MOVING COLUMN VERTICAL MACHINING CENTER

ROMI **DCM 3000**

INNOVATION + QUALITY

ROMI: Since 1930 producing high technology.
Since its foundation, the company is recognized by its focus on creating products and innovative solutions which guarantees its technological leadership among big manufacturers of machine tools market. ROMI industrial complex is among the most modern and productive ones in the segments of machine tools, plastic processing machines and cast iron parts of high quality.

Continuous investments in Research & Development result in products with state-of-the-art technology.
The high technology applied to Romi machines offer highly reliable products, with high accuracy, efficiency and great flexibility for several types of machining processes.
Romi R&D is focused on increasing competitiveness for its customers.

Present throughout Brazil and in over 60 countries.
Romi covers all domestic territory through its sales subsidiaries network fully prepared to support customers supplying an extensive range of services from marketing to after sales.
International market is covered by its subsidiaries located in United States, Mexico and Europe and also by its dealers network located in strategic logistic centers around the globe completely capable for serving customers in 5 continents.

Final assembly
of machine tools

ROMI **DCM 3000**

| ROMI DCM 3000

Flexibility for machining long and heavy parts with high geometric precision.

The moving column vertical machining center ROMI DCM 3000 provides an efficient answer for a wide range of manufacture requirements.

Equipped with fixed working table, allows machining long and heavy parts without any changes of machine geometrical accuracy, due to robust structure that offers excellent efforts and vibrations absorption. Thanks to the concept of fixed bed the machine provides great ease for hydraulic and pneumatic devices applying.
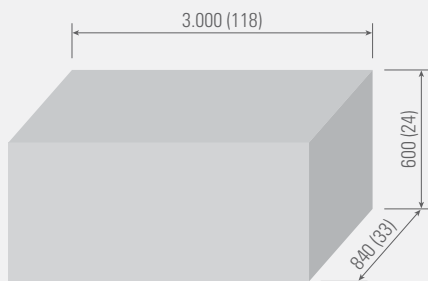
Flexibility for machining aerospace and railway components, large machines structures, etc.

