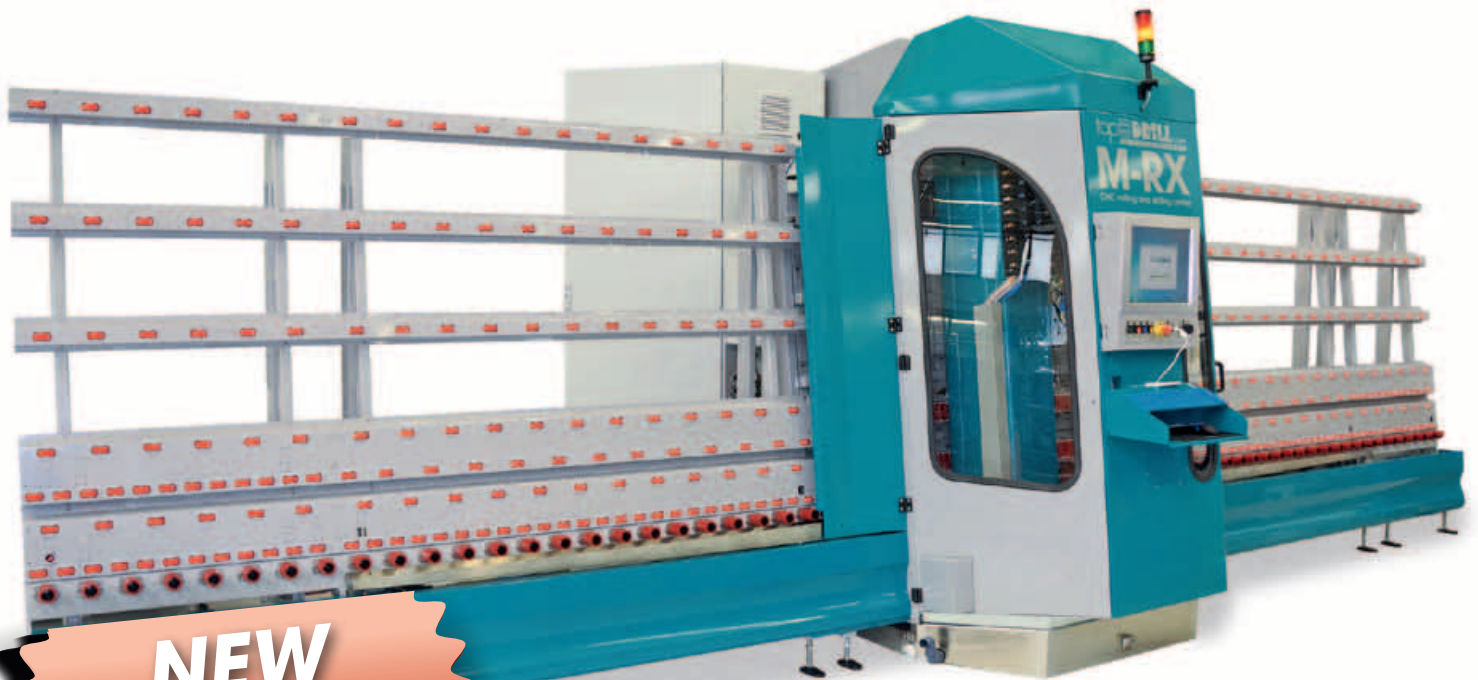


# M-RX

Vertical CNC milling and drilling center



**NEW**  
**ROTO-10+10**  
**LINEAR-8+8**

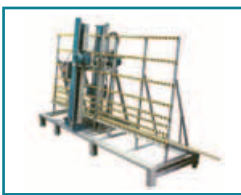
DESCRIPTION &  
  
HIGHLIGHTS



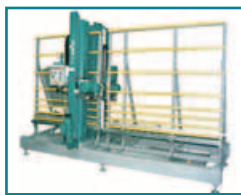
ENGLISH | 9.2016

**Schraml Glastechnik GmbH from Austria is a specialized supplier of vertical systems for flat glass processing. Already since 1996 - long before any other vendor – vertical glass drills are produced and offered. The slogan since then: topDRILL – First in vertical drilling**

Over the years, hundreds of machines are delivered and installed in all 5 continents. Compared with the former devices, the technology, the stability and the possible applications has been significantly enhanced. Absolutely unchanged is the ease of operation, the flexible customization options and a commitment to quality down to the smallest item!



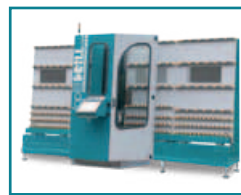
G1 from 1996



G2 from 1998



G3 from 2004



G4 from 2011



G5 from 2012

Schraml Glastechnik GmbH manufactures and supplies vertical drilling, milling and washing machines for the international market. Due to the high specialization many details are logical and included which you can not even find as option in similar products. Highly innovative in-house developments in terms of tool change and also in terms of vacuum-fixing are offering unique advantages.

A new Customer Support and Development Centre offers extensive possibilities for testing and developing new ideas and new visions. Also the service department and warehouse for spare-parts is located there.

In 2016 the company was integrated into the international LISEC group of companies. This situation allows a global sales and support cooperation and technically complete connection with the systems of the world leader! Finally, it is now possible to offer technically advanced complete lines for grinding, drilling and milling of flat glass from one source!



**topDRILL M-RX is a series of vertical CNC working centers for extremely fast, very flexible and very easy processing of flat glass. Available are different types and heights, delivered in modular length and in the working direction according to your demand. Maximum performance in a compact footprint as possible, the M-RX is therefore also suitable for small and medium enterprises and can be adapted to any production environment.**

The unique and fully-integrated design of the software allows both working the operator directly on the machine as well as the connection with other devices or fully automated control via interface or via a central computer. An unmanned operation is possible and thanks to the bi-directional interface, industry 4.0 is more than a slogan in this regard!

