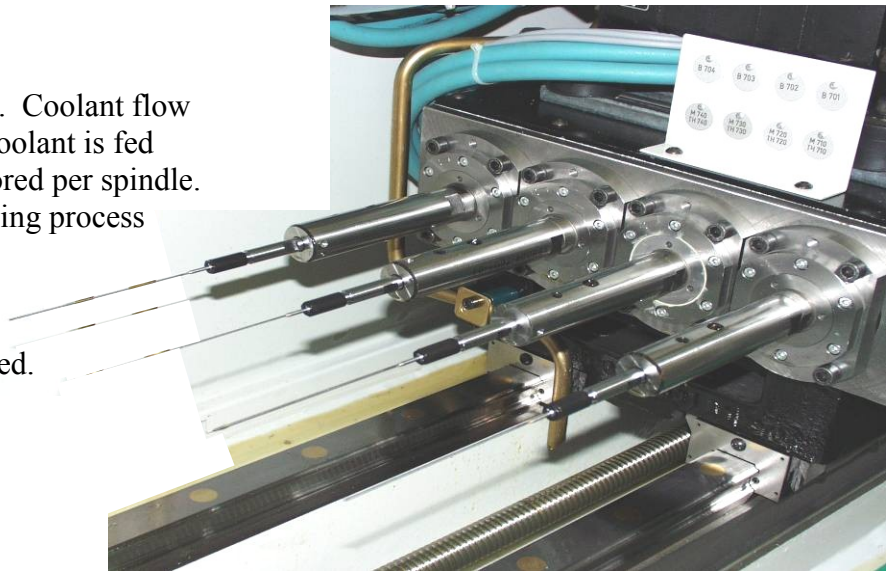
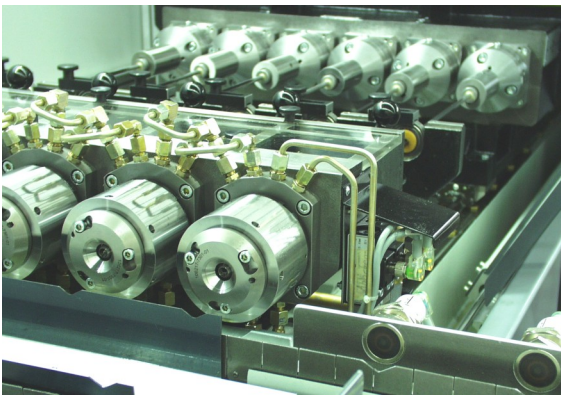


An **AB Rockwell PLC and HMI** with gundrilling specific screens provides simple and reliable operation of the machine. Drilling parameters such as drilling depth, feed rate, spindle speed, coolant pressure and limit values for each, as well as the drill spindle power monitoring functions are logically arranged to facilitate operation and programming.

(Other PLC or CNC machine control systems re available upon request).

The **coolant system** incorporates special high-pressure radial piston pumps for coolant pressures up to 3,000 PSI. Coolant flow and pressure are operator adjustable. The coolant is fed through the spindles. Coolant flow is monitored per spindle. This enables accurate monitoring of the drilling process for small and mid-size diameters.

For larger diameters, **power consumption monitoring** of the spindle motors is employed.



Whether it is one stand alone machine or a series of multiple spindle machines combined into a gundrilling cell, Nagel-TBT can design the most economical solution for any production requirement.



Technical Data									
No. of Spindles		Drill Stroke		Drill Ø (min)		Drill Ø (max)		Power/spindle	
Model		mm	in	mm	in	mm	in	kW	Hp
DM50	1	500 900	20 35	0.9	0.035	12.7	0.5	3.2	4.3
	2	500 900	20 35	0.9	0.035	12.7	0.5	3.2	4.3
	3	500 900	20 35	0.9	0.035	12.7	0.5	3.2	4.3
	4	500 900	20 35	0.9	0.035	12.7	0.5	3.2	4.3
DM75	1	900 1200 1500	35 48 60	3.0	0.12	19.1	0.75	3.7	5.0
	2	900 1200 1500	35 48 60	3.0	0.12	19.1	0.75	3.7	5.0
	3	900 1200 1500	35 48 60	3.0	0.12	19.1 12.7	0.75 0.50	3.7 1.9	5.0 2.5
	4	900 1200 1500	35 48 60	3.0	0.12	12.7	0.50	1.9	2.5
	5	900 1200 1500	35 48 60	3.0	0.12	12.7	0.50	1.9	2.5



Nagel Precision



Nagel Precision Inc.
TBT-USA
 288 Dino Drive
 Ann Arbor, MI 48103
 USA
 Phone: +1 (734) 426 1853
 Fax: +1 (734) 426 5649
 Web: www.tbt-usa.com
 e-mail: drilling@tbt-usa.com

TBT Tiefbohrtechnik GmbH
 Siemensstraße 1
 D-72581
 Dettingen a.d. Erms
 Germany
 Phone: + 49 (0) 7123 976 0
 Fax: +49 (0) 7123 976 100
 Web: www.tbt.de
 e-mail: info@tbt.de