- Headstock: 6.000 rpm
- Spindle taper: ISO 40
- Main motor: 30 hp / 22 kW
- 40 tools capacity magazine
- Fixed table: 3.200 x 840 mm (126 x 33")
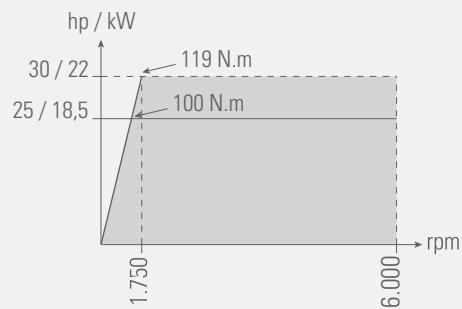- CNC: Siemens Sinumerik 828D
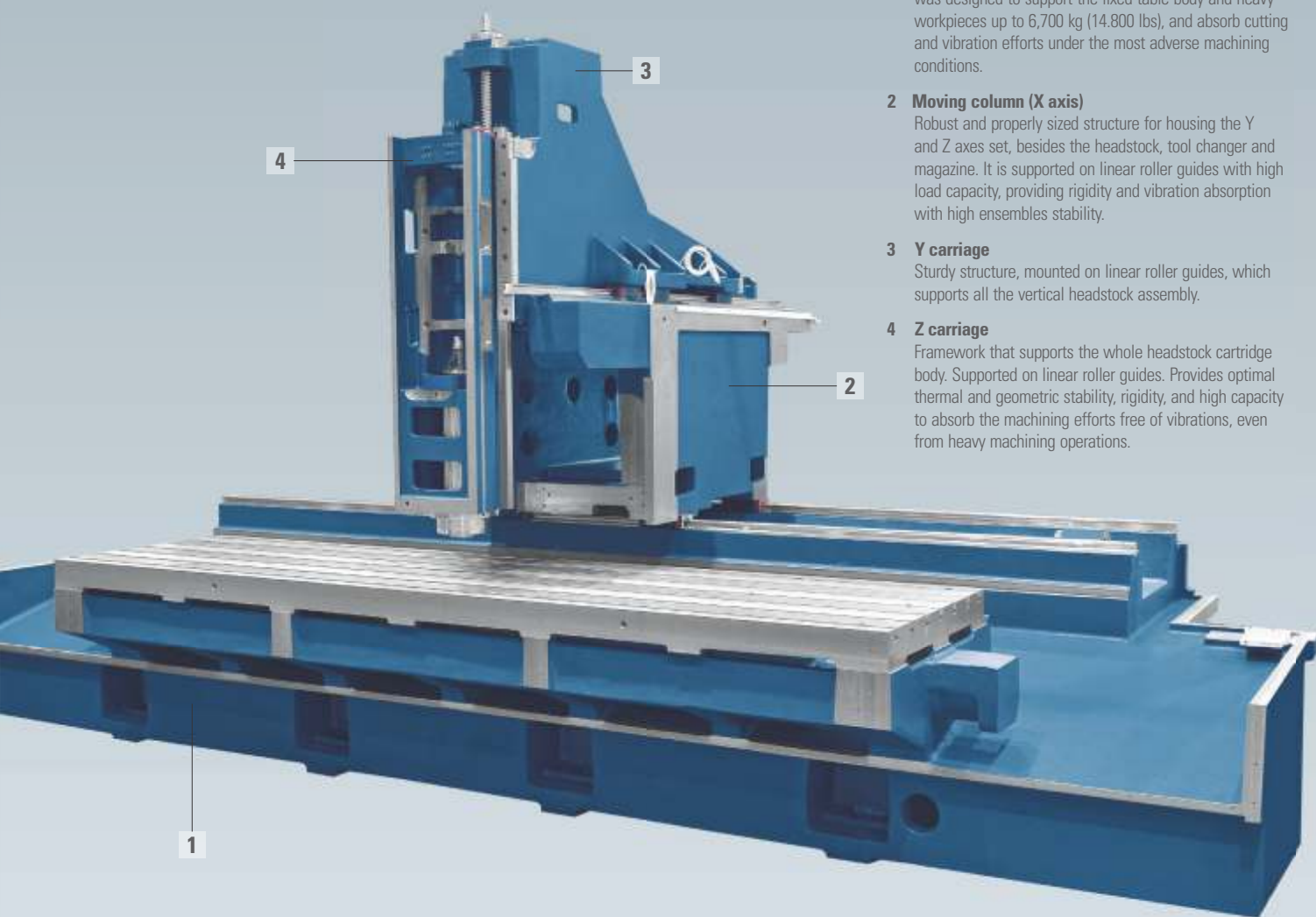
ROMI **DCM 3000**

Travels

3.000 (118)

600 (24)

840 (33)

Dimensions in mm (in)

Power Graphs

hp / kW

30 / 22 — 119 N.m

25 / 18,5 — 100 N.m

rpm

1.750

6.000

⬚ Intermittent regime S6 - 60% - 10 min   ☐ Continuous regime

1 Base with fixed table
Wide monobloc structure, cast iron constructed, that houses the table and the moving column set. Its structure was designed to support the fixed table body and heavy workpieces up to 6,700 kg (14.800 lbs), and absorb cutting and vibration efforts under the most adverse machining conditions.

2 Moving column (X axis)
Robust and properly sized structure for housing the Y and Z axes set, besides the headstock, tool changer and magazine. It is supported on linear roller guides with high load capacity, providing rigidity and vibration absorption with high ensembles stability.

3 Y carriage
Sturdy structure, mounted on linear roller guides, which supports all the vertical headstock assembly.

4 Z carriage
Framework that supports the whole headstock cartridge body. Supported on linear roller guides. Provides optimal thermal and geometric stability, rigidity, and high capacity to absorb the machining efforts free of vibrations, even from heavy machining operations.