**topDRILL M-RX is available in two technically very similar variants with equal footprint:**

- Linear-8:** an extremely stable linear tool change for 8 + 8 positions front and rear as uncomplicated standard solution
- Roto-10:** an extremely fast tool change with pre-selection during processing with 10 + 10 positions on a turret head both front and rear:



*M-RX Linear-8*



*M-RX Roto-10*



# Advantages M-RX

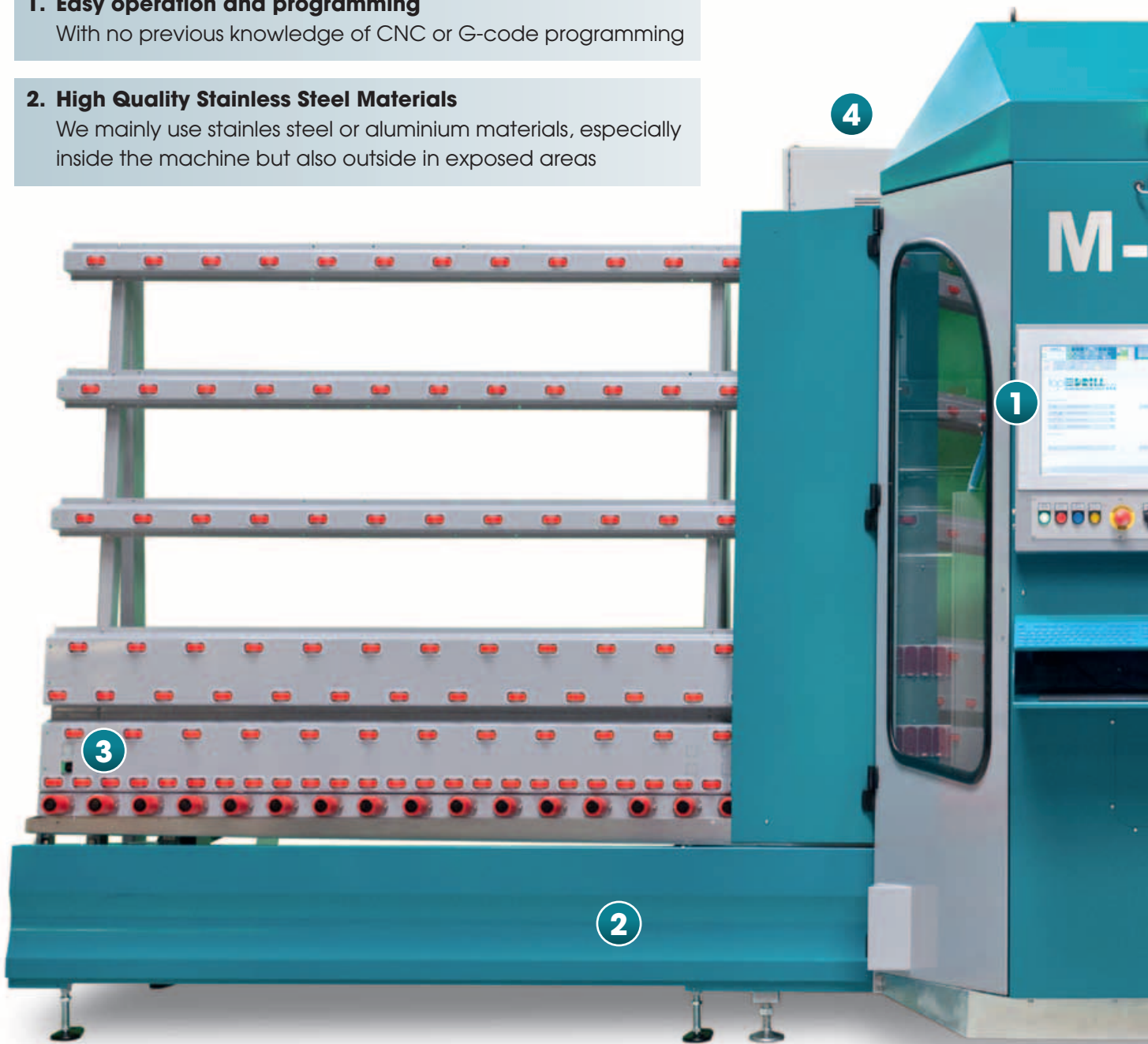
## See the outstanding product advantages of our M-RX Series

### 1. Easy operation and programming

With no previous knowledge of CNC or G-code programming

### 2. High Quality Stainless Steel Materials

We mainly use stainless steel or aluminium materials, especially inside the machine but also outside in exposed areas



### 3. Direct connection to modules (e.g. washing machines)

Working height is only 600 mm (26 5/8 in.), specially designed rollers with slipping clutches interface to modular systems, working direction left to right or right to left per request

### 4. Construction of M-RX 130 and M-RX 200

- The M-RX 130 has an open top, putting no restriction on glass height; however, maximum drilling height is 1300 mm (51 in)
- The M-RX 200 has a maximum glass height of 2600 mm (102 in); however, maximum drilling height is 2000 mm (79 in)



## 5. Highly dynamic vacuum system for perfect fixation

No settings are required, the system is fully automatic

## 6. Continuous production possibility

Requiring no downtime for settings and vacuum positioning, the next piece of glass can be loaded during production of the first piece

## 7. Automatic tool change - ON BOTH SIDES

An automatic tool changer is installed on both the front and rear, allowing the advantage of the tool types without restriction

## 8. Small footprint and waterproof design

Extremely compact design and splash-proof casing

### **BASIC CONCEPT OF OUR MACHINE:**

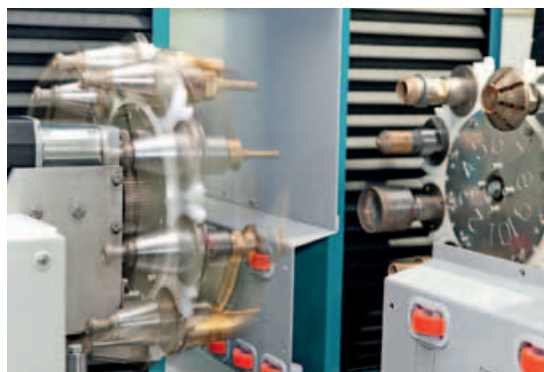
topDRILL M-RX is designed for extremely fast and very straightforward processing of glass doors, shower doors, kitchen splash backs, and similar products in typically small batches. All cutouts and holes are machined in one operation only.