STRUCTURE

Machined parts examples
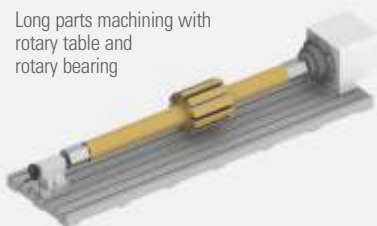

Heavy and large parts machining
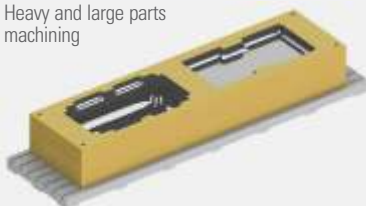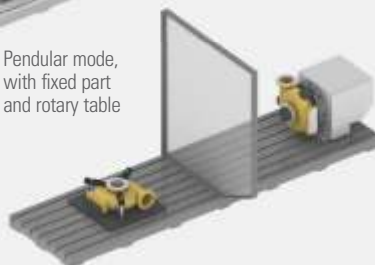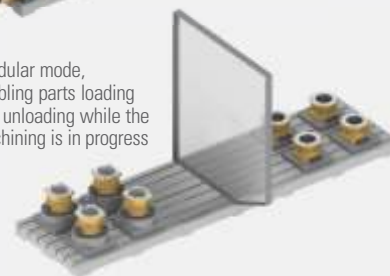
Various parts machining

Long parts machining

Long parts machining with rotary table and rotary bearing

Pendular mode, with fixed part and rotary table

Pendular mode, enabling parts loading and unloading while the machining is in progress

Headstock

Robust cartridge with spindle supported on high-precision bearing. Allows high speeds, ensuring performance even under severe cutting conditions. Shows excellent running accuracy, with minimum temperature rise of bearings, even when operating in continuous regime at high rpm.

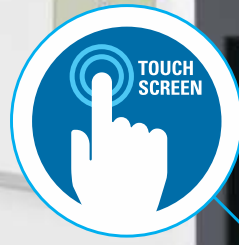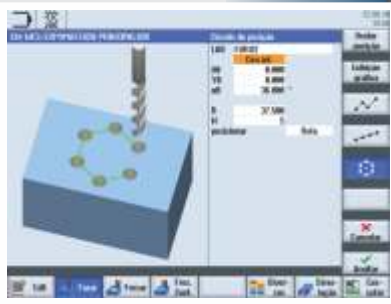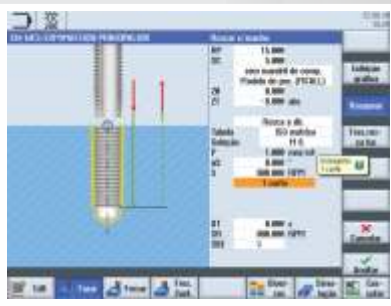# **TOOL** CHANGER

Efficiency and productivity

Double arm automatic tool changer, fast, accurate and reliable, which increases productivity and gives machining efficiency.
Magazine prepared for tool shanks BT / BBT 40, up to 40 tools capacity, where all the mechanical assembly is built into the column, near the spindle, bringing as benefit minimized changing times.

CNC

Technology, performance and reliability

The moving column vertical machining center ROMI DCM 3000 is equipped with CNC Siemens Sinumerik 828D, which offers the user great facilities for programming.

CNC Siemens Sinumerik 828D

- 15" LCD color touchscreen
- Interfaces: USB port and ethernet interface
- Function Advanced Surface that allows the machine work with precision and smooth motion at high feed rates in the axes, allowing a better surface finishing of machined parts, in shorter time and with high finish machining quality in comparison to conventional machining processes.

Standard equipment

- Headstock with BT40 / BBT40 interface
- CNC Siemens 828D with 15" color touchscreen
- Fully enclosed splash guard
- Complete documentation for ROMI product
- Electrical installation available for the following voltage/frequencies: 380VCA / 50-60Hz
- Set of levelling
- Main set of wrenches for machine operation
- Sealed worklight
- Pendant type MPG and JOG function control
- Standard colors: Texturized Epoxy Enamel Munsell Blue 10B-3/4 and Texturized Epoxy Gray RAL 7035
- Main and Maintenance doors with electrical safety switch
- Preparation for coolant system for thru spindle (no pump included)
- Protections cleaning system
- Automatic lubrication system with line filter and oil level sensor
- Cooling system for external cutting (by Eyelet and flexible terminal) with pump of 7 bar
- Locking tool system (high retention tool clamping force) of 10 kN
- Complete hydraulic and pneumatic systems
- 40 tools (BT/BBT 40) arm-type automatic tool changer
- Guia linear de rolos nos eixos X e Y
- Painel elétrico com climatização centrífuga e pressão positiva