Milling, grinding, drilling, and countersinking is possible in one cycle thanks to onboard tool magazine and rapid tool change both on front and rear side.

In our opinion the outside edges of your glass sheets should be grinded with an external device, because in this way a higher quality is achieved at a lower cost.

#### **☑ Fully automatic drilling and milling center in vertical design**

- Enhanced compact design with integrated auxiliaries and controls
- Direction from right to left (on request from left to right with no extra cost)
- Linear-8: Tool magazine front and rear side with 8+8 tools in automatic storage
- Roto-10: Tool turret front and rear side with 10+10 tools directly on the processing head
- No limitation for using milling or countersinking tools - so any position possible
- Using standard tools, length 75/80mm, with connection R = 1/2" GAS
- Use of all drills, countersinks, milling cutters, and combined tools possible
- Extremely versatile and very easy to use specially developed software



#### **☑ Machine Design - Special Features:**

- Design open top for bigger glasses - extremely massive processing masts (M-RX 130)
- Design with closed top but allowing bigger glass sizes (up to 2600mm/102" M-RX 200)
- Use of ball bearing screws for Y-and Z-axis (movement of drilling heads)
- N° 4 special vacuum belts for fixing the glass in standard configuration - allows coated glasses and special shapes without restriction, automatic vacuum regulation
- Possibility of multiple vacuum belts over the entire height for vibration-free milling (option), all vacuum sections individually controlled with PLC control unit
- All service entrances are from the side, installation directly against a wall is possible



#### **☑ Holes drilling - Special features:**

- Glass thickness of 4 - 20 mm, automatic drilling of laminated glasses possible (oscillation in/out with regulation in 1/10 mm steps, additional mode for multi-layer laminated)
- Automatic detection of drill bit length - NO manual input of parameters necessary
- Automatic application of the necessary tool data, depending on glass thickness
- Automatic and program-controlled pulse drilling for special applications



### ☑ Countersink holes - Special features:

- Dynamic feed control for torque-dependent recruitment – especially for deep sinking
- Very short cycle time with absolute precision due to immediate tool change
- Pre-selection for automatic countersinking of all holes (e.g. for tempering etc.)
- Countersink tools set length automatically without manual intervention
- Individual countersinking depth for all holes (front and/or rear side) without problem

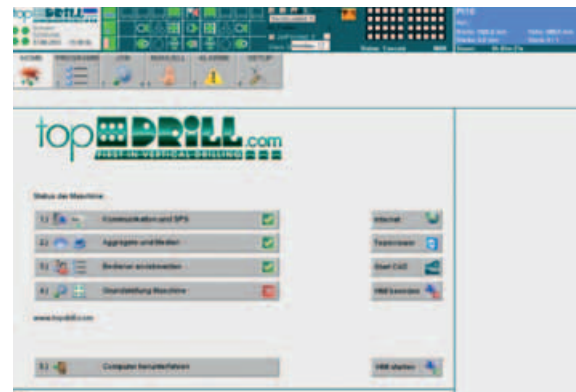


### ☑ Notches - Special features:

- Milling operations are possible at any position of the glass, not only in bottom area
- Notches are mechanically not limited in dimension, only software settings
- Milling cutters can be equipped at all magazine positions - front and rear (NO limitation)
- Milling cutters with combined trapezoidal grinders and double-loop grinders can be used
- Dynamic oscillating milling for reduced tool wear with automated settings
- Automatic entry and exit move calculation, no manual intervention necessary

### ☑ Software - Special features:

- Specifically for the machine developed integrated software in Windows environment
- Fully integrated CAD-CAM-software with extensive library for standard cutouts
- No CAD software is necessary for simple editing and standard processing
- Extremely simple and user-friendly operation without any CNC knowledge
- Special program list with a quick overview if all the necessary tools are equipped
- Modification of parameters at any time possible, even during the work process
- Dynamic status bar with all important information visible at any time on each side



### ☑ Advantages of our machine:

- Mature concept, hundreds of topDRILL machines installed worldwide
- Modular design with optional modules, extension is possible at any time
- Compact design combined with modern technology for maximum performance
- All movements with servo drives, fully automatic processing without manual intervention
- Automatic tool-magazine for rapid changing even at or between milling/drilling operations
- Working height of only 600mm for easy loading, virtually no loading and setting time



**topDRILL M-RX is a compact, very powerful and very easy to use CNC Milling/Drilling center in a vertical design with the following advantages:**

### ☑ **Mechanics - Construction:**

The machine is robust but very compact. The rear side of the machine is closed, therefore, the installation can be made against a wall. The maintenance access are right and left, the additional units are fully integrated or mounted behind the modules.

Four types of machines are currently available – different processing height and tool-exchange:

**topDRILL M-RX 130** with processing height up to 1300 mm and open top construction (for door business); if necessary glass sheets with higher dimension can be processed.

- Available as topDRILL M-RX 130 linear-8 or topDRILL M-RX 130 roto-10

**topDRILL M-RX 200** with processing up to 2000mm and max. glass height of 2600 mm.

- Available as topDRILL M-RX 200 linear-8 or topDRILL M-RX 200 roto-10

All axes are driven by servo motors and ball screws spindles! The entire main body is completely pre-assembled and extremely rigid.