Optional equipment

- MT-3 center for rotary table (A)
- Longitudinal Drag belt external chip conveyor (TCA) ou Longitudinal Hinged belt external chip conveyor (TCE) and coolant tank 750 liters capacity integrated (optional mandatory to select)
- Anchor bolt (anchor bolt, leveling screws, nuts and washer)
- Auto power off (B)
- Central division for double workspace
- 6 M codes for external automation interface (3 independents outputs - 3 Ms Code Enable and 3 Ms Code Disable)
- Interface for 1 or 2 rotary table MGR 400
- Indexing tables interface
- Interface for 2 (two) indexing tables
- Status light indicator
- Indexing table (C)
- Indexing table - A1/A2 (D)
- Indexing tables and manual tailstock (C)
- Rotary table MGR 400 (A)
- Rotary table MGR 400 and manual tailstock (A)
- Rotary table MGR 400 - A1/12 (E)
- Ø 250mm or Ø 400mm universal chuck for MGR 400
- Universal chuck for Ø 400mm indexing table
- Automatic door electronic sensor security system (also apply to machines with central division for double workspace) (B)
- Measure and inspection of parts system Mida WRS, with WRP60 probe, receiver radio WRI, ceramic probe with ruby tip (B) (F) (G)
- Kit spindle taper BT40, DIN40 or CAT40
- Preset of tools with sensor TS30 (G)
- Double Filter for smoke according large workspace (H)
- Oil skimmer
- Double mist exhausting system (B) (I)
- Air conditioning for electrical cabinet (required if plant temperature exceeds 38ºC)
- Autotransformer - 200 to 250VAC / 50-60Hz or 360 to 480VAC / 50-60Hz
- Start cicle button out from HMI
- Electronic interface (J)
- Wash gun with additional pump
- Pneumatic chip cleaning system during machining process
- Coolant system for thru spindle 20bar or 70bar with filtering system (K)
- Linear scale for X, Y and Z axis
- 40 tools CAT 40 or DIN 40 arm-type automatic tool changer - in place of standard
- Extra set of operating, maintenance, programing, instalation and parts manuals
- Remote diagnosis interface

Technical specifications — ROMI DCM 3000

Vertical headstock		
Spindle taper	ISO	40
Speed ranges	rpm	6.000
Feeds		
Rapid traverse (X / Y axes)	m/min (in/min)	30 (1.181)
Rapid traverse (Z axis)	m/min (in/min)	24 (945)
Max. programmable cutting feed	mm/min (in/min)	15 (0,59)
Travels		
Superior table travel (X axis)	mm (in)	3.000 (118)
Inferior table travel (Y axis)	mm (in)	840 (33)
Headstock travel (Z axis)	mm (in)	600 (24)
Distance from spindle nose to table	mm (in)	120 to 720 (4,7 to 28)
Table		
Surface	mm (in)	3.200 x 840 (126 x 33)
T-slot width x distance	mm (in)	18 x 120 (0,71 x 4,7)
Number of T-slots	un	7
Max. admissible weight on table for square meter	kg/m^2	2.500
Max. weight on table (uniformly distributed)	kg (lbs)	6.720 (14.800)
Automatic Tool Changer		
Tools capacity	un	40
Max. tool diameter	mm (in)	80 (3,1)
Max. tool diameter when adjacent stations are empty	mm (in)	120 (4,7)
Max. tool lenght	mm (in)	300 (11,8)
Tool holder type	type	BBT / BT / CAT / DIN
Max. tool weight	kg (lbs)	8 (18)
Max. tool weight on magazine	kg (lbs)	160 (353)
Installed power		
AC main motor (continous rating)	hp / kW	30 / 22
Total installed power	kVA	50
Dimension and weight (approx.) (*)		
Height	mm (in)	3.345 (132)
Area (front x side)	mm (in)	6.060 x 3.345 (239 x 132)
Net weight	kg (lbs)	20.000 (44.093)