The working height is only 600mm and the machine is therefore easily to combine with other equipment or with our topCLEAR vertical washing machines, [www.topclear.com](http://www.topclear.com)

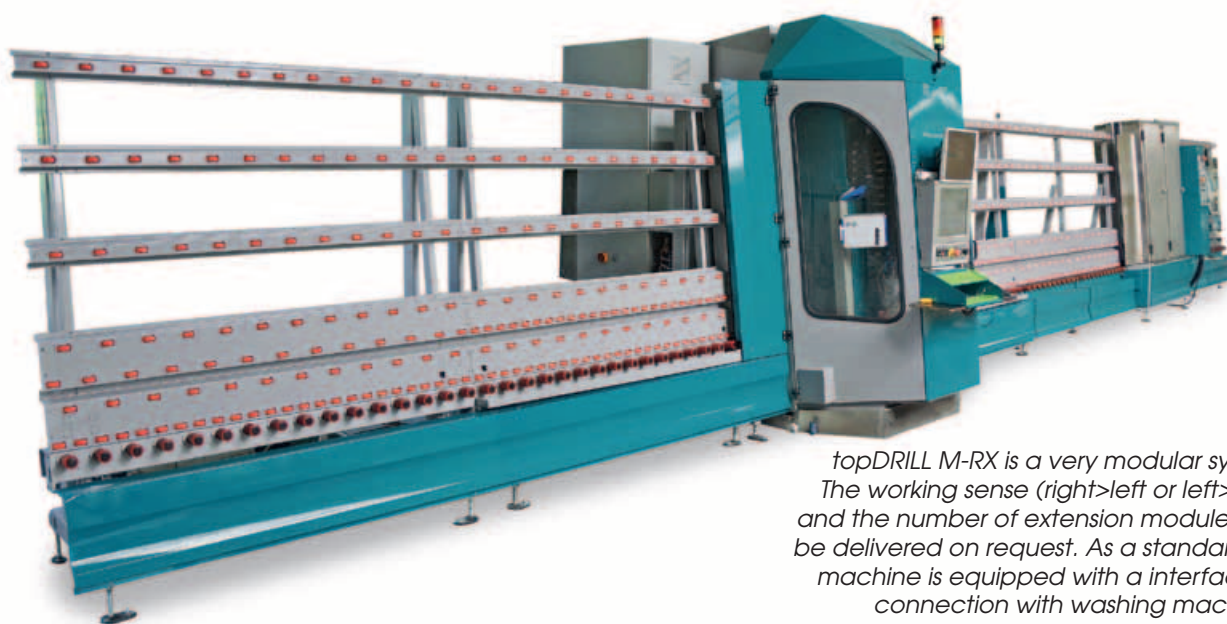
The system consists of a (modular) inlet and an outlet section and the main body. The glass is transported by individually driven rollers and are equipped with a slip clutch. Inlet and outlet part are driven with a separate drive which allows loading of the next glass during finishing of previous sheet.



### ☑ **Programming - Software:**

We have concentrated to create a software that allows to operate the machine very quick and straight forwarded without deep knowledge of cnc-programming and g-codes!

In fact, only one single, fully-integrated software program is needed for programming and operation of the system. In a consistent user interface with intuitive operation and integrated CAD-CAM pro-



*topDRILL M-RX is a very modular system. The working sense (right>left or left>right) and the number of extension modules can be delivered on request. As a standard the machine is equipped with a interface for connection with washing machines.*



gram you can create any edits with visual support. Many standard cutouts are pre-programmed and the software allows the use of only one possible edge or corner. Typical Shower door hinges or corner and edge sections are even stored parametrically, so it can be changed at any time to a detailed measurement.

In the programming and in the course of the feasibility study will indicate whether the processing of applications is possible with the tools currently installed. The programming of the system at any time - even during a drilling or milling - is possible. Optional operation via an external PC or fully automated by means of interface is possible.

Special shapes can be processed automatically, however at least one straight edge is needed. Within the glass sheet all types and dimensions of cut-outs and notches are possible, there is no software minimum or maximum.

It is possible to sort, search, program, and job name in addition to a reference or commission. The storage of programs is possible directly on the machine or on a network drive. Of course also advanced systems with automatic ERP-interface (to A+W, Hanic, Lisec, FeneVision...) are available, also .dxf-import from other CAD-systems.

### **☑ Workflow - Controls:**

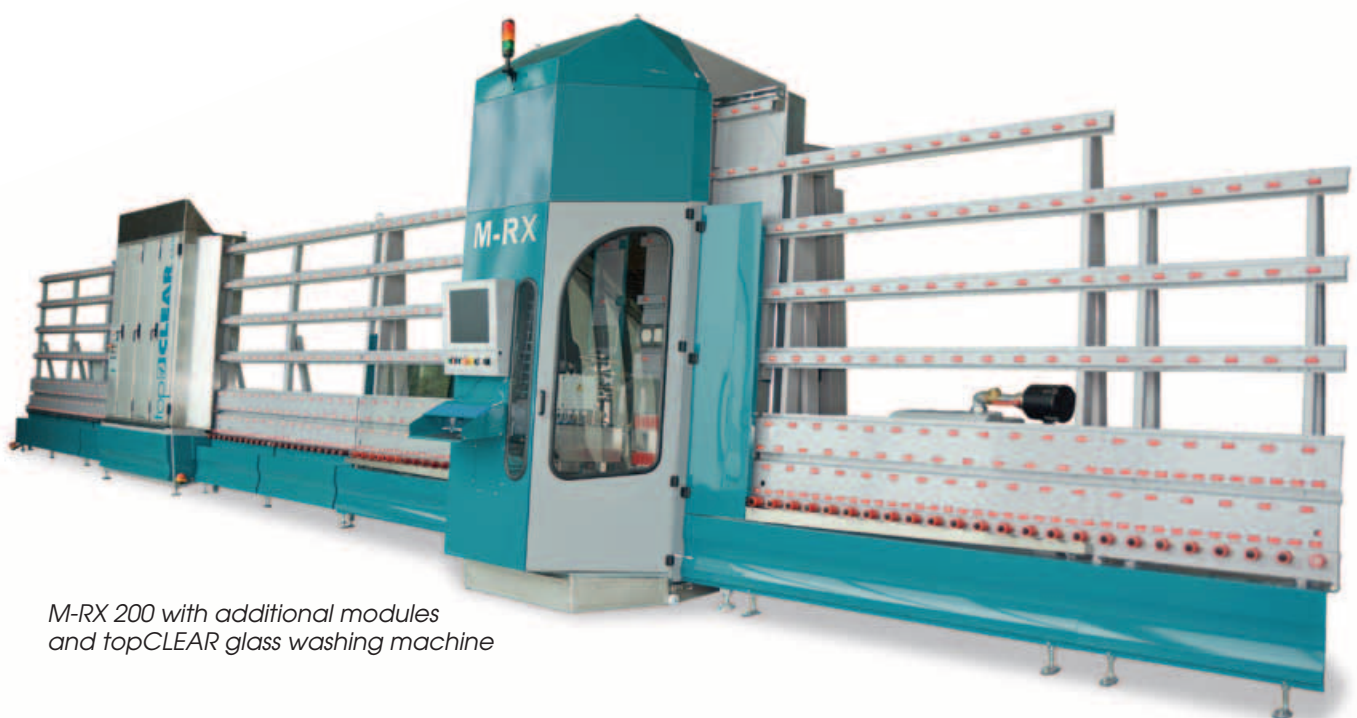
topDRILL M-RX is an absolutely fully automatic unit with all necessary control and many pleasant features. All pre-settings of all tools (drilling, milling, grinding) are specified in the program - but they can be adjusted as needed by the operator.

The tools are automatically measured in length, an automatic wear compensation is standard. Depending on the tool automatic oscillation is also possible.

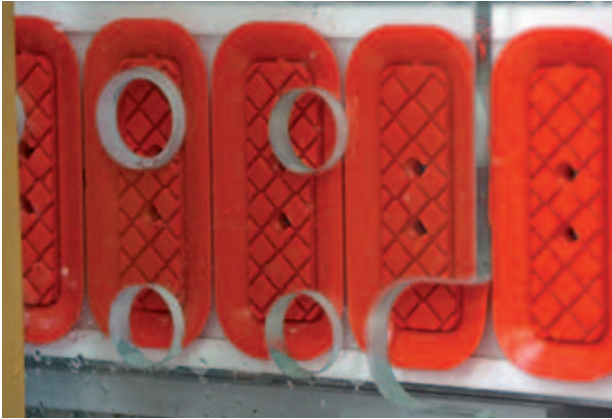
The cycle time for drilling is optimized by simultaneous drilling of the front and rear. Countersink holes can be programmed together or individually for each hole, the feed is dynamically via a torque control limit.

Each of the 8 or 10 tool positions (front and rear) may be used as necessary and without any restrictions - using all available tools. Combined tools for milling/grinding or grinding/grinding are possible. No limits for size and dimension of cutout and milling.

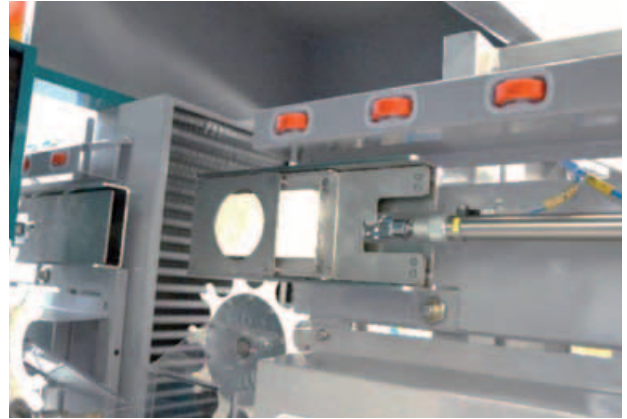
The vacuum fixation of the glass plates is fully automatic and high dynamic, depending on the glass size and only from the rear side. Coated glass can thus be processed. Special forms, existing cut-outs or holes are detected automatically.



*M-RX 200 with additional modules  
and topCLEAR glass washing machine*



*Automatic detection of holes and cut-outs thanks to sensor systems*



*The optional dressing and calibrating unit allows fully automatic operation*



*M-RX Roto-10 machines with N° 2 vacuum rows as standard  
M-RX Linear-8 machines with N° 1 vacuum row as standard*



*Optional with N° 4 rows of vacuum belts for Roto-10 and Linear-8*



*All M-RX 130 machines are open top and therefore also suitable for bigger sheets (processing up to 1300mm)*



*On request also all-sided support rollers are available (e.g. bottom side for crane loading)*





Water tank in two pieces for easy dismantling and cleaning

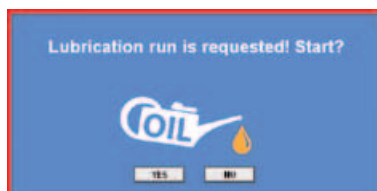


Now with new and intelligent PC-connection software for dynamic programming: PC-link supports to process parametric doors and cut-outs

## Spare parts, Service, Updates

Production plants as the topDRILL M-RX are integrated into your production process and therefore essential for a smooth and complete process. The years of experience are allowing to produce the systems solid and maintenance friendly. Spare parts lists are available online at each machine, our spare parts management allows the short-term and worldwide delivery of required component

The standard service interval message informs the user in time for preventive maintenance and pending operations. The corresponding maintenance instructions are directly available online at the machine.