(*) Without chip conveyor

(A) Mandatory the sale of the accessory "Rotary table interface".
(B) Mandatory the sale of the accessory "Electronic Interface".
(C) Mandatory the sale of the accessory "Indexing tables interface".
(D) Mandatory the sale of the accessory "Interface for 2 (two) indexing tables".
(E) Mandatory the sale of the accessory "Interface for 2(two) rotary table MGR 400"
(F) Mandatory sale of one kit according to spindle nose.
(G) Mandatory the sale of the software "Measuring Cycles for drilling / milling (T45822)"
(H) Mandatory the sale of the accessory "Mist exhausting system".
(I) Due to the large area of this machine is necessary to install 2 sets of "Mist exhausting system" for better efficiency.
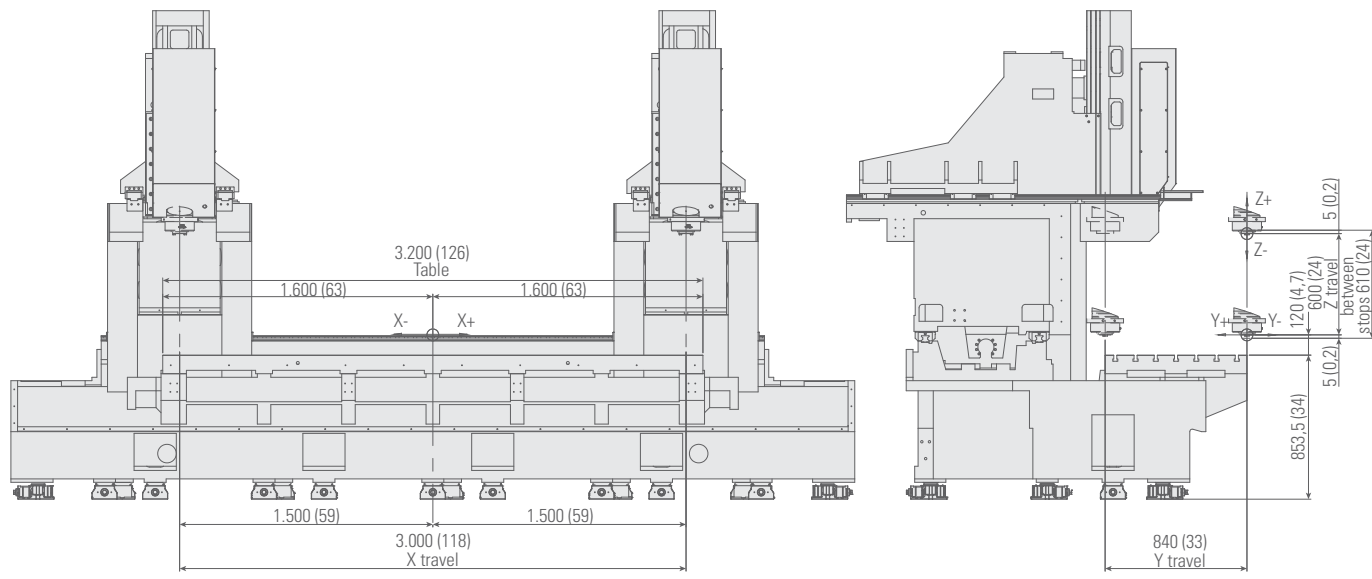(J) The sale of only one accessory "Electronic interface" covers the accessories: "Automatic door Measure and inspection of parts", "Interface hydraulic clamping device" and " Auto power off ".
(K) Cooling system equipped with backwashing filtering system that dispenses the filtering system role.
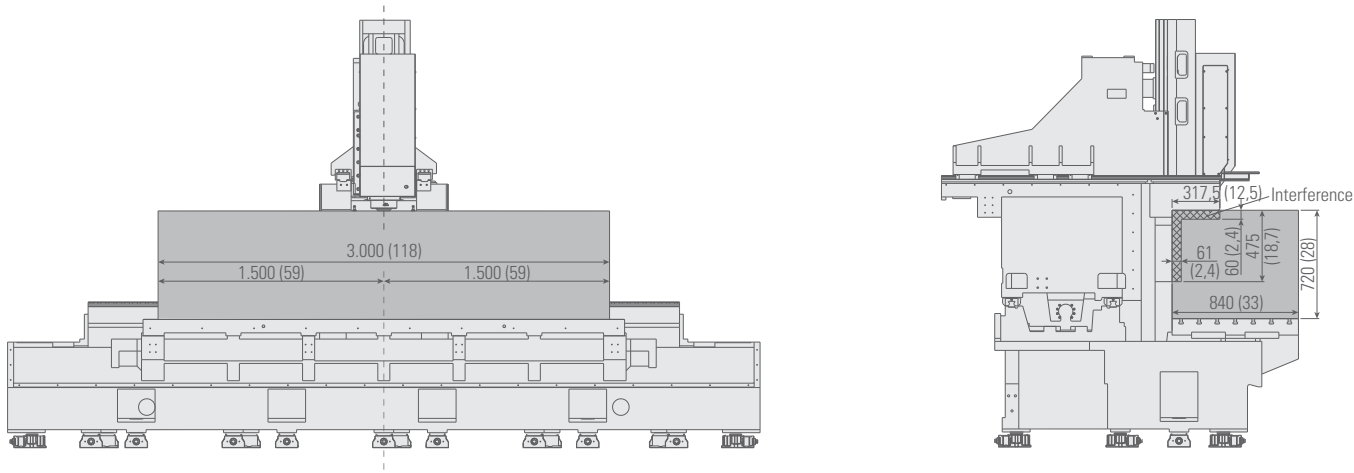
Work area layout - dimensions in mm (in)

3.200 (126)
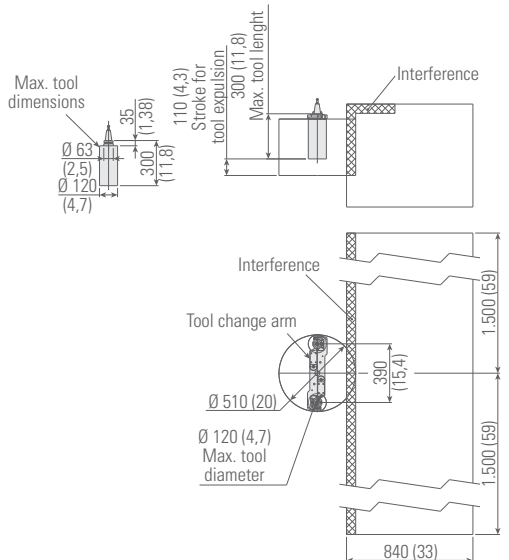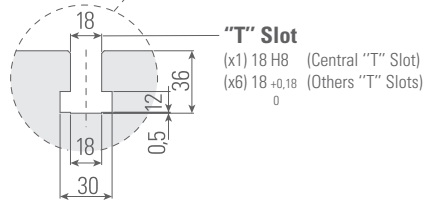Table

1.600 (63)   1.600 (63)

X-   X+

1.500 (59)   1.500 (59)

3.000 (118)
X travel

Front view

Z+
Z-
5 (0,2)

120 (4,7)
600 (24)
Z travel
between
stops 610 (24)

Y+ Y-
5 (0,2)

853,5 (34)

840 (33)
Y travel

Side view

3.000 (118)
1.500 (59)   1.500 (59)

Front view

317,5 (12,5) Interference
61 (2,4)
60 (2,4)
475 (18,7)
720 (28)
840 (33)

Side view

Max. tool
dimensions

35
(1,38)
110 (4,3)
Stroke for
tool expulsion
300 (11,8)
Max. tool lenght
300 (11,8)

Interference

Ø 63
(2,5)
Ø 120
(4,7)

Table dimensions - dimensions in mm (in)

840

60 120 120 120 120 120 120 60

18

"T" Slot
(x1) 18 H8   (Central "T" Slot)
(x6) 18 +0,18   (Others "T" Slots)
        0

36
12
0,5
18
30

3.200
840

Interference

Tool change arm

Ø 510 (20)

Ø 120 (4,7)
Max. tool
diameter

390
(15,4)

1.500 (59)

1.500 (59)

840 (33)

Work area layout - dimensions in mm (in) (A)

Front view

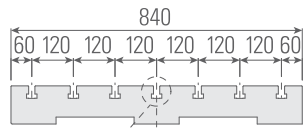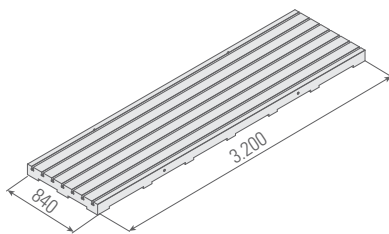Side view