M-RX systems can be connected via remote maintenance on our network, on this way controlled and even programmed. Also an update function is possible by means of remote access. Participants of our maintenance and service contracts are regularly informed of feature enhancements and are getting standard updates under these contracts.

In our spare parts shuttles we store a large amount of spare and wear parts. The shipment usually can be done on the same day and will be delivered with parcel or express service to your needs. Our series production permits the maximum compatibility of parts and long-term availability without long delivery time.

If necessary, of course, our technicians are available for any support and maintenance work directly in your company!

[T3-0400]	Type: M-RX	[T3-0400-01]	Type: M-RX
			
Spindelmotor für topDRILL RX oder M-RX / spindle motor for topDRILL RX and M-RX		Ersatz Spindelmotor für topDRILL RX oder M-RX / replacement unit: spindle motor for topDRILL RX and M-RX	
[T3-0400-05]	Type: M-RX	[T3-0400-11a]	Type: M-RX
			
Werkzeug-Spannfutter für R00M-RX Spindel / spring collet, clamping unit for R00M-RX spindle		Drehdurchführung Doublets, für R00M-RX Spindel / rotating coupling (spindle clutch) for R00M-RX head	
[T3-0400-25]	Type: M-RX	[T3-0400-27]	Type: M-RX
			
Sensor für Status R00M-RX Spannfutter / proximity switch for clamping status of R00M-RX spindle		Spannkolben komplett für R00M-RX Spindel / piston complete unit for R00M-RX spindle	

Ersatzteilliste topDRILL M-RX G5  
Spare parts topDRILL M-RX G5

15/24





☑ **Technical data with standard equipment:**

Description	Data topDRILL M-RX 130 topDRILL M-RX 200*	comparative machine
Minimum size drilling	600 x 150 mm	
Minimum size milling	650 x 150 mm	
Maximum processing height	1300 mm / *2000 mm	
Maximum glass height	Open top / *2600 mm	
Maximum glass length	Approx. 3200 mm + modules	
Thickness for drilling	4 – 20 mm	
Thickness for milling	4 – 20 mm	
Working direction	Right > Left OR Left > Right!!!	
Maximum glass weight	150 kg per meter length	
Speed Y-axis (up/down)	0 – 400 mm/sec (0 – 24 m/min)	
Speed X-axis (transport)	0 – 500 mm/sec (0 – 30 m/min)	
Drilling feed (servo drive)	0,1 – 3,0 mm/sec automatics	
Milling feed (servo drive)	0,1 – 15 mm/sec automatics	
Countersinking feed	Dynamic torque control!!!	
Spindle power	5,5 kW each	
Spindle speed	0 – 12000 rpm automatic	
Number of tools M-RX linear-8 Number of tools M-RX roto-10	8+8 tools without limit front/rear 10+10 tools without limit front/rear	
Maximum tool diameter	80 mm	
Time for tool change	Max. 11 sec – high dynamic	
Lubrication	Fully automatic cycle	
Pneumatic System	Min. 6 bar, approx. 200 NI/min	
Water connection spindle	Fresh water 2 – 3 bar, 200 l/h	
Water connection milling	Circuit water 2 – 3 bar, 300 l/h	
Machine weight M-RX 130/200	3800 kg / *4500 kg working cond.	
Total installed power	18 kW	
Machine dim. Standard (130) Machine dim. Standard (200)	6200 x 2750 x 2700 mm *6200 x 3050 x 3400mm	
Electric connection	3 x 400 V + N + PE, 50Hz	

**MR-X CAD is a modern and comprehensive CAD software solution for the operation on our M-RX machines. With a clearly arranged drawing interface, programs can be created or imported and modified.**

topDRILL M-RX centers are equipped as standard with a comprehensive \* library for standard fittings and size dependent cut-outs. Operation is possible in a short time without knowledge of CAD.



**M-RX CAD helps the operator with lots of practical details:**

- ☑ Automatic calculation of in- and out movement at milling
- ☑ Automatic calculation of milling access holes for internal cutouts automatic
- ☑ Automatic reference position control for cut-outs, or for the entire pane
- ☑ Dynamic programming of customer-owned fittings or special processing
- ☑ Unlimited dxf import with further processing and CNC Conversion



## Automatic CAM-Interface

**The interface program CAM-dxf is a technologically advanced and comprehensive way to import the processing data quickly and easily using the barcode scanner from your work preparation. The processing data will be sent directly to the job-list of the machine.**