Approximate internal volume of work area
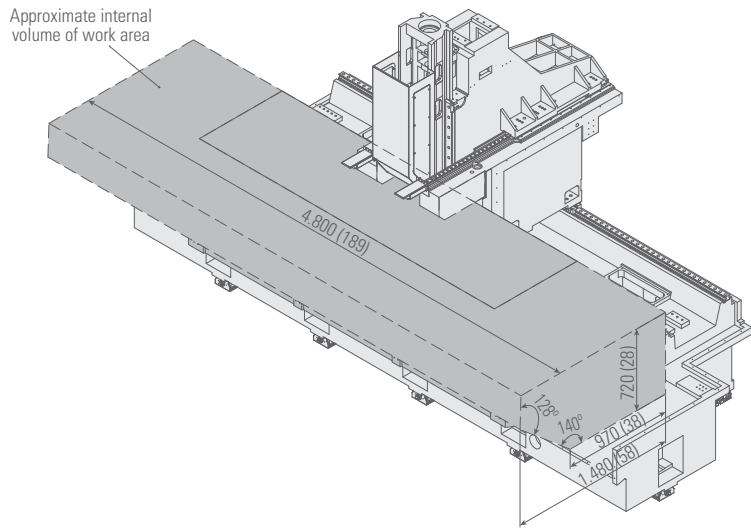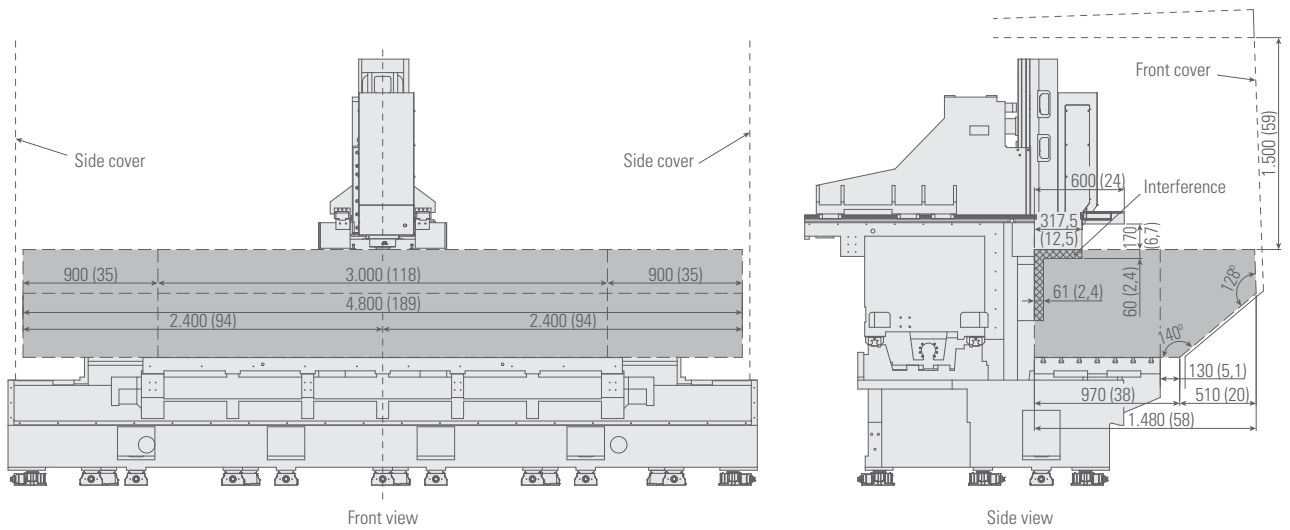
Work area layout - dimensions in mm (in)

Central division for double workspace (optional)

Work area "A"

Work area "B"

| Available travel 1.000 (39) | "Dead zone" 1.000 (39) | Available travel 1.000 (39) |

500 (20)   500 (20)
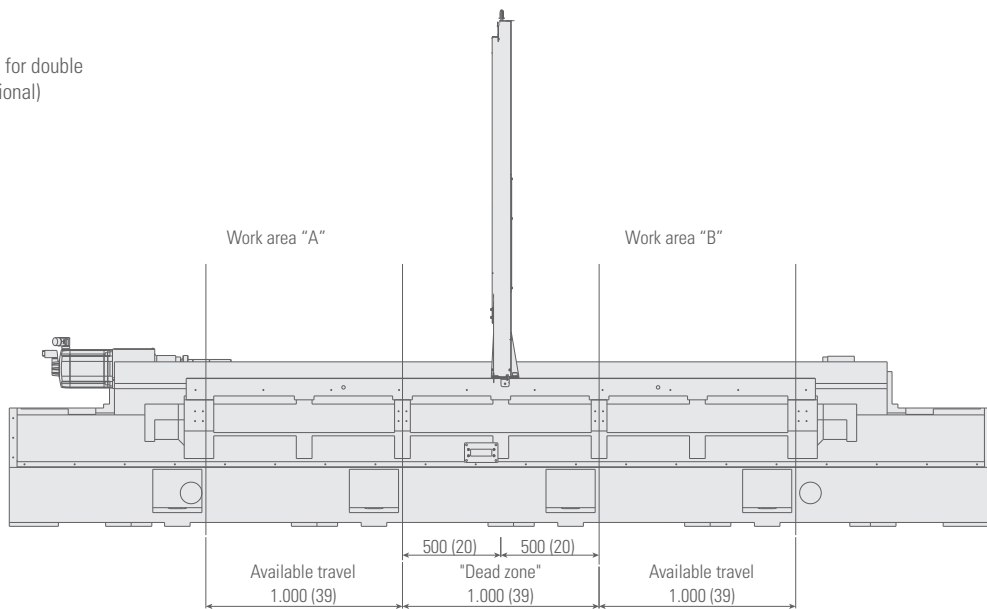
(A) This layout is valid only for machines without options.