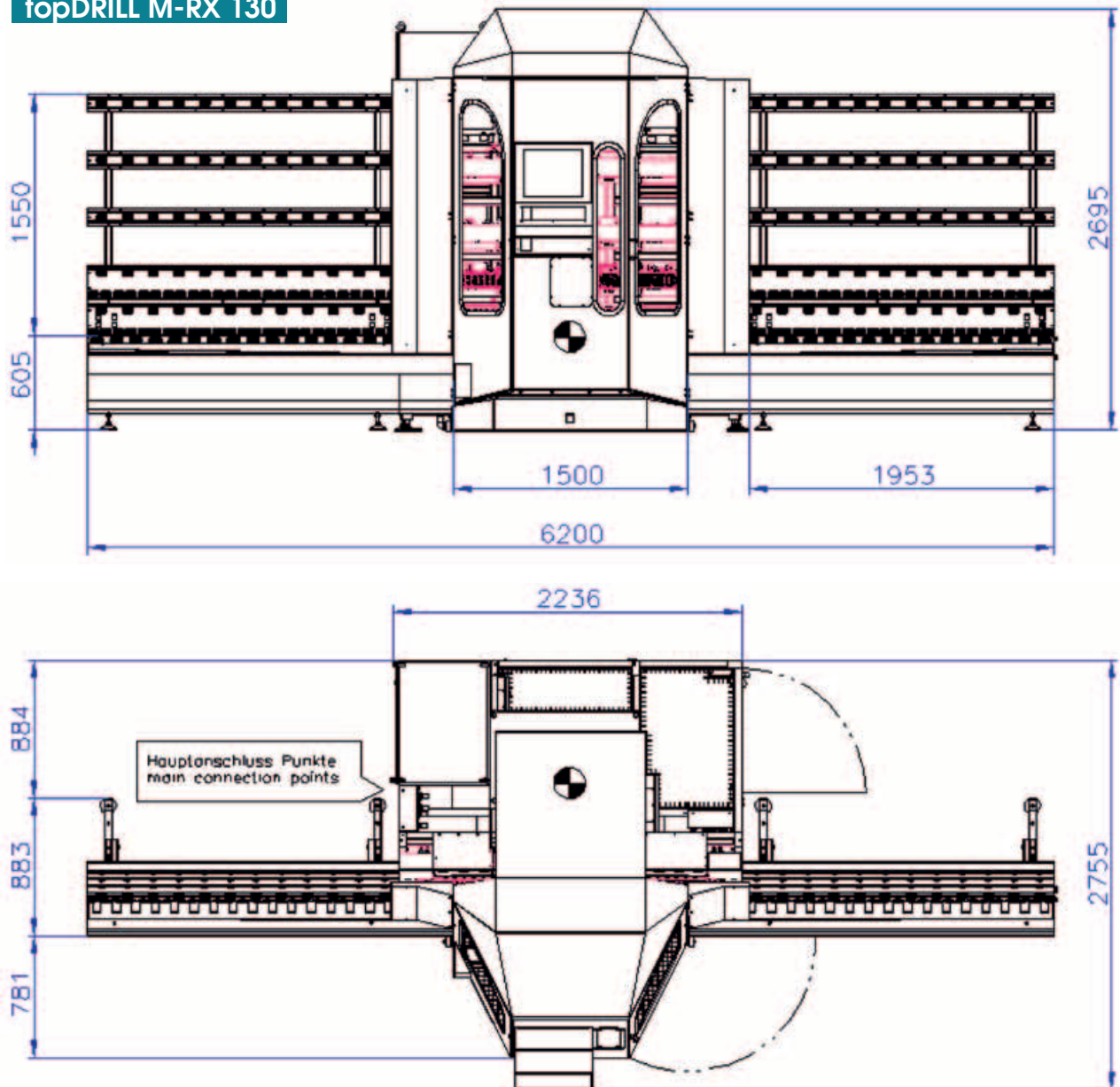
All major ERP programs are already in a position to send an interface file with all the essential information to the topDRILL M-RX. The machine monitors a directory on the server and imports the files automatically! The editing of programs on the machine with this solution is not necessary and not possible.

**M-RX CAM - dxf offers the following advantages:**

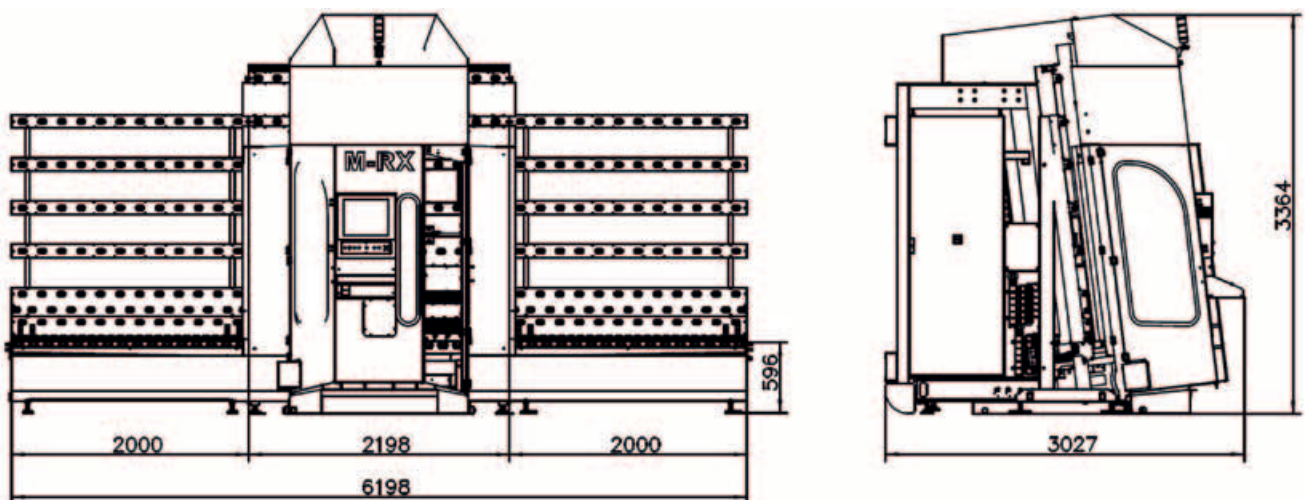
- ☑ Programs will be converted and saved automatically and without operator intervention
- ☑ Fastest of all possible variants (just scan the bar code and start the engine)
- ☑ Automatic data handshake between M-RX and the partner software
- ☑ The interface can be used in addition or in conjunction with the TDI-CAD-CAM



### topDRILL M-RX 130

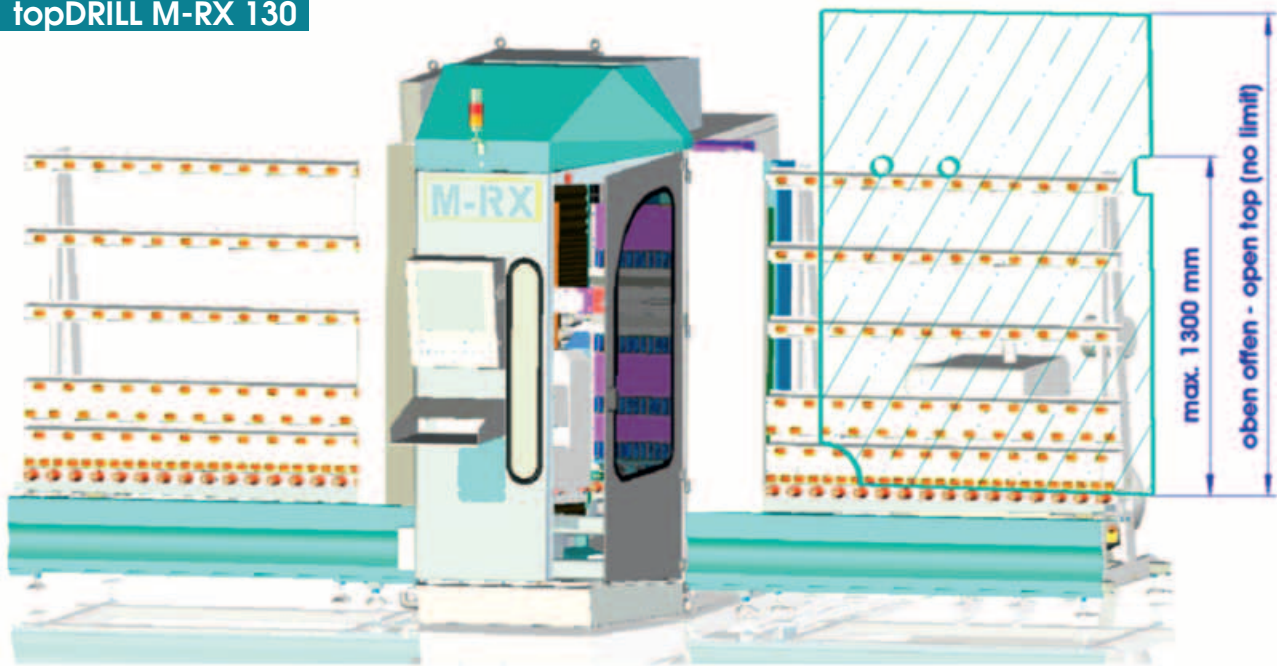


### topDRILL M-RX 200

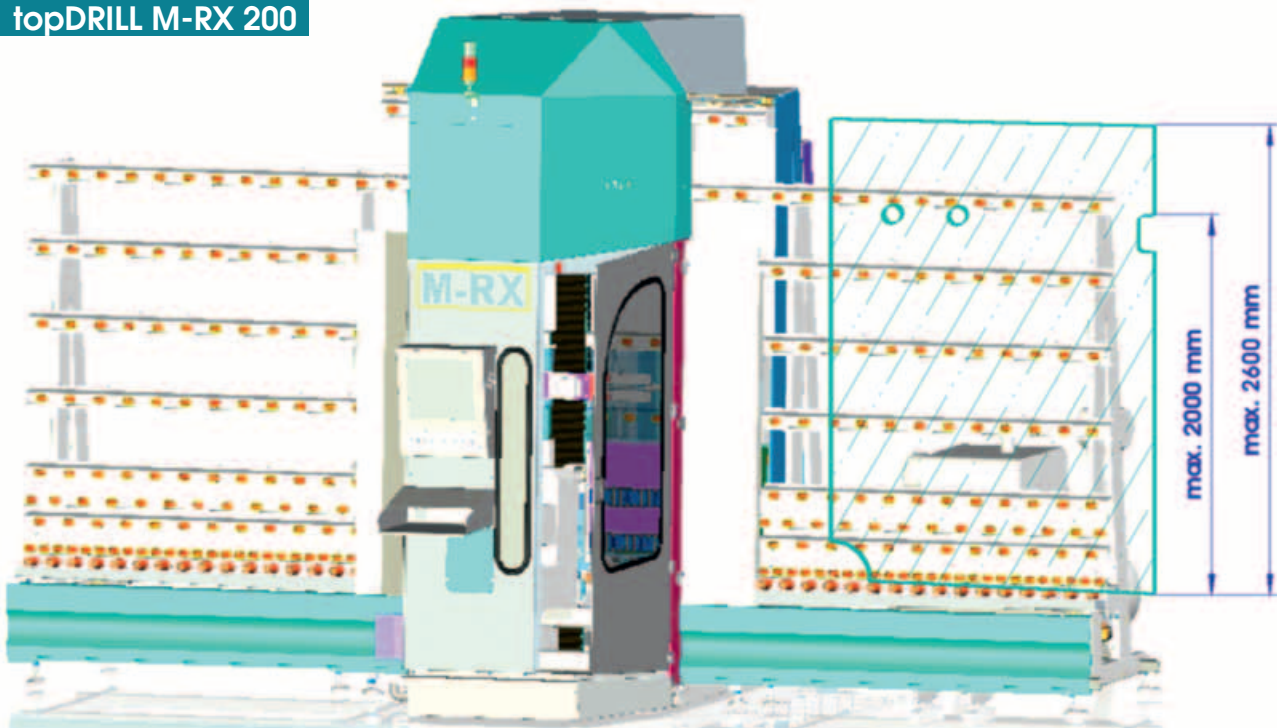




### topDRILL M-RX 130



### topDRILL M-RX 200



Video mit Präsentation:  
Video mit Produktion:  
Homepage:

[www.youtube.com/watch?v=smzNpW3rc5s](https://www.youtube.com/watch?v=smzNpW3rc5s)  
[www.youtube.com/watch?v=8h8SqZJ6Vtk](https://www.youtube.com/watch?v=8h8SqZJ6Vtk)  
[www.topdrill.com](http://www.topdrill.com); [www.schraml.com](http://www.schraml.com)



**Nothing is stronger  
than an idea whose time has come**

[www.topdrill.com](http://www.topdrill.com)