Drawings are not in scale.

Front view

6.810 (268)
6.060 (239)
5.000 (197)

(*) Chip conveyor
+ coolant tank

797 (31)
462 (18,2)
1.200 (47)

Chip box
(not supplied for Romi)

1.150 (45)   1.150 (45)
2.300 (91)
Table 3.200 (126)

Superior view

Levelling screw for reference
1.886 (74)

(*) Clamping device hydraulic unit

Counterweight hydraulic unit
7.970 (314)

(*) Indexing table hydraulic unit

(*) Autotransformer

Levelling screw for reference

R130

(*) Thru spindle coolant system with 20 or 70 bar

R 325
R 900

1.065 (42) Max.
Max. 882 (35)
Min. 1.000 (39)

50 (2,0)

4.770 (188)

(*) Space for chip conveyor + coolant tank removal by front
1.550 (61)

2.400 (94)
Levelling screw for reference

Command panel

Space for chip conveyor + coolant tank removal by side
5.160 (203)

Right side view

Magazine charging station

Rear access door

Window

860 (34)

1.040 (41)

10 (0,39)   10 (0,39)
20 (0,79)

Left side view

(*) Filter for smoke

(*) Status light indicator

(*) Mist exhausting system

Electrical panel

3.345 (132)
3.505 (138)
3.935 (155)
4.160 (164)

2.375 (94)
2.100 (83)

1.040 (41)

837 (33)

110 (4,3)

(*) Optional equipment

Drawings are not in scale.

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Q ROMI | WWW.ROMI.COM

ROMI S.A.
Rod. SP 304, Km 141,5
Santa Bárbara d'Oeste SP
13459 057 Brazílie
+55 (19) 3455 9000

Burkhardt+Weber
Fertigungssysteme GmbH
Burkhardt+Weber-Strasse 57
72760 Reutlingen, Německo
+ 49 7121 315-0
info@burkhardt-weber.de
www.burkhardt-weber.de

ROMI Europa GmbH
Burkhardt+Weber-Strasse 57
72760 Reutlingen, Německo
+ 49 7121 315-604
sales@romi-europa.de
www.romi-europa.de

ROMI Machines UK Limited
Leigh Road
Průmyslový areál Swift Valley
Rugby CV21 1DS
+44 1788 544221
sales@romiuk.com
www.romiuk.com

ROMI en México
Condominio Parque Arista, Calle
Gral. Mariano Arista 54, bodega 19
Col. Argentina Poniente, Miguel Hidalgo
C.O. 11230, CDMX, México
+521 55 9154 5851
ventasmx@romi.com
www.romimexico.com

América Latina
+55 (19) 3455 9642
export-mf@romi.com

ROMI BW Machine Tools Ltd
1845 Airport Exchange Blvd
Erlanger KY – 41018 USA
+1 (859) 647 7566
sales@romiusa.com
www.romiusa.com

ROMI France SAS
Parc de Genève, 240
Rue Ferdinand Perrier 69800
ST Priest
+33 4 37 25 60 70
infos@romifrance.fr
www.romifrance.fr

ROMI Maquinas España
Calle Comadrán, 15
Pol. Ind. Can Salvatela
C.P. 08210 – Barberà del Vallès
+34 93 719 4926
info@romi.es
www.romi.es

ROMI Itália Srl
Via Morigi, 33 – 29020
Gossolengo (PC) – Itálie
+39 0523 778 956
commericale@romiitalia.it
www.romiitalia.it

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